

Can Discussions about Girls' Education Improve Academic Outcomes? Evidence from a Randomized Development Project

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Abstract

This article evaluates the impact that facilitated discussions about girls' education have on education outcomes for students in rural Zimbabwe. The staggered implementation of components of a randomized education project allowed for the causal analysis of a dialogue-based engagement campaign. This campaign involved regular discussions between trained facilitators and parents, teachers, and youth about girls' rights, the importance of attending school, and the barriers girls face in pursuing education. The campaigns increased mathematics performance and enrollment in the year after implementation. There was no similar improvement in literacy performance during this period. Longer-term data on the broader project suggest that adding additional education-focused interventions did not further increase mathematics performance and enrollment beyond what can be attributable to the dialogue campaigns alone.

JEL classification: I24, I25, J16, O12, O15

Keywords: Girls' Education Challenge, randomized controlled trial, multifaceted intervention, discussion-based information campaign, empowerment programs

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1. Introduction

Youth around the world face challenges in their pursuit of education, with girls typically facing more considerable barriers than boys. Girls frequently receive less schooling than their male peers and underperform in subjects such as mathematics (e.g., [Fryer and Levitt 2010](#)). Girls' relative performance tends to be especially low in settings where persistent beliefs or social norms undervalue their education ([Guiso et al. 2008](#); [Chang et al. 2020](#)). Evidence from [OECD \(2015\)](#) indicates that these gender gaps often stem from differences in attitudes and behavior rather than from differences in innate ability. For example, stereotypes held by parents, teachers, and students about girls' abilities in mathematics can contribute to differences in effort and interests ([Robinson-Cimpian et al. 2014](#); [Alan, Ertac, and Mumcu 2018](#); [Lavy and Sand 2018](#); [Dhar, Jain, and Jayachandran 2022](#); [Bian, Leslie, and Cimpian 2017](#)). Furthermore, many people do not fully understand the benefits of education, especially for girls ([Jensen 2010](#); [Attanasio and Kaufmann 2014](#)).

Recognizing these challenges, development agencies frequently incorporate discussions about girls' education and rights into their projects to improve support for girls' education ([GEC 2018](#); [Cislaghi et al. 2019](#)). Such broadly defined "dialogue-based engagement" campaigns combine information provision and discussions in which trained facilitators first build awareness by encouraging participants to reflect on and discuss what they believe the barriers are to girls' education. Once the group has identified challenges specific to their communities, they discuss how these could be mitigated and develop action plans. This paper presents some of the first evidence of the impact these dialogue-based interventions targeted at mothers, fathers, students, teachers, and other community members have on girls' education outcomes.

Such dialogue-based interventions are ubiquitous in the projects of development organizations such as the UK Foreign, Commonwealth & Development Office (FCDO/UK Aid) and the US Agency for International Development (USAID). However, there has been little quantitative evidence of their effectiveness ([GEC 2018](#); [Cislaghi et al. 2019](#)). This is because dialogues are often implemented alongside other intervention components, such as the provision of payments, infrastructure improvements, learning resources, teacher training, or curriculum changes. This prevents the attribution of impact to the dialogues versus the broader projects. This lack of evidence has been highlighted by the Girls' Education Challenge (GEC), a £500 million UK Aid development fund that financed 41 gendered education projects across 17 countries. Despite prioritizing impact evaluation and including some version of dialogue-based engagement in most of its projects, the GEC concluded that there remains little evidence about the impact of such engagement efforts ([GEC 2018](#)).

The current paper addresses this evidence gap using data from "Improving Girls' Access through Transformative Education" (IGATE), a GEC project implemented in rural Zimbabwe from 2014 to 2016. IGATE involved the randomized implementation of a multifaceted education project. Despite its multifaceted design, the project implemented only dialogue-based engagement components before midline, allowing us to estimate the effects of the facilitated discussions on girls' short-term academic outcomes, including enrollment and mathematics and literacy scores. This article provides the first robust, quantitative evidence that these discussion-based interventions can meaningfully impact student performance.

Like other dialogue-based engagement campaigns, the IGATE interventions go beyond providing people with information. The facilitated discussions implemented in IGATE encourage participants to actively discuss education-related issues with facilitators, other participants, and others in their community. The IGATE model builds on CARE International's widely used Social Analysis and Action (SAA) methodology for encouraging shifts in attitudes and actions. The SAA methodology explains that "the goal of facilitation is not to proselytize or promote certain attitudes, norms, and behaviors, but rather to facilitate a process of dialogue and reflection that... aims to surface individual and community attitudes and norms,

explore how these attitudes, norms and power dynamics shape individual and collective behavior, and reflect on the consequences of those norms and behaviors” (CARE 2020). This involves leading groups of participants through three main activities, which the IGATE facilitators followed: (a) reflection, discussion, and exploration of ideas; (b) envisioning alternatives and challenging harmful norms; and (c) commitment to action for improved outcomes.

