

KCPE Symposia Evaluation Memo

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Introduction

Receiving a secondary school education can be life changing for a Kenyan student. In fact, researchers have found that secondary school attendance improves Kenyan pupils' cognitive abilities, employment prospects, wagesⁱ, and probability of avoiding teen pregnancy.ⁱⁱ Entry into one of Kenya's more prestigious national schools further increases students' chances of success in university and on the labor market.ⁱⁱⁱ However, whether students attend secondary school and the type of school they attend has, in large part, historically been determined by student performance on the mandatory national primary school exit exam, the Kenyan Certificate of Primary Education (KCPE), taken at the end of 8th grade. Competition for seats in secondary schools can be tough given the high value of quality secondary schooling in this context and the limited number of available spots at the national schools. Therefore, students, parents, educational providers, and policymakers all have an interest in ensuring students are well-prepared for this exam.

Bridge International Academies ("Bridge")—an organization that seeks to expand access to quality schooling through the operation of a network of low-fee schools in Kenya and other developing countries—provides academic camps called "symposia" as one part of their strategy to prepare students for the KCPE and beyond. We partnered with Bridge to rigorously evaluate the effect of symposia participation on KCPE performance and describe our study and results below.^{iv} While we do not find dramatic improvements for participating students on average, we do find that the symposia led to large positive gains for students from schools that nominated very few students to the programs. We provide suggestive evidence that the impacts are larger for this group of students due to their more limited exposure to pre-symposia KCPE preparation resources.



Symposia

The week-long overnight symposia were held in the city of Nakuru between September and October of 2018. Students were in groups of at most 20 students, with one teacher for every 10 students. The students had six full days of instructional activities focused on the five subjects tested on the KCPE: English, Kiswahili, math, science, and social and religious studies. Students also engaged in recreational activities outside of class.



Evaluation approach

Experimental design

We evaluated the symposia using a "randomized controlled trial" (RCT) or "experimental design." An RCT splits a sub-sample of the target population, in our case high performing 8th grade students enrolled in Bridge schools in Kenya, and randomly assigns them to either a "treatment" (symposia) or "control" group (no invitation to symposia). Because students were randomly assigned to one of the two groups, they are identical, on average, in all ways (even on unobservable dimensions) except for the offer of a seat at a symposium. Therefore, any differences in final KCPE scores that we observe between the two groups can be attributed to the symposia treatment itself. If the symposia indeed had a positive effect, we would expect to see significantly higher KCPE scores for the treatment group than the control group. RCTs are the gold-standard in program evaluation, considered the most unbiased way to isolate the causal effect of a policy or program on the people it intends to serve.

Sample

Bridge nominated 957 students to participate in symposia who they believed would benefit most from the extra preparation, in terms of the likelihood of earning a high enough score on the KCPE to not only be guaranteed entry into secondary school but also a spot in one of the national schools. Therefore, Bridge nominated the top 25% of 8th graders across their network based on performance on Bridge-administered practice KCPE exams. Half of the nominated students were then randomly selected to receive an invitation to attend a symposium and the other 478 students served as the control group. Of students that were invited to the symposia, 96% actually attended the camps, which is a very high compliance rate for this type of study and makes the interpretation of our results more straightforward. In other words, our main findings do not change even when accounting for the fact that not all students who were invited attended. The control group students attended classes as usual back in their regular schools during the weeks when the symposia occurred. Therefore, we estimate the effect of attending a symposium relative a typical week of school

Results

We do not find that the symposia **on average** had dramatic effects on student KCPE performance. For the average participating student, the symposia had a small positive impact of 1.2 points on a scale of zero to 500, but this effect did not achieve statistical significance. In other words, it is possible that this small effect was due to chance alone rather than the program itself. However, we do find **that some students benefitted greatly from participating in the symposia**. Specifically, students attending schools from which very few (three or fewer) students were nominated for the symposia programs. Students from these “low-representation schools” on average gained 12.8 points on the KCPE, more than **10 times the average gains for all students** and roughly the equivalent of moving 5.6 percentile points up in the full national distribution. As we show in Figure 1, these students saw gains on their overall KCPE scores and each subject. Furthermore, symposia also increased the probability that students from low-representation schools scored high enough (300 points or more) to be considered for the national schools by 9 percentage points (see Figure 2). Based on previous research, the size of these gains is consistent with a 3.8 percentage point increase in the probability of finishing secondary school years down the road.²

We find suggestive evidence that the reason we see these larger effects for students from low-representation schools is because **these students had less access to pre-symposia KCPE preparation resources**. Anecdotally, we had learned from program administrators that some communities surrounding Bridge schools have greater access to KCPE exams from prior years and families are more likely to circulate them among their students for practice. Indeed, we find that among the control group members who were unaffected by symposia, students from the low-representation schools had scores on Bridge-administered pre-symposia practice KCPE exams that were more similar to their final KCPE exam scores than students from higher-representation schools. One plausible explanation is that the pre-symposia practice exams were a noisier measure of true KCPE content mastery for the students who had greater access to test preparation materials because they may have seen the same KCPE test questions multiple times.

