Project Evaluation Report

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Notes:

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IMPACT EVALUATION OF THE MAKING GHANAIAN GIRLS GREAT! PROJECT (MGCUBED)

MIDLINE REPORT | OCTOBER 2019

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Executive Summary

CONTEXT

Ghana made a significant progress in girls' education in the recent past. According to the UNFPA[1], the proportion with no education declined from 18% in 1993 to 4% in 2014 among adolescent girls (15-19 years). With respect to young women (20-24 years), it declined from 26% in 1993 to 12% in 2014. Gender parity at the primary level was achieved in 2012/2013. Yet, girls still face many barriers when it comes to education in Ghana. In particular, disadvantaged areas are disproportionately affected by both a lack of education quality and a lack of access for young girls to education.

Project background: Within this context, the UK's Department for International Development (DfID) funded the Varkey Foundation (VF) to implement the Girls Education Challenge (GEC) in Ghana between 2014-2017 as well as the Girls Education Challenge – Transition (GEC-T) follow-on project from 2017-2021, with an explicit focus on supporting marginalised girls to continue on their educational journeys. The core activities are improving the literacy and numeracy skills of pupils. Students also take part in interactive sessions on various topics relevant to the project, such as future aspirations, careers and money making; adolescence and reproductive health; nutrition; gender stereotypes; and inclusion – with focus on gender equity throughout.

Theory of change: The project's Theory of Change (ToC) operates on the assumption that transition to secondary school is the key to marginalised girls furthering their education and subsequently living healthy, fulfilled lives with the ability to sustain themselves materially and socially. To ensure this transition occurs and is sustained, key actors involved in the educational journey of a girl need to gain the capacity, opportunity and motivation to support this process. The project's activities are designed to address the key barriers to girls fulfilling their education potential. These barriers have a direct impact on enrolment, retention, attendance, and learning outcomes for girls in later years. In order to summarise these barriers, the project distinguishes between "demand-side" and "supply-side" barriers which act to prevent girls from accessing and completing a quality education. At base, financial barriers act as a constraint to both investment in education at household and system levels, impacting access and learning environment quality, respectively.

The ToC holds that **if** the project increases the quality and provision of educational content, enhances in-school teaching in core subjects through the use of modern pedagogy, enables school leaders to create and sustain positive learning environments through well-managed schools that provide teachers with the opportunity to teach to the best of their ability, supports girls to continue their education through increased empowerment, focusing on improving levels of self-esteem, including self-belief and self-efficacy, targets community-based barriers to girls' transition and academic achievement through attitudinal and behavioural change, supports the development of sustainable government capacity at district level to develop and sustain systems to facilitate school management and transition, and sustain the cycle so that intergenerational change can be maintained, **then** the quantity and quality of education provision will increase and attendance and learning outcomes will improve.

[1] UNFPA (2016) Situation Analysis of Adolescent Girls and Young Women in Ghana – Synthesizing Data to Identify and Work with the Most Vulnerable Young Women. New York: UNFPA.

DESIGN

Evaluation Approach: The evaluation team (ET) employed a quasi-experimental, longitudinal panel design that tracked a "joint sample" (a cohort) of comparison and treatment girls over three years. The ET selected the statistical matching method known as coarsened exact matching (CEM) to construct a valid counterfactual comparison group of schools, 72 treatment and 72 comparison, and utilised a difference in difference approach (DID) to estimate the impact of the intervention on student level outcomes of interest.

FINDINGS

Learning Outcome Findings

The learning test for GEC-T is composed of two components— literacy and numeracy.

Average aggregate literacy and numeracy scores by grade in midline, provides three important findings: a clear grade level progression, progress over time from baseline to midline and better performance over time of the treatment group relative to comparison group. Evidence shows clear grade level progression for both sexes irrespective of treatment status suggesting that girls and boys in midline on average scored higher as they transitioned to higher grades. The boys and girls also perform better in midline than their own baseline score and lastly, the boys and girls from treatment schools performed better than their counterparts in comparison group, though this difference was not significantly different than zero (or no change) for numeracy.

Between baseline and midline, the average increase in literacy score is 1.16 percentage point higher[2] for treatment girls than comparison girls and this significant change can be attributed to the intervention though it achieves only 23% of the literacy target. Both calculation of difference in difference based on grade averages and estimation from regression model confirm this relative gain by beneficiary girls. The regression analysis suggests that this relative gain is strongly statistically significant. Based on this evidence it can be concluded that the project made a strongly significant impact on literacy outcomes of beneficiary girls.

Unlike literacy outcomes, the evaluation does not find any significant impact of the program on numeracy outcome meaning there is currently no evidence of a programme effect for numeracy. **Between baseline and midline, the average increase in numeracy score is 0.69 percentage point higher for treatment girls than comparison girls, achieving 17% of the program target.** Despite a better start and overtime improvement in score, the lack of evidence on statistical significance suggests that the comparison girls also experienced similar improvement in performance suggesting the overtime improvement may be caused by influence outside the program. There is currently no evidence of the programme effect for numeracy.

Evidence shows that girls with most of the identified marginalised characteristics performed better in midline than baseline except for mothers under 18 and 16. Among barriers, such as, situations when the girl feels that their teacher treats boys and girls differently, or, that their teacher is mostly absent affected girls' overall learning outcomes adversely. The other barriers that impacted girls' learning outcomes adversely are their feeling of safety**.** Our findings show that learning outcomes are impacted adversely when the girls do not feel safe when they are travelling to school or when they are at school. Alternatively, in some other cases, such as, girls living in a female-headed household or when the girls speak different

[2] Based on a DID regression analysis when additional marginalized characteristics and barriers are accounted for.

language at home than language of instruction, overall performance in numeracy and literacy has improved from baseline to midline.