The SAA model is closely related to the model adopted in a broader set of interventions that use discussions to influence social norms and behavior. Initial efforts in this space focused on reducing conflict around race and ethnicity (e.g. Dessel, Rogge, and Garlington 2006). However, the dialogue-based engagement process is now frequently used to build consensus for change and collective action in various contexts. For example, Schweizer, Davis, and Thompson (2013) discuss dialogues as a framework for engaging communities on climate change issues, and Martin et al. (2017) consider how dialogues may change caregiver practices in support of child health and nutrition. Although much of the research in this space draws favorable conclusions about the ability of dialogues to change outcomes, little of this research is causal or quantitative. Instead, it largely presents theoretical arguments (e.g., Schweizer, Davis, and Thompson 2013), qualitative assessments (e.g. Martin et al. 2017), or before-and-after analyses without counterfactual groups (e.g., Ndagije et al. 2019; Wegs et al. 2019).

This article shows that the dialogue-based engagement campaigns in IGATE resulted in higher mathematics performance and school enrollment by midline. The improvement in mathematics performance occurred even though the discussions did not explicitly set out to focus on math or STEM. No similar improvement is observed in literacy performance by midline.

An analysis of the project’s post-project (or “endline”) data is limited by additional program components introduced following midline and larger attrition leading to smaller endline sample sizes. Despite these limitations, no further improvements are observed in mathematics performance and enrollment between midline and endline.

The unique feature of the IGATE program that makes this analysis possible is that the evaluation’s “midline” data were collected after the project implemented the dialogue-based engagement campaigns but before it implemented the other program components. The staggered implementation and its alignment with data collection points allow us to measure the short-term impact of the dialogue-based engagement efforts by midline, nine months to one year after dialogues were introduced. The additional intervention components were not widely communicated before midline, which minimizes the likelihood that anticipation effects may affect the short-term results associated with the dialogue campaigns.

This paper directly contributes to two areas in the economics literature. The first is the literature that examines the relationship between information provision interventions and behavior change. Past experimental work focuses primarily on information provided with no opportunity for additional discussion. For example, Jensen (2010) shows that providing youth in the Dominican Republic with information about the returns to graduating led students to finish between 0.2 and 0.35 additional years of schooling. Similarly, Nguyen (2008) shows that providing information about the returns to education in Madagascar can increase student performance on tests. In Canada, Oreopoulos and Dunn (2013) show that providing information on the returns to post-secondary information made students more likely to express interest in pursuing post-secondary education. Providing information has also been proven to be effective outside education, where information has been shown to increase safe-sex practices (Dupas 2011), and outcomes related to breastfeeding and nutrition (Fitzsimons et al. 2016; Krämer, Kumar, and Vollmer 2021). In these settings, the information provided was not previously available or well established within the communities. This is also true in this study, where information about girls’ educational rights, the challenges girls face in their educational pursuits, and the benefits of girls’ education were not universally known.

This article extends this literature to consider the impact of a dialogue that contained information and provided opportunities for community members to discuss the information and its implications for their

community. In this way, the intervention provides information while also allowing community members to see how others relate to the information. The impact this kind of bi-directional information-sharing process can have on education was discussed conceptually by Cislighi et al. (2019), without any causal evidence. Since then, Hegdahl et al. (2022) have shown that when dialogue-based information interventions were combined with economic incentives in Zambia, this led to lower levels of sexual activity and increased use of contraceptives. This is consistent with earlier experimental findings from Krupka and Weber (2009), which show that becoming aware of and observing pro-social behavior can motivate others to adopt that behavior. However, to the knowledge of the authors, this is the first paper to present causal evidence of the impact that information provided as part of a dialogue can have on education outcomes.

Our study is also closely related to the existing literature on empowerment and training programs. It is relatively well established that programs providing girls with empowerment skills training can improve their sense of empowerment. Bandiera et al. (2020) show how the Bangladesh Rural Advancement Committee (BRAC) Empowerment and Livelihood for Adolescents program in Uganda led to increased self-employment, lower rates of unwanted pregnancy, and improvements in relationship quality after girls participated in hard and soft skills training. Similar studies by Acevedo et al. (2017) and Buchmann et al. (2018) that evaluate the impact of empowerment training programs find similar impacts for adolescent girls in the Dominican Republic and Bangladesh, respectively. However, this literature has so far focused primarily on training girls directly. There is limited work on the impact of engaging communities around girls. While the dialogue-based interventions in IGATE do not provide explicit training, there is an empowerment aspect in the IGATE dialogue-based interventions since the discussions seek to find actionable plans to support girls in the community. The IGATE dialogue-based empowerment campaign is not targeted exclusively at girls. This study, therefore, provides new evidence about the impact that empowerment interventions targeted towards a broader set of community members can have on girls' education.

The paper proceeds as follows. The following section describes the IGATE project, followed by a description of the randomization of treatment, the data collection process, and the estimation strategy. This is followed by a presentation of the results. The paper concludes with a discussion.

2. Context and Program Description

In 2012, the UK Department for International Development (DFID) launched its GEC initiative, a multi-year commitment to improving access to education and learning for marginalized and at-risk youth, especially girls, in the developing world. The GEC has spent roughly £500 million in support of dozens of projects across the developing world.

