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Baseline Evaluation

*Of the The Gender-responsive Education and Transformation (GREAT)
Programme implemented by Right to Play*

Global Report

October 2018



This report was produced for Global Affairs Canada (GAC) as part of Right to Play's Multi-Country Baseline Study.

The Baseline Evaluation was carried out by Andres O. Navarrete, Tariq Omarshah and Marieke van Egmond from One South, LLC. The evaluation will follow a cohort of girls and boys and their households in Ghana, Mozambique and Rwanda to track their progress across the ultimate outcomes of the programme.

Data collection for this evaluation took place between July and August 2018.

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Executive Summary

Background to the GREAT Programme

Through funding from Global Affairs Canada, Right to Play is implementing the Gender Responsive Education and Transformation Programme (GREAT) across primary schools in 3 countries: Ghana, Rwanda and Mozambique. The programme is designed to build on the achievements of the Play for the Advancement of Quality Education (PAQE) programme implemented in nine countries from 2015-2017. The GREAT programme will run for five years, from 2018-2023.

At the ultimate outcome level, the project aims to improve the quality of education for 120,380 girls and boys in Grade 1- Grade 6. This includes an estimated 79,807 girls and 83,179 boys. The project will build the capacity of 2,738 teachers across Grade 1 - 6 in target schools.

At the intermediate outcome level, GREAT activities aim to:

1. Increase the integration of gender-responsive play-based learning (GRPBL) by teachers into teaching practice;
2. Increase the engagement of parents and caregivers in addressing gender-specific learning needs of girls and boys, including at-risk children, and;
3. Increase the integration of gender-responsive play-based learning (GRPBL) in in-service and pre-service teacher training.

This report outlines the baseline findings of the GREAT programme across each of these intermediate outcomes.

Purpose of the Global Baseline Report

The Global Baseline Report aims to summarize the main findings from independent country reports, review whether assumptions underlying the programme's theory of change can be verified across all countries, discuss the intersection of barriers on learning and attendance of boys and girls and draw lessons learnt.

Section 1 introduces the GREAT programme and its objectives. Section 2 expands on the methodological approach of the study. Section 3 of the report outlines the main impact outcome findings and explores the extent to which boys and girls targeted by the programme are educationally marginalized. Section 4 discusses the relevance of the project considering the barriers it seeks to reduce and explores whether the programme is appropriately defined. Section 5 discusses the effectiveness of the project and the factors that may affect the achievement and non-achievement of objectives.

Research Approach

To evaluate the **impact** of the programme at the ultimate-outcome level, the evaluation adopts a mixed-methods, hypothesis-driven quasi-experimental design. This method estimates the programme's "additionality" through a Differences-in-Differences technique defined as the difference in outcomes between project participants (treatment boys and girls) and non-participants (control boys and girls) over time.

To understand whether the GREAT programme is **relevant** to the contexts where it operates, the study will examine whether the intervention addresses the barriers that most significantly affect educational outcomes and whether project targeting will reach the most marginalized sub-groups of children. The study will also address if the theory of change is consistent with the outcomes it aims to achieve and the effectiveness of the planning process.

The **effectiveness** of the programme will be evaluated by the extent to which the project has incorporated management strategies that account for factors that influence the achievement and non-achievement of programme objectives.

Key Findings

Girls outperform boys, on average, in oral reading fluency in the language of instruction, across countries and grade levels.

Across countries and grade levels, on average, girls have higher levels of oral reading fluency than boys. This was true for both the treatment and control groups.

Oral reading fluency levels are highest in Rwanda, in all grade levels on average, followed by Ghana and then Mozambique.

Rwanda is the only country to use children's mother tongue as the language of instruction. This finding suggests that children are more easily supported to learn to read in early primary schools with mother tongue instruction.

In Ghana and Mozambique, most children in all grade levels fail to reach curriculum expectations by baseline. In Rwanda, most children meet early reading skill competencies in grades 1-3 but fail to reach expected oral reading fluency competencies in grade 3.

In Ghana and Rwanda boys, on average, have slightly higher numeracy scores than girls in most grade levels. In Mozambique, results are mixed.

Although independent sample t-tests to compare mean numeracy results by sex in each grade level were non-significant in all countries, there is a general trend in Ghana and Rwanda for boys on average to score slightly better than girls on average. In the treatment group this was true for grades 1 and 3 in Ghana and all grades in Rwanda.

Several sub-groups of children have reduced learning outcomes.

Not having attended pre-school has a negative effect on both literacy and numeracy outcomes in Ghana for both boys and girls.

Living in a household with no electricity leads to lower learning outcomes for both boys and girls in Rwanda.

Not speaking the language of instruction has a negative effect on learning outcomes for boys and girls in Mozambique and boys in Rwanda.

There are no differences in the attendance level between males and females in any of the three countries.

According to independent-sample t-tests, there are no significant differences in the percentage total days attended in a school calendar month between males and females in any of the three countries.

Attendance to school is highest in Rwanda, followed by Mozambique and Ghana.

The average attendance rate for treatment boys and girls in Rwanda is 96%, followed by 87% in both Ghana and Mozambique. These rates are comparable to national net attendance rates for primary school according to UNESCO statistics.

Many children have extremely low attendance rates and are likely to face different barriers to attendance than most of their peers.

5% of the total sample in Ghana, 9% of the sample in Rwanda and 13% of the sample in Mozambique have low attendance rates and are considered outliers¹.

Depending on the country, belonging to different sub-groups predicts the attendance rate. However, factors other than characteristics are also likely to be at play.

In Mozambique, multiple regression model for the non-outlier group confirms that children with a disability attend, on average, 4% less than to school than non-disabled children. Children who do not speak the language of instruction and single orphans attend 2% less. In Ghana, if a child belongs to a household that experiences moderate to high hardship² has 2% lower attendance than the rest. Qualitative sessions, orphans were reported as being a particularly vulnerable group, often facing neglect by the families taking care of them, who reportedly prioritize the education of their biological children.

While Ghana has a higher proportion of children with self-esteem than other countries, most children in all countries have low to medium self-esteem.

In Ghana, there exist a higher proportion of children with high self-esteem than in other countries.

Girls are more likely to have low self-esteem.

Being a girl negatively predicts self-esteem when data from all countries is considered and remains significant in the presence of other covariates such as economic, social or individual variables.

Parents who cannot read have children with lower resilience in Rwanda.

Of all relevant sub-groups, children from parents who cannot read tend to have lower reliance. Through multiple regressions, it was found that, on average, children with parents who cannot read have 4% less reliance than their peers.

In all countries, most children have strong leadership skills.

83% of girls and 80.3% of boys have strong leadership skills in Rwanda, followed by 75.7% of girls and 74.4% of boys in Ghana, and 57.4% of boys and 56.6% of girls in Mozambique.

¹ Outliers are defined as having a mean lower (or higher) than twice the standard deviations of the mean. In Ghana, this means attending less than 56% of the time, in Rwanda this means attending less than 86% of the time, and in Mozambique this means attending less than 67% of the time.

² A household is considered to experience hardship when they experience the following for 10 or more days: (1) Gone to sleep at night feeling hungry; (2) Gone without enough clean water for home use; (3) Gone without medicines or medical treatment, and; (4) Gone without cash income. A mean aggregate score was created among these items.

Across all countries, teachers were least likely to have adopted gender-responsive teaching practices of the four sub-indicators reviewed to assess the adoption of GRPBL.

Although this indicator was low in all countries, in Mozambique differences are especially stark between male and female teachers.

At baseline, about half of teachers RTP schools had received coaching and mentoring support from education officials. A high proportion of those who received this support, reported that the visit improved their teaching practice.

At baseline teachers had already received some degree of coaching and mentoring support from officials. In Rwanda, 53.8% of male teachers and 45.7% of female teachers who had received training from RTP (presumably from PAQE I), had received coaching and mentoring support from district officials. In Ghana, 41.9% of male teachers and 45.1% of female teachers who had received training had received coaching and mentoring support and in Mozambique, 55.6% of male teachers and 54.7% of female teachers who had received training from RTP, had received coaching and mentoring support.

There is little integration of PBL in teacher training systems in all countries, except in Rwanda, where it is integrated into the curriculum but not widely practiced by teachers.

PBL is recognized by education actors as being conducive to improved learning in Rwanda and it is currently integrated in the Rwandan teacher training curriculum. However, officials at the REB admit there is a gap between policy and practice, where many teachers struggle to integrate PBL into their own lessons. PBL is less recognized in Ghana and Mozambique, where positive attitudes exist but more information and technical support is needed.

Gender-responsiveness is not a mainstream concept in any of the countries and is often confused with gender equality. The notion of gender-responsiveness is not integrated in teacher training in none of the modalities.

Gender-responsiveness is a relatively new concept often used by district and sector authorities interchangeably with gender equality in all countries. Responding to the specific gender needs of girls and boys is something many believe can be achieved with gender-equality solutions (e.g. “encouraging both girls and boys to participate) rather than with gender-specific solutions.

Conclusions

Girls outperform boys in literacy skills in lower primary school.

Across countries, girls were found to outperform boys in oral reading fluency skills in the language of instruction. This contradicts the project’s assumption that there is a gender gap in literacy skills. However, this gap may become visible as girls progress in primary school and face increased gender-associated barriers to learning.

Several barriers to learning are appropriately targeted by the project.

A review of barriers to learning found that not being regularly informed on your child's progress has a negative effect on literacy and numeracy outcomes for boys in Ghana. This finding suggests that the project is appropriately targeting parental engagement as a central barrier to learning.

Having a teacher treat boys and girls unfairly, results in reduced literacy and numeracy outcomes for boys and girls in Rwanda and for boys in Mozambique. This finding suggests that the project is appropriately targeting gender-responsive teaching practices to improve learning outcomes.

Witnessing a teacher administer corporal punishment in recent weeks has a negative effect on girls' literacy and numeracy in Rwanda and a negative effect on the extent to which boys and girls in Mozambique, boys in Ghana, and girls in Rwanda view their learning climate to be supportive. This suggests that the project is appropriately including positive discipline components in the teacher training and this will likely improve learning outcomes and the learning climate more broadly.

Children of intervention areas have similar attendance rates to their peers in the rest of the country suggesting that they are not marginalized with regards to attendance.

Regression results show that the most marginalized groups with respect to attendance in Mozambique are single orphans, children who have a disability and children who cannot speak the language of instruction. In Ghana, these are children who live in households experiencing moderate to high hardship. In Rwanda, belonging to any of the sub-groups does not predict attendance.

A gender-gap exists in the acquisition of life skills suggesting the programme is well-targeted.

In terms of **life skills**, most children have low-esteem and resilience but display strong leadership and prosocial skills. Girls have generally lower self-esteem and leadership skills than their peers, denoting a potential gender-specific gap in skills present in the areas of the intervention. Interesting findings were also drawn for orphans and double orphans who showed higher self-esteem than other groups and children living in moderate or extreme hardship showed higher leadership skills than other groups.

There is little integration of GRPBL in pre- and in-service teacher training in the three countries.

PBL is recognized as a mainstream teaching methodology in Rwanda but not Ghana or Mozambique. There is currently low institutional and resource capacity in schools and district education offices to put into practice PBL. Gender-responsiveness is not a known concept and is used interchangeably with gender-equality by many stakeholders in all countries. By working with existing structures, deepening the relationship with the REB and DEOs, and providing technical assistance to TTCs, RTP may increase the integration of gender-responsive PBL into pre-service teacher training.

Recommendations

1. **Consider targeting teacher absenteeism through programme components.** Teacher absenteeism was shown to have a negative effect on several educational outcomes including attendance to school, supportive climate, and learning. The intervention should consider adopting intervention components targeting teacher absenteeism to ensure this does not inhibit improvements in other domains.
2. **Teachers require additional support with time management, teaching and learning materials, and managing large class sizes, to integrate GRPBL in their lessons.** Qualitative sessions with teachers trained as part of PAQE highlighted they face challenges integrating GRPBL due to these challenges.
3. **Provide training to CBOs and Junior Leaders on how to identify and support at-risk children.** Several interviews with project staff highlighted that CBOs and Junior Leaders are not provided with

explicit training on how to support at-risk children, including children with disabilities. To ensure that supplemental learning activities remain accessible to these groups the intervention should consider providing explicit training to these groups.

4. **Expand on child protection mechanisms to protect children on the way to and from school.** Safety concerns travelling to school is a proven factor to affect school attendance. Many project schools have child protection mechanisms in place, such as reporting of abuse, that can be enhanced to include protections travelling to and from school.
5. **Evaluate deepening the engagement with TTCs:** Presently, PBL integration and influence strategies are dedicated toward building the capacity of district officials to provide coaching and mentoring support. Given that TTCs also prepare in-service teachers, the project may consider building the capacity of TTCs to provide coaching and mentoring support.
6. **Align GREAT structures to local ones through the cultural adaptation of programme terminology.** Many GREAT concepts are not immediately translatable into country-specific structures, which makes it difficult for audiences to grasp and relate to important aspects of the project. To ease the diffusion of project concepts among influencers, GREAT may culturally-adapt all terminology to fit these country structures.
7. **Align evaluation approach with advocacy objectives.** The evaluation is designed to provide the programme with the impact it has on attendance, enrollment, literacy and numeracy. Several stakeholders interviewed highlighted the importance of demonstrating the impact of the GRPBL approach to promote replication. The intervention should consider conducting a quantitative midline evaluation to support advocacy activities.

1. Introduction

1.1 Background to the GREAT Programme

Ensuring inclusive and equitable quality education is a major government priority in Ghana, Mozambique and Rwanda. Aligned with each country's national education plan, GREAT will focus on GRPBL towards the achievement of the project's ultimate outcome: "Improved quality education for girls and boys at the primary school level in Ghana, Mozambique and Rwanda." The project's theory of change is centered on the socio-ecological theory of child development, which recognizes the critical need for positive influence and support across various education stakeholders, from the family to national programs and policy, to impact the learning outcomes of children (Bronfenbrenner, 1979). A fundamental assumption of the theory of change is that the increased integration of the GRPBL approach in the classroom, at home, and as part of national education and teacher-training systems will contribute significantly to advancing gender-equitable, quality primary education in project countries. This includes reducing gender disparities in achievement and ensuring safe and supportive learning environments. Country-specific assumptions underlying the theory of change are addressed in individual Country Annexes.

INT 1100: "Increased integration of gender-responsive play-based learning (GRPBL) by teachers into teaching practice."

It is widely recognized that teachers and their instructional practice is critical for children's learning and enhancing their quality of education (UNESCO, 2014). As described in Section 2.1, play, when applied effectively in the classroom, can contribute significantly to learning, especially in the areas of literacy, numeracy and life skills, as well as greater understanding and equality in relations between boys and girls, and an ability to challenge and transform gender stereotypes. RTP project monitoring reports (Baastel, 2016; Harry Cummings and Associates, 2017) demonstrate positive changes in classrooms and schools as a result of teachers integrating play into teaching practice. Results include improved relationships between teachers and students, improved life skills, higher enrollment rates, higher attendance rates and fewer dropouts. This intermediate outcome will be achieved by improving teachers' skills to implement GRPBL into their teaching practice, improving the capacity of Communities of Practice (CoPs) to provide peer support to teachers for the implementation of GRPBL, and improving the abilities of principals and head teachers to support the implementation of GRPBL in schools. The assumption is that improved skills in the practice of GRPBL alongside improved CoPs and principal/head teacher capacity to support and sustain improved teaching practices will result in a meaningful culture shift in schools, where teachers embrace and sustainably adopt GRPBL in their classrooms, fully supported by their school environment.

IMM 1100: "Improved skills of teachers to implement gender-responsive, play-based learning into teaching practice."

This will be achieved by providing teachers with pedagogical materials (1111), providing training on GRPBL through the GR-CoTT (1112), and training female and male Teacher Champions to provide coaching and mentoring support to teachers in GRPBL (1113). Building on lessons learned from PAQE, RTP will work with national and district level education officials and head teachers to map games to curriculum outcomes as an additional resource material for teachers. Teacher Champions—teachers who demonstrate mastery of the GRPBL methodology—will receive coaching and mentoring training to enable them to support their colleagues. The assumption is that when teachers are exposed to and trained on GRPBL methods and supported over time, these methods will be well understood, prioritized and adopted by teachers. The PAQE final project evaluation (Harry Cummings and Associates, 2017),

alongside other evidence, found that PBL methods motivated teachers to more effectively engage with students, encouraging improved attendance and learning outcomes. Another assumption underlying this immediate outcome is also that teachers are regularly physically present in their classrooms in order to implement what they are learning on GRPBL.

IMM 1120: “Improved capacity of Communities of Practice (CoPs) to provide peer support to teachers for implementation of gender-responsive play-based learning.”

This will be achieved by providing learning and funding support to new and existing CoPs, including learning forums and facilitation guides, for peer-to-peer support in GRPBL (1121). Equitable access and participation of female teachers will be ensured through locally relevant strategies. These may include scheduling meetings at times and locations convenient for female teachers, providing childcare, and encouraging and ensuring their voices are heard in discussions. The guides provided to CoPs have been gender mainstreamed and revised to strengthen the focus on gender equality. Research shows that opportunities for sharing experiences with peers, through forums such as CoPs, are critical for reinforcing learning from training and positively impact teacher performance (NBER, 2009). Evidence also suggests that strong CoPs can improve school culture, student learning, and the use of child-centred pedagogy (OECD, 2010). CoP dialogue will be supported by sharing lesson plans developed under IMM 1110. The assumption is that, with the appropriate support, CoPs will generate valuable learning and sharing of well-established and innovative ideas, as well as contextually-specific knowledge and experience on what works, serving as dynamic and useful forums for support, guidance and the encouragement of reflective practice.

IMM 1130: “Improved abilities of principals/head teachers to support implementation of gender-responsive play-based learning in schools.”

This will be achieved by providing leadership training to principals/head teachers (1131). This will involve technical skill building in the areas of gender-responsive leadership, school governance, administration, Parent Council management, coaching and mentoring, as well as gender equality and the value of the GRPBL approach. Evidence shows that school leadership plays a pivotal role in improving student learning by shaping the conditions and climate in which teaching and learning occur (OECD, 2008). School leaders influence the motivations, capacities and working conditions of teachers who, in turn, shape classroom practice and student learning. School leaders also play a key role in strengthening ties between the school and parent communities (Hargreaves, Halász and Pont, 2008). The assumption is that this training will lead to positive behaviour change among school leaders, that school leaders are able to gain the trust and respect of teachers, other school staff and students, and that there is openness to their support and mentorship. RTP will leverage the expertise of the Ontario Institute for Studies in Education at the University of Toronto, which is partnering with RTP to develop and certify the instructional leadership training module of the principals training program; this module will then be adapted locally. Another assumption underlying this immediate outcome is also that principals/head teachers are regularly physically present in their schools in order to support the implementation of what they are learning on GRPBL among teachers.

INT 1200: “Increased engagement of parents and caregivers in addressing gender-specific learning needs of girls and boys, including at-risk children.”

Decades of research has shown that parents’ involvement in their children’s education has a positive and significant effect on children’s attendance, academic performance and behaviour (Ferguson, 2008; People for Education, 2011). Mothers, fathers and caregivers’ perceptions of girls’ learning needs also has an impact on whether or not girls attend school, do their homework, and participate actively in school, making addressing gender-specific needs a key priority. This intermediate outcome will be

achieved by increasing the ability of teachers, CBOs and Junior Leaders to support the learning needs of girls and boys; by improving awareness of gender-specific learning needs of girls and boys, including at-risk children, among mothers, fathers and caregivers; and by improving the ability of Parent Council members to participate in and advocate for the development and implementation of gender-responsive, environmentally sustainable school plans. The assumption is that parents are concerned for and want to support their children's well-being irrespective of their social and economic status, while acknowledging that gender-discriminatory attitudes, behaviours and norms are a significant barrier in achieving equitable learning outcomes for girls. The project will build on this assumption, and associated gender equality issues, to galvanize support from mothers, fathers and caregivers for supplemental learning, co-financing of infrastructure initiatives and implementation of school plans. Strengthening Parent Councils will ensure an effective and participatory forum for engagement.

IMM 1210: “Increased ability of CBOs and Junior Leaders to support the learning needs of girls and boys.”

This will be achieved by supporting CBOs and Junior Leaders to deliver gender-responsive supplemental learning activities, such as school reading and homework clubs and play-based activities to reinforce learning in school (1211). To identify and maintain regular inclusive participation of girls, children with disabilities and at-risk children in supplemental learning activities, CBOs and Junior Leaders will work in close coordination with Parent Councils, school administration and child rights clubs. Research shows that supplemental learning, especially life skills development, improves attendance, work habits, and academic achievement (Durlak et al., 2011). Based on this evidence, the assumption is that through gender-responsive supplemental learning in project communities, girls and boys will be encouraged to engage in and benefit more equally from learning opportunities overall.

IMM 1220: “Improved awareness of gender-specific learning needs of girls and boys, including at-risk children, among parents and caregivers.” This will be achieved by conducting a participatory gender-based analysis of gender-specific learning needs in schools and communities (1221), and by supporting child clubs and Junior Leaders to hold awareness-raising events with mothers, fathers and caregivers on gender-specific learning needs (1222). The gender analysis will look at various identity factors such as socio-economic differences as well as disability, family structure, involvement in the labour force, and potentially ethnicity as well, depending on the country context. Findings will contribute to the focus and content of awareness-raising events. Recognizing that awareness is a first step towards shifts in social norms, including gender norms, the assumption is that awareness-raising will lead to mothers, fathers and caregivers putting their learning into practice, including encouraging girls and boys to participate more equally in supplemental learning opportunities and better support their learning at home.

IMM 1230: Improved ability of Parent Council members to participate in and advocate for the development and implementation of gender-responsive and environmentally sustainable schools plans.”