Transition Outcome Findings

With a ML transition rate of 93.5%, the treatment group had a transition rate 5.54 percentage points above the change in the comparison group, achieving 111% of the target. Regression analysis shows that there is a strongly significant program impact on the transition outcome of the beneficiary girls. Between baseline and midline, the likelihood of a beneficiary girl to transition successfully increased by 80 percent as compared to the comparison girls.

Sustainability Outcome Findings

***At the community-level*, community members are not found to act as a barrier to girls' transition.** At community level, 19.4% of girls noted being absent from school at least once in recent school year for family related issues against a target of fewer than 18%. Against a target of more than 85%, 94% of caregivers stating there was no reason they would not allow their girl to go to school next year. Many focus group discussions noted that over the past couple of years the perception on girls' education has changed, with many in the community understanding there is value as far as future income and job opportunities to girls who stay in school.

***At the school-level,* improvements in sustainability were also realized though they did not meet program targets.** 54.17% of schools noted having a plan to help girls' transition against a target of 60% or more. On an index measuring student-centred gendered-sensitive education through classroom observations, treatments schools scored consistently higher than comparison schools though the aggregate index of 6.08 for treatment schools did not reach the target of 6.19 or higher. Lower scores were more typically due to a lack of student-centred learning opportunities rather than unequal treatment between boys and girls. Finally, given the large role technology plays in the MGCubed – T approach for distance learning the evaluation team asked facilitators if they would be able to solve technical issues as they arose. 64.14% of facilitators noted that they could against a target of more than 70%.

***At the system-level,* 96.67% of District Education Officials had attended a MGCubed – T training and the program confidently concludes that demand-led contributions to the policy process are a strong reflection of the Government of Ghana's recognition of the Project in contributing to girls' education in the country.**

Intermediate Outcome Findings

***Attendance* improvement in marginalised girls' was realized with 85% of enrolled girls attending school as part of a random spot check.** The project appears to play a large motivating factor in attendance with 89.2% of girls reporting being incentivised to attend school because of it.

***School management*, as perceived by community members, also improved at midline with 54.2% of treatment schools seen as "highly satisfactory" or "outstanding."** Physical punishment, as a proxy for good governance and teacher quality, decreased at both comparison and treatment schools with physical punishment observed in 6.9% of treatment schools during midline. 70% of school PTAs and SMCs were functional or well functional, surpassing project targets of 55%.

***Teacher quality* saw improvements with 55.1% of treatment teachers being assessed as highly satisfactory or outstanding based on a classroom observation tool that measured classroom management, promotion of equitable learning, preparedness and teacher confidence.** Demonstration of specific MGCubed strategies was also high, with 55.8% of teachers sometimes or all of the time using techniques including setting class objectives, use of plenaries, etc. but did not reach program

targets of 73%. This could be due to a lack of opportunity to present all MGCubed strategies within the limited time period provided for classroom observations.

***Community behaviour change* was measured through household surveys int which 84% of caregivers could list at least one way in which they have positively changed their behaviour in the past year to promote girls education.** In regards to the program itself, 45.8% of caregivers were able to provide at least one example of afterschool content, and out of that group support for content was at 97.5%. While support for girls education was largely positive, focus group discussions revealed that, when forced to choose between sending boys or girls to school, usually due to financial constraints, boys were typically prioritized showing there is still some effort to be made in achieving neutrality.

51% of treatment girls' improved on non-cognitive skills *(Life Skills)* in areas of self-efficacy, agency and esteem. More than half of the sample have some agency in the decision of whether or not they will go to school or continue attending in the future (verse those whose parents alone make this decision), though agency was less among impaired girls. The evaluation team also found improvement among girls in knowledge of topics related to health and sanitation and financial literacy with the largest gains concentrated among treatment girls in the program.

Project delivery of transformational change in GESI

At the project level, VF continues to operate a gender-responsive and gender-balanced team, including females in leadership positions, (such as, Country Director, Finance Manager, Education Team Lead and Education Adviser). The education team that delivers content are all Ghanaian – providing a strong sense of local citizenship and positive Ghanaian role models as advocates for gender equity. The education team are internally monitored for continuous development of gender responsive teaching practice, and regularly given targets for their young learner and adult learner training sessions and (via lesson observations and self-assessment of their practice in continuous professional development journals)

At the direct beneficiary level, girls partake in MGCubed Remedial lessons and afterschool clubs ('Wonder Women Basic' and 'Wonder Women Advanced') to enhance life skills (healthy eating; financial literacy, careers and adolescence) and to promote engagement with education. The evidence from the midline evaluation shows that project is doing well to address gender issues and barriers. Around 5% points more girls in midline show gain in confidence in sexual and reproductive health related issues as they age. Midline data shows girls have generally high self-esteem and stays relatively consistent as a girl ages. Girls generally gain more agency as they age, and it is reflected from their response irrespective of treatment status. With respect to financial literacy, results show that over 60% agree or strongly agree that they are able to plan their own expenses. Caregivers report that male-headed schools have higher management quality, however female-headed schools have better community involvement indicators.

Since September 2018, the clubs have also evolved their approach by explicitly focussing on relationships between genders via structured collaborated activities between 'Wonder Women' and 'Boys Boys' clubs; and in 'Mixed' Clubs - developing a sense of solidarity between boys and girls in achieving aspirations. The clubs include sessions on assertive communication, and on supporting girls in leadership positions during sport and financial entrepreneurship (via arts and crafts) sessions. As per the latest thinking on gender and development, the project has identified that work on ideas of masculinities in 'Boys Boys' clubs is important to tackle gendered challenges holistically, and to not simply see it as a girls' problem. In numeracy and literacy lessons, particular attention is paid to proportional and active involvement of girls in lesson activities, and for targeted formative assessment. Both baseline and midline

assessment find that differential treatment of girls and boys at school matters. The evolution of project's approach reflects in midline assessment of learning and sustainability.