The GEC's IGATE project was implemented between 2014 and 2016 by a consortium of nongovernmental organizations (NGOs) led by World Vision in partnership with CARE International, SNV Netherlands, Emthonjeni Women's Forum, Happy Readers, World Bicycle Relief, and the Union for the Development of the Apostolic Church in Zimbabwe Africa. The program was implemented in randomly selected schools across 10 rural districts in Zimbabwe and is estimated to have reached 48,773 girls.

2.1. IGATE Interventions

The project adopted a multifaceted intervention design. The program's initial focus was on dialogue-based engagement campaigns. During this initial wave of dialogue-based interventions, groups of girls, parents, teachers, and other community members were invited to participate in voluntary discussions regarding girls' education. These discussions covered issues related to girls' rights, the importance of girls attending school, and the barriers girls face in pursuing education. Participants also discussed how they could specifically support girls' education in their communities.

For example, the group might be asked to reflect on why girls in their communities may not attend school. Based on this discussion, facilitators would encourage the participants to reflect on what contributes to these barriers. If the group identifies early marriage as a risk factor affecting girls' attendance, the groups would then reflect on the factors contributing to this. In response to these reflections, the group would discuss ways to improve the girls' environment by, for example, working with religious leaders to raise awareness of the harms associated with early marriage.

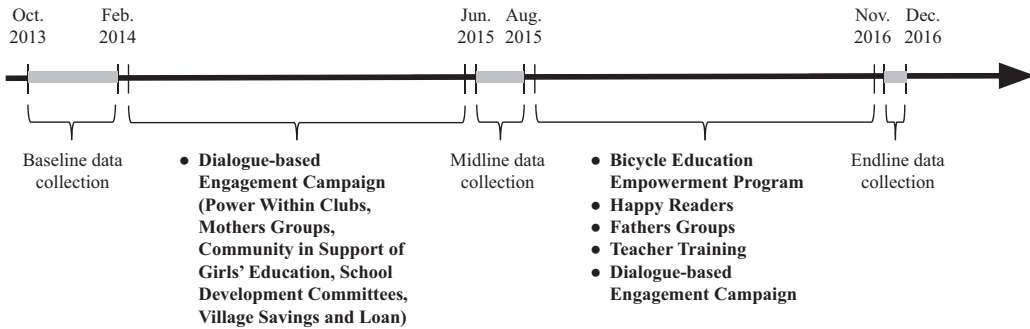
The dialogue sessions provided a setting for participants to comfortably discuss a guided set of topics in the presence of a trained facilitator. Following Care International's SAA mode, the sessions raised suggestions, but no direct support, for how communities, schools, and families could mitigate some of the barriers to girls' education.

IGATE's dialogue-based engagement campaigns included discussion groups focusing on different community members. The dialogue-based campaign included the following specific intervention components:

- **Community in Support of Girls' Education (CSGE):** CSGE promoted girls' education throughout the communities by allowing teachers, caregivers, and other adult community members to learn about and discuss girls' education and educational barriers. It also provided participants with information about the responsibilities of local primary and secondary schools and how their communities could hold schools accountable for providing quality education for all students. CSGE was implemented by Government of Zimbabwe employees in the Ministry of Education who were trained by IGATE staff. An average of 201 individuals, including caregivers, teachers, and parents, participated in CSGE meetings in each community.
- **Mothers Groups (MGs):** The project recruited local female caregivers to participate in MGs and led discussions within these MGs about the importance of girls' education and school attendance. Participants were encouraged to share this information with others.¹ These groups also highlighted the challenges girls face due to gender-based violence, inequitable treatment, and hygiene and menstruation. The mothers were then guided on how to mentor girls on these topics and training on how to make reusable menstrual pads. In some places, fathers also participated in these groups. Participation in the groups was voluntary, and an average of 15 female caregivers/mothers and 5 male caregivers/fathers participated in MGs in each community.
- **Power within Clubs (PWCs):** The project recruited teachers to set up and run PWCs within schools. The PWCs were designed to encourage girls to take an active role in decisions around their education by discussing their rights and how to navigate barriers to education. During PWC meetings, participants were guided through discussions on the importance of education, attending school, and doing schoolwork. As in the MGs, participants were encouraged to share their knowledge with others who did not directly participate in the groups. An average of 41 girls participated in PWCs in each treatment school.
- **Village Savings and Loan (VSL):** The project led local community savings groups through discussions on the importance of encouraging girls' education while providing suggestions for how participants could save for future education needs. The project also shared CARE International's VSL guidelines to help local community members set up and run such savings groups. The program provided no financial assistance or other resources to these groups or their members. Rather, the groups were intended to provide the program with an opportunity to engage with community members. An average of 49 adult community members participated in VSL groups in each community.

1 There is strong qualitative evidence that such diffusion was successfully taking place in the IGATE program. For example, when asked whether the discussions from IGATE were being shared with the community, one community leader remarked, "As women attend the meetings, they pass the same information to those at home, and that's how the information is cascading."

Figure 1. Improving Girls' Access through Transformative Education (IGATE) Data Collection and Program Implementation Time Line



Source: Generated by the authors.