This will be achieved by providing leadership training to Parent Councils (1231), developing gender-responsive and environmentally-sustainable school plans with Parent Councils (1232), and rehabilitating/constructing school facilities (1233). Leadership training will involve technical skill building in Parent Council management and training in gender equality, child protection and the environment. Where school plans are not in place, Parent Councils will support their development and implementation. Where plans do exist, they will be strengthened and made gender-responsive and environmentally sustainable. School plans will be informed by the gender analysis and women and girls will be actively engaged in their design and evaluation. Facilities such as those related to WASH (Water and Sanitation) will be constructed to strengthen girls' access to education and to protect their safety in

schools. School plans will consider environmental sustainability throughout, including ensuring litter free schools (e.g. no standing water, clean facilities), incorporating green spaces, and carrying out construction/rehabilitation work that is protective of the environment. Parent Councils will play a critical role in identifying key activities, raising funds for co-financing, and developing and implementing maintenance plans for infrastructure projects. The assumption is that, as a result of training and awareness raising, mothers, fathers and caregivers will be more likely to participate in and contribute to school plans that are gender-responsive and environmentally sustainable.

INT 1300: “Increased integration of gender-responsive, play-based learning in in-service and pre-service teacher training.”

This will be accomplished by improving the ability of the district administration to support teachers in integrating GRPBL into their teaching practice, and the ability of education officials and partners to integrate GRPBL into teacher training. Education officials have recognized GRPBL as an effective method of child-centred learning that improves the quality of education. The assumption is that the increased adoption of GRPBL in in-service and pre-service training will lead to sustainable long-term investment by education stakeholders, particularly the Ministry of Education, in all three project countries.

IMM 1310: “Improved ability of district administration to ensure quality assurance in implementation of gender-responsive, play-based learning in schools.”

This will be accomplished by providing technical assistance to validate the coaching and mentoring guide with education officials (1311), training district officials in coaching and mentoring, gender equality and play-based learning (1312) and providing financial resources to districts for coaching and mentoring (1313). Evidence shows that the most effective professional development programs provide ongoing support to teachers in the form of coaching and mentoring and that student achievement is higher among teachers who receive coaching and mentoring (UNESCO, 2003; National Comprehensive Center for Teacher Quality, 2011; NBER, 2008). GREAT will focus on training district officials to provide this support as a part of the project’s sustainability strategy, as they are well positioned to provide specific feedback related to the local school context. The assumption is that when district officials observe positive change at the school level due to improvements in GRPBL in the classroom, they will be further motivated and committed to supporting teachers and the institutionalization of GRPBL at the district level.

IMM 1320: “Increased ability of education officials and partners to integrate play-based learning into teacher training.”

This will be accomplished by providing technical assistance to key education stakeholders (1321) and producing and sharing best practices in GRPBL (1322). Technical assistance may include GRPBL training for national officials, drafting contextualized guidelines and manuals on GRPBL, and revising curriculum and teacher policy and frameworks. The assumption is that education officials will respond positively to and apply this technical assistance because they are confident in its value and believe that leveraging local, regional and international partnerships, in collaboration with RTP, will achieve greater impact.

1.2 Structure of this Report

This Global Report is structured around the GREAT Programme’s research and evaluation questions, shown in the table below:

Table 1 Sections of the Report and Programme-Level Research Questions

Evaluation Dimension	Programme-Level Questions	Section of the Report
Impact	What are the current levels of ultimate, intermediate and immediate outcomes?	Section 3
	Is GREAT well-targeted?	
	What are the likely positive and negative unintended effects of the intervention?	
Relevance	What are the main barriers to boys and girls attending school, learning, improving their life skills and having a positive school and home-learning environment?	Section 4
	Was the programme well-designed?	
	What adaptations to the TOC can be made to increase the programme's relevance in the contexts where it operates?	
Effectiveness	Which factors have influenced or are likely to influence the achievement and non-achievement of objectives?	Section 5
	To what extent are the objectives of the programme likely to be achieved in the countries of the intervention?	
Conclusions	Conclusions on relevance, impact, effectiveness and sustainability.	Section 6
Recommendations	What can be done to improve the impact, relevance, effectiveness and sustainability of the GREAT programme?	Section 7

2. Methodology

2.1 Approaches

This section summarizes the methodological approaches that were chosen to evaluate the impact, relevance, effectiveness and sustainability of the GREAT programme. For details on these methodological approaches, see Annex 3: Methodological Components.

2.1.1 Impact

While experimental designs such as Randomized Control Trials (RCTs) are known to be amongst the most effective methods to measure the impact of interventions, they are often not suited for programs that purposively select intervention sites based on criteria other than randomization. In the case of the GREAT programme, where intervention schools were selected based on the perceived needs of intervention sites, randomization is not possible.

Therefore, to evaluate the impact of the programme at the ultimate-outcome level we adopted a mixed-methods, hypothesis-driven *quasi-experimental* design. This method estimates the programme's "additionality" through a Differences-in-Differences technique defined as the difference in outcomes between project participants (treatment boys and girls) and non-participants (control boys and girls) over time³. The impact assessment also highlights which sub-groups are most educationally marginalized when the final outcomes of the programme are considered and might therefore experience a reduced impact of the programme.

³ C.f. Parallel-trend assumption of the DiD model: This assumes that the average change in the control group represents the counterfactual change in the treatment group if there was no treatment

At the intermediate- and immediate outcome-level, the project will track progress of treatment groups overtime through a set of indicators enshrined in the programme's Performance Measurement Framework (PMF). These indicators were chosen in consultation with the GAC, HQ and country office staff, and One South and reviewed based on the SMART criteria⁴. Through this component, we will study the extent to which these indicators are empirically linked to the final outcomes as described by a testable theory known as the programme's theory of change (TOC).

2.1.2 Relevance

To understand whether the GREAT programme is relevant to the contexts where they operate and, we will study whether the intervention addresses the barriers that most significantly affect educational outcomes or have specific interventions designed for the most marginalized sub-groups. We will also study if the theory of change is consistent with the outcomes it purports and the effectiveness of the planning process.

Single and multiple regression models are also used to predict which sub-groups, barriers, or intersection thereof affect programme outcomes the most and confirm whether the link between immediate, intermediate and ultimate outcomes can be empirically established. These analyses point at what types of boys and girls might be most educationally marginalized in the contexts of the intervention and might require special consideration in future programming.

Chi-square tests, t-tests and ANOVA tests are also used to estimate the significance of mean differences whenever appropriate.

All findings were interpreted along with qualitative findings from focus group discussions (FGDs) and key-informant interviews (KIIs). Qualitative sessions were transcribed into text in their original language and translated into English for analysis. All transcripts were coded and codes were extracted into a Excel form to ease the gathering and interpretation of research findings.

2.1.3 Effectiveness

The effectiveness of the programme will be evaluated by the extent to which the project has incorporated management strategies that account for factors that influence the achievement and non-achievement of programme objectives. This component draws on key-informant interviews with project staff, policy influencers, TTC colleges, district officials, beneficiaries and other stakeholders to draw lessons learned and determine what adaptations to implementation will be made to improve the effectiveness of the GREAT programme.

2.1.4 Sustainability

Sustainability will be measured at the school and community-levels through the Sustainability Scorecard. This scorecard was created for GREAT programme to measure whether outcome changes for the long-run are:

1. **Negligible**, denoting null or negative changes in sustainability factors.
2. **Latent**, indicating a long-lasting change in attitudes relating to programme components
3. **Emerging**, denoting changes in behaviors

⁴ C.f. SMART criteria

4. **Becoming Established**, denoting changes in behaviors of a critical mass of persons or the formal or informal institutionalization of practices

Sustainability indicators are chosen at the school- and community-level to measure the level of sustainability of programme outcomes in these environments at each evaluation point. At the system-level, sustainability is rather studied within the scope of Pilar 3, that is, the level of GR PBL integration into pre-service and in-service teacher training.

2.2 Streams of Evidence

2.2.1 Project and Document Reviews

A document, literature supplementary evidence review was conducted by the external evaluation team to systematically review (1) project reports including quarterly and annual reports; (2) other relevant RTP documents, including any data collected as part of other RTP activities in the countries, and (3) existing literature on main topic areas and the countries' social context. This enabled us to create valid and reliable tools for qualitative and quantitative research and interpret research findings when appropriate.

2.2.2 Standardized Learning Tests & Attendance Data

Literacy was assessed through adapted versions of Early Grade Reading Assessment (EGRA) in both the language of instruction and the local vernacular. The EGRA assessment incorporates higher-order skills (e.g., fluency and comprehension) that build on lower-order skills (e.g., phonemic awareness, letter sound knowledge, and decoding).

While not part of the impact assessment, a baseline of **numeracy** will also be taken using the Early Grade Mathematics Assessment (EGMA). The Core EGMA assessment is an assessment of early mathematics learning, with an emphasis on number and operations. It consists of 6 subtasks that, taken together, produce a snapshot of children's knowledge of the competencies that are fundamental in early grade mathematics. We also tested four additional subtasks that include a more difficult set of addition and subtraction questions, as well as multiplication and division.

Attendance was measured using historical attendance data made available by school authorities through school registries and attendance records. Attendance was measured as the percentage proportion of days present in a school calendar month. Enrolment and retention are measured through the household survey (HHS).

2.2.3 Semi-Structured Questionnaires and Surveys

The Baseline Evaluation also employed semi-structured questionnaires to study outcome changes, confirm or describe contextual circumstances, and measure the prevalence of relevant population sub-groups. Surveys were administered to girls, boys, female and male caregivers, teachers, head teachers and other school officials such as members of the parent councils. These were:

1. A *household survey* (HHS) which measures families' socio-economic status, educational status, living conditions, vulnerability and attitudes towards education. The project's achievement on *enrolment* and *retention* is measure through the household survey.
2. A *child's survey* (CS) that was administered at school level to children above 7 years old measuring various PMF components, their attitudes towards school, their perception and feeling about teaching quality, and life skills.

3. A *teacher's survey* to measure aspects of teaching quality and other PMF indicators at the outcome-level.
4. A *school-wide assessment* to evaluate the extent to which sustainable and gender-responsive facilities are being developed in schools and measure the extent which school environments are child-friendly and gender-responsive.
5. A *parent council's survey* to understand the school planning process and how different people in the council participate in the development or implementation of school plans.

Sample sizes for these surveys can be seen in Section XX. Informed parental consent was gathered in advance prior to the administration of any surveys to children under the age of 18. For more details on the ethical principles and data protection protocols, see section xx.

2.2.4 Qualitative Methods

To triangulate, complement, expand on, and challenge quantitative findings, we employed three methods of qualitative research and a variety of sampling techniques.

1. *Classroom observations* were used to study teaching practices within gender-responsive, and child-centered education parameters.
2. *Key-informant interviews* that followed a purposive sampling approach with key beneficiaries and informants helped us contextualize the intervention, investigate individual experiences and perspectives, and assess the contribution story.
3. *Key-informant interviews* that followed a snowball sampling approach helped us identify success and failure stories that gave us important information about the conditions where impact occurs. Through snowball sampling, we also build the case study for policy influence, tracing the policy process through the research itself.
4. Focus group discussions (FGD) to study power relationships and dynamics between young girls and boys, teachers, families and members of the community. Some of these FGDs were specifically designed for children and included *free listing* exercises with children to identify emic concepts and understandings about programme components

2.3 Sampling Framework

2.3.1 Sampling Approach

2.3.1.1 Boys, Girls and Caregivers

The core analytical objective of the sampling approach is to evaluate GREAT's impact at the ultimate outcome-level in the learning, attendance and life skills of boys and girls in programme schools.

To produce generalizable findings, we used a **multi-stage sampling technique** to take a sample of intervention and non-intervention areas. See Figure 1 Stratification Criteria.

The first stage refers to **cluster sampling**, which aims to create a balanced composition of school clusters across regions or districts of the intervention and a reliable counterfactual for the DiD impact model.

We used school-level data and cluster analysis to select control schools and pair them to similar treatment schools across various characteristics such as parity, student-to-teacher and student-to-classroom ratios. To keep design effect biases as low as possible⁵, we also sampled as many schools as it was feasible, used the smallest feasible cluster size, used a constant cluster size rather than a variable one, and sought to increase geographic dispersion as much as possible.

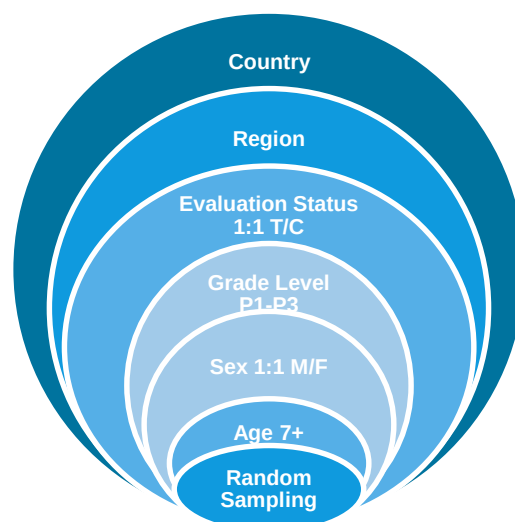
The second stage is a **stratified random sampling** method, which aims to create a balanced composition of grade levels, boys and girls, and randomly selected children who were 7 years old or older⁶. Boys and girls were selected at the school-level from school registries in a 1:1 allocation ratio using a lottery method.

The child's caregiver was contacted prior to the assessment to gather informed parental consent and interviewed at the household's location or at any location at their convenience⁷. This ensured that all child data was linked to their respective household data at the individual-level.

2.3.1.1.1 Sample Size Calculation

Sample sizes were calculated based on power analysis and a required power of 0.8, and a 0.25 effect size in learning gains over and above a control group. Through this method, it was determined that the minimum sample size should be a total combined of 506 cases. Adding an expected 30% attrition buffer between evaluation years this yielded a baseline sample size of 658 children. Given that RTP wishes to generalize for boys and girls separately in the impact DID model, the sample size was doubled

Figure 1 Stratification Criteria



⁵ Turner (2003) Sampling Strategies in *Handbook on Designing of Household Sample Surveys*. United Nations Secretariat. Available at: <https://unstats.un.org/unsd/demographic/sources/surveys/Handbook23June05.pdf>

⁶ Children at the age of 7 or above were selected because measurement tools make use of hypothetical scenarios and attitudinal questions that are not quite suitable for children of younger ages.

⁷ Enumerators implemented strategies to reach remote areas and track children at their household who were not at school to reduce exclusion biases

following Turner's (2003)⁸. This yielded a minimum final estimate of 1,316 per country (total of 3,948 boys and girls). See Annex XX for additional details on the power calculation.

2.3.1.2 Other Groups

Aside from boys, girls and caregivers, we also sampled teachers, head teachers, Parent Council officials, and conducted several school-wide assessments.

For these surveys, we determined sample sizes based on a 95% confidence level, a 5% margin of error, and the estimated population sizes obtained from project documents. See Annex 1 for additional details.

2.3.2 Baseline Sample Sizes Achieved

2.3.2.1 Quantitative Samples

The total sample sizes for each group surveyed through quantitative methods. Through the baseline exercise a total of 4116 children and 4076 caregivers were sampled (2043 boys and 2073 girls) from P1 to P3 in primary school.

Figure 2 Sample Sizes for Boys, Girls and Caregivers by Country and Evaluation Status

Grade	Control			Treatment			All		
	M	F	All	F	M	All	M	F	All
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
All Countries									
Grade 1	375	382	757	369	389	758	744	771	1515
Grade 2	336	340	676	336	356	692	672	696	1368
Grade 3	313	302	615	314	304	618	627	606	1233
All	1024	1024	2048	1019	1049	2068	2043	2073	4116
Ghana									
Grade 1	116	115	231	118	123	241	234	238	472
Grade 2	119	117	236	120	120	240	239	237	476
Grade 3	118	120	238	115	111	226	233	231	464
All	353	352	705	353	354	707	706	706	1412
Rwanda									
Grade 1	115	113	228	103	117	220	218	230	448
Grade 2	109	100	209	108	115	223	217	215	432
Grade 3	107	107	214	116	108	224	223	215	438
All	331	320	651	327	340	667	658	660	1318
Mozambique									
Grade 1	144	154	298	148	149	297	292	303	595
Grade 2	108	123	231	108	121	229	216	244	460
Grade 3	88	75	163	83	85	168	171	160	331
All	340	352	692	339	355	694	679	707	1386

⁸ Op cit., 3 XX Turner (2003).

In addition to boys and girls, a total of 1633 teachers, 329 head teachers, and 456 of Parent Council members were surveyed. A sample of 244 schools were assessed for child-friendly, sustainable, and gender-responsive facilities. See Annex 1 for additional details on the sampling composition.

2.3.2.2 Qualitative Sample

Qualitative sessions followed a purposive and snowball sampling approach depending on the analytical objective. Purposive sampling was used to organize FGDs and some of the KIIs, while snowball sampling was used to find success and failure stories, explore barriers, and also track policy influencers.

A total of 223 FGDs and KIIs were organized across the three countries. See Annex 1 for additional details on the composition of these sessions.

2.4 Data Collection

2.4.1 Training

Training of the data collection team occurred in Kigali, Rwanda and in Accra Ghana on the July 25-29, 2018, and in Maputo, Mozambique between August 2-5, 2018. The training was conducted by consultants from One South and the national consultants, with the participation of the staff of Right to Play. A pilot exercise was organized in all countries as part of training to observe each enumerator and correct survey administration errors. Qualitative Research Assistants and school-wide enumerators were trained separately for three days following the main quantitative team.

2.4.2 Timing and Place of Visit

In Rwanda and Ghana, baseline survey activities were conducted from July 30 to August 13, 2018. In Mozambique, data collection took place between August 9-27, 2018.

In Rwanda, the research team visited 122 treatment and control schools and surrounding communities (1:1 T/C) from three districts namely Ruhango in the Southern province, and Kayanza and Bugesera in the Eastern Province.

In Mozambique, the team visited 148 schools (1:1 T/C) across seven districts of Gaza and Maputo Provinces and Maputo City (Limpopo, Chongoene, Chókwè, Namaacha, Kanyaka, Bilene and Moamba).

In Ghana, 132 schools were sampled for the baseline exercise (1:1 T/C) in the Northern (Tolon, Kumbungu, and Savelugu), Volta (Keta Municipal), and Greater Accra Regions (Ga).

2.4.3 Data Entry and Quality Assurance

Data was entered through an ODK-based data entry platform called KoboToolBox. This tool was deemed an attractive option due to the adaptability of XML Form programming, the possibility of entering data from any device while offline, and the reduction of data entry mistakes by virtue of its user-friendliness.

All survey data is verified and validated through a three-stage quality check on paper surveys. The first stage verifies that surveys have been filled out correctly and completely. The second stage verifies that the data that has been entered matches the paper surveys and, when not, mistakes in the final dataset are corrected.

Datasets were then validated by the One South international team in the final stage through a series of range, skip, consistency, typographical and label checks.

All participants were assigned a unique code that is only matched to personal information in a separate, password-protected file called the *Cohort Tracking Dataset*. This data set will be used to track participants at a different evaluation period and merge baseline and midline or endline datasets at the individual-level.

3. Impact

3.1 What are the current levels of ultimate and intermediate outcomes?

3.1.1 Ultimate Outcomes

3.1.1.1 Learning

Literacy was assessed in all grade levels using the Early Grade Reading Assessment (EGRA). EGRA was administered in the language of instruction in all countries. In Rwanda and Ghana literacy was also assessed in relevant secondary languages.

In lower primary (P1-P3) in Rwanda, the language of instruction is Kinyarwanda. As the intervention will track the same cohort of participants over time, literacy was also assessed in English, which is the language of instruction in upper primary (P3-P6).

In Ghana, in all grade levels, the language of instruction is English. To understand mother language literacy progressions literacy was also measured in mother tongue languages depending on the region: Ewe, Ga, or Dagbani.

In Mozambique, in all grade levels, the language of instruction is Portuguese.

Literacy assessments were designed after a review of the national curriculum in each country to identify subtasks relevant to children's early literacy acquisition. Additional tasks were included to measure overall literacy progress as children go up in grade level. An outline of the tasks included in EGRA for all languages is shown in Table 2.

Table 2. GREAT Baseline EGRA Framework

Subtask	Description
Subtask 1: Letter Name Knowledge	Assesses ability of students to name both upper and lowercase letters. Letter name knowledge is a consistent predictor of reading development for native speakers of English, French, and other alphabetic languages ⁹ . It has also proved to be a useful indicator for non-native speakers ¹⁰ .
Subtask 2: Phonological Awareness	Assesses ability of learners to identify sounds in words and manipulate those sounds. Learners are asked to mention the first sound in a word in this task.
Subtask 3: Listening Comprehension	Assess ability of students to comprehend meaning of a text that is read out loud to them.
Subtask 4: Familiar word	Assess ability of learners to identify familiar words. Familiar words are high-frequency words selected from first-, second-, and third-grade reading materials and storybooks in the language and context
Subtask 5: Short paragraph (ORF)	A short reading passage to assess children's ORF. Oral reading fluency (ORF) provides a well-documented measure of 'overall reading competence' ¹¹ .
Subtask 6: Comprehension	Comprehension is highly correlated with literacy and refers to a learner's ability to understand a text. It is measured through a series of comprehension questions.

For the purposes of establishing the project's impact on literacy at later evaluation points, the study will rely on oral reading fluency scores. Oral Reading Fluency, measured in words per minute (wpm) is a

⁹ Chiappe, Siegel, & Wade-Woolley, 2002

¹⁰ Chiappe, 2006

¹¹ Hasbrouck & Tindal. Oral Reading Fluency: 90 Years of Measurement. 2006

widely-used measure of 'overall reading competence' and is understood as 'the ability to translate letters into sounds, unify sounds into words, process connections, relate text to meaning, and make inferences to fill in missing information'. Oral reading fluency is understood through a passage reading exercise and is measured in correct words per minute as shown in the formula below.

$$WPM = \frac{\text{Number of Words Read Correctly}}{\text{Seconds required to read (time taken)}} \times 60 \text{ seconds}$$

Girls outperform boys, on average, in oral reading fluency in the language of instruction, across countries and grade levels.

