

Building Self-Efficacy and Literacy through Edutainment

Experimental Evidence from Kenya



Abstract



Although access to primary education has increased in recent decades, the “learning crisis” continues to prevail. This was exacerbated by the COVID-19 pandemic, widening the learning gap for communities on the margin. In this context, educational technology (EdTech) could play an important role in bridging the educational gap. EdTech has the power to reach communities through simple, low-cost solutions, and could make learning relevant and fun. With Ubongo, we explored the possibility of combining evidence and good old storytelling that is rooted in African experiences to bring quality learning to children’s homes.

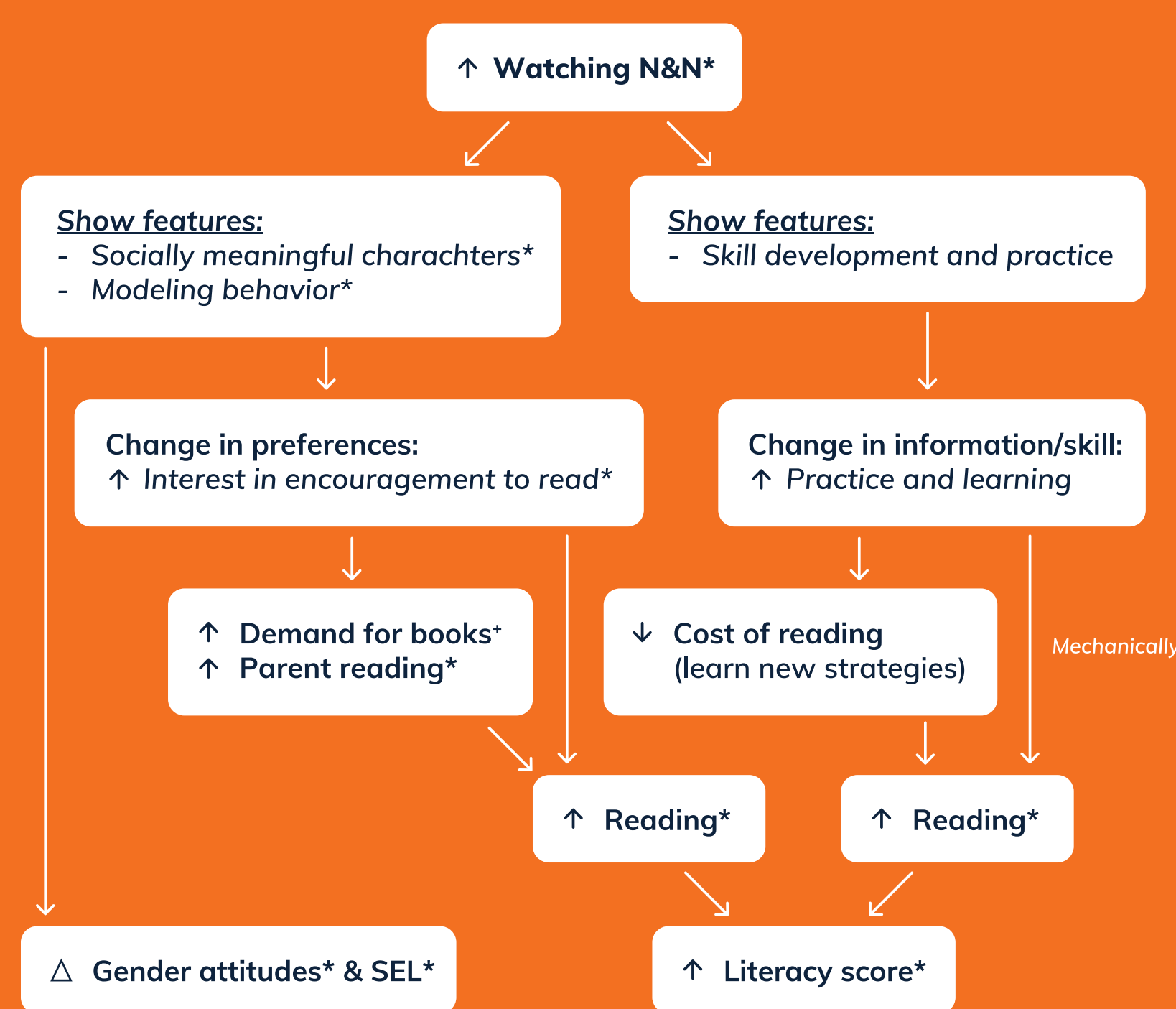
We unpack the findings from a randomized controlled trial in Kenya that explores how contextual storytelling and effective demonstration of learning strategies could potentially build confident and curious readers.