Note: The program interventions were not all implemented simultaneously. The dialogue-based engagement campaign was fully implemented before midline data collection began. Additional interventions were added after midline data was collected.

- **School Development Committees (SDCs):** These school-based committees provide teachers and school officials with information and opportunities to discuss the importance of creating learning environments that are gender sensitive. This included discussing ways schools and teachers could work with MGs to support hygiene and menstruation. An average of 8 individuals participated in SDCs in each treatment school.

These were all implemented simultaneously across all 37 treatment locations in this study's sample before midline data collection. This prevents the analysis from determining their relative importance or whether engaging girls or parents was more important for the program's overall effect.

Following midline data collection, the IGATE project expanded to include other interventions. This involved providing bicycles to girls with long commutes to school through a partnership with World Bicycle Relief, and an early grade literacy program, which provided literacy and reading materials to schools and trained teachers on early grade literacy education.² When the program expanded to provide books and bikes after midline, an average of 96 bikes and 1,478 books were delivered at each treatment school.

IGATE's multifaceted intervention design is based on the assumption that sustainable impact requires changing community attitudes and beliefs, potentially shifting social norms. This is founded on a report prepared by [Unterhalter et al. \(2014\)](#) for UK Aid, which summarizes the literature on the main barriers to girls' education.

2.2. Time Line

[Figure 1](#) summarizes the timing of data collection and program implementation. Baseline data collection occurred before implementation began in February 2014. Midline data collection took place a year and a half later, in June–August 2015. By midline data collection, each treatment location in the sample received all five community information-based interventions. After midline data collection, the project continued the dialogue-based interventions and began its rollout of the other resource-based interventions. Endline data collection occurred in November–December 2016, at the end of the project.

2 In a small number of locations, girls received bicycles before midline data were collected. Discussions with the project suggest there was no systematic reason some schools received bicycles early (e.g., it was not associated with the need for bicycles or the expected impact of bicycles). Therefore, these locations were effectively random, and are excluded from the analysis without biasing the results.

3. Data and Methodology

3.1. Sampling Framework

The program identified 467 schools (and their respective communities) across rural Zimbabwe eligible for the IGATE interventions. A subset of these schools was randomly selected to receive the program,³ then, as is standard in GEC evaluations, a subset of the treatment and control locations were selected for inclusion in the evaluation. The evaluation sample included 37 treatment and 28 control locations. All locations participated in the study as expected, and there were no issues related to compliance at any phase of the project. This trial was registered with the American Economic Association's registry for randomized controlled trials.⁴

Data collection was conducted by teams of professional enumerators from a Zimbabwe-based firm. All primary-school-aged girls in the local communities were eligible for inclusion in this study's sample, regardless of whether or not they or any family member directly participated in the IGATE program.⁵ The sample defines the treatment status of girls based on whether their location received IGATE.

To select girls and their caregivers for the data collection, enumerators would start at a recognizable local landmark in IGATE communities (e.g., community center), walk in different directions, and knock on every fourth door. At the household, they would then ask whether girls from IGATE schools of the appropriate age lived there. If an eligible girl lived there, the enumerators did the questionnaires, returning later if the girl was not home. Girls were recontacted at midline and again at endline. Girls who had dropped out of school were still included in the sample, provided they could be located.

There are 984 girls (587 treatment; 397 control) in this study's sample at baseline with completed learning assessments. Of these girls, 944 could be recontacted by midline after the dialogue-based interventions were implemented; 839 could be recontacted by endline after the broader program was implemented. For each school in the panel data set, there are between 3 and 20 girls, with an average of 11 girls from each location. For each girl, information was also provided by their caregivers, teachers, and data from standardized reading and mathematics tests administered during data collection.

The attrition rates across treatment and control locations were not significantly different, with midline attrition of 4.7 percent and 3.0 percent in treatment and control groups. [Supplementary online appendix S3](#) provides additional comparisons of the characteristics and test scores of the sample by attrition during the study. This analysis suggests that treatment status and other possible household characteristics do not influence whether a girl attrites from the sample. This analysis also shows that girls who could be recontacted have similar characteristics and baseline test scores as girls who dropped out of the sample. These findings suggest that girls who attrited from the sample are not systematically different from girls who remain in any way that would bias the analysis.

At midline, 385 and 557 girls are in the control and treatment samples, respectively.⁶ Given this analysis's focus on the project's impact by midline, this group is defined as the primary sample. This main sample's treatment and control groups exhibit similar observable characteristics at baseline, as shown in [table 1](#). The groups also have similar baseline test scores and grade distributions, as shown in [supplementary online appendix table S4.2](#).

3 For a map of the treatment and control school locations across Zimbabwe, see [supplementary online appendix fig. S1.1](#).

4 The registry record is available at <https://www.socialscisearch.org/trials/7963>.

5 GEC data collection initially included a small number of secondary-school-aged girls in the sample. The analysis is limited to girls in grade seven or below (i.e., in primary school) at baseline for clarity of interpretation.