Across countries and grade levels, on average, girls have higher levels of oral reading fluency than boys. This was true for both the treatment and control groups. According to independent samples t-tests, these mean differences between sexes are only statistically significant for children in grade 1 in the treatment group in Mozambique, and grades 1 and 2 in the control group in Rwanda. However, there is a clear trend of girls outperforming boys across grade levels and groups, as shown in Table 3.

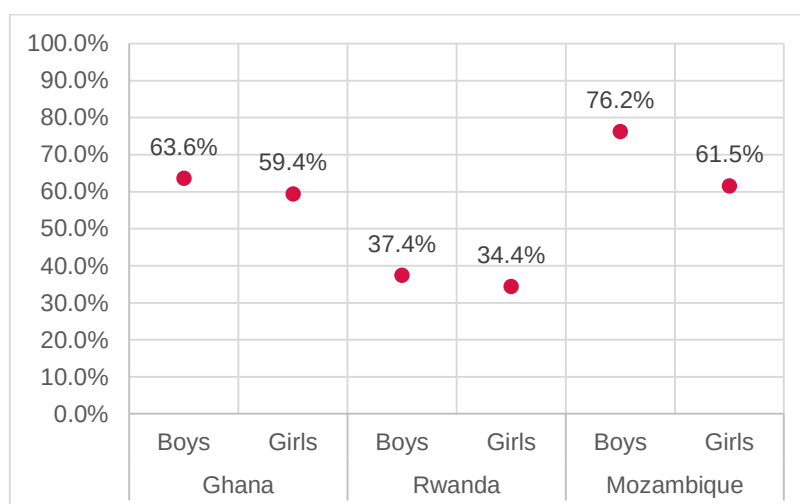
Table 3. Oral Reading Fluency by Country and Sex (Language of Instruction; wpm)

Grade		Ghana (English)		Rwanda (Kinyarwanda)		Mozambique (Portuguese)	
		Control	Treatment	Control	Treatment	Control	Treatment
Grade 1	Boys	5.44	3.11	4.18	6.53	1.51	0.6
	Girls	5.51	4.38	8.51	7.90	2.94	2.32
	Difference	+0.07	+1.27	+4.33	+1.37	+1.43	+1.72
	All	5.47	3.76	6.34	7.22	2.25	1.45
Grade 2	Boys	8.63	9.12	20.57	24.58	10.24	5.7
	Girls	11.91	11.81	26.46	24.19	10.29	8.26
	Difference	+3.28	+2.69	+5.89	-0.39	+0.05	+2.56
	All	10.21	10.48	23.38	24.38	10.27	7.01
Grade 3	Boys	21.15	17.83	34.83	31.32	19.18	15.1
	Girls	25.29	20.62	35.8	35.32	28.52	19.49
	Difference	+4.14	+2.79	+0.97	+4.00	+9.34	+4.39
	All	23.13	19.21	35.32	33.17	23.48	17.32

Oral reading fluency levels are highest in Rwanda, in all grade levels on average, followed by Ghana and then Mozambique.

Rwanda is the only country to use children's mother tongue as the language of instruction. This finding suggests that children are more easily supported to learn to read in early primary schools with mother tongue instruction.

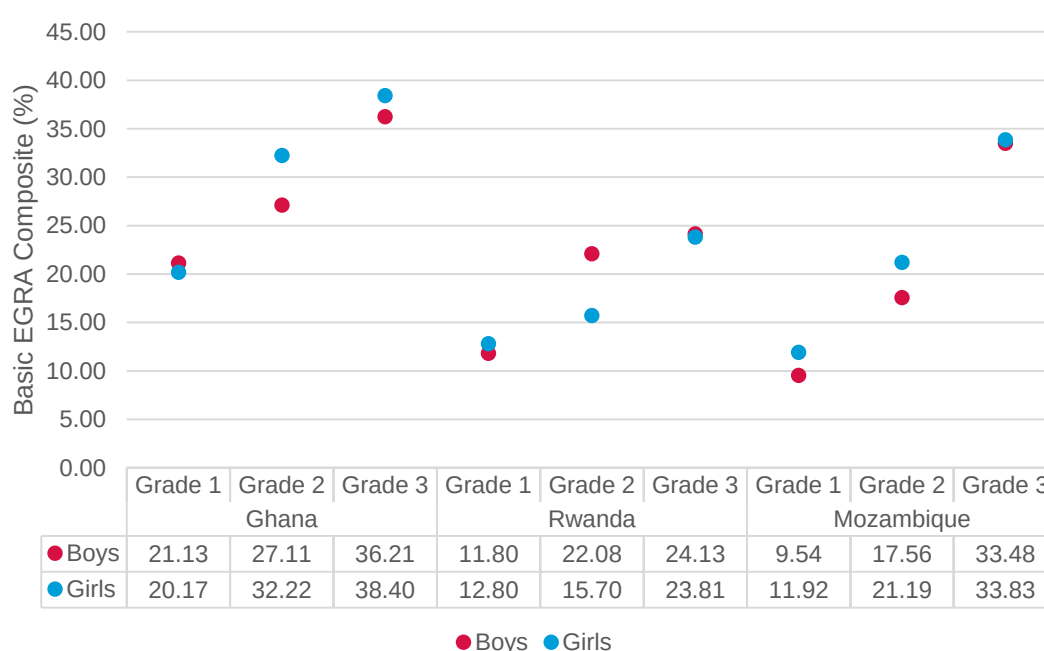
There is also a higher proportion of boys who are non-readers (children who read between 0 and 5 words per minute) than girls in all countries, as shown in Figure 3. Most children in treatment schools, in Mozambique and Ghana are non-readers at Baseline in their language of instruction.

Figure 3. Proportion of Non-readers by Sex (Treatment Group)

In Rwanda and Ghana comparisons of early literacy skills in the LOI between girls and boys show mixed results. In Mozambique, on average, girls perform slightly better than boys on measures of early literacy skills, across grade levels.

To understand early reading skills, the study constructed a basic EGRA composite score, composed of the first four subtasks: letter naming knowledge, phonemic awareness, familiar word reading, and listening comprehension. To calculate the score, a percentage score was calculated for each task, using the maximum number of items in the task. All subtasks were weighted equally to derive an overall basic EGRA composite score, expressed as a percentage.

In Ghana, girls have higher on average Basic EGRA Composite scores than boys in grade 2 and 3 but have slightly lower averages in grade 1. In Rwanda, boys perform better than girls in grade 2 and slightly better than girls in grade 3, on average, in measures of early literacy skills, but girls score better in grade 1.

Figure 4. Basic EGRA Composite Mean LOI (%) by Sex, Grade, & Country

Across countries, children in Ghana have, on average, the highest levels of early literacy skills.

Although Rwanda has the highest level of fluency across countries, scores in early literacy skills are largely comparable to those of children in Mozambique. This suggests that despite children in Rwanda being more competent readers in the language of instruction, they may lack basic skills in letter naming knowledge, familiar word identification, and listening comprehension, when compared to other countries.

As the LOI in Rwanda is the same as children's mother tongue, high results in oral reading fluency may not reflect quality formal, in-school instruction in Kinyarwanda, based on these results. Rather, high oral reading fluency skills may be due to greater informal support, and from being immersed in a Kinyarwanda speaking setting.

To understand grade level achievements against curriculum competencies, national curriculum expectations¹² were matched with relevant EGRA subtasks in each country. An overview of the relevant skills targeted by the curriculum in each grade level is shown in Table 4.

Table 4. Summary Expected Literacy Competencies by Country

	Grade 1	Grade 2	Grade 3
Ghana	Listening, reciting and singing; Storytelling, Conversation, drama; Naming words (nouns) and doing words (verbs); Phonological awareness; Letters naming; Word recognition	Recognition of words Phonics Recognition of sounds in known words Introduction to reading comprehension Reading short sentences	Reading aloud; Silent reading; Phonics; Making and using picture dictionaries
Rwanda	Learning classroom words, letter sounds, phonological awareness; greetings	Listening comprehension; pronunciation; letter sounds; reading short sentences	Reading short sentences, writing short texts, reading paragraphs
Mozambique	Letter naming sounds of syllables; simple words	Listening comprehension, familiar words; phonemic awareness	Reading short passages, learning new vocabulary

Children were categorized into score bands based on their achievements in relevant EGRA subtasks. This approach was taken to understand the extent to which boys and girls expected competencies. For non-reading subtasks score bands categorized children based on their percentage score on a given task¹³. For oral reading fluency, a standardized approach following EGRA guidance was adopted¹⁴. This is based on the general assumption that children should be reading 90-120 wpm by the time they finish primary school¹⁵. Children in the two highest categories were considered to have met the

¹² Rwanda Lower Primary Syllabus Kinyarwanda REB available [here](#) ; Ghana English Syllabus available [here](#); Mozambique competencies were matched in consultation with education specialists in the local evaluation team based on their review of the national curriculum.

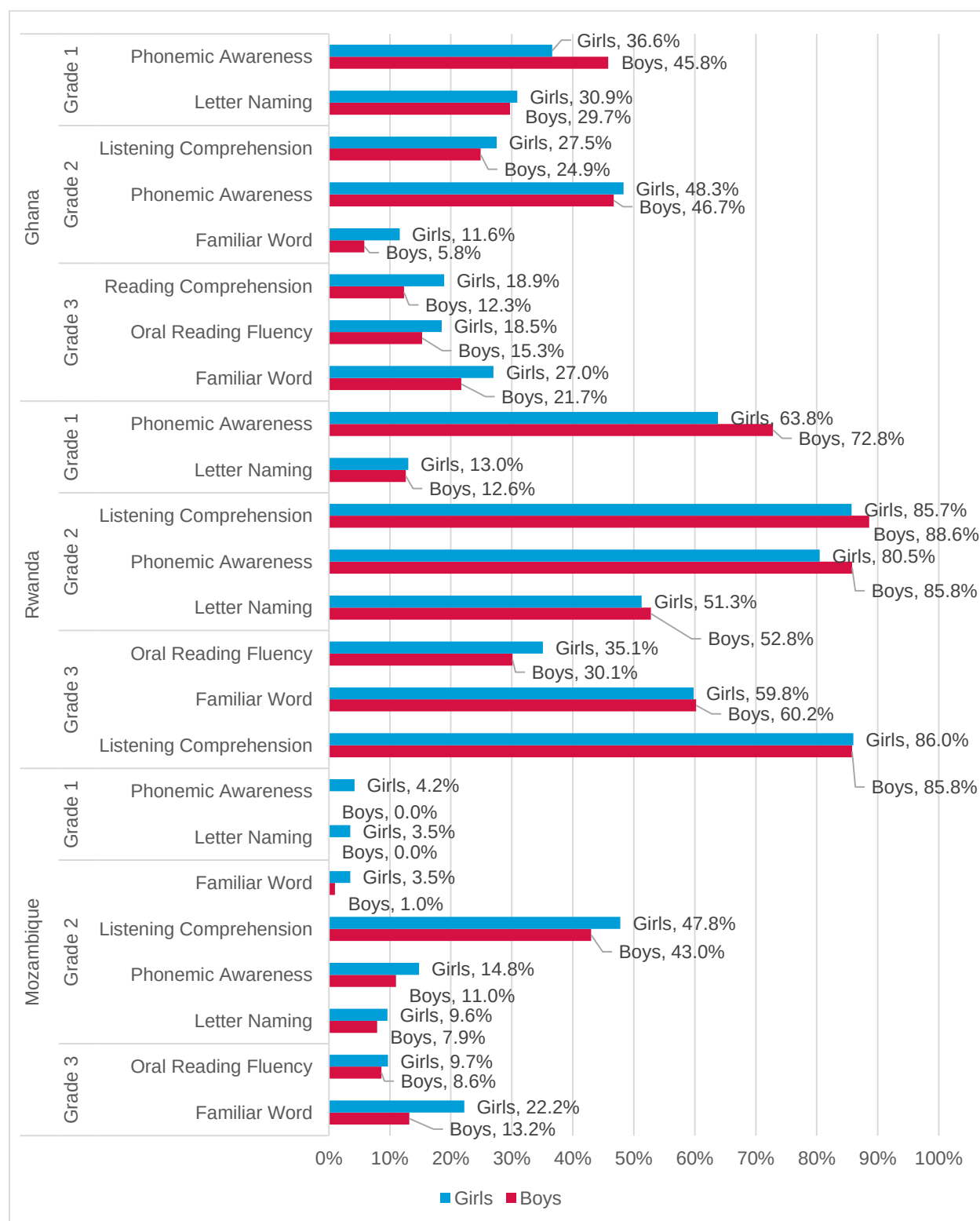
¹³ Non-learner: 0% of items; Emergent learner: 1%-40% of items; Established learner: 41%-80% of items; Proficient learner: 81%-100% of items

¹⁴ Non-reader: 0-5 WPMs; Emergent reader: 6-44 WPMs; Established reader: 45-80 WPMs; Proficient reader: 80 WPMs plus

¹⁵ See Abadzi (2011)

competency in a task. The proportion of children who meet grade-relevant competencies are displayed in Figure 5.

Figure 5. Expected Grade Level Competency Achievements by Country & Sex (Treatment Group)



A higher proportion of girls than boys meet expected curriculum competencies in literacy in Ghana and Mozambique.

In Ghana and Mozambique, across grade levels, a higher proportion of girls meet curriculum competencies than boys. In Rwanda the proportion of boys and girls to meet various competencies are very similar across grade levels.

In Ghana and Mozambique, most children in all grade levels fail to reach curriculum expectations by baseline.

Mozambique had the lowest performance against expected curriculum competencies. In grade 1, only 3.5% of girls met the competency for letter naming and 0% of boys. Additionally, only 4.25% of girls and 0% of boys met the competency for phonemic awareness. In grade 2, a higher proportion of children (47.8% of girls and 43% of boys) met the competency for listening comprehension, but a minority of children met the competency for phonemic awareness and letter naming. While this does appear to improve from grade 1, most children still fail to meet these competencies in grade 2. In grade 3 almost twice as many girls meet the competency for familiar word reading (22.2%) compared to boys (13.2%). Less than 10% of children can read at the expected competency level of 45 words per minute or more.

In Ghana, in grade 1, 36.6% of girls and 45.7% of boys meet the competency for phonemic awareness. Additionally, only 30.9% of girls and 29.7% of boys meet the competency for letter naming. Findings suggest that competency in phonemic awareness does improve in grade 2 with 27.5% of girls and 24.9% of boys considered as established or proficient learners on this task. In grade 3, only 18.5% of girls and 15.3% of boys can read 45 words per minute or more.

In Rwanda, most children meet early reading skill competencies in grades 1-3 but fail to reach expected oral reading fluency competencies in grade 3.

Although most children in grade 1 (63.8% of girls and 72.8% of boys) in Rwanda are considered established or proficient learners in phonemic awareness, that is recognizing the first sound of words, very few children met the competency for letter naming knowledge (13% of girls and 12.6% of boys). This is difficult to explain as letter naming is widely considered an easier skill.

In grade 2 in Rwanda, most children are considered established or proficient learners in letter naming, phonemic awareness, and listening comprehension. In grade 3, although most children meet the competency for listening comprehension and for familiar word reading, a minority of children (35.1% of girls and 30.1% of boys) are able to read 45 words per minute or greater.

A review of mother tongue oral reading fluency in Ghana finds that there is little progression in fluency for Ewe and Ga as children increase in grade level, but more so for Dagbani.

In Rwanda literacy was also assessed in English, as this is the LOI in upper primary school (P3-P6). In Ghana literacy was also assessed in Ga, Ewe, and Dagbani, depending on the region. Results for oral reading fluency means in these languages are shown in the table following.

There is little progression in mother tongue fluency as children increase in grade level in Ghana for Ewe and Ga, although there is a clearer progression in means for Dagbani. This is to be expected as children do not receive formal instruction in their mother tongues in Ghana in lower primary.

In Rwanda, both boys and girls have lower English oral reading fluency levels than Kinyarwanda oral reading fluency levels. This is expected as Kinyarwanda is the LOI in lower primary.

In Rwanda, English fluency does progress on average as children increase in grade level. However, English fluency levels are much lower than Kinyarwanda fluency levels. This is to be expected as Kinyarwanda is the language of instruction in lower primary school.

Unlike with Kinyarwanda fluency, results between sexes are mixed, with girls outperforming boys in grade 1 on average and boys outperforming girls in grade 3.

Table 5. Oral Reading Fluency for Secondary Languages in Rwandan and Ghana (wpm)

Grade		Ghana (Ga)		Ghana (Ewe)		Ghana (Dagbani)		Rwanda (English)	
		Cont.	Treat.	Cont.	Treat.	Cont.	Treat.	Cont.	Treat.
Grade 1	Boys	2	0	9.56	9.44	0.26	0.64	0.22	1
	Girls	6.33	0	6.96	14.1	0.3	0.23	0.41	1.82
	Difference	+4.33	0	-2.6	+4.66	+0.04	-0.41	+0.19	+0.82
	All	4.17	0	8.21	11.77	0.28	0.44	0.31	1.42
Grade 2	Boys	0	0.15	1.8	3.54	1.47	2.58	2.31	4.61
	Girls	0	0.58	3.9	3.5	0.91	1.54	3.16	2.41
	Difference	0	+0.43	+2.1	-0.04	-0.56	-1.04	+0.85	-2.2
	All	0	0.36	2.95	3.52	1.19	2.06	2.69	3.53
Grade 3	Boys	0.71	0.46	8.65	8.06	5.59	4.03	13.14	12.14
	Girls	0	0.12	10.29	13.14	3.88	1.26	10.92	11.49
	Difference	-0.71	-0.34	+1.64	+5.08	-1.71	-2.77	-2.22	-0.65
	All	0.36	0.27	9.33	10.43	4.74	2.61	12.07	11.85

Numeracy is measured through the standardized Early Grade Mathematics Assessment (EGMA). The Core EGMA assessment is an assessment of early mathematics learning, with an emphasis on number and operations. It consists of 6 subtasks that, taken together, produce a snapshot of children's knowledge of the competencies that are fundamental in early grade mathematics.

We also tested four additional subtasks that include a more difficult set of addition and subtraction questions, as well as multiplication and division.

To calculate an overall numeracy percentage, we calculate the total percentage correct across the first 8 subtasks and, for those subtasks that aim to communicate a rate, we calculate a total percentage correct without a timing element. This is done with the purpose of evaluating whether the tool offers the right level of difficulty across grade levels and to compare the treatment sample to the counterfactual in the DiD model.

The numeracy score presented includes the first 8 subtasks and excludes the multiplication and division tasks. Subtask competencies are summarized in the table following.

Table 6. EGMA Framework

Subtask	Competency	Measure
EGMA Framework		
<i>Subtask 1 – Number Identification</i>	Identifying numbers and knowing their names.	Total numbers read correctly in one minute
<i>Subtask 2 – Number Discrimination</i>	Reasoning about magnitude.	Total % correct (or 10/10)
<i>Subtask 3 – Missing Number</i>	Recognition of number patterns. The ability to detect is an important early skill that can support later mathematical skills such as multiplication ¹⁶ and algebraic thinking ¹⁷	Total % correct (or 10/10)
<i>Subtask 4: Word Problems</i>	Basic mathematics problems with increasing difficulty.	Total % correct (or 4/4)
<i>Subtask 5a: Addition Level 1</i>	Basic addition problems timed to a max of 60s	Number of Addition Problems Correct per Minute
<i>Subtask 5b: Subtraction Level 1</i>	Basic subtraction problems timed to a max of 60s	Number of Subtraction Problems Correct per Minute
<i>Subtask 6a: Addition Level 2</i>	Addition problems of a higher difficulty (2- and 3-digit numbers), not timed.	Total % correct (or 6/6)
<i>Subtask 6b: Subtraction Level 2</i>	Subtraction problems of a higher difficulty (2- and 3-digit numbers), not timed.	Total % correct (or 6/6)
<i>Subtask 7: Multiplication</i>	Multiplication problems	Total % correct (or 5/5)
<i>Subtask 8: Division</i>	Not a competency of the P1 – P3 curriculum but data gathered for test-development purposes at endline.	Total % correct (or 5/5)

Numeracy results, as measured by overall numeracy score (%), per grade level for each country are presented in Table 7.

In Ghana and Rwanda boys, on average, have slightly higher numeracy scores than girls in most grade levels. In Mozambique, results are mixed.

Although independent sample t-tests to compare mean numeracy results by sex in each grade level were non-significant in all countries, there is a general trend in Ghana and Rwanda for boys on average to score slightly better than girls on average. In the treatment group this was true for grades 1 and 3 in Ghana and all grades in Rwanda.

In Mozambique comparisons by sex were mixed. In the treatment group girls on average scored slightly better than boys' grade 1 and 2 but not in grade 3. In the control group, girls scored better than boys in grade 1 and 3 but not in grade 2.

In both evaluation groups and in all countries, there is an average improvement in numeracy score as children progress in grade level. Numeracy results are largely comparable across countries.

Table 7. Numeracy Overall Score by Country, Grade, and Sex (%)

Grade		Ghana		Rwanda		Mozambique	
		Control	Treatment	Control	Treatment	Control	Treatment
Grade 1	Boys	29.11	33.68	29.13	30.27	16.59	13.67
	Girls	27.88	30.19	30.98	29.06	17.78	15.79
	Difference	-1.23	-3.49	+1.85	-1.21	+1.19	+2.12
	All	28.50	31.93	30.03	29.58	17.21	14.74
Grade 2	Boys	44.99	45.05	50.15	54.08	41.87	34.47
	Girls	42.3	49.29	51.03	48.85	40.14	36.88

¹⁶ Geary, 1994

¹⁷ Sarana & Clements, 2009

Grade		Ghana		Rwanda		Mozambique	
		Control	Treatment	Control	Treatment	Control	Treatment
Grade 3	Difference	-2.69	+4.24	+0.88	-5.23	-1.73	+2.41
	All	43.58	47.17	50.58	51.33	40.96	35.74
	Boys	57.44	55.04	61.76	63.09	59.15	56.91
	Girls	51.8	52.9	57.28	61.96	62.34	50.64
	Difference	-5.64	-2.14	-4.48	-1.13	+3.19	-6.27
	All	54.59	53.99	59.53	62.53	60.63	53.78

To understand what predicts learning outcomes, we ran a multiple regression in each country for each sex using sub-group memberships as predictive variables. The table following summarizes all cases where sub-group membership predicted learning outcomes at statistically significant levels. Specific barriers to learning are discussed in more detail in Section 4.