The Intervention



The Nuzo and Namia show caters to 6-9-year-old children with the aim of improving literacy, social-emotional learning, and gender attitudes. The plot revolves around 2 protagonists, Nuzo and Namia, as they meet with different African characters at different moments throughout history. By interacting with the protagonists, viewers see and hear the protagonists model key strategies in **comprehension, social-emotional learning, and progressive gender attitudes.**

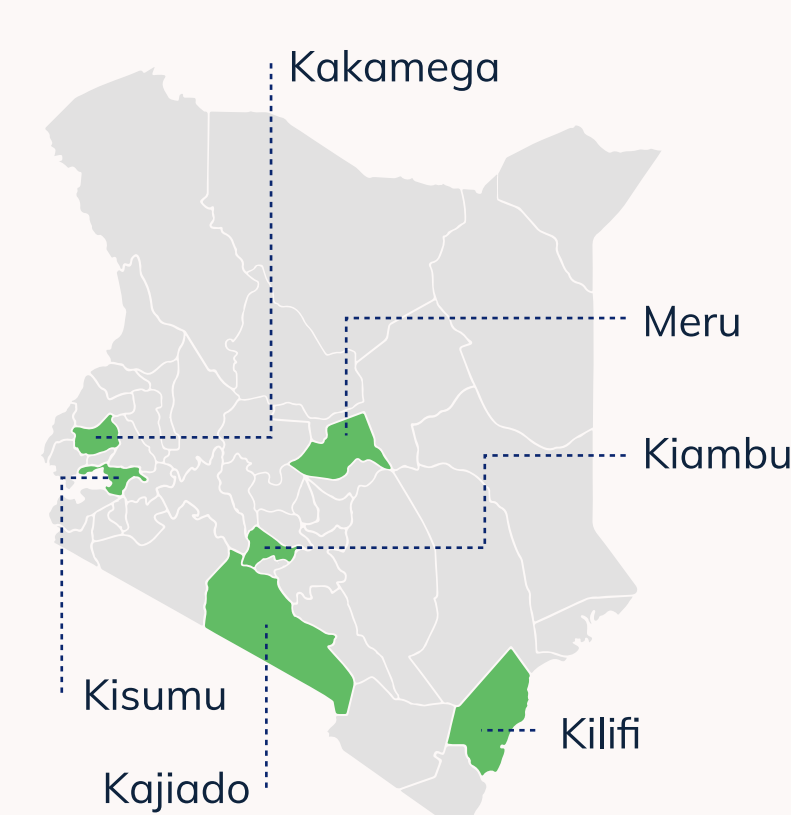
Research Hypothesis



Materials and Methods

Where did we conduct the study?

6 counties across Kenya forming a representative sample



345 Public schools

Randomized at the school level to manage spillovers

Who participated?