6 Note that although 944 girls could be recontacted at midline, 2 of these have been omitted from the primary analyses since they do not have completed learning assessments.

Table 1. Baseline Summary Statistics

	Control	Treatment	Difference
Age	9.377 (2.011)	9.380 (1.997)	0.003
Grade	3.676 (1.746)	3.627 (1.779)	-0.049
Illness	0.103 (0.305)	0.112 (0.316)	0.009
Disability	0.174 (0.380)	0.191 (0.394)	0.017
Orphan	0.0676 (0.252)	0.0536 (0.226)	-0.014
Travel time to school (minutes)	32.96 (23.16)	35.12 (27.30)	2.16
Caregiver has no education	0.0676 (0.252)	0.0979 (0.298)	0.0303
Caregiver has primary education	0.523 (0.500)	0.550 (0.498)	0.027
Caregiver has secondary education	0.409 (0.493)	0.352 (0.478)	-0.057
Caregiver works outside the household	0.221 (0.415)	0.235 (0.425)	0.014
Household has a TV	0.164 (0.371)	0.152 (0.359)	0.004
Observations	385	557	

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: Note these numbers measure baseline levels for girls who could be recontacted at midline.

3.2. Learning Assessments

The primary data collected at baseline, midline, and endline included surveys with girls and caregivers. Girls also took the Early Grade Reading Assessment (EGRA) and Early Grade Mathematics Assessment (EGMA). Originally designed for USAID, EGRA and EGMA were found to be the most frequently used assessment systems in education evaluations in Eastern and Southern Africa (Friedman et al. 2016).

The EGRA and EGMA have strict development guidelines that ensure the difficulty level is standardized across versions. They were adapted for the Zimbabwe context and calibrated to ensure comparable difficulty across the baseline, midline, and endline assessments. EGMA included common number identification, quantity discrimination, missing numbers, basic addition, and basic subtraction subtasks. EGRA included common-letter sound identification, invented word reading, reading fluency, and reading comprehension subtasks. A detailed description and examples of EGMA and EGRA subtasks can be found in [supplementary online appendix S2](#).

3.3. Econometric Strategy

This analysis tests the null hypothesis that the dialogue-based engagement interventions led to no improvements in academic outcomes, as measured by enrollment and performance on EGRA and EGMA, by midline. To do so, the following regression is estimated:

$$Y_i^{ml} = \beta_0 + \beta_1 \text{Treated}_i + \beta_2 X_i^{bl} + \beta_3 Y_i^{bl} + \epsilon_i,$$

where Y_i^{ml} represents the outcome variable measured at midline for girl i and Y_i^{bl} represents the outcome variable measured at baseline for girl i . This lagged-dependent value specification is important for test scores, as shown in Singh (2020). By design, all girls are enrolled in school at the beginning of the program,

Table 2. Impact on Enrollment

	Enrollment (overall) (1)	Enrollment (transitioned to secondary school) (2)
Baseline to midline		
Treatment	0.028* (0.015)	0.261*** (0.088)
Controls	✓	✓
Observations	942	69
R-squared	0.065	0.373

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: The table reports the marginal effect of belonging to a treatment school on enrollment. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

so this term is not included in the specification where the outcome variable is enrollment. The variable $Treated_i$ represents whether girl i is in a school exposed to the IGATE dialogues, and X_i^{bl} includes a set of controls for the girl's age, grade, and indicators for the district girl i lives in, as measured at baseline. Finally, the disturbance term is ϵ_i . Standard errors are clustered at the school level. Since the treatment was applied at the school level, and participation in the interventions was voluntary, this specification estimates the project's intent-to-treat effect.

The analysis using midline data is this study's primary specification, as it allows us to isolate the impact of the community dialogues before implementing other intervention components. Following the primary analysis, this analysis also estimates regressions for endline outcomes to compare how the program's impact by midline, through the dialogue components, compares to the program's overall impact by endline after other interventions were implemented.

4. Results

The IGATE program aimed to improve girls' access to quality education in rural Zimbabwe. This evaluation assesses the impact of the IGATE program on enrollment and performance in mathematics and literacy.⁷ This analysis also considers the impact on the frequency of caregivers' supportive actions towards girls.

4.1. Enrollment

To look at the accessibility of education after IGATE, column (1) in [table 2](#) shows that girls in treatment areas are 2.8 percentage points more likely to be enrolled in school than girls who did not receive treatment by midline. This difference between baseline and midline is statistically significant and also intrinsically meaningful when dealing with a primary-school-aged population for which enrollment rates are high. Specifically, at baseline, less than 1 percent of the sample were not enrolled in school. At midline, non-enrollment increased to 1.5 percent in the treatment group and 3.9 percent in the control group. This is evidence that the IGATE program led to substantial changes in the education attainment of those who would have left school without the program.

⁷ As shown in [Nordstrom and Cotton \(2020\)](#), the impact on enrollment and learning can move in opposite directions in response to external factors, potentially leading to misleading conclusions about the benefits of a program to education outcomes. This motivates the evaluation of both enrollment and learning outcomes to confirm no adverse consequences to education overall.