Table 8 Sub-group Membership & Learning Outcomes

	Ghana		Rwanda		Mozambique	
	Boys	Girls	Boys	Girls	Boys	Girls
Parent has no formal education	✓(-) 	✓(-)  				
Parent cannot read in own language	✓(-)  				✓(-) 	
Living in a household with no access to electricity			✓(-) 	✓(-)  		
Living in a female-headed household						✓(+)  
Child does not speak the language of instruction			✓(-) 		✓(-)   	✓(-)  
Child did not attend pre-school	✓(-)   	✓(-)   				

✓(-) = Membership negatively predicts outcome; ✓(+) = Membership positively predicts outcome;  =

Numeracy;  = Basic EGRA Composite (measure of early literacy skills);  = Oral Reading Fluency

The educational level of children's parents had a visible effect on learning outcomes in Mozambique, for boys, and Ghana, for boys and girls.

In Ghana, for boys, having a parent with no formal education has a negative effect on basic EGRA composite score at statistically significant levels ($p < 0.05$; $B = -9.45$). Having a parent with no formal education lead to an average decrease of 9.45% on basic EGRA composite score. This suggests that a parents' educational level may have a role to play in supporting early literacy skill development for boys.

For girls in Ghana, having a parent with no formal education negatively predicted numeracy ($p < 0.05$; $B = -7.96$) and oral reading fluency scores ($p < 0.05$; $B = -8.4$). Girls whose parents had no formal education scored on average 8.4 words less per minute on the oral reading fluency subtask and 7.96% less on

EGMA. This finding suggests that a parents' educational level has a role to play in supporting both oral reading fluency and numeracy levels.

In Mozambique and Ghana for boys, having a parent who cannot read in their own language has a negative effect on numeracy levels at statistically significant levels ($p < 0.05$; Ghana $B = -6.70$; Mozambique $B = -5.78$). In Ghana this also has a negative effect on early literacy skills, as measured through basic EGRA composite score ($p < 0.05$; $B = -5.66$).

Collectively, these findings indicate that a parent's level of education visibly effects the learning outcomes of their children in Ghana and Mozambique. These variables did not have a visible effect on learning outcomes in Rwanda.

Not having attended pre-school has a negative effect on both literacy and numeracy outcomes in Ghana for both boys and girls.

In Ghana for both boys and girls, not having attended pre-school has a negative effect on both literacy and numeracy outcomes at statistically significant levels ($p < 0.05$). For boys, this results in an average decrease of 8.60% in numeracy scores ($B = -8.60$), 10.35% in basic EGRA composite ($B = -10.35$) and reading 4.93 words per minute less in the oral reading fluency subtask ($B = -4.93$). For girls this results in an average decrease of 7.0% in numeracy scores ($B = -7.0$), 11.20% in basic EGRA composite ($B = -11.20$) and reading 7.21 words per minute less in the oral reading fluency subtask ($B = -7.21$).

There is a wide body of child development literature that indicates that attending pre-school in formative years is key to developing linguistic, cognitive, social, emotional, and regulatory skills that later play a role in predicting various functional domains. The GREAT Programme currently supports kindergartens in Ghana to integrate GRPBL into teaching practices.

Living in a household with no electricity leads to lower learning outcomes for both boys and girls in Rwanda.

For boys in Rwanda, living in a household with no electricity has a negative effect on numeracy at statistically significant levels ($p < 0.05$). This leads to an average decrease of 8.5% in numeracy ($B = -8.50$). For girls, living in a household with no electricity has a negative effect on numeracy and oral reading fluency at statistically significant levels ($p < 0.05$). This leads to a decrease of 6.8% in numeracy ($B = -6.8$) and reading 5.01 words less per minute in the oral reading fluency subtask ($B = -5.01$).

Not speaking the language of instruction has a negative effect on learning outcomes for boys and girls in Mozambique and boys in Rwanda.

For both girls and boys, not speaking Portuguese in Mozambique, has a negative effect on learning outcomes at statistically significant levels ($p < 0.05$). For boys, this results in scoring 13.45% less in the numeracy assessment ($B = -13.45$), 8.63% in basic EGRA composite ($B = -8.63$) and reading 5.23 words less per minute in the oral reading fluency subtask ($B = -5.23$). For girls, this results in scoring 8.08% less in numeracy and % less in basic EGRA composite ($B = -8.08$).

For boys not speaking Kinyarwanda in Rwanda, has a negative effect on learning outcomes at statistically significant levels ($p < 0.05$). This results in scoring 15.14% less on the numeracy assessment ($B = -15.14$).

Living in a female-headed household has a positive effect on literacy and numeracy outcomes for girls in Mozambique.

Study findings suggest that living in a female-headed household may in fact support the learning of girls in Mozambique. Living in a female-headed household had a positive effect at statistically significant levels in predicting numeracy scores and basic EGRA composite score for girls ($p < 0.05$). This led to girls scoring 15.30% more on the numeracy assessment ($B = 15.30$) and 14.96% more on basic EGRA composite ($B = 14.96$). Future studies for the project should explore and seek to explain this finding further.

3.1.1.2 Attending and Staying in School

Attendance was measured using historical attendance data made available by school authorities through school registries and attendance records. Attendance was measured at the individual-level as the percentage proportion of days present at school over the total number of days the school was open in that month. In all countries, a calendar month where no major factors affecting attendance was chosen (e.g. when no holidays occurred, and outside raining and agricultural seasons). This enabled us to compare attendance rates across time and regions and will help us isolate the effect of the intervention through the DiD model in later evaluation periods. Enrolment and retention will be measured at future evaluation points through the HHS and the DID method.

There are no differences in the attendance level between males and females in any of the three countries

According to independent-sample t-tests, there are no significant differences in the percentage total days attended in a school calendar month between males and females in any of the three countries. UNESCO education country statistics on net attendance rates in primary school also show no differences in the attendance rates of boys and girls.

Table 9 Attendance Rates by Country and Sex

Sex	Ghana		Rwanda		Mozambique	
	Control	Treatment	Control	Treatment	Control	Treatment
	%	%	%	%	%	%
Male	87.5	86.8	96.1	95.2	87.3	88.0
Female	87.3	87.3	96.2	95.9	89.5	86.5
Difference	-0.2	0.5	0.1	0.7	2.2	-1.5
Total	87.4	87.1	96.1	95.6	88.5	87.2

Attendance to school is highest in Rwanda, followed by Mozambique and Ghana

The average attendance rate for treatment boys and girls in Rwanda is 96%, followed by 87% in both Ghana and Mozambique. According to UNICEF education statistics, these rates are comparable to national net attendance rates for primary school in Rwanda, which is 94%. However, in Mozambique the average attendance rate of treatment schools is 10% higher than the national rate and in Ghana is 10% higher. This could be the result of a sampling bias, as children attending school were sampled in the study or the fact that UNESCO statistics considers the later years of primary school also.

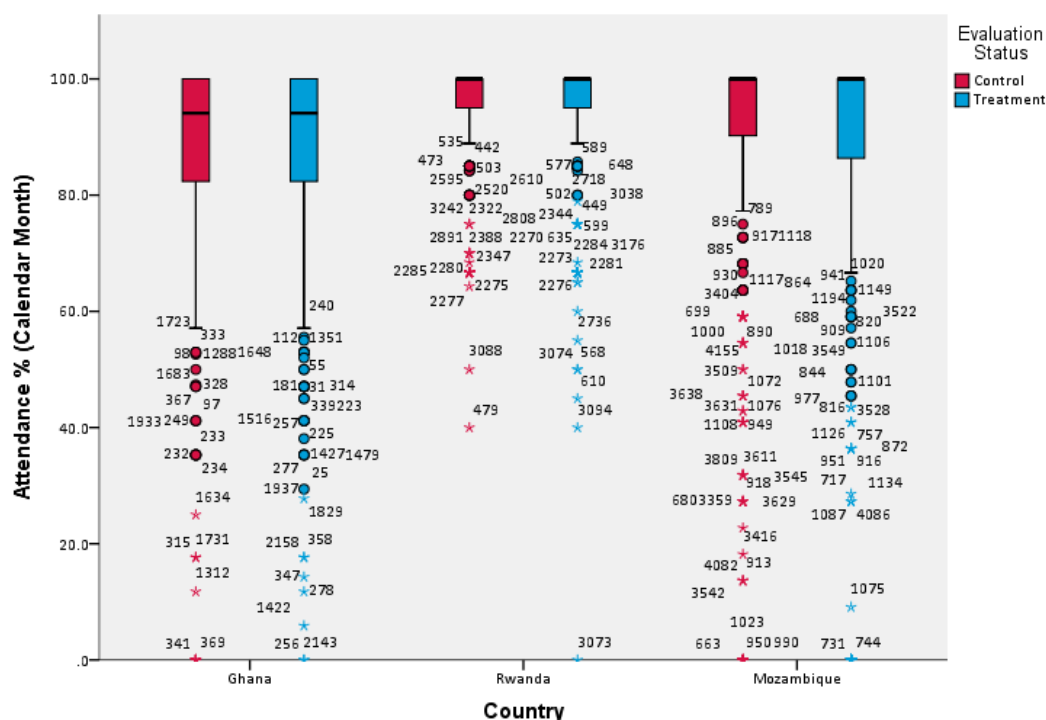
Aggregate rates are sustained across grade levels, except in Mozambique where boys and girls attend school more as they progress through early primary school

In Mozambique, attendance increases from 86% to 90% when children progress from Grade 1 in primary school to Grade 3. In Rwanda and Ghana, the attendance level remains the same across grade levels.

Many children have extremely low attendance rates and are likely to face different barriers to attendance that most of their peers

5% of the total sample in Ghana, 9% of the sample in Rwanda and 13% of the sample in Mozambique are outliers¹⁸. The presence of many outliers indicates that a different population than the rest of the sample set might exist, and this population could face different barriers to attendance. There are no significant differences in the number of outliers between sexes or between treatment and control cases in any of the countries.

Figure 6 Box Plot for the Baseline Attendance Rate of Treatment and Control Cases by Country



Depending on the country, belonging to different sub-groups predicts the attendance rate. However, factors other than characteristics are also likely to be at play.

In Mozambique, a multiple regression model for the non-outlier group confirms that children with a disability attend, on average, 4% less than to school than non-disabled children ($\beta = -4.196$, $p < 0.05$). Children who do not speak the language of instruction and single orphans attend 2% less ($\beta = -1.706$, $p < 0.05$ and $\beta = -1.706$, $p < 0.05$, respectively). The model in Mozambique was able to explain only 3% of the attendance rate, suggesting that other factors are also likely at play as it will be discussed in section 4 ($F(13, 883) = 3.022$, $p < .001$, $r^2 = 0.029$).

In Ghana, if a child belongs to a household that experiences moderate to high hardship¹⁹ has 2% lower attendance than the rest.

¹⁸ Outliers are defined as having a mean lower (or higher) than twice the standard deviations of the mean. In Ghana, this means attending less than 56% of the time, in Rwanda this means attending less than 86% of the time, and in Mozambique this means attending less than 67% of the time.

¹⁹ A household is considered to experience hardship when they experience the following for 10 or more days: (1) Gone to sleep at night feeling hungry; (2) Gone without enough clean water for home use; (3) Gone without

In any of countries, regression models indicate that belonging to any of the relevant sub-groups (e.g. sex, age, grade, etc) does not predict the attendance rate for the *outlier* cases. In Rwanda, none of these characteristics predicted attendance suggesting that other factors, such as barriers to attendance, are at play (see Section 4.XX). This means that both girls and boys have similar attendance rates.

Qualitative sessions, orphans were reported as being a particularly vulnerable group, often facing neglect by the families taking care of them, who reportedly prioritize the education of their biological children.

According to UNESCO statistics, attendance rates are also lower in rural areas when compared to urban areas in both Ghana and Mozambique.

3.1.1.3 Life Skills

Through the intervention the project targets several life skills including (1) self-esteem, (2) resilience, (3) leadership, (4) pro-social behavior, and (5) intrinsic motivation.

- **Self-esteem** (also known as self-worth) refers to the extent to which we like accept or approve of ourselves, or how much we value ourselves. Self-esteem always involves a degree of evaluation and we may have either a positive or a negative view of ourselves²⁰. Self-esteem is closely associated with well-being and several other adaptive outcomes for children, adolescents and adults in diverse cultures²¹.
- **Resilience** refers to the extent to which children can persist in challenging tasks or recover from difficult life events. Through play-based learning approaches we expect children to simulate struggle and, over time, develop improvements in their resilience.
- **Leadership** skills allow children to have control of their lives and the ability to make things happen. Leadership instills confidence, and helps children solve problems creatively, work in a team, and work collaboratively with others. Leadership gives children opportunities to develop responsibility. As such, it is an important project outcome in the domain of life skills in and of itself.
- **Prosocial behavior** can take the form of sharing, cooperating and helping others. Prosocial behavior in the form of sharing, helping, and cooperating is a hallmark of social competence throughout childhood. Of direct relevance for schooling is that prosocial behavior has been related positively to intellectual outcomes²² and to other socially competent outcomes, including social acceptance, approval among classmates and being liked by teachers.

Findings across these life skill dimensions are presented below:

medicines or medical treatment, and; (4) Gone without cash income. A mean aggregate score was created among these items.

²⁰ Reference MvE

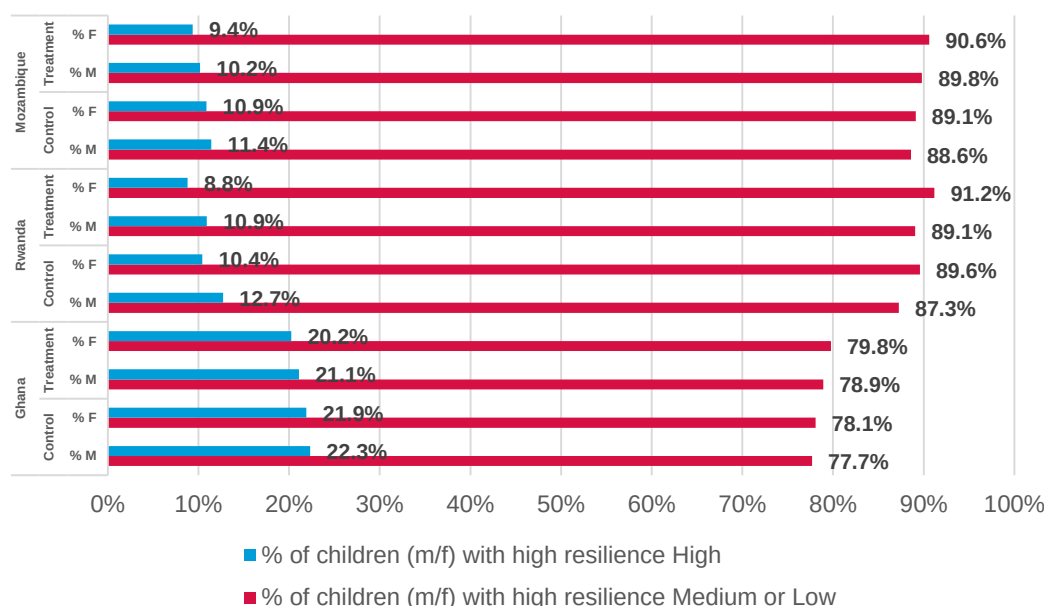
²¹ Reference MvE

²² Wentzel KR (2013) School adjustment. In: Reynolds W, Miller G, eds. *Handbook of psychology, Vol. 7: Educational psychology*. New York: Wiley; 235-258.

While Ghana has a higher proportion of children with self-esteem than other countries, most children in all countries have low to medium self-esteem

In Ghana, there exists a higher proportion of children with high self-esteem than in other countries. See Figure 7 Proportion of Boys and Girls with High and Low Self Esteem (by Treatment Status) below for an overview of the main comparisons:

Figure 7 Proportion of Boys and Girls with High and Low Self Esteem (by Treatment Status)



Children with low self-esteem are likely to be girls

Being a girl negatively predicts self-esteem when data from all countries is considered and remains significant in the presence of other covariates such as economic, social or individual variables ($\beta = -0.46$, $p < 0.05$; $F(11, 3915) = 7.174$, $p < 0.001$, $r^2 = 0.02$).

The effect of gender and self-esteem is strongest in Rwanda, where 9% of girls compared to 11% of boys have high-self-esteem. A linear regression shows that girls are more likely to have 1% lower self-esteem than boys ($\beta = -0.83$, $p < 0.05$; $F(1, 648) = 4.478$, $p < 0.05$, $r^2 = 0.01$). These differences are not present in other countries.

Boys and girls living in female headed households have higher self-esteem, as do double orphans and children living in households with moderate hardship

Living in a female headed household positively predicts self-esteem when data from all countries is considered and remains significant in the presence of other covariates such as sex, economic, social or individual variables ($\beta = -0.1$, $p < 0.05$; $F(11, 3915) = 7.174$, $p < 0.001$, $r^2 = 0.02$).

In the same model, being a double orphan or living in a household with moderate hardship also positively affects self-esteem. This suggests that economic hardship could have an unpredicted effect on a child's perception of self-worth.

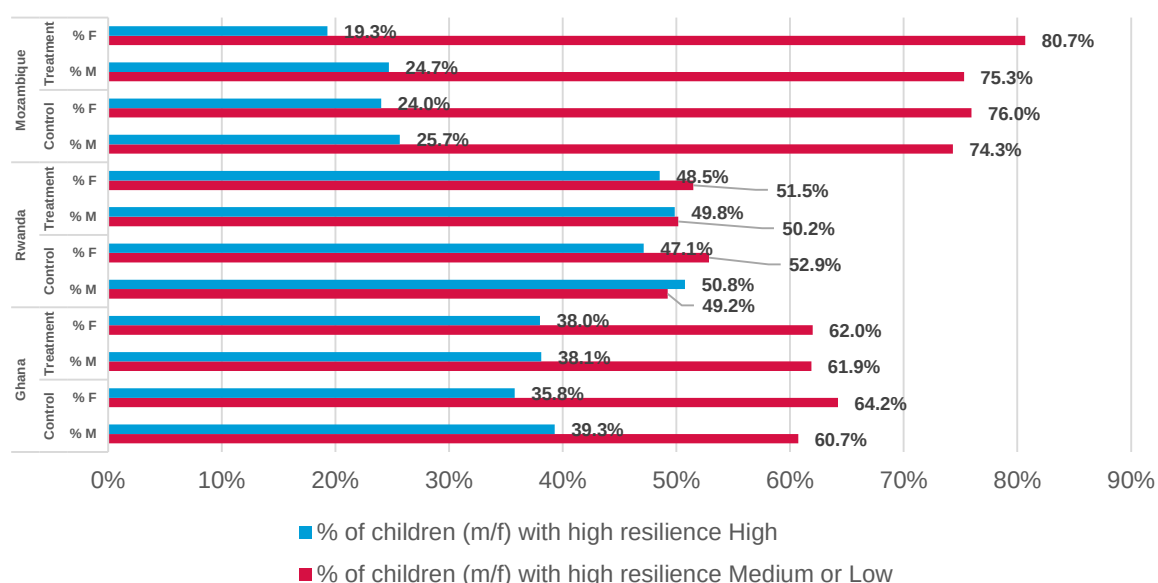
A girls' self-esteem does not depend on her age or whether she is in a treatment or control school

When a child's age, sex or treatment status are considered as predictors of his or her self-esteem, multiple regression models show that his or her sex is the only significant predictor and only in Rwanda. This suggests that no major differences in self-esteem exist between treatment and control areas or age-groups.

Rwanda has more resilient children than other countries

In Rwanda, there is a higher proportion of children with high resilience than in other countries. See Figure 7 Proportion of Boys and Girls with High and Low Self Esteem (by Treatment Status) below for an overview of the main comparisons:

Figure 8 Proportion of Boys and Girls with High and Low Resilience (by Treatment Status)

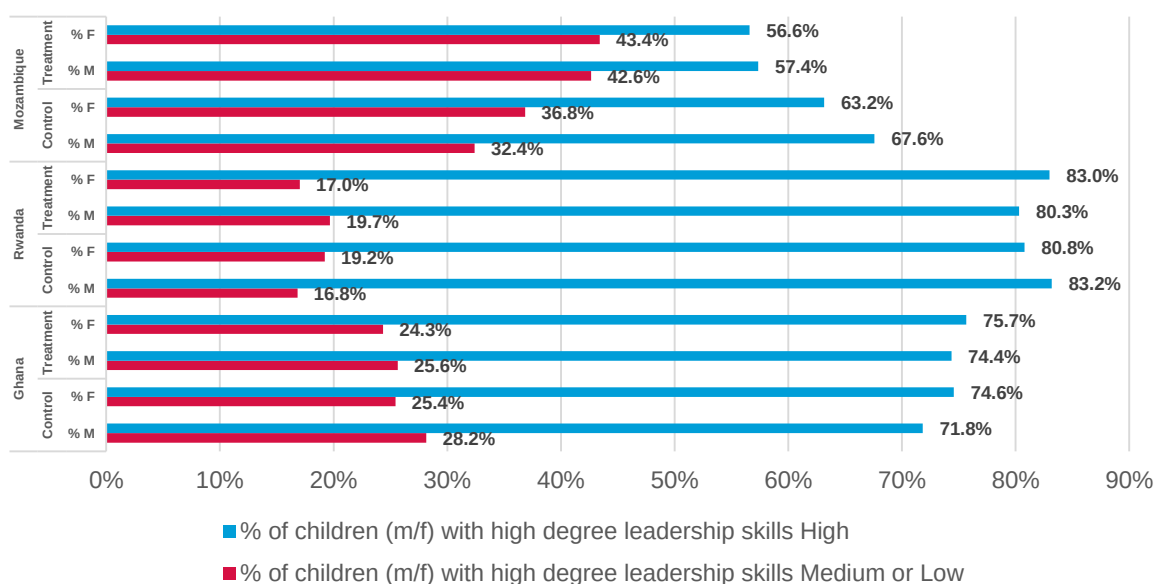


Parents who cannot read have children with lower resilience in Rwanda

Of all relevant sub-groups, children from parents who cannot read tend to have lower resilience. To summarize the main variables that explain differences in resilience, a multiple regression was run. Through this analysis, it was found that, on average, children with parents who cannot read have 4% less resilience than their peers.