The project has also evolved its' approach by developing separate targeted head teachers' and school leadership courses and by developing a new community training course with refined emphasis on gender and social inclusion. VF maintains that inclusion of diverse cognitive and physical needs should be a normalised discussion in mainstream settings and seeks to embed this in the narrative of the courses that it delivers, and within the education team in everyday planning and teaching. The project sees this as a key way to begin to tackle ethical concerns in relation to inclusion and disability, i.e. the stigmatisation and marginalisation of individuals with physical or cognitive disabilities. While many focus group discussions noted that over the past couple of years the perception on girls' education has positively changed, on disability the evaluation team noted that many community members still view those with impairments requiring services not available in mainstream education.

Recommendations

Based on the evidence from the baseline and midline data, the recommendations laid out in this report are generalized in nature but are action-oriented, targeted at specific actors, and ultimately rooted in evidence set forth in this report. In the baseline we made some recommendations considering that the GEC-T is practically a follow up after GEC-1. Here, we evaluate those with our midline findings to see how the project evolved to accommodate those recommendations. While the same recommendations are supported by evidence in Section 7, we highlight the takeaway points below. All recommendations are targeted for VF to follow up. ET recommends that VF should—

1. Carry out a study to identify children with cognitive disabilities in treatment catchment areas. Consider targeting these children specifically with specialized lessons.
2. Focus more on developing foundational mathematics skills.
3. Include curriculum on spoken languages to make marginalized girls more well versed with the language spoken at school.
4. Continue to include curriculum in community trainings on gender equitable roles and responsibilities of boys and girls, particularly around household duties.
5. Ensure that teachers are not only knowledgeable about MGCubed teaching strategies but feel comfortable deploying those strategies in the classroom.
6. Conduct additional exploration as to the barriers facing girls who are married or who are mothers and consider targeted, remedial classes for girls who are married or mothers as appropriate.
7. Follow up to ensure that at least 80% schools have a Transition plan.
8. Involve local community actors (PTA/SMC, parents, GES) in management of the technology packages.
9. Ensure students feel empowered to engage with distance learning, including the freedom to ask questions or request clarification.
10. Encourage parents to join PTAs and support PTAs with resources as necessary. At PTA meetings, push the idea of dedicated reading time at home between parents and their children.
11. Scale up WW/BB clubs to include as many students in the community. Encourage students themselves to create their own offshoots of the clubs with dedicated teacher mentors.
12. Ensure that MGCubed activities are welcoming and engaging for both boys and girls.

13. Investigate and work to address barriers unique to girls with impairments including challenges with mobility and perceptions on safety in the school environment.

In regard to the evaluation the ET recommends -

14. Refocus tracking efforts at endline on the tracked cohort. To ensure an adequate sample size at EL surveying efforts will focus on the tracked cohort and exclude replacement students.
15. Revisit and potentially revise logframe indicators, specifically Community Level Sustainability, Indicator 2. This was a new measurement at midline and given high rates of agreement does not provide meaningful variation for analysis.
16. Stagger qualitative data collection to occur after preliminary quantitative analysis in order to better explore deviations and nuances in quantitative findings.

1. Background to project

1.1 Project Theory of Change and beneficiaries

Project summary

The UK's Department for International Development (DfID) funded the Varkey Foundation (VF) to implement the Girls Education Challenge (GEC) in Ghana between 2014-2017 as well as the Girls Education Challenge – Transition (GEC-T) follow-on project from 2017-2021. Locally in Ghana the project is known as Making Ghanaian Girls Great (MGCubed). GEC-T builds on MGCubed's successes from the first phase (GEC), with an explicit focus on supporting marginalised girls to continue on their educational journeys.

The project's main beneficiaries are Primary 3 to 6 pupils and Junior High School (JHS) students. The beneficiaries live in 7 deprived districts in Ghana. The EE's evaluation data from MGCubed shows that these are very marginalised districts, with 61% of households falling below the poverty line. They face educational challenges such as limited teachers, poor quality teaching, teacher absenteeism (reported to average 27% nationally and is much worse in deprived districts). Most teachers refuse postings to such areas because of their deprivation, and teachers who do accept postings to these areas spend very little time in schools as they have to commute from distant locations each day, which results in students losing significant instructional time each week. High levels of poverty also contribute to the marginalization of students in these districts. Parents are unable to provide for the basic educational needs of their children such as books, uniform and feeding.

These are characteristics that cut across all pupils in the project districts and put them at a great disadvantage compared to their counterparts in more endowed districts. The project selects pupils for after school sessions using a marginalization criteria beyond the basic level defined above, namely, i) pupils who are overage for their grade, ii) pupils who travel more than 30 minutes to school, iii) pupils who have absented themselves from school for more than 10 times in a term, and iv) pupils who have more than four siblings. A pupil has to meet one or more of these criteria to qualify for selection, which makes project beneficiaries pupils with multiple levels of marginalization. This criteria is also applied for boys who attend MGCubed lessons and activities.

Since BL, the EE has noted a few changes in the characteristics of the cohort being analysed. Specifically, there has been reductions in the % of girls in which both parents have passed away (intervention only), and reductions in the % of girls where primary caregivers have no education. There has also been a reduction in land ownership, a reduction in poverty (as measured by roof condition), and an increase in the pupils going to bed hungry at night. The EE found that comparison girls are more likely to find it difficult to afford school at midline which may be due to a changing economic stability in the home or due to the rising cost of school as a girl ages. Encouragingly, treatment girls were less likely to report difficulty in paying for schools. Also, during the last year, there was a reported increase in the number of households where the language of instruction was different than the language spoken at home.

The second phase of the project contains an additional element of focus on girls transitioning from Primary to Junior High School and from Out of School back into the classroom. This new phase included the provision of a small cash transfer to subsidize the costs of girls transitioning to JHS to support vulnerable girls to transition.

