Large Scale Impact of Embedded Early Childhood Programs: The Tayari Intervention

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Abstract:

A growing body of global research shows that Early Childhood Development and Education (ECDE) is important to improving outcomes such as learning in later grades and earning potential in adulthood. Kenya’s commitment to ECDE is apparent in the allocation of 26% of its national budget to Education. Demand for ECDE is growing in Kenya; net enrolments in ECDE centers increased from 33% in 2005 to 53% in 2012, an increase of 60%.

Despite increased access to ECDE centers, Grade 1 literacy acquisition results are no higher for those who attended an ECDE center (Piper & Mugenda, 2012). While 70% of public primary schools have an attached ECDE classroom, most ECDE teachers are trained in primary school methods only (Biersteker et al., 2008). As a result, the Kenyan government is focused on improving ECDE learning outcomes.

The Tayari programme, implemented by the Kenyan Ministry of Education, was designed to test the effectiveness of three different interventions to improve school readiness and determine which intervention was most likely to be successful at scale. The program is implemented at medium-scale through government officers so that any causal impact of Tayari could be scaled up nationally. The research design of Tayari includes 1734 schools in the three treatment groups and the control group, and will impact more than 120,000 pupils from 2016-218. The three treatment groups are described below.

Treatment 1: Training & Support

The Tayari training and support intervention will build on previously successfully implemented ECDE instructional interventions. These are the key elements in the Training & Support treatment group:

- DICECE training with tablets: DICECEs were trained to supervise teachers using tablets, and give monthly feedback to teachers implementing Tayari.

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1 Investing in young children: An early childhood development guide for policy dialogue and project preparation
2 Kenya budget guide 2014/2015
3 Educational for All 2015 National Review: Kenya
• Enhanced teacher training: DICECEs train the teachers in their zones on how to improve the quality of their instruction across subjects. This training will relate to how to increase active learning, and to increase the usage of interactive methods, including expanded teaching aids.

**Treatment 2: Training, Support and Materials**

Treatment 2 will be similar to Treatment 1 in providing DICECEs with the same number of days of training and tablets used for providing instructional support to teachers. However, unlike Treatment 1, the Treatment 2 observational tool provides feedback to teachers on using Tayari instructional materials. Treatment 2 has the following elements:

- DICECE training with tablets: This is similar to Treatment 1
- Teacher training: This is similar to Treatment 1 in the number of days and the style of training but will focus on using the Tayari provided materials.
- Books & Teachers’ Guides: Each pupil in Treatment 2 will receive low-cost instructional materials at a 1:1 ratio and the teachers will have teachers’ guides matched to the day’s lesson.

**Treatment 3: Training, Support, Materials and Health**

Treatment 3 has the same design as Treatment 2, including the training, materials and teachers’ guides. Treatment 3 also includes a health intervention that links the Tayari intervention to the community health system for intervention and follow-up, with particular support for hand-washing and other sanitary classroom and school practices. Treatment 3 has the following characteristics.

- DICECE training with tablets: This is the same as Treatment 1 and 2
- Teacher training: This is the same number of days as Treatment 1 and 2 and follows the exact same practices as in Treatment 2
- Books & Teachers’ Guides: This is the same as in Treatment 2
- Support for the Community Health system at ECDE centers: The Tayari programme will provide ongoing training for community health volunteers assigned to particular ECD centers. In addition, Treatment 3 provides a data collection tool for community health workers, who will also support ECDE centers to improve health practices, with particular emphasis on handwashing using soap or ash.

**Research Design**

Tayari uses a randomized controlled trial design. Clusters of schools called zones or wards in the Kenyan system were selected for the study and assigned to one of the three treatment groups or a control group. The baseline assessment assessed children in the randomly assigned treatment and control groups in January 2016 and showed low school readiness results (Kwayumba & Piper, 2016). Our proposed paper will present findings from the impact of Tayari on school readiness from the assessment in October 2016, as these pupils are finishing one academic year of Tayari intervention.

**Study tools**
The Tayari impact study utilized a set of tools called the MELQO, which has been developed by UNESCO, the World Bank and several international organizations, and adapted to the Kenyan context by local education experts. The items included in the tool cover socio-emotional skills, executive function, persistence, self-regulation and emerging literacy and numeracy skills. Kenya has set a benchmark of outcomes that they call school readiness, and the Tayari program will be assessed on impact on these outcomes as well as the overall level of school readiness. Data was collected electronically on tablets using the Tangerine data collection tool.

**Identification strategy**

Short term impacts of the three Tayari improvement models will be identified by comparing data collected at baseline (January 2016) and at midline (October 2016). Due to the random assignment into the treatment and the control, the causal impact of the three improvement models on school readiness can be identified by testing the difference in the mean school readiness score between the treatment and control groups using a differences-in-differences identification strategy. A similar assessment methodology was utilized in previous research implemented in Kenya’s urban areas.

**Implications**

The Tayari program is one of the largest RCTs assessing the impact of ECD investments in developing countries. We will present results on the relative impact of each of the three treatment groups and the developmental pathways of the longitudinal sub-sample of learners followed by the project. These results will be evaluated carefully by the Kenyan government to determine whether additional resources should be allocated to scale the program to a national level.