Table 3. Impact on Mathematics Outcomes

	Number identification EGMA 1	Number quantities EGMA 2	Missing numbers EGMA 3	Addition EGMA 4	Subtraction EGMA 5	Average Total
Baseline to midline						
Treatment	0.007 (0.011)	0.026** (0.011)	0.013 (0.009)	0.024* (0.014)	0.010 (0.014)	0.017* (0.009)
Controls	✓	✓	✓	✓	✓	✓
Observations	942	942	942	942	942	942
R-squared	0.322	0.356	0.351	0.420	0.417	0.539

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: EGMA refers to Early Grade Mathematics Assessment. The table reports the coefficient on an indicator for belonging to a treatment school. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

This is particularly true among students who are approaching secondary school when traditional gender norms, distance to school, and tuition fees all become more substantial barriers to girls' education. Column (2) in [table 2](#) presents the enrollment outcomes for students expected to progress to secondary school by midline. Girls in the treatment group who were transitioning into secondary school were approximately 26 percentage points more likely to have stayed in school than their counterparts in the control group who were also transitioning into secondary school. While this seems large compared to the overall sample, half of the students no longer enrolled at midline were expected to transition to secondary school. This suggests that girls are vulnerable to dropping out during this transition. However, this finding suggests that girls in IGATE communities were more likely to successfully transition to secondary school after their community participated in the dialogue-based campaigns.⁸

4.2. Mathematics

The results in [table 3](#) show girls in the treatment group experienced improvements in numeracy of 1.7 percentage points (0.06 SD) compared to the control group. This suggests that the dialogue-based engagement interventions positively impacted math test scores by midline.

To explore the mechanisms that explain the gains in math performance, this analysis considers the impact on girls' performance in each EGMA subtask. Girls' scores on number quantities saw the largest increase, followed by addition, with 2.6 and 2.4 percentage point gains (0.08 and 0.08 SD), respectively. It cannot be determined whether improvements in mathematics performance caused by the dialogue-based interventions come from improvements in understanding or changes in attitudes or confidence leading to an improved ability to apply their understanding.⁹

There are several reasons that a general campaign to encourage girls' education may have such an impact on math performance. The campaign may have encouraged more effort or focus by girls on tasks that others have shown are sometimes not prioritized because they are viewed as difficult, masculine, or irrelevant ([Gudyanga 2016](#)). It may also have increased teacher or parental attention for girls after

8 Supplementary online appendix [table S4.4](#) examines whether the IGATE program had any impact on the likelihood students advance to the next grade ("grade progression"). This analysis finds no evidence to suggest that the program significantly impacted overall grade progression, which is consistent with the fact that Zimbabwe has an automatic grade progression policy.

9 For example, [Cotton, McIntyre, and Price \(2013\)](#) find that gender gaps in mathematics performance depend at least partially on time constraints and competitive pressure. While three EGMA tasks (1, 4, and 5) do have a timed component, there is no evidence that the dialogues have an impact on these outcomes. There is also no difference in the number of questions students attempt, suggesting that students gain better mastery of the questions they attempt. See supplementary online appendix [table S4.6](#) for details on student attempts.

Table 4. Impact on Reading Outcomes

	Letter sound identification EGRA 1	Invented words EGRA 2	Oral fluency EGRA 3/4	Reading comprehension EGRA 5	Average Total
Baseline to midline					
Treatment	−0.011 (0.012)	−0.003 (0.005)	0.004 (0.011)	−0.005 (0.023)	−0.004 (0.009)
Controls	✓	✓	✓	✓	✓
Observations	675	675	675	675	675
R-squared	0.143	0.382	0.561	0.320	0.516
Timed	Yes	Yes	Yes	No	
Early stop rule	Yes	Yes	Yes	No	

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: EGRA refers to Early Grade Reading Assessment. The table reports the coefficient on an indicator for belonging to a treatment school. Note that EGRA 3 and 4 assess oral fluency, but EGRA 3 was only given to girls in grades 1–5 at baseline. EGRA 4 was given to girls in grades 6 and above. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

community members gained awareness of gender gaps. Indeed, this analysis presents evidence that caregivers demonstrate more supportive behaviors after exposure to the IGATE program later in this section. While it is plausible that schools and communities may have anticipated the later interventions before midline, and this may have contributed to these results, the authors believe this is relatively unlikely since the other interventions were not widely promoted until after midline.

4.3. Literacy

When the impact of IGATE on reading skills is examined, no improvements between baseline and midline are observed (see [table 4](#)). This means the dialogue-based engagement campaign did not substantially impact literacy by midline. This may be because the program did not have an impact on literacy. However, it may also be that the impact on literacy takes longer to materialize.¹⁰

4.4. Longer-Term impacts

The analysis of the endline data is confounded by the introduction of additional intervention components between midline and endline. Because of this, the midline analysis presented above is this study's preferred specification for evaluating dialogue-based engagement. The endline data provide insight into the overall impact of the broader IGATE program. Comparing the endline results with the midline results suggests that additional program activity did not lead to additional improvements in mathematics and enrollment beyond what was observed at midline attributable to the dialogue campaigns alone. As shown in [table 5](#), this is true for students overall and for students who transitioned into secondary school.