Through a comprehensive understanding of the barriers to transition (in this project understood variously as any transition from one school year to the next or a return to mainstream education), the second phase of MGCubed extends targeted support to key stakeholders within the education ecosystem. The project recognises that while individual-level attitudinal and behavioural factors (such as academic achievement, the ability to construct a plan for the future, and financial management) play a critical role in facilitating the life chances of marginalised girls, it is essential to engage with the less tangible and harder-to-measure systemic and community-level attitudes and behaviours which prevent marginalised girls from realising their potential. To enhance teaching quality and school leadership, the project offers training for teachers and school heads. Ghana Education Service (GES) officials are trained to enhance their capacity and support system strengthening. Parents and communities are engaged to create sustained buy-in to the project and enable attitudinal change to girls' education. Cash support will be provided to families through girls to ensure they transition to secondary school (At the point of transition from P6 to JHS 1).

The core activities are improving the literacy and numeracy skills of pupils. Grades 3-6 and JHS receive literacy and numeracy lessons. Primary 3 to 6 pupils are offered By-grade lessons in Maths and English. Basic, Intermediate and Advanced afterschool remedial sessions are delivered to girls and boys, as are afterschool Basic and Advanced life skills sessions in the form of Wonder Women, Boys Boys, and mixed-gender clubs, where both girls and boys are introduced to a variety of role models. With focus on gender equity throughout, the project has introduced interactive sessions on various topics that are relevant to the project. This includes future aspirations, careers and money making; adolescence and reproductive health; nutrition; gender stereotypes; and inclusion. Pupils practice and develop interpersonal skills (with community members and peers – including girls and boys) via structured activities and critical reflection in relation to gender roles. Out of school girls also participate in the sessions and are given the opportunity to join in the appropriate level of numeracy and literacy lessons to support their return back to mainstream schooling. The Project complements this regular lessons with other activities such as excursion and mentorship activities, and supports MGCubed schools with ad hoc basis interventions such as the delivery of BECE revision lessons to the JHS3.

To ensure a sustainable legacy, the Project seeks to enhance teaching quality and school leadership, the project offers training for teachers and school heads. Teachers and head teachers receive capacity building to ensure quality instruction and supportive leadership in the beneficiary schools. Ghana Education Service (GES) officials are trained on monitoring, child protection and Gender issues - to enhance their capacity and support system strengthening. Parents and communities are engaged through regular community Training sessions to create sustained buy-in to the project and enable attitudinal change to girls' education. The project estimates that it will reach about 14,400 direct girl beneficiaries and 3,600 indirect girl beneficiaries.

The Project's sustainability goals also target the systemic level. The Project seeks to support the Ministry of Education's (MoE) efforts on changing current attitudes to girls' education by promoting equity and inclusion in education, and the emphasis on promoting learning outcomes inclusively. It also seeks to support the MoE's efforts to improve content and pedagogy standards through the technology-aided teacher training approaches employed in MGCubed.

Table 1: Beneficiaries' grades and ages

Beneficiary grades & ages		
	Baseline	Midline

Grade	P3 P4 P5 P6 JHS1 MGCubed Basic MGCubed Intermediate MGCubed Advanced OOSGs	P4 P5 P6 JHS1 JHS2 JHS3 MGCubed Basic MGCubed Intermediate MGCubed Advanced OOSGs
Age	8-13*	9-15*
***This is the approx. age range excluding OOSGs.**		

1.2 Project context

Major progress has been seen in girls' education in Ghana. According to the UNFPA[3], among adolescent girls (15-19 years), the proportion with no education declined from 18% in 1993 to 4% in 2014. With respect to young women (20-24 years), it declined from 26% in 1993 to 12% in 2014. The Net Attendance Ratio (NAR) for girls at secondary level of education increased from 35% in 2003 to 42% in 2008 and declined to 39% in 2014. Gender parity was achieved at the primary level of education in the 2012/13 (GPI, 0.99) and 2013/14 (GPI, 0.99) academic years. The Net Enrolment Rate (NER) at primary level for girls increased from 77% in 2010/11 academic year to 89% in the 2013/14 academic year. Retention of girls at the primary level of education decreased from 770 per 1,000 girls in 2004/05-2009/10 academic years to 576 per 1,000 girls in 2008/09-2013/14 academic years. Net JHS completion rate increased from 62% in 2009/10 academic year to 66% in 2013/14 academic year.

According to 2015 World Bank data,[4] enrolment and retention of boys and girls is almost equal at the lower primary, however, boys at that stage have a higher frequency of attendance than girls. Retention of boys in school is also higher in the transition to upper primary; this is as a result of early marriage and lack of financial support among other factors. At lower secondary, completion rates show a higher differential, with boys at nearly 80% and girls at 75%.[5] This is clearly a major improvement: in 2010, only 45% of females aged 25 had completed lower secondary, compared with 67% of men.[6] To be sure, this data also hides important geographic and economic nuances; in more deprived areas, the situation between girls and boys shows even larger inequalities.

UNESCO's gender parity index shows that Ghana has achieved gender parity at primary level, although not yet at secondary level and with significant differences amongst different regions in the country. Further, there is a notable difference in completion rates for secondary school: with boys at nearly 80% and girls at 75%. This is clearly a major improvement: in 2010, only 45% of females aged 25 had completed lower secondary, compared with 65% of men.[7]

According to the 2014/15 Ministry EMIS data, the completion rate for girls in primary schools nationally is two percentage points lower than for boys, whilst completion rates in deprived districts are still lagging beneath the national average. This points to a problem in more disadvantaged areas of the country overlooked by the country level data, which also indicates that at 87%, the primary enrolment rate is far

[3] UNFPA (2016) Situation Analysis of Adolescent Girls and Young Women in Ghana – Synthesizing Data to Identify and Work with the Most Vulnerable Young Women. New York: UNFPA.
[4] http://data.worldbank.org/indicator/SE.ENR.SECO.FM.ZS
[5] http://data.worldbank.org/indicator/SE.SEC.CMPT.LO.FE.ZS?locations=GH
[6] http://data.worldbank.org/indicator/SE.SEC.CMPT.LO.FE.ZS?locations=GH
[7] World Bank Education Statistics: Ghana (various indicators). http://data.worldbank.org/indicator/SE.ENR.SECO.FM.ZS

above the Sub-Saharan Africa average. Disaggregating by district level, one can see that there is a huge disparity in key education indicators, with the Oti Region overall ranked 10th (out of 10 regions) and with just over half the pupils passing their Basic Education Certificate Examination (BECE) exams. Indeed, disadvantaged areas are disproportionately affected by both a lack of education quality and a lack of access for young girls to education. One of the key challenges highlighted in the Ministry of Education's (MOE) Strategic Plan, is the "inequitable distribution of resources" highly disadvantaging the most marginalised communities, and the shortage and under-qualification of teachers have also been identified as major challenges, with only 61.7% of kindergarten teachers trained, 75% of primary, and 87% of secondary teachers.