In all countries, most children have strong leadership skills

83% of girls and 80% of boys have strong leadership skills in Rwanda, followed by 76% of girls and 75% of boys in Ghana, and 57% in Mozambique for both boys and girls. Children with leadership skills can work well in a group with other students, organize their friends to do an activity, lead play activities, trying out new activity, ask an adult for help when they need to, and tell others their opinions when they want to. See Figure 9 Proportion of Boys and Girls with High and Low Leadership Skills (by Treatment Status) below:

Figure 9 Proportion of Boys and Girls with High and Low Leadership Skills (by Treatment Status)

In Mozambique, girls have lower leadership skills than their male peers

Multiple regression analysis shows that sex is a significant predictor of leadership in Mozambique, but not in other countries ($\beta = -0.69$, $p < 0.001$; $F(11, 1342) = 5.084$, $p < 0.001$, $r^2 = 0.04$). This means that, on average, girls have 1% lower leadership scores than boys. The same gender effect was not found in other countries.

In general, a child's leadership skills grow as he or she gets older

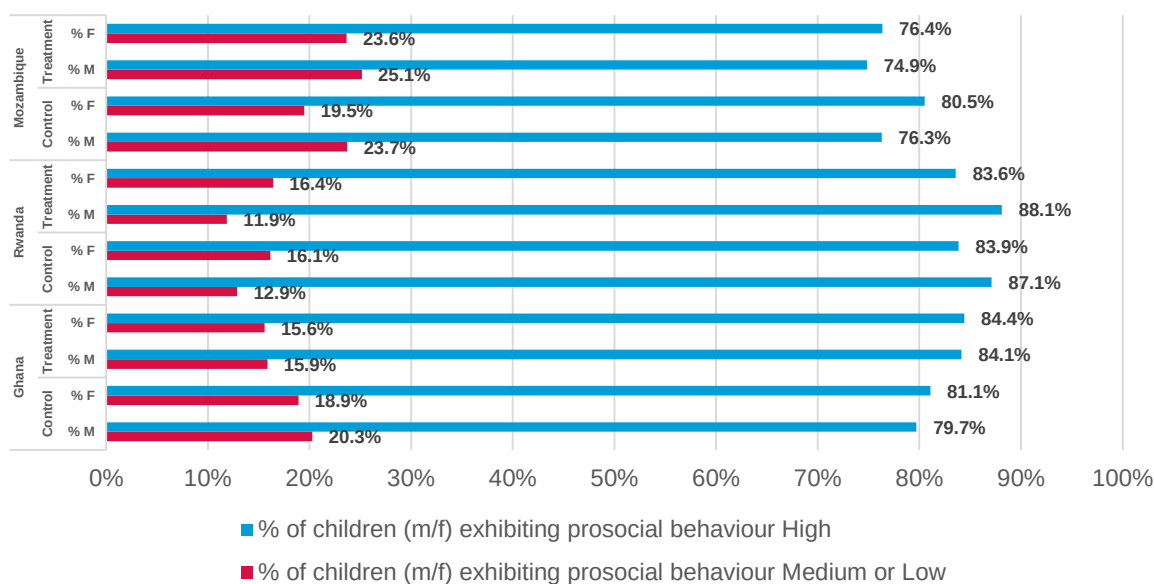
As children get older, they become better able to plan and lead others into action. This effect was present across all countries ($\beta = 0.31$, $p < 0.001$; $F(11, 4013) = 5.66$, $p < 0.001$, $r^2 = 0.015$).

Children facing extreme and moderate hardship display stronger leadership skills than children from households without hardship

In these households, children in the extreme ($\beta = 0.09$, $p < 0.05$) and moderate hardship ($\beta = 0.06$, $p < 0.05$) categories showed an average of 1% higher leadership scores than the rest of the children ($F(11, 4013) = 5.63$, $p < 0.001$, $r^2 = 0.015$).

Boys and girls alike have strong prosocial skills and

The strongest skills were found in Rwanda (87% of children), followed by Ghana (82% of children) and then Mozambique (77% of children). While differences exist between boys and girls in terms of absolute proportion values, these differences are not significant according to multiple regression models. See Figure 10 Proportion of Boys and Girls with High and Low Prosocial Behavior Skills (by Treatment Status) below:

Figure 10 Proportion of Boys and Girls with High and Low Prosocial Behavior Skills (by Treatment Status)

In Mozambique, children have higher prosocial skills as they grow older

Multiple regressions show that children gain 1% score in prosocial behavior as they grow 1 year older ($F(11, 1366) = 2.482, p < 0.05, r^2 = 0.020$). This effect is not present in other countries.

3.1.1.4 Positive Learning Environments

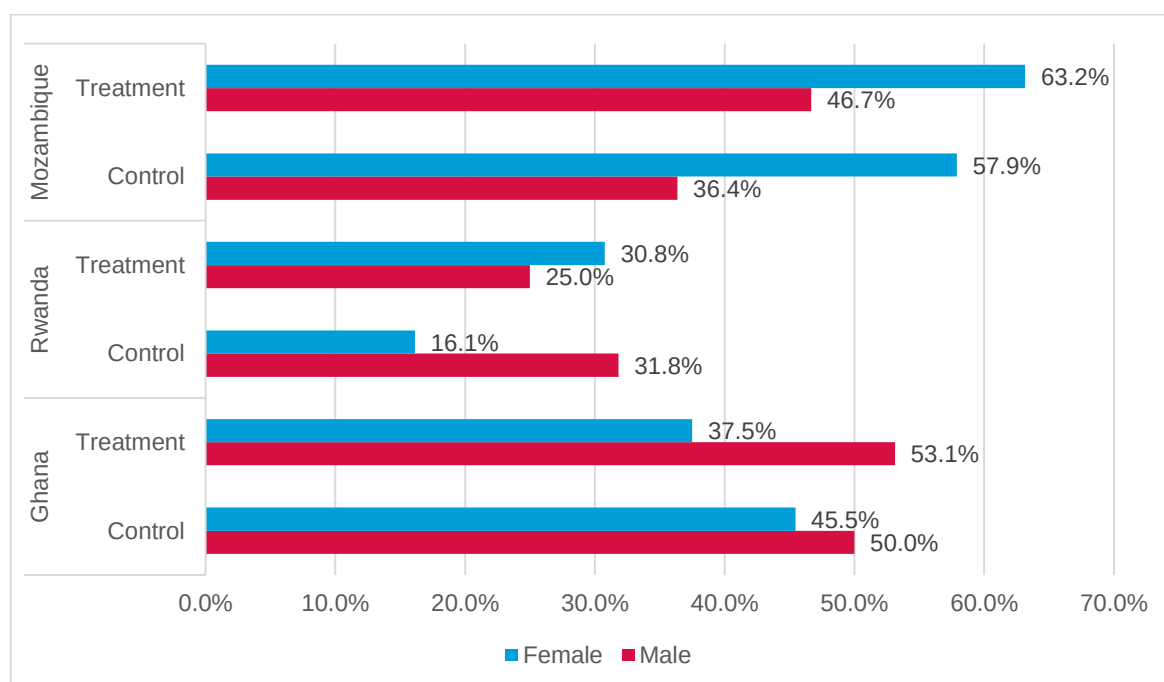
To understand the extent to which lessons are child-centred at baseline, the study conducted lesson observations in both treatment and control schools. Three variables were selected to understand the extent to which lessons are child-centred:

- Whether the teacher calls on both boys and girls by name
- Whether the teacher speaks to children in a friendly tone
- Whether the teacher acknowledges student effort, even when they got the wrong answer

Lessons which met all three criteria were categorized as being child-centred.

Summary results for these indicators in treatment and control schools are displayed in Figure 11.

Figure 11. Proportion of Lessons with Child-centred Teaching Practices



In Mozambique and Rwanda, a higher proportion of female teachers observed exhibited child-centred teaching practices than male teachers observed. In Ghana, a higher proportion of male teachers exhibited child-centred teaching practices than female teachers.

In Mozambique and Rwanda, more female teachers exhibited child-centred behaviors than male teachers in treatment schools. However, the reverse was the case for Ghana.

By baseline:

- In Ghana, 53.1% of male teachers observed and 37.5% of female teachers observed exhibited child-centred teaching practices.
- In Rwanda, 25% of male teachers observed and 30.8% of female teachers observed exhibited child-centred teaching practices.
- In Mozambique, 46.7% of male teachers observed and 63.2% of female teachers observed exhibited child-centred teaching practices.

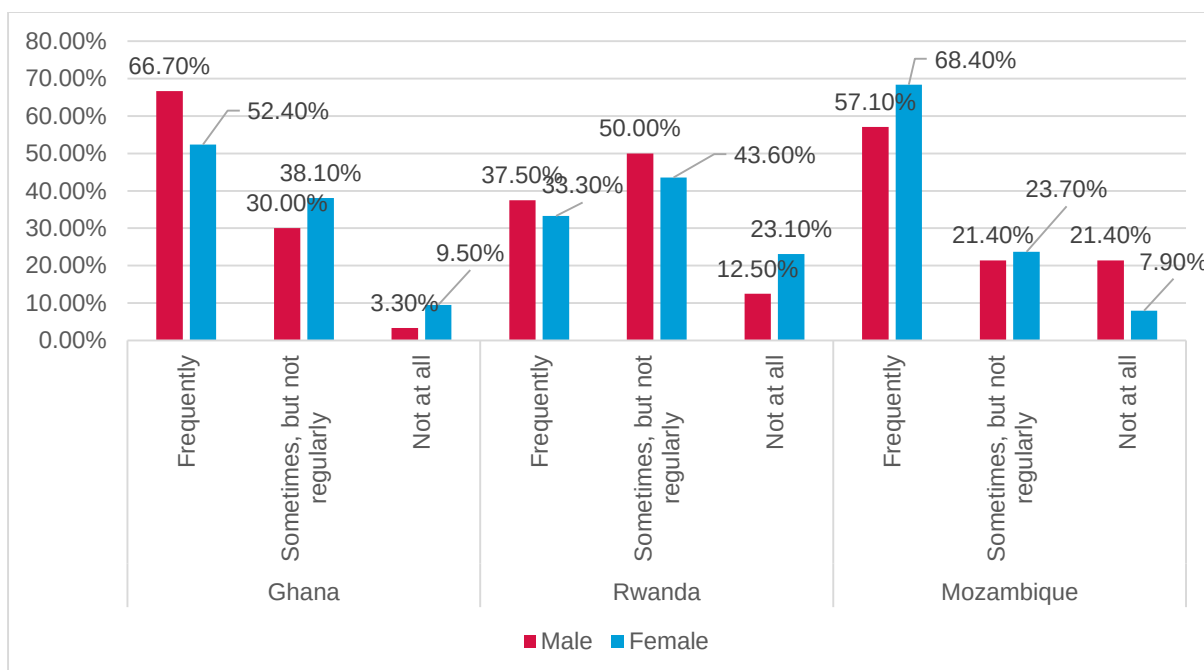
Of all three variables used to understand child-centred teaching practices, acknowledging student effort, even when they get a question wrong was the least common practice observed in all countries.

A high proportion of teachers in all countries do not acknowledge student effort when they answer a question incorrectly. This can influence the likelihood of children participating in class in the future.

Results by sex of the teacher observed for the treatment group are summarized in Figure 12.

In Ghana and Rwanda, a higher proportion of male teachers were observed to acknowledge student effort than female teachers. In Mozambique a higher proportion of female teachers acknowledge student effort when they got a question wrong.

Figure 12. Does the teacher actively acknowledge student effort when they give incorrect answers? (For example: by thanking them for participating)



To understand the extent to which the learning climate was supportive, children were asked several items to assess their relationships with teachers and the extent to which teachers provide them with individual assistance and constructive feedback. The construction of this indicator is discussed in further depth in Section 3.1.2.1.

By baseline:

- In Ghana, 67.1% boys and 66.9% of girls perceive their learning climate to be supportive.
- In Rwanda, 85.9% of boys and 80.3% of girls perceive their learning climate to be supportive.
- In Mozambique, 42.5% of boys and 47.9% of girls perceive their learning climate to be supportive.

3.1.2 Intermediate Outcomes

3.1.2.1 Pillar 1100: Increased integration of gender-responsive play-based learning (GRPBL) by teachers into teaching practice

GREAT aims to achieve this intermediate outcome by improving teachers' skills to implement gender-responsive, PBL into their teaching practice, improving the capacity of communities of practice (CoPs) to provide peer support to them, and improving the abilities of principals/head teachers to support implementation of GRPBL in schools.

Most activities associated with this outcome, are based on the Continuum of Teacher Training (CoTT). RtP defines the CoTT to include training and professional development that provides teachers with the knowledge, attitudes and skills to create a child-centred, play-based and positive learning environment for children to grow and develop to their fullest potential and to achieve expected national curriculum outcomes.

The CoTT approach relies on three components: (1) teacher training (2) coaching and mentoring (3) community of practices. Teacher training is expected to lead to improved adoption of gender responsive

play-based learning while both community of practices and on-going coaching and mentoring from school leadership, are expected to support and sustain this adoption.

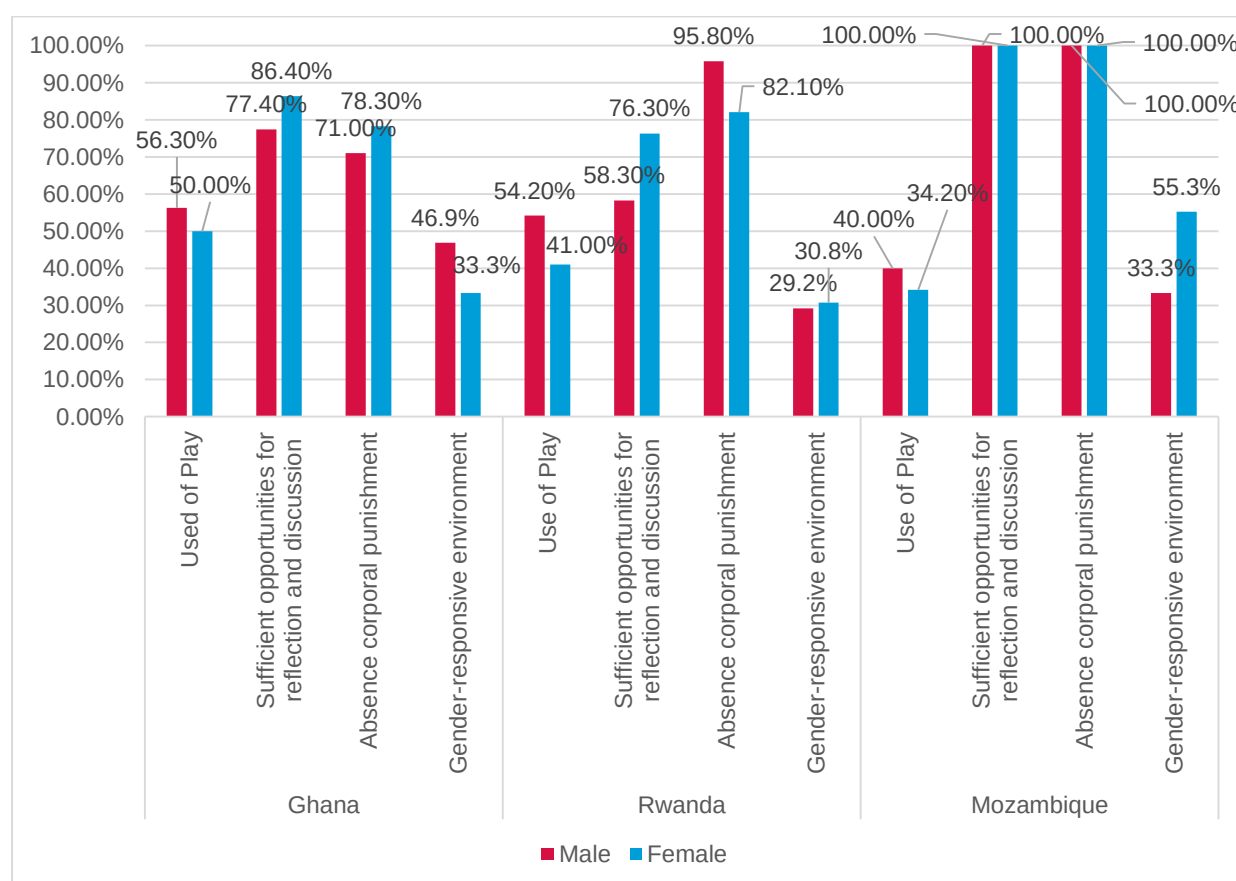
The intervention assumes that improved skills in the practice of GRPBL, and improved CoP and principal/head teacher capacity will result in a meaningful culture shift in schools, where teachers embrace and adopt GRPBL in their classrooms, fully supported by their school environment.

To understand the extent to which GRPBL has been adopted by teachers at Baseline, the study conducted lesson observations built around the project's teacher training curriculum. To benchmark the proportion of lessons integrating GRPBL, the study set four indicators:

- Whether the lesson used play-based approaches
- Whether the lesson provided opportunities for reflection and discussion
- Whether the lesson did not use corporal punishment
- Whether the lesson was gender-responsive in its treatment of boys and girls

Results for all four sub-indicators per country by sex of the teacher are shown in Figure 13 for the treatment group.

Figure 13. Integration of GRPBL by Country & Sex



By baseline, higher proportion of teachers in Mozambique had adopted GRPBL methodologies than in other countries. In Rwanda and Ghana overall results for GRPBL integration were highly comparable between male and female teachers.

To understand the proportion of teachers integrating GRPBL in their lessons, the study only considered lessons which met the criteria for all 4 sub-indicators. Using this method, by baseline:

- In Ghana, 9.4% of male teachers and 8.3% of female teachers had adopted GRPBL methodologies.
- In Mozambique, 20.0% of male teachers and 21.1% of female teachers had adopted GRPBL methodologies.
- In Rwanda, 8.3% of male teachers and 10.3% of female teachers had adopted GRPBL methodologies.

Across all countries, teachers were least likely to have adopted gender-responsive teaching practices of the four sub-indicators reviewed to assess the adoption of GRPBL.

As shown in Figure 13, teachers in all countries were more likely to use play-based methods, provide opportunities for discussion and reflection, and not use corporal punishment that have gender-responsive lessons.

To understand the extent to which lessons were gender-responsive, the study included three measures: the number of times a teacher called on boys and girls, the number of times a teacher praised either boys or girls, and the number of times a teacher positively reinforced boys or girls' behaviour.

To obtain a ratio for each measure the total number of times a given behaviour was done for a girl was divided by the total number of times it was done for boy. Using this method, a result of 1 would indicate that boys and girls are treated equally. A result higher than 1 would indicate an environment that was favoured towards on that measure girls, and a result less than 1 would indicate an environment that was favoured towards boys on the given measure. A gender-ratio was calculated for each of the three measures listed above. These ratios were averaged to obtain a final gender-ratio mean. If a lesson had a mean greater than 1 it was categorized as being gender-responsive.

Based on a review of gender-responsive means at baseline:

- In Ghana, 33.3% of female teachers and 46.9% of male teachers demonstrated gender-responsive teaching.
- In Rwanda, 30.8% of female teachers and 29.2% of male teachers demonstrate gender-responsive teaching.
- In Mozambique, 55.3% of female teachers and 33.3% of male teachers demonstrate gender-responsive teaching.

Mozambique had the highest proportion of gender-responsive lessons, although there were large differences between male and female teachers on this indicator. Rwanda had the lowest proportion of gender-responsive lessons.

To understand each of the individual gender-ratios Figure 14 displays the proportion of teachers observed who met the criteria for each individual sub-ratio.

In Ghana, female teachers were least likely to reinforce the positive behaviour of boys and girls in equally. Male teachers in Ghana were least likely to call on boys and girls equally. In Ghana, although across most indicators, male teachers outperformed female teachers, the overall indicator results, which are based on mean scores, suggest that when male teachers treat children unequally this is to a greater extent than female teachers do.