[Table 6](#) shows that the average impact of the IGATE program on numeracy performance by endline was similar in magnitude to its impact at midline. The endline values are insignificant, at least partly due to lower sample sizes at endline. However, they are comparable in magnitude to the midline analysis, suggesting that the program had no impact on numeracy performance beyond what could be attributed to the dialogue campaigns alone at midline. This may, in part, be due to the nature of the assessment tool used: the Early Grade Mathematics Assessment is designed for primary-school-aged students. As shown

10 To consider the relationship between the impacts observable before midline, supplementary online appendix [table S4.5](#) shows the findings when the sample is restricted to girls still enrolled at midline and finds similar results. This suggests that enrollment does not explain the impact on mathematics.

Table 5. Impact on Enrollment

	Enrollment (overall) (1)	Enrollment (transitioned to secondary school) (2)
Baseline to endline		
Treatment	0.012 (0.019)	0.019 (0.042)
Controls	✓	✓
Observations	809	327
R-squared	0.087	0.133

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: The table reports the marginal effect of belonging to a treatment school on enrollment. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6. Impact on Mathematics Outcomes

	Number identification EGMA 1	Number quantities EGMA 2	Missing numbers EGMA 3	Addition EGMA 4	Subtraction EGMA 5	Average total
Baseline to endline						
Treatment	0.011 (0.010)	0.023 (0.014)	0.019 (0.018)	0.019 (0.015)	0.006 (0.016)	0.016 (0.011)
Controls	✓	✓	✓	✓	✓	✓
Observations	796	796	796	796	796	796
R-squared	0.186	0.186	0.272	0.340	0.346	0.411

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: EGMA refers to Early Grade Mathematics Assessment. The table reports the coefficient on an indicator for belonging to a treatment school. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

in supplementary online appendix [table S4.1](#), students in the oldest grades at baseline are already doing relatively well on the numeracy assessments, on average.

Unlike mathematics, [table 7](#) shows that students' reading scores improved by endline by 2.6 percentage points overall. This is driven by an improvement in reading comprehension of 6.4 percentage points. By endline, literacy-focused interventions were in place, including book provision and early-grade literacy support for teachers. Based on literature from other contexts, it is generally understood that such resource provision, when targeted effectively, can improve student learning ([Lavy 2020](#); [Snilstveit et al. 2016](#)). Given these confounding effects, it cannot be determined whether the dialogue campaigns contributed to these results.

4.5. Attitudes

The IGATE program is designed based on the assumption that dialogue motivates changes in beliefs and norms, which leads to positive behavior changes. However, the GEC collected little data on attitudes and beliefs for the IGATE project, presenting a limitation for the analysis. While this analysis shows that dialogues improve numeracy performance and enrollment, there is not sufficient data on beliefs and attitudes to establish that dialogues improve beliefs, attitudes, or social norms.¹¹

11 The baseline attitude questions were limited to caregiver survey questions that asked whether the caregiver had positive aspirations for their girls and whether they believed girls could achieve as much as boys. Nearly all parents agreed with these statements, with 99 percent of caregivers reporting positive aspirations and 97 percent reporting beliefs that girls

Table 7. Impact on Reading Outcomes

	Letter sound identification EGRA 1	Invented words EGRA 2	Oral fluency EGRA 3/4	Reading comprehension EGRA 5	Average total
Baseline to endline					
Treatment	0.024 (0.015)	0.008 (0.008)	0.018 (0.013)	0.064* (0.032)	0.026** (0.012)
Controls	✓	✓	✓	✓	✓
Observations	598	598	598	598	598
R-squared	0.182	0.345	0.481	0.224	0.432
Timed	Yes	Yes	Yes	No	
Early stop rule	Yes	Yes	Yes	No	

Source: Authors' analysis based on data from learner surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: EGRA refers to Early Grade Reading Assessment. The table reports the coefficient on an indicator for belonging to a treatment school. Note that EGRA 3 and 4 both assess oral fluency, but EGRA 3 was only given to girls in grades 1-5 at baseline, while EGRA 4 was given to girls in grades 6 and above at baseline. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8. Impact on Caregiver Behavior

	Caregiver purchased sanitary products for girl in past 12 months	
	All ages	Menarche ages
Baseline to midline		
Treatment	0.012 (0.042)	0.011 (0.076)
Controls	✓	✓
Observations	937	143
R-squared	0.153	0.097
Baseline to endline		
Treatment	0.017** (0.008)	0.023* (0.011)
Controls	✓	
Observations	818	266
R-squared	0.927	0.908

Source: Authors' analysis based on data from surveys collected for the original evaluation of the Improving Girls' Access through Transformative Education (IGATE) program.