The pilot MGCubed evaluation data from 2017 sheds some light on the issue of attendance. The baseline results show high levels of absenteeism in the sampled students, with 49% of the sampled treatment girls reporting missing school for at least one day during the previous week, compared to only 42% of the treatment boys. According to the independent evaluation, this appears to confirm that reduced instructional time for girls (and boys) correlate with the rate of absenteeism among students. Regular attendance by students in a sample of 10 schools was measured officially within school register records at 84.2% for girls and 80.2% for boys, although these are likely to be inflated. Random spot-checks performed during January 2014 in a sample of schools confirmed that girls' school attendance on average was 82%.

Girls clearly face problems with remaining in school despite increasing awareness of the importance of girls' education. The pilot evaluation findings saw that of the OOSG sample, 94% of the girls expressed a desire to go back to school, although 9% of the respondents (aged 14 years and younger) already have a child. Twenty-eight percent of the sampled respondents had never been to school previously, suggesting that the majority of OOSG do have some history of education but cannot always afford to complete their studies. Thirty-five percent of respondents cited "lack of finances" as the main reason for not being in school, although 19% cited the fact that their "parents did not want them in school." The differences in attitudes towards girls' and boys' education continues to be a critical factor in girls' educational journeys. At midline, of the six percent of parents who responded that they did not intend to send their girls to school next year, 70.94% accounted financial barriers. When examining the reasons behind absence also, the girls were absent largely due to household chores, supporting family, and taking care of the sick in the household; however not one parent had responded that they believed girls ought not be in school.

This disparity is felt more keenly by girls who in disadvantaged rural areas face major pressures from the family and community not to finish school, regularly attend school, or work hard at school. The communities MGCubed operates in are predominantly patriarchal and division of household chores is disproportionately allocated to girls. It is an acceptable norm and routine for girls in the community to complete all house chores linked with girls before going to school each day. Girls are obliged to complete about two-thirds of domestic tasks in the morning before going to school and are required to complete about 80% of domestic tasks after school. The workload in most cases is enormous and has the potential to make the girl either late to school or miss school for such days. This was oft-cited as a reason for girls not to attend Wonder Women, and arguably why the provision of snacks at Wonder Women was so popular – this loss of labour time was a cost that was offset by the receipt of food. This highlights a really important theme – what compensation motivates families to potentially trade-off between short term savings on food or longer-term gains from a girl gaining an education.

In rural communities in Ghana, women do the lion's share of unpaid work, both in the household and on the farm. Overall, there is a wide gender gap in the time allocated to domestic activities: while 65% of men spend from 0 to 10 hours per week on domestic activities, 89% of women spend 10 hours per week or

more. The average amount of time that women spend per week on domestic activities is greater than that of men, even if women spend almost the same amount of time as men on productive activities. This pattern is also found in Ghanaian youth: nearly two-thirds of young rural men spend between 0 and 10 weekly hours on domestic work, whereas over a quarter of young rural women spend 50 or more hours on domestic work.[8]

Underlining these barriers are the interlinked issues of economic poverty and social norms held by a girls' community. The former acts as a tangible constraint on a household's ability to send a girl to school: the costs associated with schooling can reach as much as around GHS 293 (£100 GBP) in a year,[9] a figure most households in disadvantaged areas struggle to afford. Secondly, when a girl attends school this represents a loss of income for a household, who might normally use girls as an economic resource. As a result, households tend to prioritise the education of male children over that of girls, particularly when early marriage and pregnancy is the "norm" and there exist financial incentives for young girls to marry early.

As a result of pervasive poverty some of the girls see early marriage as a source of social security. Twenty-one percent of girls in Ghana are married before they are 18, but rates can be as high as 39% in the northern part of the country,[10] though this rate has seen a significant decrease from the 1990s.[11] Early marriage is attractive as parents will be saved the burden of paying fees and catering for a girl's basic school needs. Further, it is a way of avoiding shame within the community associated with pre-marital pregnancy.[12] (Note that 14% of girls aged 15-19 in Ghana have begun having children,[13] and girls from poor households are nearly four times more likely to be married before the age of 18.[14]) The vast majority of some communities still practice exchange marriage or still adhere to an outmoded practice where families engage in mutual promise or contract for future marriage of their girls, particularly in the Oti Region. This consequently provides a seemingly inevitable path for girls, cutting short their aspiration and expectations. Boys on the other hand do not feel the same societal pressure of early marriage. Boys are required to reach a certain age and bear the responsibilities of parents and a potential wife before beginning to discuss issues about marriage. This leads to an asymmetry in the age of married couples, with older men taking young girls as their wives.

Regional focus

In Ghana, there are existing donor and NGO girls' education interventions (e.g. USAID, UNICEF, DFID, Camfed), but these are heavily concentrated in the north of the country. MGCubed concentrates on seven districts in two specific regions –Oti (Nkwanta South and Kadjebi districts) and Greater Accra (Ada East, Ada West, Ningo Prampram, Adentan, and Shai Osu-Doku districts) in the south and east of Ghana. These districts, except for Adentan, appear on the government's list of most deprived communities and were approved by the GES during consultation as meriting additional inputs.