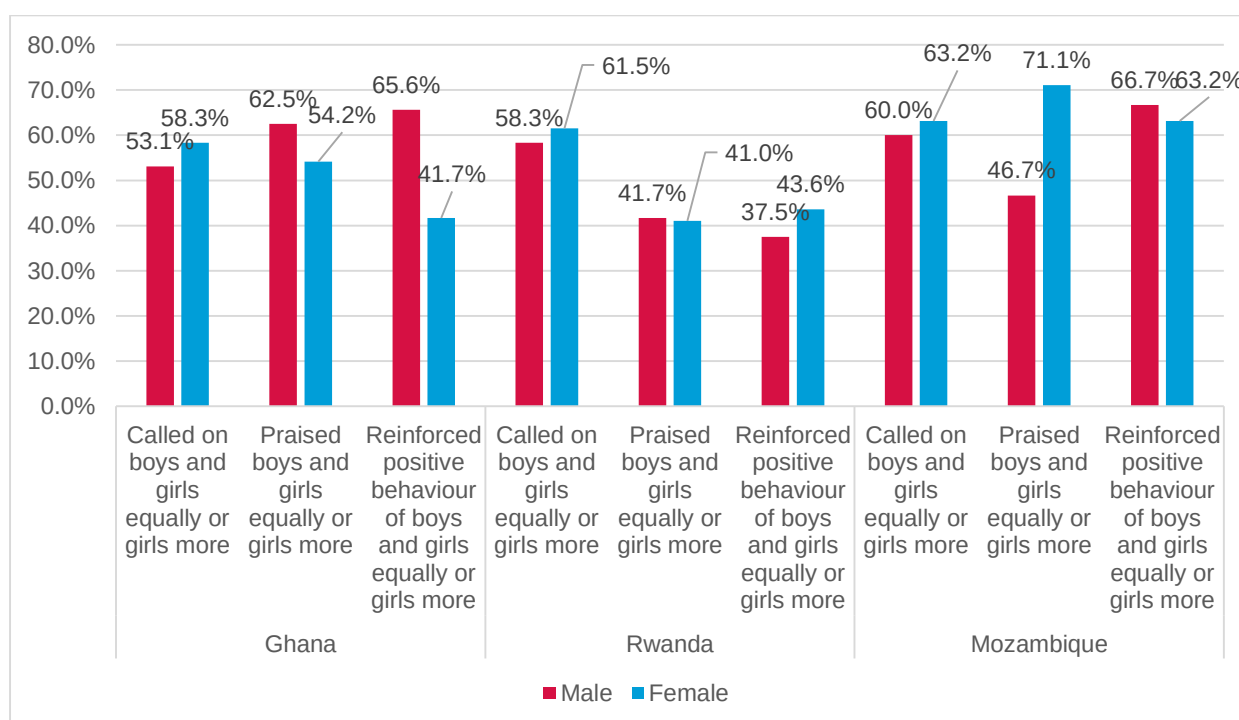
In Rwanda, female teachers were least likely to praise boys and girls equally. Male teachers were least likely to reinforce positive behaviour of boys and girls equally. In Rwanda, although results were fairly similar across sub-indicators, female teachers generally outperformed male teachers.

In Mozambique, female teachers were least likely to call on boys and girls equally or reinforce positive behaviour equally, or in favour of girls. Male teachers in Mozambique, were least likely to praise boys and girls equally.

In Mozambique, female teachers generally outperformed male teachers. There was a large difference between the proportion of female teachers who praised boys and girls equally (71.1%) and the proportion of male teachers who did so (46.7%). Chi-square tests find this association to be significant indicating that female teachers are more likely to praise boys and girls equally, or girls more, in Mozambique than male teachers ($p < 0.05$).

Overall, Rwanda had the least gender-responsive lessons whilst Mozambique had the most gender-responsive lessons, based on this review.

Figure 14. Gender-responsive Environment by Sub-ratios

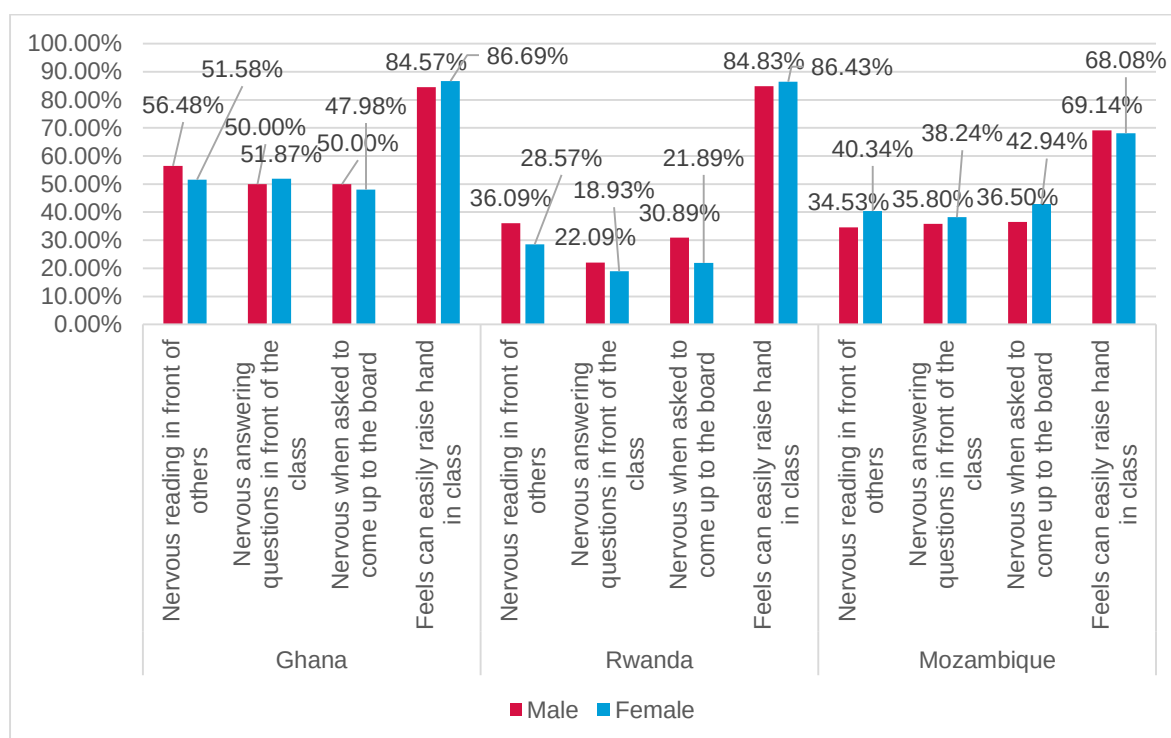


At the intermediate level, the project aims to support girls to engage in classroom activities, with the understanding that this will support their learning and promote equal access to curriculum.

To understand children's ability to participate in classroom activities, the study constructed a participation mean for all children based on their responses to 4 participation items, three of which were reversely coded: the extent to which children feel nervous when they have to read in front of others, the extent to which children feel nervous when the teacher asks them to answer questions, the extent to which children feel nervous when they have to present on the blackboard, and the extent to which children feel they can easily raise their hand in class.

Figure 15 participation results per item for boys and girls across countries.

Figure 15. Participation Items by Country and Sex



Across countries, boys and girls in Ghana had the lowest confidence to participate in classroom activities, based on mean participation scores.

In Ghana, girls and boys reported generally equal levels of nervousness participating in classroom activities. Both boys and girls feel most nervous when asked to come up to the board.

In Rwanda, a higher proportion of boys than girls felt nervous participating in all classroom activities investigated.

In Mozambique, a higher proportion of girls reported being nervous across classroom participation items than boys. An independent samples t-test finds differences in mean participation scores between sexes to be statistically significant ($p < 0.05$).

The intervention is particularly focused on girls' participation, in line with the gender focus of the theory of change. By baseline:

- In Ghana, 38.1% of girls feel empowered to participate in classroom activities.
- In Rwanda, 64.4% of girls feel empowered to participate in classroom activities.
- In Mozambique, 38.6% of girls feel empowered to participate in classroom activities.

To understand teaching quality, children were asked for their perceptions of 3 dimensions of teaching quality: cognitive activation, supportive climate, and classroom management. These dimensions are described further in Figure 16.

Figure 16. Dimensions of Teaching Quality

Dimensions of Teaching Quality

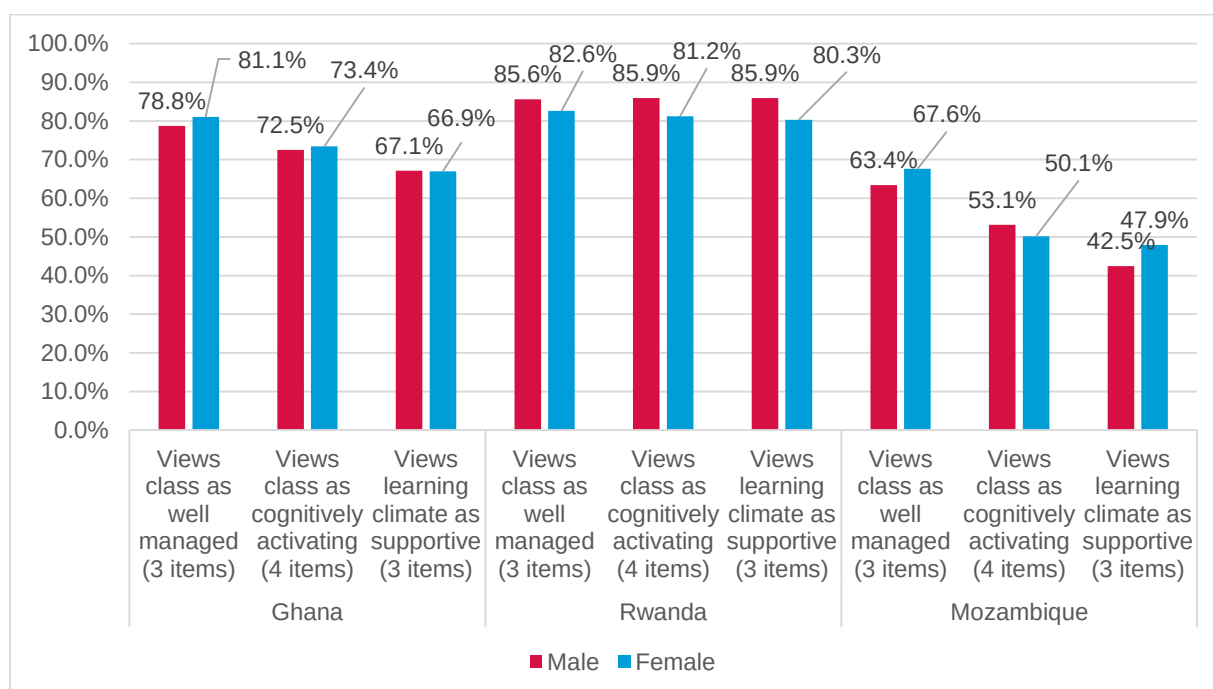
Cognitive Activation: teaching practices that enhance students' engagement with curriculum content (Buttner et al., 2016). In cognitively activating lessons teachers encourage classroom discussion and participation, build on existing knowledge, and give students tasks within their zone of proximal development (Lipowsky et al., 2009).

Supportive climate: an environment where teachers have caring interactions with students and provide individual assistance and constructive feedback (Pehmer, & Seidel 2015; Reeve & Jang, 2006). In some settings this has shown to strengthen autonomous motivation (Klieme et al., 2009), which with regards to self-determination theory means that students "experience themselves as competent, self-determined, and socially related" (Rieser et al 2016).

Classroom management: teachers' ability to provide well-structured lessons, establish clear rules and routines, manage group behavior and intervene quickly to prevent disruptions to teaching (Emmer & Stough, 2001; Kounin, 1970). Research has demonstrated that effective classroom management promotes student achievement (Fauth et al., 2014b).

Classroom management was understood through responses to three items aimed at assessing the extent to which students perceive lessons are well-structured and student behavior is managed. Supportive climate was understood through three items aimed at assessing the extent to which children perceive teachers to have caring interactions with students and provide individual assistance and constructive feedback. Cognitive activation was understood through four items aimed at understanding the extent to which children perceive their lessons to be engaging and the extent to which they learn new things. Means for each of these items were calculated. As measures were on a scale of 5, scoring 4 or higher were categorized as having a positive view of a relevant domain.

Results across dimensions for each country and sex are presented in Figure 17.

Figure 17. Children's Perception of Teaching Quality by Country & Sex

Across countries, perceptions of teaching quality were highly comparable between boys and girls.

As shown in the figure, there are minor differences in the perceptions of boys and girls across countries.

Children in Rwanda have the highest perceptions of teaching quality, across dimensions. Children in Mozambique have the lowest perceptions of teaching quality, across dimensions.

Results indicate that children in Rwanda have the highest view of the extent to which their classes are well managed, cognitively activating, and provide a supportive climate. In contrast children in Mozambique have the lowest perceptions of all three teaching quality dimensions when examined in comparison to other countries.

To set the baseline indicator to be measured by the project with regards to children's perceptions of teaching quality, only children who had positive views of all three domains were included. By baseline:

- In Ghana, 33.4% of boys and 36.7% of girls have a positive perception of teaching quality.
- In Rwanda, 33.0% of boys and 33.2% of girls have a positive perception of teaching quality.
- In Mozambique, 13.3% of boys and 12.4% of girls have a positive perception of teaching quality.

3.1.2.2 Pillar 1200: Increased engagement of parents and caregivers in addressing gender-specific learning needs of girls and boys, including at-risk children.

The project believes that by improving the engagement of parents' and caregivers in their children's learning, boys, girls, and at-risk children will be supported to access school and improve their learning. At-risk children are understood as children having reduced access to school or learning outcomes.

In GREAT, CBOs and Junior Leaders will work in close coordination with Parent Councils, school administration and child rights clubs to identify and maintain regular access and inclusive participation

of girls, children with disabilities and at-risk children in supplemental learning activities organized by CBOs and Junior leaders. GREAT will also build Junior Leader/ CBO capacity, develop facilitation guides, and develop and disseminate tools to support parents to provide supplemental learning activities at home and in the community. The programme will also provide these guides to Parent Councils and work with them to raise awareness on the importance of home-based supplemental learning activities.

The intervention assumes that awareness raising around gender-specific learning needs and barriers will lead to increased parental support for both boys and girls to participate more equally in school and in other learning opportunities. The intervention also aims to improve parental awareness on the importance of creating a stimulating home-learning environment that is accessible to girls', boys and other at-risk children.

The project will aim to improve awareness around gender-specific learning needs and barriers in two key ways. First, the project will conduct a participatory gender-based analysis of the learning needs of girls and boys in the school and community and will disseminate these findings to relevant stakeholders including parental councils and other CBOs. The participatory analysis will elicit reflections among participants to identify gender- or inclusion-based issues in their communities and potential ways the community can use to respond to these issues. It will also aim to identify local barriers and characteristics resulting in educational marginalization and made them known. This will review factors such socio-cultural difference, as well as disability and ethnicity. Second, the programme will also hold awareness raising events with parents and caregivers on the gender-specific learning needs of girls and boys through Child Clubs and Junior Leaders. GREAT will identify Jr. Leaders to serve as community role models, develop materials for awareness-raising events based on gender analysis and deliver these events for parents and caregivers.

Parent Councils²³ will play a critical role in identifying key activities, raising funds for co-financing, and developing and implementing maintenance plans for infrastructure projects. The assumption is that, because of training and awareness raising, parents will be more likely to participate in and contribute to school plans that are gender-responsive and environmentally sustainable.

This will be accomplished by providing leadership training to Parent Councils, developing and implementing school plans with them, and rehabilitating or constructing school facilities.

To understand the existing state of Parent Council involvement in school planning processes, the study conducted a survey with Parent Council executives.

By baseline:

- In Ghana, 21% of male Parent Council members and 20% of female members report that they actively participate in carrying out school plans that support the specific learning needs of boys and girls.
- In Rwanda, 28.2% of male Parent Council members and 45% of female members report actively participating in carrying out school plans that support the specific learning needs of boys and girls.
- In Mozambique, 28% of male Parent Council members and 34% of female members report that they actively participate in carrying out school plans that support the specific learning needs of boys and girls.

²³ The term "Parent Council" is used as a general term to refer to Parent Teacher Association in Ghana, School General Assembly in Rwanda and School Council in Mozambique.

In all countries, almost all PC members report that their school leadership takes the views of the PC seriously, and that the PC is involved in both the formulation and implementation of school plans.

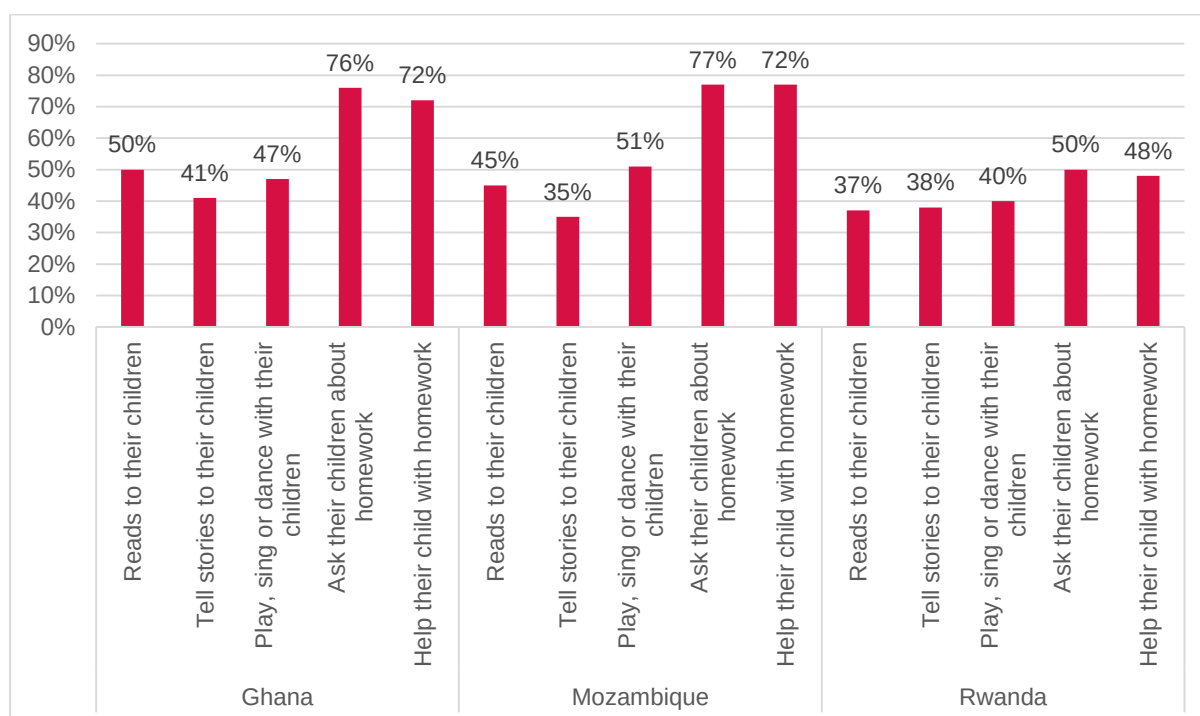
The Parent Council Survey asked parents additional questions to further understand their involvement in the school planning process. Summary results are reported in Table 10.

Table 10. PC Involvement in School Planning by Country

		Ghana		Rwanda		Mozambique	
		Control	Treatment	Control	Treatment	Control	Treatment
My school leadership often consults the Parent's Council on important decisions.	No	16.90%	2.50%	5.40%	7.10%	2.50%	0.00%
	Yes	83.10%	97.50%	94.60%	92.90%	97.50%	100.00%
The school leadership takes the views of the Parent's Council seriously.	No	12.10%	6.30%	0.00%	4.70%	1.30%	0.00%
	Yes	87.90%	93.70%	100.00%	95.30%	98.70%	100.00%
Other members of the Parent's Council take the views of female council members seriously.	No	12.30%	12.80%	2.70%	1.20%	7.60%	8.90%
	Yes	87.70%	87.20%	97.30%	98.80%	92.40%	91.10%
The Parent Council is sufficiently involved in school activities.	No	23.70%	13.00%	10.80%	7.00%	1.30%	2.60%
	Yes	76.30%	87.00%	89.20%	93.00%	98.70%	97.40%
The Parent Council at my school is involved in the formulation of school improvement plans.	No	18.60%	10.30%	8.00%	9.20%	0.00%	1.30%
	Yes	81.40%	89.70%	92.00%	90.80%	100.00%	98.70%
The Parent Council at my school is involved in the implementation of the school improvement plan.	No	20.70%	19.50%	12.20%	6.90%	0.00%	7.60%
	Yes	79.30%	80.50%	87.80%	93.10%	100.00%	92.40%

The project also aims to encourage parents to engage in home-based learning activities with their children. Several indicators were used to assess the extent to which home parents can offer stimulating learning environments. Results are summarized in Figure 18.

Figure 18. Home-based Learning Activity Indicators Across Countries



Across all countries, the most common home-based learning activity reported by parents was asking children about their homework, followed by helping children with their homework. This behavior was more common in Ghana and Mozambique.

In all countries, the most common behavior across items was asking children about their homework followed by helping children with their homework. In Ghana and Mozambique parents reported doing this far more often than they did in Rwanda.

Across all countries, parents a small proportion of parents report playing, singing or dancing with their children.

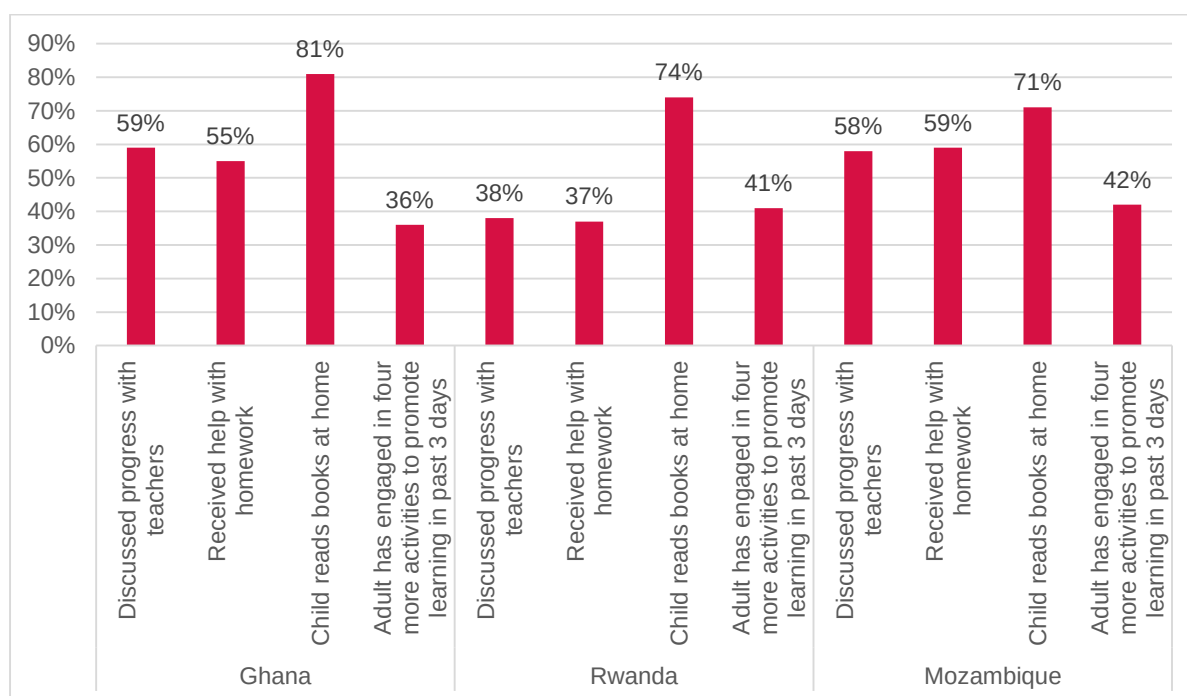
This finding suggests that the programme has significant room to support parents with play-based activities centred on learning.