Note: The table reports the coefficients for the linear probability model that estimates the impact of belonging in a treatment school on the likelihood a caregiver purchased sanitary products for a girl in the past 12 months. Controls include baseline age, grade, and geographic district. Cluster-robust standard errors are in parentheses. Standard errors are clustered at the school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

To gain insight into the impact of the program on attitudes, this analysis considers indicators that reveal increases in supportive behavior towards girls at the school or household levels. As shown in [table 8](#), when caregivers of girls who were around the age of menarche were asked whether they had purchased sanitary products for these girls in the past 12 months, caregivers in IGATE treatment areas were 2.3 percentage points more likely to have reported doing so than those in the control locations. This is a relevant observed behavior, given the emphasis that access to sanitary wear received in the information and engagement campaign. [Table 8](#) shows the estimates for the overall sample and girls approaching menarche age, typically 13 in Zimbabwe ([Nyirenda et al. 2023](#)).

can achieve as much or more than their male peers, leaving no room to identify improvements. See supplementary online appendix [table S5.1](#).

The change is not observable until after midline, which may be partially due to the limited number of girls reaching menarche by midline. However, since the interventions added after midline were limited to resources that targeted girls, not their caregivers or communities, this overall improvement in caregiver attitudes could be attributable to the dialogue campaign that discussed barriers girls face from menstruation and access to sanitary products. This finding suggests that the program has not only made households aware of the barriers girls face due to menstruation but has also motivated them to mitigate these barriers to support girls' education. This is consistent with other evidence on the efficacy of empowerment campaigns that focused on barriers related to menstrual health ([Bandiera et al. 2020](#)).

4.6. Further Considerations

There are several considerations to keep in mind when interpreting the results.

First, the precise channel through which dialogue-based engagement campaigns improve education outcomes cannot be determined. The program simultaneously engaged groups of parents, girls, teachers, and community members. This means this analysis cannot separately identify whether engaging girls or parents was more important for the program's overall impact. Since the GEC did not collect sufficient data on attitudes and beliefs, this analysis also cannot assess the degree to which the attitudes or support changed across different groups relative to others. The subsection on attitudes suggests that dialogue-based campaigns and other program components change attitudes and beliefs, but more work is needed.

Second, Zimbabwe is a country in which girls tend to perform relatively well compared to their peers in many other African countries and compared to boys in their own country. For example, on the country's National Grade 7 exam, girls were likelier than boys to pass all four subject areas ([Zimbabwe Schools Examination Council 2016](#)). Primary-school enrollment rates tend to be high for both girls and boys, approaching 99 percent according to [World Bank \(2019\)](#), with girls demonstrating slightly higher completion rates than boys in the transition to secondary school. It is not until secondary school that gender gaps favoring males develop. After transitioning to secondary school, fewer females graduate, with 19 percent of male adults completing upper secondary school versus only 12 percent of females ([Chinembiri 2018](#)).

This may suggest less room for improvement in the academic performance of primary school girls in Zimbabwe than in countries with more substantial gender gaps. It could also imply that communities already supported girls' education, and facilitating these dialogues may be less effective than in other contexts. These factors would make engaging in dialogues about girls' education and rights less likely to substantially improve education outcomes. Yet this analysis still finds that dialogues improve performance in Zimbabwe, suggesting that the impacts may be even larger in other contexts.

Third, because the GEC only collected data on girls and not boys for the IGATE project, this analysis can only speak to the impact on the absolute performance of girls and not on the impacts on boys or the overall gender gaps. For example, it is unclear whether the academic performance of boys fell as parents and teachers put more emphasis on girls' education.

5. Conclusion

This study presents the results from a randomized multifaceted education project implemented as part of the UK government's GEC portfolio. This study shows how a dialogue-based engagement program improved girls' school enrollment and mathematics performance. This improvement occurred despite being implemented in an environment where primary girls were already performing relatively well compared to other settings. Such dialogue-based programs are widely used in development programs to build community support. However, there has been limited quantitative evidence to support their effectiveness.

This analysis takes advantage of the staggered implementation of the IGATE program to begin to address this gap in the literature and show that these dialogues improved education outcomes. An important

implication of these results concerns the motivation behind dialogue-based engagement campaigns. Dialogues are often viewed as ways of changing attitudes and social norms to improve the effectiveness of other intervention components. These results show that dialogues can improve outcomes independently, even before implementing other program components. It should be noted that this analysis is based on a context where attitudes were already relatively favorable. For instance, nearly all parents reported having equitable beliefs about the abilities of male and female children at baseline. The program's impact appears to mitigate declines in support for girls as they age. Future research may examine how dialogues affect older girls, girls in environments with less equitable norms, or those where enrollment rates are lower.

The implications of these results are not limited to education settings. This paper presents some of the first robust quantitative evidence that dialogue-based engagement campaigns can have meaningful impacts on outcomes. Directed dialogues are increasingly incorporated as part of development and social programming. However, their inclusion is primarily supported by theory and qualitative accounts rather than robust quantitative evidence. These findings suggest that dialogue-based engagement can effectively bring about change, which may have applications in many settings.

Data Availability Statement

The authors do not have the right to share this data before the full data set is (eventually) made public by the UK Foreign, Commonwealth & Development Office (FCDO/UK Aid). Others can request access to the data from either World Vision UK or the UK FCDO.

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