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[8] Gender, Equity and Rural Development Division, FAO (2012), *Gender Inequalities in Rural Employment in Ghana: An Overview*, Rome: FAO
[9] Ibid
[10] UNICEF, State of the World's Children, 2016.
[11] Ghana, Demographic Health Survey, 2014
[12] Women in Law and Development in Africa (WiLDAF Ghana) Scoping study for Parliamentary Advocacy Programme on Combating Early and Forced Marriage in Ghana, March 2014
[13] Ghana, Demographic Health Survey, 2014
[14] Ghana, MICS, 2011

The Greater Accra region covers the smallest area of all the regions, with 1.4% of the total land area of Ghana. It is the second most populated region (second to the Ashanti Region), with a population of over 4 million (2010), accounting for 16.3% of Ghana's total population. It is also the most urbanized region in the country with 87.4% of its total population living in urban centres including the capital Accra and port city Tema. The predominant languages are Ga and Dangme (of the Ga-Dangme family), with Akan (the country's *de facto* lingua franca) widely understood. The Oti Region, situated along the Togolese border, is home to the Ewe (73.8%) and Guan (8.1%) ethnic groups (with Guan encompassing the Lolobi, Likpe, Akpafu, Buem, and Nkonya linguistic sub-groups), and also the Gurma, originating from Burkina Faso (11%). It is a predominantly rural region, with just over 20% of the population living in urban areas centred around Keta, Ho, and Hohoe.

Families in the Oti districts are chiefly subsistence farmers, while those in Greater Accra districts are largely subsistence fishermen and/or farmers. School gender parity is 0.78 and 0.87 in the Nkwanta South and Ada districts, respectively. Drop-out rates are higher for girls than boys (34% vs. 46% in Nkwanta),[15] driven by frequent early marriage, child labour, and youth pregnancy. Another major barrier facing students in the selected districts is the scarcity of teachers (both trained and untrained).

UNICEF's District League Table, which presents an annual multi-sectoral, integrated assessment of how Ghana is developing across all its 216 Districts, indicates that Oti is the second worst performing region, and Greater Accra is the second best.[16] Behind the high level statistics lie major variations within regions, however. Greater Accra is home to two major cities (Accra, Tema) but also encompasses marginalised coastal communities who are poorly served by bad roads. Most of the districts MGCubed operates in are classified as underperforming in the BECE examinations by the Ministry of Education, with 2011 data indicating that Greater Accra has a far lower proportion of underperforming districts (25%) than Oti (86%). When broken down by school, these figures are 56% and 80%. There are clear differences in performance in school based on gender: in Oti 1 in 3 boys graduate from primary school, while for girls this figure is 1 in 10.[17]

Policy context

The Government of Ghana spends just over 20% of its national expenditure on education (approximately 6% of GDP). The 1992 Constitution of the Republic of Ghana (Article 25) guarantees the right of all persons to equal educational opportunities and facilities; free primary education was introduced in Ghana in 1995 under the Free Compulsory Universal Basic Education (FCUBE) programme.

In more recent times, the Government of Ghana's education strategy was outlined in the Education Strategic Plan (ESP). The Education Strategic Plan (ESP) 2018–2030 is the third in a series of strategic plans that have been produced since 2000 (ESP 2003–15; ESP 2010–20; and now 2018–30) and follows from the ESP 2010–2020. This plan not only sets the long term vision but also how this will be operationalised in the medium term through an accompanying Education Sector Medium Term Development Plan 2018-2021. These two documents have both been informed by extensive analysis, which includes the Equity, System Capacity and Cost and Finance Analysis commissioned specifically for the ESP, as well as a broad range of evidence and research produced by partners and the Ministry. This comprehensive evidence base

[15] Ghana Education Service EMIS database
[16] UNICEF Ghana (2016) District League Table 2017. Accra: UNESCO/MoE
17 Ministry of Education (2011), Policy Evaluation Studies in GES Public Basic Schools (Underperforming Schools and Tracking of Poverty), Monitoring and Evaluation Unit. Accra: UNESCO/MoE

is brought together in the Education Sector Analysis 2018 and summarises the challenges to which the strategies in the ESP are designed to respond.

The education system in Ghana is decentralised, with District Education Offices (DEOs) performing the district-level responsibilities of the GES. The establishment of the Girls Education Unit (GEU) in 1997, structured from the national through the regional to the district under Ghana Education Service, is a demonstration of a determination to focus on girl's education. At decentralized levels, every region and district has a Girls' Education Officer (GEO). In practice however, the GEU and its respective GEOs are very under resourced and unable to carry out their mandate effectively despite high-profile partnerships with UNICEF.

The education policy context is closely related to the domains of the Ministry of Gender, Children, and Social Protection, including: child labour, sexual violence and abuse, and acute poverty. It is responsible for the National Gender Policy (2015). In addition to the international laws related to children's rights that protect girls and boys from discrimination and physical and sexual abuse that apply to Ghana, there are comprehensive laws, statutes, and regulations in Ghana that protect children from any form of sexual abuse. These include the 1992 Constitution, the Children's Act (1998, Act 560), the Criminal Code (Amendment) Act (1998, Act 554), and the Code of Professional Conduct of the GES) Each of these legal frameworks contains provisions for the protection of children against sexual abuse and violence. In 2017, GES' code of conduct for teachers dvised teachers against the use of corporal punishment although corporal punishment continues to be allowed by law. The GES' efforts to move teachers from using corporal punishment were reinforced by GES' new disciplinary methods for all pre-tertiary institutions in January 2019. The GES teachers were advised to make use of the the Positive Discipline Toolkit, which was developed in 2016, and guides on the use of positive and constructive alternatives to correcting children. These changes are expected to support some of the Project's Teaching Quality goals to promote conducive and safe learning environments.