Baseline 4373 children
Endline 3673 children

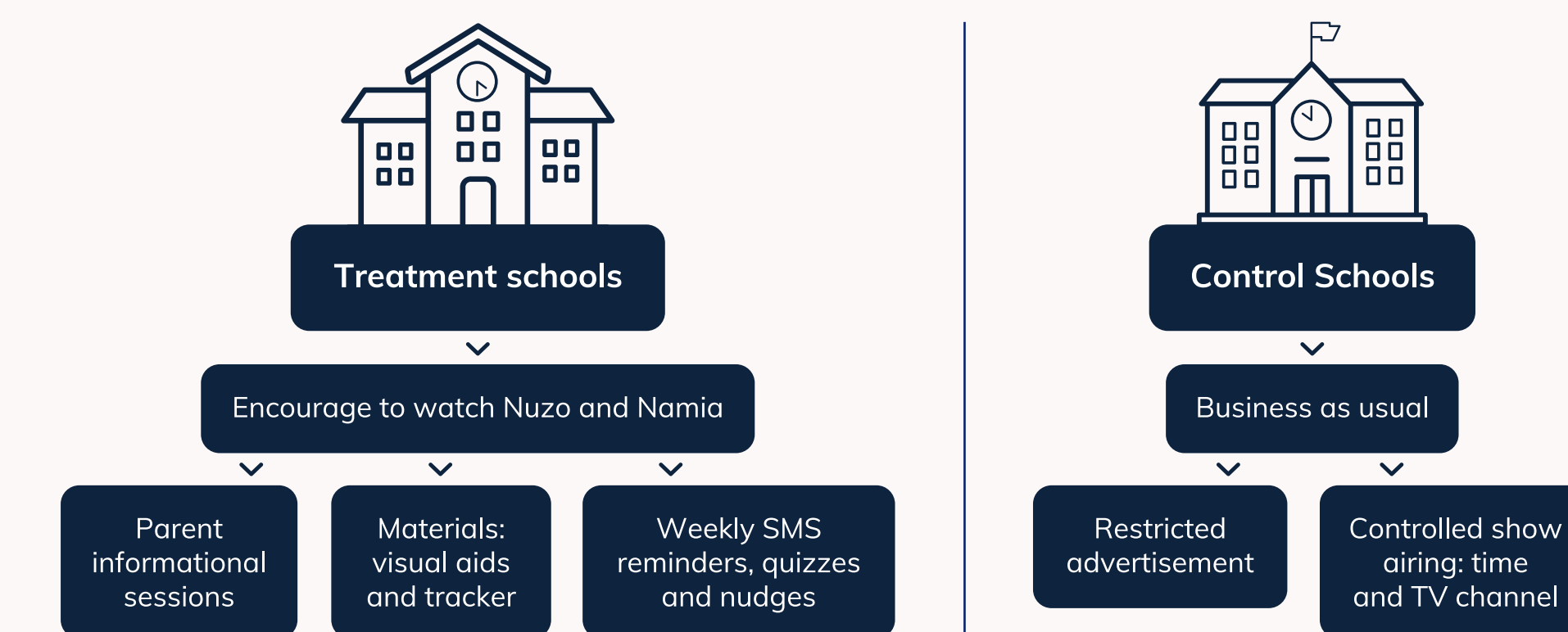


Grades 1-3
Ages 6-9

Attrition 16%

Method: Sample was selected based on asset ownership rates across catchment areas of a school. We followed a **multivariate stratified quadruple matching** approach to identify the sample.

How did we create a pure treatment and control group for a free-to-air broadcast show?



How did we collect our data?

1 Baseline | 2 Endline

3 Supplementary qualitative study conducted to gather observational data on pedagogical elements used in the show

4 Weekly SMS quiz data from treatment households during intervention administration

Findings



General ITT results

- Using an Intent-to-Treat (ITT) analysis approach, we find a positive and significant impact on SEL and gender attitudes.
- We find no statistically significant impact on the literacy index.

Impact on non-cognitive learning outcomes

- The **gender role** sub-item looks into the behaviors of the children. It asks the question: **do children exhibit positive gender behaviors through their actions as a result of watching Nuzo and Namia?** We find that the show has been able to positively influence actual behaviors towards a more progressive gender outlook.
- We observe a positive impact on **curiosity** towards reading amongst children as a result of watching the show. This affirms our hypothesis that **mimicking positive behaviors over time and cultivating a curiosity for reading might lead to gains in literacy over time.**

Learnings and Recommendations

Learning outcomes: Edutainment can be effective in impacting non-cognitive learning domains such as social-emotional learning and gender attitudes and the results reinforce difficulties in promoting learning in cognitive domains such as literacy.

Language: Such programs might be more beneficial in impacting **decontextualized language skills** in literacy that overlap across languages, such as inference and prediction. Oral fluency is language-specific and may be best taught through mediators such as a teacher.