Conclusion and recommendations

This study illustrates that, when effectively targeted, symposia can be a powerful tool to help students meaningfully improve their KCPE performance and gain consideration for a spot in a national school. The size of the gains among students from low-representation schools relative to the program expenses puts the program’s cost-effectiveness on par with cost-benefit ratios for other similar educational interventions in developing contexts including Kenya and India^{v,vi}. The cost effectiveness is especially impressive considering that the program is only a week long. Given the stakes associated with secondary schooling in the Kenyan context, this is good news for Bridge students.

Figures

Figure 1: The effect of symposia on KCPE scores, overall and separately for students from low- and higher-representation schools

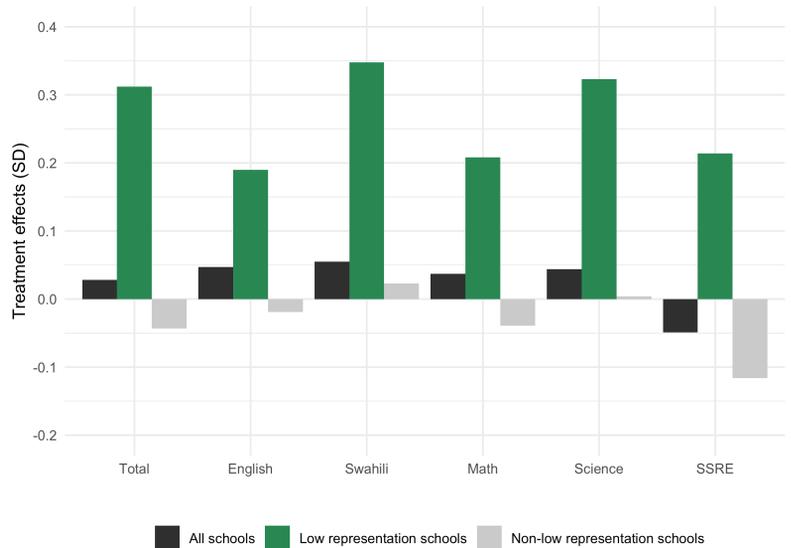
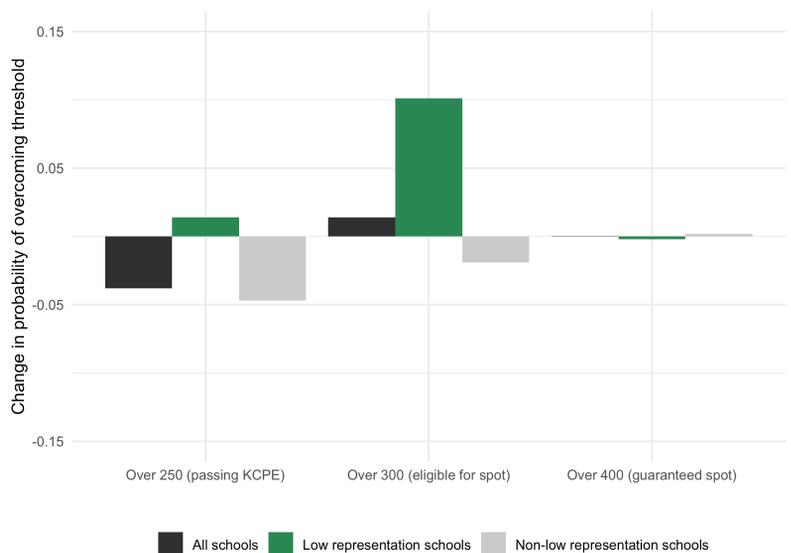


Figure 2: The effect of symposia on key KCPE score thresholds, overall and separately for students from low- and higher-representation schools



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⁵Shimada, K., Khan, Z. & Wakano, A. (2016). An update of the returns to education in Kenya: accounting both endogeneity and sample selection biases. Graduate School of Economics and Osaka School of International Public Policy. Discussion Paper 16-18.

⁶Ozier, O. The Impact of Secondary Schooling in Kenya: A Regression Discontinuity Analysis. *Journal of Human Resources* (2018) 53 (1): 157-188.

⁷Moraa, P. J. (2014). The private returns to education in Kenya. (Master's dissertation). Retrieved from <https://bit.ly/2gUneDI>

⁸For more details on this study, please contact the authors for a copy of the full paper, "Can camp get you into a good secondary school? A field experiment of small group instruction in Kenya."

⁹Muralidharan, K., Singh, A., & Ganimian, A.J. (2018) Disrupting education? Experimental evidence on technology-aided instruction in India. NBER Working Paper No. 22923.

¹⁰Glewwe, P., Kremer, M. & Moulin, S. (2009) Many children left behind? Textbooks and test scores in Kenya. *American Economic Journal: Applied Economics*. doi=10.1257/app.1.1.112