Ghana had the highest proportion of parents that report reading to their children. This was least common in Rwanda.

50% of parents in Ghana report reading to their children compared to 45% in Mozambique and only 37% in Rwanda. There is significant evidence in the literature that reading to children promotes their early literacy skills.

Several additional indicators were set to understand the extent to which parents provide a stimulating home-learning environment. Results are displayed in Figure 19.

Figure 19. Stimulating Home Learning Environment Indicators



Across countries children in Mozambique reported higher levels of stimulating home learning activities.

In all countries it was common fairly common for children to read books at home. In Ghana, 81% of children reported reading books at home. In Mozambique 74% of children reported doing so and in Rwanda 71% of children reported doing so.

3.1.2.3 Pillar 1300: Increased integration of gender-responsive play-based learning (GRPBL) in in-service and pre-service teacher training

The GREAT programme aims to secure sustainable, wide-spread change by promoting the integration of gender-responsive play-based learning into in-service and pre-service teacher training. Governments require support to bridge the gap between policy and practice, including addressing the challenges that disproportionately impact the ability of girls to benefit from quality education. To measure system-level changes for *in-service* teachers, RTP will evaluate the effectiveness of coaching and mentoring system delivered by district officials as perceived by the teachers and teacher-trainers themselves. The level of integration of GRPBL into *pre-service* teacher education (1302) will be measured against the GREAT Integration Scorecard which outlines five measurable dimensions²⁴.

At baseline, about half of teachers RTP schools had received coaching and mentoring support from education officials. Several of those who received this support, reported that the visit improved their teaching practice.

At baseline teachers had already received some degree of coaching and mentoring support from officials. In Rwanda, 53.8% of male teachers and 45.7% of female teachers who had received training from RTP (presumably from PAQE I), had received coaching and mentoring support from district officials. In Ghana, 41.9% of male teachers and 45.1% of female teachers who had received training

²⁴ Based on Skink

had received coaching and mentoring support and in Mozambique, 55.6% of male teachers and 54.7% of female teachers who had received training from RTP, had received coaching and mentoring support.

There is little integration of PBL in teacher training systems in all countries, except in Rwanda, where it is integrated into the curriculum but not widely practiced by teachers

PBL is recognized by education actors as being conducive to improved learning in Rwanda and it is currently integrated in the Rwandan teacher training curriculum. However, officials at the REB admit there is a gap between policy and practice, where many teachers struggle to integrate PBL into their own lessons.

PBL is less recognized in Ghana and Mozambique, where positive attitudes exist but more information and technical support is needed.

In Mozambique, little integration exists of PBL or use of games or play in class matched to curriculum competencies. Tutors recognize PBL as a useful method, but it is questionable whether they would be able to teach others how to implement it in their teacher training. Notions of the project should be culturally adapted to the Mozambican context to increase the project's influence.

In Ghana, reforms to the content of pre-service training are made every 4-years and the project would have to lobby the NTC and other stakeholders for the integration of either GR or PBL elements prior to this. In large part however, the country team argues that some PBL approaches are already incorporated into the teacher training curriculum, although not explicitly under the banner of PBL. PBL is taught as part of the units on 'active learning'.

Gender-responsiveness is not a mainstream concept in any of the countries and is often confused with gender equality. The notion of gender-responsiveness is not integrated in teacher training in none of the modalities.

Gender-responsiveness is a relatively new concept often used by district and sector authorities interchangeably with gender equality in all countries. Actors recognize the individual needs of girls citing pregnancy and menstruation as common barriers to learning and attendance in their schools, as well as the pressing need for more classrooms and bathrooms to account for the increasing number of students. However, responding to the specific gender needs of girls and boys is something many believe can be achieved with gender-equality solutions (e.g. "encouraging both girls and boys to participate) rather than with gender-tailored solutions.

In Rwanda, actors recognize that gender issues have a "cultural" source based on their "heritage" and are best explored and tackled there. After prompting them of what gender-responsiveness meant, actors recognized that this knowledge or approach is new, and not well-known. In Mozambique, gender responsiveness may be enshrined in a new government strategy, but it is not recognized as a widespread notion or a notion distinct enough from gender equality.

In Ghana, GREAT has had little role in securing procedural change for either PBL or GR. This is largely due to the lack of available evidence on the impact of these programmes on educational issues of concern: most notably learning outcomes and attendance. Stakeholders mention that available evidence is largely anecdotal and for changes in their policy to occur it would require additional validation.

Attitudinal and normative beliefs about PBL are very positive in Ghana and Rwanda, but less so in Mozambique where PBL is not an immediately translatable notion

Actors in the education sector of Rwanda and Ghana have positive attitudes towards play-based learning, citing examples of how it can benefit both students and teachers. However, many recognize that teachers are not exactly aware on how to implement it in their classrooms, particularly with respect to (1) how to keep the messages of the games focused while, at the same time, managing “overcrowded classrooms” where children become excited and “hard to manage” (2) mapping games to the expected competencies found in the relatively 2015 Rwandan curriculum; and (3) keeping the lesson within the given timeframe as “it takes a lot of time” .

In Mozambique, authorities displayed positive attitudes towards PBL and the potential of using games to learn in the classroom. However, it was difficult to convey exactly what it was as, presently, authorities are not aware of details of the methodology or a immediately-relatable notion of PBL in Portuguese.

3.2 Is GREAT well-targeted?

In terms of **literacy**, most boys and girls in Mozambique and Ghana failed to meet expected national curriculum competencies. This finding suggests that the intervention is correctly targeting schools which struggle to meet curriculum objectives. With regards to sub-group membership, a large proportion of children in Ghana did not attend pre-school and this negatively affects their literacy and numeracy levels. This further suggests that the intervention is supporting children who are more marginalized than their peers who may have attended pre-school. In Mozambique, not speaking the LOI, Portuguese, negatively predicted literacy and numeracy supporting suggesting the intervention is appropriately aimed at supporting children’s reading in target schools. In Rwanda, although most children met expected competencies in Kinyarwanda, children demonstrated low reading proficiency in English. As the LOI changes in upper primary to English, it is likely that children will need additional support with early English acquisition.

In terms of **attendance**, children of intervention areas have similar attendance rates to their peers in the rest of the country suggesting that they are not marginalized with regards to attendance. Regression results show that the most marginalized groups with respect to attendance in Mozambique are single orphans, children who have a disability and children who cannot speak the language of instruction. In Ghana, these are children who live in households experiencing moderate to high hardship. In Rwanda, belonging to any of the sub-groups does not predict attendance.

In terms of **life skills**, most children have low-esteem and resilience but display strong leadership and prosocial skills. Girls have generally lower self-esteem and leadership skills than their peers, denoting a potential gender-specific gap in skills present in the areas of the intervention. Interesting findings were also drawn for orphans and double orphans who showed higher self-esteem than other groups and children living in moderate or extreme hardship showed higher leadership skills than other groups.

4. Relevance Findings

4.1 What are the main barriers to boys and girls attending school, learning, improving their life skills and having a positive school and home-learning environment?

4.1.1 Barriers to Learning

Several barriers were found to result in reduced learning outcomes for boys and girls in target schools. A summary of barriers found to predict learning outcomes is shown in the table following.

Table 11. Barriers to Learning Outcomes

	Ghana		Rwanda		Mozambique	
	Boys	Girls	Boys	Girls	Boys	Girls
Teacher often absent from class	✓(-)  					
Parent not updated on progress of child recently	✓(-)  					
Teacher treats boys and girls differently			✓(-)  	✓(-)  	✓(-) 	
Child has witnessed teacher administering corporal punishment in recent weeks			✓(-)  			

✓(-) = Membership negatively predicts outcome; ✓(+) = Membership positively predicts outcome;  =

Numeracy;  = Basic EGRA Composite (measure of early literacy skills);  = Oral Reading Fluency

Teacher absenteeism negatively effects boys' literacy and numeracy in Ghana.

Linear regressions found that for boys in Ghana, having a teacher often absent from class has a negative impact on both literacy and numeracy at statistically significant levels ($p < 0.05$). This results in a decrease of 8.39% on basic EGRA composite and 8% on numeracy aggregate score. Teacher absenteeism therefore results in reduced learning for boys in Ghana.

Not updating a parent regularly on their child's progress has a negative effect on boys' literacy and numeracy in Ghana.

For boys in Ghana, not having parents updated on the of their child's progress has a negative effect on both literacy and numeracy at statistically significant levels ($p < 0.05$). This results in a decrease of 8.9% on basic EGRA composite and 8.4% on numeracy aggregate score. This suggests that parental involvement in school visibly reinforces the learning of boys in treatment schools.

Having a teacher treat boys and girls unfairly results in reduced literacy and numeracy for boys and girls in Rwanda and for boys in Mozambique.

Linear regressions find for both girls and boys in Ghana, that having a teacher treat boys and girls differently or perceiving a teacher to do so has a negative effect on both literacy and numeracy at statistically significant levels ($p < 0.05$). This results in a decrease of 11.44% on numeracy aggregate score and 9% on basic EGRA composite score. This suggests that equal treatment of boys and girls supports learning achievements for both boys and girls.

For boys in Mozambique, this also has a negative effect on numeracy score at statistically significant levels ($p < 0.05$). This results in a decrease of 8.9% on aggregate numeracy score. This finding suggests that equal treatment of boys and girls supports numeracy gains for boys.

Witnessing a teacher administer corporal punishment in recent weeks has a negative effect on girls' literacy and numeracy in Rwanda.

Linear regressions find that for girls witnessing a teacher administer corporal punishment in recent weeks has a negative effect on both literacy and numeracy at statistically significant levels ($p < 0.05$). This results in a decrease of 6% in EGMA aggregate score and a decrease of 7.6% in basic EGRA composite score.

4.1.2 Barriers to Attending and Staying in School

Poverty is a major barrier to attendance in all countries.

Baseline evidence suggests that several factors influence children's ability to attend school. Poverty and conducting household chores were reported to affect both boys and girls with stakeholders widely agreeing this leads to reduced attendance.

According to multiple regression analyses that used all coded barriers as predictors, children in a household that experiences extreme hardship have 3% lower attendance than other children ($F(42, 3020) = 10.443$, $p < 0.001$, $r^2 = 0.128$; $\beta = -0.364$, $p < 0.05$). Children whose parents find it difficult to afford schooling have 2% lower attendance than other children ($\beta = -1.896$, $p < 0.001$). Children living in households with no electricity have 2% lower attendance than their peers ($\beta = -1.896$, $p < 0.001$).

Gender-specific barriers affect the ability of both boys and girls to attend school.

Generally qualitative evidence suggested that there are key differences between girls and boy's attendance, with more barriers affecting girls such as pregnancy, and household chores. Several stakeholders mentioned cases where girls had gotten pregnant in the later years of primary school and had been forced to drop-out.

Sexual and reproductive health education was listed as a proposed solution to support girls to remain in school. Additionally, many girls reported the role of household chores in preventing them from attending school, doing homework, or causing them to arrive at school late.

According to FGDs, the biggest barriers to attendance is working outside school hours to contribute towards the family income.

These findings could not be confirmed by the multiple regression models.

Not attending pre-school is related to low attendance.

Regression results in Ghana indicate that for boys having not attended pre-school has a negative effect on attendance at statistically significant levels ($p < 0.05$; $B = -6.3$) and having a teacher that is frequently absent from school has a negative effect on boys' attendance at statistically significant levels ($p < 0.05$; $B = -3.98$). Having a teacher who is frequently absent results in an average decrease of 3.98% in attendance. The same effect is not present in other countries, where attending pre-school is relatively uncommon.

Parents with no formal education or parents who cannot read have children who attend school less.

Children living in households where the head of the household or parent do not have a formal education have 2% lower attendance than their peers ($p < 0.001$; $B = -1.99$), and children of parents who cannot read attend school less. This suggests that parental values towards education may have a direct relationship towards attendance, as parents who have had some years of education can appreciate its value and therefore send their children to school.

When it is not safe to travel to and from school, their children attend school less.

In the outlier group, when parents believe it is unsafe for boys to travel to school, their children attend 30% less to school ($p < 0.001$; $B = -30.79$). When the child believes it is unsafe, they attend 2% less to school than other children ($p < 0.001$; $B = -2.374$).

While the project does aim to improve access to school as an ultimate outcome, access barriers such as this one can affect school attendance.

When children do not speak the language of instruction at school, they attend less.

Language barriers prevent children from accessing education whenever the language of instruction is different to the language spoken at home. Children that do not speak the language of instruction have 2% lower attendance than their peers ($p < 0.001$; $B = -1.608$). This highlights the importance of receiving bilingual education in the formative years of primary school.

Poor teacher practices such as the use of corporal punishment in classrooms, treating girls and boys differently and teacher absenteeism affect school attendance.

At school, children are discouraged to attend school when their teacher is absent from class ($p < 0.001$; $B = -1.434$) and when teachers use corporal punishment as a form of discipline ($p < 0.05$; $B = -1.044$).

Children with extremely low attendance are also discouraged to attend school when teachers treat girls and boys differently ($p < 0.05$; $B = -12.40$). They attend school 12% less than the other children.

When schools have poorly maintained facilities, children attend less to school.

Parents of children with extremely low attendance who believe facilities at the school are poorly maintained, have children that attend school 16% less than other children ($p < 0.05$; $B = -16.250$).

When parents are not involved in the education of children, their children attend school less.

For girls, having a parent who reports not being updated on their daughter's progress in recent months has a negative effect on attendance at statistically significant levels. This results in a decrease of 8.32%

in attendance ($p < 0.05$, $B = -8.32$). This suggests that parental involvement in school has a role to play in supporting girls to attend school.

4.1.3 Barriers to attaining the necessary Life Skills

Different barriers affect different life skill dimensions.

Mean comparisons indicate that boys who live more than an hour's walk away from school have lower self-esteem and girls who do have higher levels of self-esteem.

To summarize the main variables that explain differences in resilience, a linear regression was run for resilience, which included all sub-group variables as predictor variables. The following variables explained significant percentages of variance in this variable:

- Parent cannot read: The child is 4% less resilient if the parent is unable to read.
- Child believes that going to school is not important: In Rwanda, boys and girls are 5% less resilient if they feel that school is not important. In Ghana, this belief is associated with a lower level of self-esteem for boys, but a higher one for girls.
- Child reports school does not have place to drink water: This is associated with a significant decrease of 7% in resilience.
- Parent reports school has trash laying around: This is associated with a significant decrease of 5% of resilience in the child.
- For both genders, children who work half a day or more outside of the home have higher self-esteem. While working has a negative effect on attendance, it provides a source of self-worth to children.
- When children from both genders say that their teachers use corporal punishment, they have lower self-esteem.
- An interesting interaction is found between gender and the child's belief that school is not important.
- Low resilience is associated with lower levels of self-esteem.
- Children of both genders who report that the toilets are unsafe or unclean have higher levels of self-esteem.

A similar linear regression was run for the life skill variable pro-social behavior. All sub-group variables were included as predictors. Several interesting results emerged from these tests:

- Having parents who cannot read has a negative effect on pro-social behavior.
- Working for half a day or more outside of school and home has a positive effect on pro-social behavior.
- Spending half a day or more doing chores has a positive effect on pro-social behavior
- Feeling unsafe traveling to and from school has a negative effect on pro-social behavior
- Believing not going to school is important has a negative effect on pro-social behaviour
- Having unclean toilets has a negative effect on pro-social behavior
- Being in a school where parents report there is litter or trash as a negative effect on pro-social behavior
- Children who report that teacher uses corporal punishment show 14% lower levels of pro-social behavior.
- When parents believe that teaching quality at school is poor, children show a 19% decrease in pro-social behavior.

4.1.4 Barriers to experiencing a Positive Learning Environment

To understand the barriers influencing the extent to which the children are provided with a positive learning environment, multiple regressions were run using a wide range of barriers on children's perceptions of the extent to which their learning climate is supportive.

Teacher absenteeism negatively effects the extent to which boys and girls in Mozambique and boys in Ghana perceive their learning climate to be supportive.

For boys in Ghana, having a teacher who is often absent from class and witnessing corporal punishment in recent weeks has a negative effect on the extent to which boys view the learning climate to be supportive. The model was able to explain 5% of variance in the data ($p < 0.05$).

Additionally, teacher absenteeism had negative effect on perceptions of supportive climate for both boys and girls at statistically significant levels ($p < 0.05$; $B = -0.357$ for girls; $B = -0.532$ for boys).

These findings can be expected as frequently absent teachers are likely unable to maintain meaningful relationships with children in their class.

Witnessing a teacher administer corporal punishment in recent weeks, negatively effects the extent to which boys and girls in Mozambique, boys in Ghana, and girls in Rwanda view their learning climate to be supportive.

For boys in Ghana, witnessing a teacher administer corporal punishment has a negative effect on the extent to which they perceive their learning climate to be supportive at statistically significant levels ($p < 0.05$; $B = -0.310$). This is also true for both boys and girls in Mozambique ($p < 0.05$; $B = -0.345$ for boys; $B = -0.230$ for girls), and for girls in Rwanda ($p < 0.05$; $B = -0.254$).

Administering corporal punishment has an expected effect on the extent to which boys have a positive view of student teacher interactions.

4.2 Was the programme well-designed?

Several barriers to learning are appropriately targeted by the project.

A review of barriers to learning found that not being regularly informed on your child's progress has a negative effect on literacy and numeracy outcomes for boys in Ghana. This finding suggests that the project is appropriately targeting parental engagement as a central barrier to learning.

Having a teacher treat boys and girls unfairly, results in reduced literacy and numeracy outcomes for boys and girls in Rwanda and for boys in Mozambique. This finding suggests that the project is appropriately targeting gender-responsive teaching practices to improve learning outcomes.

Witnessing a teacher administer corporal punishment in recent weeks has a negative effect on girls' literacy and numeracy in Rwanda and a negative effect on the extent to which boys and girls in Mozambique, boys in Ghana, and girls in Rwanda view their learning climate to be supportive. This suggests that the project is appropriately including positive discipline components in the teacher training and this will likely improve learning outcomes and the learning climate more broadly.

For both boys and girls, feeling empowered to participate in classroom activities leads to improvements in learning outcomes.

In Ghana, for boys feeling empowered to participate in classroom activities, as measured through participation mean scores was a statistically significant predictor of oral reading fluency ($B = 1.3$, $R^2 = 0.010$), basic EGRA composite score ($B = 2.06$, $R^2 = 0.016$), and numeracy ($p < 0.05$, $B = 2.56$, $R^2 = 0.022$). For girls in Ghana it was a statistically significant predictor of numeracy scores ($p < 0.05$, $B = 2.17$, $R^2 = 0.018$), oral reading fluency ($B = 3.02$, $R^2 = 0.041$), and basic EGRA composite ($B = 3.31$, $R^2 = 0.033$).

In Mozambique, for boys feeling empowered to participate in class was a statistically significant predictor of early literacy skills, as measured by basic EGRA composite score ($B=3.116$, $p<0.05$), oral reading fluency ($p<0.05$, $B=1.457$), and numeracy ($p<0.05$, $B=3.936$) at statistically significant levels. For girls, confidence participating in classroom activities was a statistically significant predictor of early literacy levels as measured by basic EGRA composite score ($B=2.166$, $p<0.05$), oral reading fluency ($p<0.05$, $B=2.205$), and numeracy ($p<0.05$, $B=4.327$) at statistically significant levels.

In Rwanda for boys confidence participating in classroom activities was a statistically significant predictor of literacy achievements, as measured by basic EGRA composite score ($B=2.506$, $p<0.05$), at statistically significant levels but not a predictor of oral reading fluency. For girls, confidence participating in classroom activities was a statistically significant predictor of literacy as measured by basic EGRA composite score ($B=2.70$) and numeracy ($B=2.86$) at statistically significant levels ($p<0.05$).

These findings suggest that the project is appropriately supporting children to feel empowered to participate in class and this will likely lead to improvements in learning.

GREAT targets the reduction of major barriers that affect attendance.

In terms of attendance GREAT aims to reduce the effect of many of the barriers that affect attendance the most. GR PBL is a methodology that aims to create positive learning environment, the lack of which is a proven factor to affect attendance, especially with regards to reducing the practice of corporal punishment in schools and improving the way teachers treat boys and girls. Parents who are involved in the education of their children are also better at motivating them to go to school, which validates the objectives of Pilar 2. However, significant barriers to attendance are found that are exogenous to the project's intervention such as safety concerns on the way to and from school as well as the level of education parents. To increase its relevance, the programme can study ways the effect of these barriers can be reduced through the intervention.

Attendance predicts Literacy and Numeracy at significant levels.

Single regression models showed that attending school improves the oral reading fluency of girls ($F(1, 1652) = 4.620$, $p<0.05$, $r^2=0.003$; $\beta=0.38$, $p<0.05$) and the overall numeracy percentage of both boys and girls ($F(1, 3494) = 28.560$, $p<0.001$, $r^2=0.008$; $\beta=0.129$, $p<0.001$). This suggests that ultimate outcomes have a complementary role that increases the relevance of targeting multiple final outcomes.