In Ghana, teacher training and teacher recruitment are recognised by the government, though a specific focus on female teachers is not a mainstream concern. National-level statistics on women in school leadership roles do not exist; however, in the field of education in general, there are clear imbalances. The 2015 Labour Statistics report[18] shows that more men are employed in educational professions than women (54% to 45%), and that these men earn 1.25 times what women earn on a cash basis. On an in-kind basis, men's earnings climb to more than 7 times what women are paid. This points to disincentivisation of and potentially even hostility toward women working in the field of education. On a regional basis, the VF's data on female leadership in the Eastern Region demonstrates that men far outnumber women in school leadership roles.

In Ghana, the proportion of trained female secondary teachers is higher than male trained secondary teachers (92% compared with 87.5%), though at primary level this figure is lower for both groups at 65% (female) and 48% (male), according to the government's latest statistics.[19] UNESCO figures for 2016 suggest this is slightly higher for male teachers at 50%.[20] The 2010-2020 ESP does not highlight a lack of female teachers as a barrier to learning, though it does refer to the need for trained teachers under the Quality of Education pillar. However, in some parts of the country, civil society organisations have identified the need to recruit and retain more female teachers, particularly in Northern Ghana where

[18] Ghana Statistical Service 2015 Labour Force Report, http://www.statsghana.gov.gh/docfiles/publications/Labour_Force/LFS%20REPORT_fianl_21-3-17.pdf
[19] SHS National Profile – 2014/ 2015 School Year Data
[20] http://data.worldbank.org/indicator/SE.PRM.TCAQ.MA.ZS?locations=GH

educational outcomes are at their lowest.[21] This issue is linked to the more general problem of some areas not attracting enough trained teachers.

The Ministry of Education (MoE) has led reforms to establish free access to secondary education at the senior level, an initiative that began in September 2017. In June 2017, the network of organisations, Girls' Education Network (GEN), was formed which is working with the GEU to promote girls' education in Ghana. The GEN, with the support of the Girls' Education Advisory Body, supports the GEU in the implementation of its activities and functions. The GEN, made up of officials of government agencies, civil society organisations, donor partners, educational and research institutions, and girls' education practitioners, is premised on the fact that education, including girls' education, is fundamental to the promotion of the human rights of the child and it is the key to breaking the cycle of poverty in Ghana. The Government also banned in 2019 parent-teacher associations (PTAs) all public SHSs/TVETs from collecting levies as it could prevent students from attending schools. While the measure will alleviate the poorer households, it could also impact the sustainability of these school structures in the future.

Government Support for Girls' Education

In terms of support to girls' education, the free Compulsory and Universal Basic Education (FCUBE) policy, the Quality Education for All policy, and other policies that encourage OOSG to return to mainstream schooling are all aimed at ensuring gender equality in education. The National Vision for Girls' Education was published by the GEU in 2002 and its principal goals are to increase enrolment, retention, and achievement of girls, particularly in the sciences, technology, and mathematics.

The National Gender Policy is relatively new but provides a solid platform to mainstream gender issues in education. It identifies inequalities in education and gender stereotyping as national development problems. Its goal is to mainstream gender equality and women's empowerment concerns into the national development process in order to improve the social, legal, civic, political, economic and cultural conditions of the people of Ghana, particularly women and men, and boys and girls, in an appreciable manner and as required by National and International Frameworks. In particular, the policy identifies the following objective as a core part of its strategy: "To transform inequitable gender relations in order to improve women's status relative to that of men."

In 2019, the MoE also launched through NaCCA (National Council for Curriculum and Assessment) a new curriculum which is intended to be more gender-responsive and is based on student centred learning pedagogy. This Project has participated on the development of this curriculum and its successful implementation during the 2019/20 academic year could enhance Teaching Quality aspects, as well as the Project outcomes on Learning and Transition.

The Girls Education Strategy 2019 to 2024 provide strategic framework and guidance to the work of the Girls Education Unit. It will also guide all girls' education interventions and programmes at the national, regional, district and community levels whether implemented by Government, development partners, civil society, private institutions or communities.

Having identified early pregnancy as a major challenge to equitable learning outcomes and completion rates, the GEU established a Girls Education Re-entry Policy to ensure that girls who become pregnant can resume their education after they give birth. The re-entry process involves the use of the girls' old school admission number for re-admission, ensuring girls remain in school once they are re-

[21] http://www.ghananewsagency.org/education/recruit-female-teachers-to-enhance-academic-performance-educationist-81131

admitted, offering counselling services to girls, and ensuring that the girls feel accepted and free from stigmatisation. This is, however, not implemented by all schools. Some schools refuse to accept such girls because they believe they will become a bad influence for the remaining girls. On the demand side, a 2015 GEU study on girls' re-entry to school showed that few girls participate in the process but eventually return to school after pregnancy anyway.[22]

The focus of the Government to support gender equity was also ratified through the National Strategic Framework on Ending Child Marriage in Ghana in 2017. This nine-year framework (2017-2026) represents the Governemnt's support to the girl child and sets outs the national goals and key cross-sectorial government activities to address the roots and causes of child marriage and teenage pregnancy.

The Varkey Foundation works at the national, regional, and district level to support the existing work of the GES, and will shape its policy and advocacy activities around influencing the Gender in Education Policy, currently in draft form. The project focuses on policy implementation and enforcement, supporting the ESP 2018-2030 National Gender Policy, Girls Education Re-entry Policy, Girls Education Strategy 2019 to 2024 and decentralisation. In the first phase of MGCubed the project consulted extensively with district level GEU officials and developed productive working relationships with Circuit Supervisors, Girls Education Officers, and District Directors. In the second and current Phase, the Project is working very closely with the GEU, Circuit Supervisors, School leaders and communities to support the transition of girls from primary to JHS at the district level. At the national level, the Project is working with the Ministry of Education to integrate key project components into government structures to further promote girls education and equity policies.