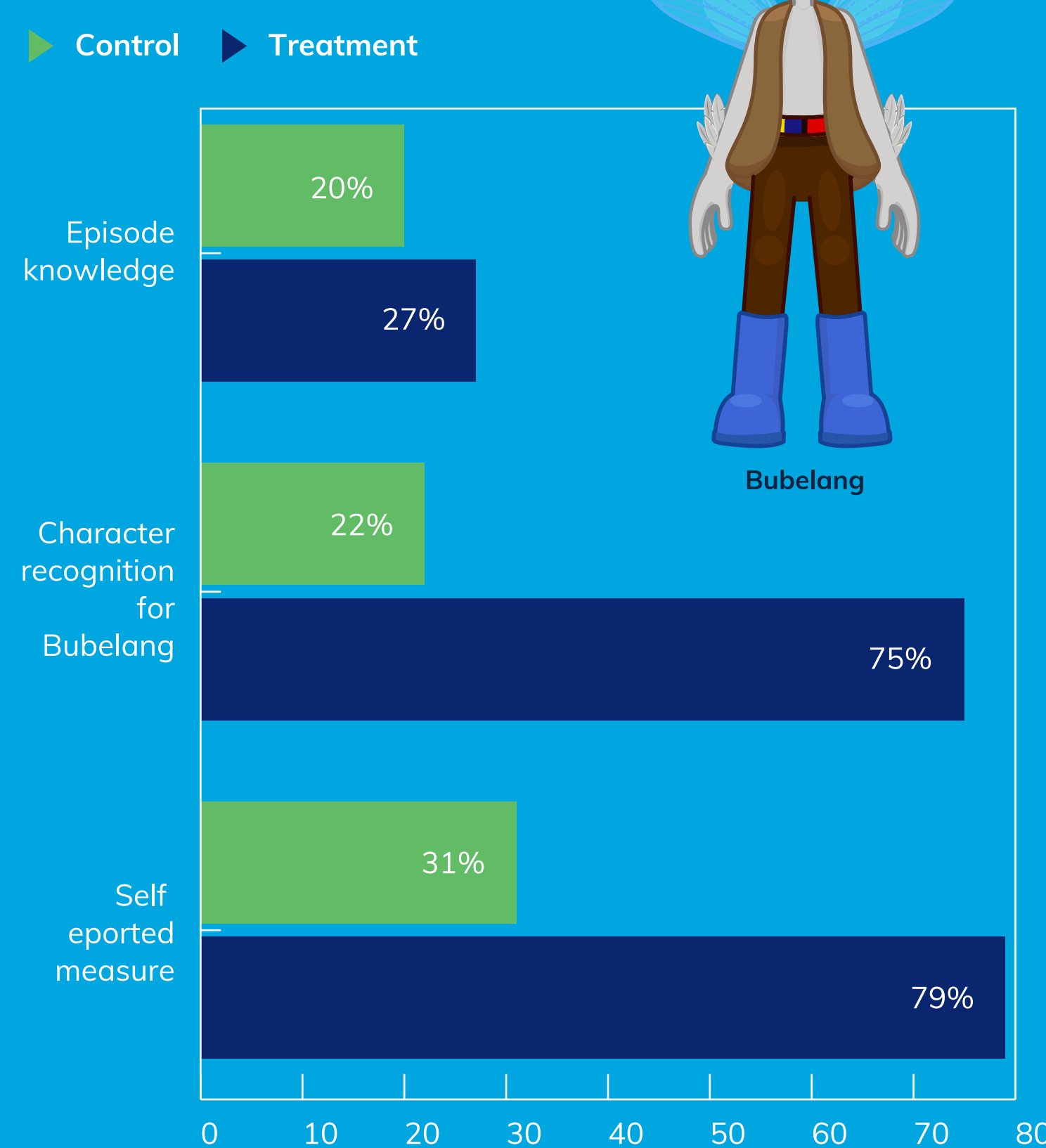
Government partnerships: Could the Nuzo and Namia show complement traditional teaching practices with teachers as important mediators? The government should be invested early enough in the design and implementation process to examine school-level effects.

Research-practice partnership: Using data iteratively to inform programming and research design is crucial.

Technological investment: Interventions such as these require a significant amount of planning and resources and can be incredibly time-consuming, causing delays in production.

Compliance

Compliance estimates for Nuzo and Namia show



	(1)	(2)	(3)
Panel A: Effects on Primary Outcomes			
Literacy Index	0.0279 (0.0441)	0.0320 (0.0414)	0.0270 (0.0398)
Gender Index	0.0101 (0.0058)	0.0105* (0.0051)	0.0106* (0.0050)
SEL Score	0.3446* (0.1719)	0.3182 (0.1705)	0.2981 (0.1706)
Panel B: Effects by cognitive domain			
Reading Fluency Index	0.0011 (0.0425)	0.0001 (0.0387)	-0.0043 (0.0376)
Comprehension Score	0.2319 (0.1956)	0.2717 (0.1899)	0.2546 (0.1801)
Panel C: Effects by non-cognitive domain			
Gender Stereotype Score (mean)	-0.0037 (0.0082)	-0.0045 (0.0079)	-0.0033 (0.0078)
Gender role score	0.4352 (0.2378)	0.4367* (0.1980)	0.4473* (0.1963)
In-group attitude score	0.1790 (0.2532)	0.0808 (0.1324)	0.0931 (0.1320)
In-group activity score	0.1458 (0.3137)	-0.0402 (0.1817)	-0.0285 (0.1833)
Confidence score	0.0947 (0.0912)	0.0724 (0.0909)	0.0693 (0.0914)
Curiosity score	0.2543* (0.1013)	0.2518* (0.0997)	0.2355* (0.0987)
School Quadruple Fixed-Effect	Yes	Yes	Yes
Baseline Outcome Control	No	Yes	Yes
Stratification Variable Control	No	No	Yes

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