PBL improves the motivation of children to learn and be in school.

In terms of life skills, the biggest impact of the project will be found in improving the intrinsic motivation for children to learn and their prosocial behavior through the rehabilitation and construction of school facilities. This is because uncontrolled building decay gives the impression that there is little order and regulation and stimulates anti-social behavior.

Life Skills reinforce each other and work complementarily.

There is a mutually reinforcing role between life skills and between life skills and other outcomes. In FGDs, teachers commented on the relationship between PBL and pro-social behavior by for example stating *"Yes, it has improved the behavior of the student like at the general assembly, we start it with a game, and secondly the prayer and then the national anthem, finally entering the classroom, they shout into the game and go in the classroom ready for learning"*.

PBL is associated with improved life skills and a positive learning climate.

In the quantitative data, we see that the children's enjoyment of the activities is positively associated with resilience, leadership, belonging and safety as well as a positive learning climate. This suggests that play-based approaches are mutually reinforced by and reinforcing of levels of resilience, leadership, supportive climate, belonging, and safety.

Improved life skills have a relationship with learning outcomes.

Both self-esteem and leadership are associated with intrinsic motivation to learn and attend school. Leadership is furthermore positively associated with numeracy skills, while self-esteem is negatively associated with numeracy. A similarly surprising association is found between self-esteem and literacy, with higher levels of self-esteem being associated with lower levels of oral reading fluency in the language of instruction.

Leadership on the other hand shows a positive correlation with literacy. This suggests that the relationship between life skills and other final outcomes is dependent on the context where it takes place.

While a top-down approach to policy influence is most relevant in Rwanda, a bottom-up approach is most effective Mozambique, and a mixed-approach is suitable to Ghana.

To influence policy in Rwanda, the project has sought to increase its influence at a high-level within Rwandan Education Board and the Ministry of Education through the provision of technical advice and resource materials. However, KIIs with policy influencers at other organizations such as the REB, the College of Education and the Chemonics Project of USAID mentioned that, without a permanent RTP staff member at the REB, RTP will struggle to influence the teacher training curriculum and practice. This is because implementation of the curriculum requires close work with the REB and assisting in the coordination of education offices at the district-level. Therefore, to increase its effectiveness, RTP may consider appointing this person at the REB.

Instead, in Ghana, stakeholders suggest that RtP should engage Regional Directors of Education and Training Officers in lobbying for improved integration of GR PBL after it is adopted in target regions. Only when evidence of the approach is gathered from local experiences, RTP will be able to secure additional interest in the policy setting in GR and PBL approaches brought forward by RtP. However, for in-service training, the endorsement of the ministry is required: *"When we are satisfied with your content, we then certify your programme for you to reach your targeted participants"*. A mixed policy influence approach is recommended.

Like in Ghana, policy influence in Mozambique occurs when a critical amount of quality, technical evidence has been gathered on learning outcomes at the district-level and policy-makers at relevant institutions such as the Ministry of Education and Human Development (MINED), the National Institute for Education Development (INDE, or Instituto Nacional de Desenvolvimento Educativo), and the Pedagogical University (PU) collaborate to develop "schemes or modalities for the initial or continuous development of teachers in the sector". Only after enough evidence is generated at the local level, will officials at these institutions begin paying attention to GREAT's components.

In terms of GRPBL integration into pre- and in-service teacher training, many GREAT concepts are not directly applicable in the countries and may need local adaptation to increase the programme's influence and relevance.

In Rwanda, schools have “subject leaders” and “school-based mentors” that are tasked by the government to guide in-service teacher training. Selecting teachers for teacher champions or trainers of teachers (ToTs) outside these pools of teachers was perceived as inefficient by education authorities and RTP staff alike: *“out of the 120 ToTs that we had [in PAQE I] only 20% have been subject leaders and the rest of them are the ToTs”*. In Ghanaian schools, curriculum implementation and in-service training is supervised by the Curriculum Leader (CL) and the headteacher. This could be a local structure GREAT could use to source teacher champions if the programme is not already doing so.

In Mozambique, there is a lack of acquaintance with the terminology used by RTP, which may not be readily translated into Portuguese without sacrificing some of its meaning. For example, the pedagogical influence zone or Zona de Influência Pedagógica (ZIP) coordinates, supervises and assesses teaching practice to achieve education objectives. This closely matches the mandate of the Communities of Practice under GREAT. According to KIIs, other concepts that may need further adaptation into the Portuguese language include “play-based learning”, “gender-responsiveness”, “coaching and mentoring support”, “teacher mentors” and “in-service teaching” (known as continuous teacher training), which are not immediately recognizable by authorities during meetings, presentations and Q&As. This is particularly important for the certifications provided to teachers because of the GREAT programme, which need to be recognized by MINED.

The financial support offered by the project to district officials was perceived to be very relevant and necessary.

Officials indicated that financial resources will be used to buy fuel or access to transport that will enable them to complete scheduled monitoring visits. Without this support, officials claimed that they would not be able to reach all sites. At the national level, education officials at ministries of education and other NGOs could be lobbied to secure a means of transportation for district officials and other context-specific means to complete monitoring visits (commonly referred to as “logistics”).

4.3 What adaptations to the TOC can be made to increase the programme's relevance in the contexts where it operates?

Teacher absenteeism has a negative effect on several educational outcomes and should be more directly considered by the programme's theory of change.

Teacher absenteeism was shown to negatively predict boys' literacy and numeracy in Ghana. Additionally, it was shown to negatively predict the extent to which boys and girls in Mozambique and boys in Ghana perceive their learning climate to be supportive. The intervention should consider incorporating components targeting this barrier more directly to ensure it does not negatively affect intervention outcomes.

Having attended pre-school predicted literacy and numeracy outcomes for both boys and girls in Ghana. The intervention should consider targeting pre-school enrolment more directly and advocating for improvements in pre-school access with government partners.

Children who attended pre-school had better literacy and numeracy outcomes in Ghana for all learning scores constructed as part of this study. This finding highlights the importance of having attended pre-

school for later learning. While the intervention does support pre-schools in Ghana, it should consider ensuring more children have access by targeting pre-school enrolment more directly.

Several GREAT concepts are not directly applicable in the countries and need to be contextualized.

In Rwanda, schools have “subject leaders” and “school-based mentors” that are tasked by the government to guide in-service teacher training. Selecting teachers for teacher champions or trainers of teachers (ToTs) outside these pools of teachers was perceived as inefficient by education authorities and RTP staff alike: “out of the 120 ToTs that we had [in PAQE I] only 20% have been subject leaders and the rest of them are the ToTs”. In Ghanaian schools, curriculum implementation and in-service training is supervised by the Curriculum Leader (CL) and the headteacher. This could be a local structure GREAT could use to source teacher champions if the programme is not already doing so.

5. Effectiveness Findings

5.1 Which factors have influenced or are likely to influence the achievement and non-achievement of objectives?

GRPBL pre-service and in-service integration strategies could be better aligned with the education policy sector of each of the countries

GREAT in Rwanda has identified the right policy influence strategies but is yet to fully put them into play. According to policy influencers, GR PBL integration would be most effective if a permanent RTP staff member were to be appointed to the REB to oversee curriculum implementation

Teachers require additional support with time management, teaching and learning materials, and managing large class sizes, to integrate GRPBL in their lessons.

Qualitative sessions with teachers highlighted several challenges in integrating GRPBL in lessons. This included the time it takes to conduct a play-based learning activity and maintain student focus on learning outcomes; the limitations of a lack of teaching and learning materials to implement play-based games in the lessons; matching lesson objectives to appropriate games; and managing large class sizes.

The intervention should review these components to ensure they properly contextualized to the various settings and feedback from teachers is integrated into the new phase of the programme.

CBO and Junior Leader capacity to support at-risk children, including children with disabilities.

Several interviews with project staff in-country highlighted that CBOs and Junior Leaders are not provided with training to support at-risk children, including children with disabilities. 5% of the target population experiences some form of disability, and these groups should be trained on how to ensure they can appropriately support their learning as they offer supplemental learning activities.

District visits to schools could be better coordinated between RTP and other NGO actors through a common schedule

District officials also suggest coordinating efforts by creating a common timetable for in-service training where teachers will be able to be systematically introduced to new methodologies brought by RTP and other NGO actors.:

“it was observed that, when for instance RtP, calls our teachers for say a two weeks in-service training on their methodology called the Play Based Learning, another organization also comes and organize an in-service training on their own ideologies for the teachers for a duration of say three weeks and this resulted into the teacher missing a very significant amount of contact hours with the students. With all these, the proposal as of last year was that there should be a common in-service training for the teachers where all the development partners would be there, and a common timetable created in such a way that, by the time the in-service training is over the teacher would be introduced to what is called the Play Based Learning approach, brain development among others”²⁵.

Given that many of these NGOs also provide funding to district officials, the project may therefore coordinate fund provision with the NGO network to avoid inefficiencies.

Most officials do not collect monitoring data at a central level, making it difficult to compile evidence on progress beyond district boundaries

Members of RTP staff and district officials also mentioned challenges regarding the compilation, analysis and interpretation of data resulting from monitoring visits. While schools receive coaching and mentoring support during the visit, the fact that the data collected is not standardized or centralized in any way makes it difficult for officials and decision-makers to evaluate the extent to which GR PBL is being integrated into in-service teaching practice and which areas deserve more attention. The programme may therefore find an area for policy influence in the way district officials collect and compile information on monitoring visits.

District staff suggested that a member of RTP staff can be appointed to work closely with district offices

At the district-level, district officials suggested having another staff member working at the district education office to support implementation and communication at the central level. While this would be difficult to scale-up to many districts, RTP may study how to work more closely with members of this office to gain a close understanding of the type of challenges encountered by these officials in schools and communities and how these institutions react to them by making use of the available resources. In the formative years of the programme, targeted visits to these offices matched with a capacity-building agenda can help institutionalize coaching and mentoring support more sustainably.

²⁵ KII with National Teacher's Council Representative

6. Conclusions

Girls outperform boys in literacy skills in lower primary school.

Across countries, girls were found to outperform boys in oral reading fluency skills in the language of instruction. This contradicts the project's assumption that there is a gender gap in literacy skills. However, this gap may become visible as girls progress in primary school, and face increased gender-associated barriers to learning.

Several barriers to learning are appropriately targeted by the project.

A review of barriers to learning found that not being regularly informed on your child's progress has a negative effect on literacy and numeracy outcomes for boys in Ghana. This finding suggests that the project is appropriately targeting parental engagement as a central barrier to learning.

Having a teacher treat boys and girls unfairly, results in reduced literacy and numeracy outcomes for boys and girls in Rwanda and for boys in Mozambique. This finding suggests that the project is appropriately targeting gender-responsive teaching practices to improve learning outcomes.

Witnessing a teacher administer corporal punishment in recent weeks has a negative effect on girls' literacy and numeracy in Rwanda and a negative effect on the extent to which boys and girls in Mozambique, boys in Ghana, and girls in Rwanda view their learning climate to be supportive. This suggests that the project is appropriately including positive discipline components in the teacher training and this will likely improve learning outcomes and the learning climate more broadly.

Children of intervention areas have similar attendance rates to their peers in the rest of the country suggesting that they are not marginalized with regards to attendance.

Regression results show that the most marginalized groups with respect to attendance in Mozambique are single orphans, children who have a disability and children who cannot speak the language of instruction. In Ghana, these are children who live in households experiencing moderate to high hardship. In Rwanda, belonging to any of the sub-groups does not predict attendance.

A gender-gap exists in the acquisition of life skills suggesting the programme is well-targeted.

In terms of **life skills**, most children have low-esteem and resilience but display strong leadership and prosocial skills. Girls have generally lower self-esteem and leadership skills than their peers, denoting a potential gender-specific gap in skills present in the areas of the intervention. Interesting findings were also drawn for orphans and double orphans who showed higher self-esteem than other groups and children living in moderate or extreme hardship showed higher leadership skills than other groups.

There is little integration of GRPBL in pre- and in-service teacher training in the three countries.

PBL is recognized as a mainstream teaching methodology in Rwanda but not Ghana or Mozambique. There is currently low institutional and resource capacity in schools and district education offices to put into practice PBL. Gender-responsiveness is not a known concept and is used interchangeably with gender-equality by many stakeholders in all countries. By working with existing structures, deepening the relationship with the REB and DEOs, and providing technical assistance to TTCs, RTP may increase the integration of gender-responsive PBL into pre-service teacher training.

7. Recommendations

1. **Consider targeting teacher absenteeism through programme components.** Teacher absenteeism was shown to have a negative effect on several educational outcomes including attendance to school, supportive climate, and learning. The intervention should consider adopting intervention components targeting teacher absenteeism to ensure this does not inhibit improvements in other domains.
2. **Teachers require additional support with time management, teaching and learning materials, and managing large class sizes, to integrate GRPBL in their lessons.** Qualitative sessions with teachers trained as part of PAQE highlighted they face challenges integrating GRPBL due to these challenges.
3. **Provide training to CBOs and Junior Leaders on how to identify and support at-risk children.** Several interviews with project staff highlighted that CBOs and Junior Leaders are not provided with explicit training on how to support at-risk children, including children with disabilities. To ensure that supplemental learning activities remain accessible to these groups the intervention should consider providing explicit training to these groups.
4. **Expand on child protection mechanisms to protect children on the way to and from school.** Safety concerns travelling to school is a proven factor to affect school attendance. Many project schools have child protection mechanisms in place, such as reporting of abuse, that can be enhanced to include protections travelling to and from school.
5. **Evaluate deepening the engagement with TTCs:** Presently, PBL integration and influence strategies are dedicated toward building the capacity of district officials to provide coaching and mentoring support. Given that TTCs also prepare in-service teachers, the project may consider building the capacity of TTCs to provide coaching and mentoring support.
6. **Align GREAT structures to local ones through the cultural adaptation of programme terminology.** Many GREAT concepts are not immediately translatable into country-specific structures, which makes it difficult for audiences to grasp and relate to important aspects of the project. To ease the diffusion of project concepts among influencers, GREAT may culturally-adapt all terminology to fit these country structures.
7. **Align evaluation approach with advocacy objectives.** The evaluation is designed to provide the programme with the impact it has on attendance, enrollment, literacy and numeracy. Several stakeholders interviewed highlighted the importance of demonstrating the impact of the GRPBL approach to promote replication. The intervention should consider conducting a quantitative midline evaluation to support advocacy activities.

Annex 1: Methodological Details

This annex outlines further methodological details pertaining to the GREAT baseline evaluation.

Power analysis calculation results are shown in Figure 20 Power Calculation:

Figure 20 Power Calculation

Two Tail, Independent T-test	
t tests – Means: Difference between two independent means (two groups)	
Analysis:	A priori: Compute required
sample size	
Input: Tail(s)	= Two
Effect size d	= 0.25
α err prob	= 0.05
Power (1 – β err prob)	= 0.8
Allocation ratio N2/N1	= 1
Output: Noncentrality parameter δ	= 2.8118055
Critical t	= 1.9646820
Df	= 504
Sample size group 1	= 253
Sample size group 2	= 253
Total sample size	= 506

This suggest that the minimum sample size is a total combined of 506. Adding an expected 30% attrition buffer between evaluation years this yields a baseline sample size of 658 children. Given that RTP wished to generalize for boys and girls separately in the impact DID model the sample size was doubled following Turner (2003) yielding an estimated minimum 1,316 per country (total of 3,948 boys and girls in all countries).

The following quantitative sample was achieved:

Table 12 Sample Sizes for Assessments and Lesson Observations

	Control		Treatment	
	M	F	M	F
Ghana	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Child-based tools (EGRA, EGMA, Child Survey, Historical Attendance)	353	352	353	354
Household Survey	313	385	290	405
Lesson Observations	32	11	32	24
PTA Executive Survey	50	8	64	15
Teacher Survey	239	242	153	160
Headteacher Survey	39	8	45	8
School wide assessment	51		52	
Rwanda				
Child-based tools (EGRA, EGMA, Child Survey, Historical Attendance)	331	320	327	340
Household Survey	283	362	266	397
Lesson Observation	22	31	24	39

	Control		Treatment	
	M	F	M	F
PTA Executive Survey	42	33	47	40
Teacher Survey	40	45	99	99
Headteacher Survey	24	16	21	7
School wide assessment	13		21	
Mozambique				
Child-based tools (EGRA, EGMA, Child Survey, Historical Attendance)	340	352	339	355
Household Survey	93	590	107	585
Lesson Observation	11	38	15	38
PTA Executive Survey	40	39	40	38
Teacher Survey	97	94	190	175
Headteacher Survey	55	27	53	26
School wide assessment	53		54	
Totals				
Child-based tools (EGRA, EGMA, Child Survey, Historical Attendance)	1024	1024	1019	1049
Household Survey	689	1337	663	1387
Lesson Observation	65	80	71	101
PTA Executive Survey	132	80	151	93
Teacher Survey	376	381	442	434
Headteacher Survey	118	51	119	41
School wide assessments		117		127

The following qualitative sample was achieved:

Table 13 Qualitative Sample Achieved

Population Quota	Theme	Ghana		Rwanda		Mozambique		Total
		FGD	KII	FGD	KII	FGD	KII	
Teachers who received PBL Training	PBL Training & Classroom Integration	2	2	3	3	2	2	14
Male Teachers	Gender Responsiveness Integration in Teaching	2	2	3	1	2	2	12
Female Teachers	Gender Responsiveness Integration in Teaching	2	2	3	2	2	2	13
Boys (Ages 6-12; and 12-18)	Teaching Quality and Gender Responsiveness	2	2	3	0	2	2	11
Girls (Ages 6-12; and 12-18)	Teaching Quality and Gender Responsiveness	2	2	3	0	2	2	11
Boys (Ages 6-12; and 12-18)	Learning at School and at Home	2	2	3	0	2	2	11
Girls (Ages 6-12; and 12-18)	Learning at School and at Home	2	2	3	0	2	2	11
Boys (Ages 6-12; and 12-18)	Life Skills	1	0	3	0	2	2	8
Girls (Ages 6-12; and 12-18)	Life Skills	1	0	3	0	2	2	8
Teacher Champion (RW) / Teacher Mentor (GH) / Profesores Orientadores (MZ)	PBL Coaching & Mentoring	1	2	0	3	1	3	10
CoP Members (RW & Ghana?) or Membros do Zona de Influência Pedagógica (ZIP) (MZ)	PBL Coaching & Mentoring	2	2	0		2	2	8
Headteacher / Profesor Dirigente	School Governance & PBL Integration	0	4	0	3	0	4	11
Parents and Caregivers (Mixed Group)	Barriers to Education, Gender Needs & Home Learning Environment	2		3	0	1	0	6

Population Quota	Theme	Ghana		Rwanda		Mozambique		Total
		FGD	KII	FGD	KII	FGD	KII	
Parents and Caregivers (Males)	Barriers to Education, Gender Needs & Home Learning Environment	2	2	2	0	2	2	10
Parents and Caregivers (Females)	Barriers to Education, Gender Needs & Home Learning Environment	2	2	3	0	2	2	11
Female Caregivers of Girls 12-18 years old	SRH & Attendance	1		3	0	1	0	5
Girls (aged 12-18) 'older girls'	SRH & Attendance	2		2	0	1	0	5
Disabled Boys and Girls (Age 12-18)	Project's level of social inclusion	1	0	3	0	1	2	7
District Education Authority (RW) / District Directorate for Education (GH) / Diretoires de Distritos (MZ)	Coaching & Mentoring, & Integration PBL in in-service teacher training		3	0	2		3	8
Junior Leaders	Pillar 2	0	0	1		3	0	4
SMC Members / Members of School General Assembly Committee (RW) / Comite de Gestao da scola (MZ?)	School Governance	3		2	0	3	0	8
PTA/PC Executives / Conselhos de Paes	Pillar 2	1	0	3	0	3	0	7
District Education Officers Responsible for Monitoring / In-service teacher training	Integration of PBL in in-service teacher training		3	0	0		3	6
Policy Influencers as Determined by Country	Problems, Agendas, Policy Strategies	0	5	0	5		8	18
Total		33	37	49	19	38	47	223

Annex 2: Additional Tables and Figures

Impact Findings

Ultimate Findings

Life Skills

Figure 22 Life Skills Indicators by Country

PMF Life Skill Indicator	Group	Ghana				Rwanda				Mozambique			
		Control		Treatment		Control		Treatment		Control		Treatment	
		% M	% F	% M	% F	% M	% F	% M	% F	% M	% F	% M	% F
% of children (m/f) with high self-esteem	<i>Medium or Low</i>	77.7	78.1	78.9	79.8	87.3	89.6	89.1	91.2	88.6	89.1	89.8	90.6
	<i>High</i>	22.3	21.9	21.1	20.2	12.7	10.4	10.9	8.8	11.4	10.9	10.2	9.4
% of children (m/f) with high resilience	<i>Medium or Low</i>	60.7	64.2	61.9	62.0	49.2	52.9	50.2	51.5	74.3	76.0	75.3	80.7
	<i>High</i>	39.3	35.8	38.1	38.0	50.8	47.1	49.8	48.5	25.7	24.0	24.7	19.3
% of children (m/f) exhibiting prosocial behavior	<i>Medium or Low</i>	20.3	18.9	15.9	15.6	12.9	16.1	11.9	16.4	23.7	19.5	25.1	23.6
	<i>High</i>	79.7	81.1	84.1	84.4	87.1	83.9	88.1	83.6	76.3	80.5	74.9	76.4
% of children (m/f) with high degree leadership skills	<i>Medium or Low</i>	28.2	25.4	25.6	24.3	16.8	19.2	19.7	17.0	32.4	36.8	42.6	43.4
	<i>High</i>	71.8	74.6	74.4	75.7	83.2	80.8	80.3	83.0	67.6	63.2	57.4	56.6