1.3 Key evaluation questions & role of the midline

In general, the GEC-T evaluation follows a **quasi-experimental, longitudinal panel** design that tracks a cohort of comparison and treatment girls from 2018 – 2021 at 3 evaluation points (2018, 2019, and 2021). The ET was appointed in September 2017 and proposed **coarsened exact matching** (CEM) to construct a valid counterfactual comparison group at baseline and will utilize a **difference in difference** approach (DID) to calculate the outcomes of interest at midline and endline evaluations. In GEC-T, the Evaluation Team will measure three higher level outcomes (numeracy, literacy and transition outcomes) and five Intermediate Outcomes (IOs). IOs link directly to the three higher level outcomes and are in turn rooted in outputs and activities. VF has identified the 5 IOs as attendance (required by GEC), teaching quality, life skills, school governance, and attitudes and perceptions (of both girls and communities). SI, with input from VF, subsequently has developed a suite of quantitative and qualitative tools to measure IOs that fully leverage existing VF tools used during GEC-1 that worked well. These tools may continue to be refined for each round of data collection and are outlined in in Annex 12.

In this section, we lay out the evaluation questions of the midline evaluation. The following questions are a combination of GEC-T mandated (marked as GEC Q#) and MGCubed specific (marked as MG#) evaluation questions. While the higher-level GEC-T questions cover the three outcomes of the evaluation (learning, transition, and sustainability), MGCubed's intermediate outcomes (IOs) guide the development of project-specific sub-questions. The five mandatory GEC-T programme evaluation questions and supporting MGCubed-specific sub-questions are as follows:

[22] GEU (2015), Report for a three day consultative meeting in ten districts across the country on re-entry into school after pregnancy, Accra: Girls Education Unit.

- GEC Q1: Was the GEC successfully designed and implemented? Was the GEC good Value for Money? (This needs to be answered with specific reference to GEC Q4 findings, below.)
- GEC Q2: What impact did the GEC Funding have on the transition of marginalised girls through education stages and their learning?
    - MG3 2.1. How have marginalised girls' learning outcomes changed in comparison to: a) a non-treatment group; b) their male counterparts?
    - MG3 2.2. What impact has the GEC funding had on marginalised girls' transition rates at the various stages of their education?
- GEC Q3: What works to facilitate transition of marginalised girls through education stages and increase their learning?
    - MG3 3.1. To what extent has improved attendance contributed to transition and learning outcomes?
    - MG3 3.2. How has teacher quality affected transition and learning of marginalised girls?
    - MG3 3.3. What impact has life skills training had on transition and learning of marginalised girls?
    - MG3 3.4. What impact do school-level governance and management changes have on attendance, transition and learning of marginalised girls?
    - MG3 3.5. What impact do cash transfers have on transition rates of marginalised girls to Junior High School?
- GEC Q4: How sustainable were the activities funded by the GEC and was the programme successful in leveraging additional interest and investment?
    - MG3 4.1. To what extent has school governance and management been strengthened as a result of the project?
    - MG3 4.2. To what extent are community members' and girls' attitudes and perceptions of girls' education changing?
    - MG3 4.3. To what extent is teacher quality changing?
    - MG3 4.4. To what extent have public-sector educational actors and institutions been strengthened in relation to supporting quality learning and girls' transition?
- GEC Q5: Was the project's approach to learning fit-for-purpose?
    - MG3 5.1. How effective were the project's learning and adaptation mechanisms, and were they used to inform evidence-based changes to the project?
    - MG3 5.2. How inclusive was the project's learning and adaptation process, and were participants able to engage with the project in a meaningful way?
    - MG3 5.3. Has the project ensured the integrity of a robust research process?
    - MG3 5.4. How has the project contributed to the GEC learning process and what value has it added to the sectoral evidence basis?
    - MG3 5.5. Has the project adequately captured and learnt from any unintended effects?

The ET added to the initial mandatory GEC-T questions to ensure that key GEC-T outcomes were captured in the evaluation. To that end, the addition of the project-specific sub-questions ensures that the effect of the various MGCubed interventions at the school, community, and system levels on higher level outcomes of learning, transition, and sustainability are taken into account. The questions themselves are further structured so that they are inclusive of MGCubed's key intermediate outcomes of attendance, teacher quality, life skills, school governance, and attitudes and perceptions, which are in turn intermediate outcomes of the GEC-T project as a whole thus ensuring that results are comparable across GEC-T projects.

By answering these evaluation questions, the midline evaluation will ultimately seek to capture a reference point for the MGCubed outputs, outcomes, and intermediate outcomes at a specific point in time, and provide a point of comparison against the already completed baseline evaluation and forthcoming endline. Quantitative data collected at midline will be compared against baseline data and midline targets to determine change over time and areas of further potential improvement. The inclusion of qualitative data collection at all stages of the project help paint a more nuanced picture of the level of improvement of girls' education and contributing factors since project inception. Midline data also helps all involved parties better understand the profile of the typical girl targeted by MGCubed programming as well the barriers that she faces with regard to key educational outcomes such as learning and transition.

During post-baseline period, both VF and ET evaluated the log frame questions and made changes based on baseline feedback. The midline evaluation of MGCubed includes these changed indicators and represents an opportunity to validate the changes made by VF and the ET into the logframe post-baseline and assess the appropriate program targets moving forward. It also provides the first opportunity to compare progress in MGCubed treatment schools against those identified as comparison schools at baseline through the employment of a difference in difference analysis. A further revision is not recommended due to lack of comparison benchmarks at endline from earlier rounds.

2. Educational Marginalisation and Intersection between Barriers and Characteristics

This section aims to validate the Theory of Change. The evaluation process aims to understand which girls are educationally marginalised in this project context; their barriers to and experience of learning and transition. According to the GESI addendum on marginalisation, "the universal (e.g., age, gender, impairment and ethnicity) and contextual characteristics (e.g., language, geography, orphan status, parental education, location etc) marginalise girls and impede their educational achievements. These marginalised characteristics, together with social immobility and poverty, create an unsurmountable barrier to achieve higher outcomes."[23] The 'universal' characteristics or status indicators aim to provide a summary by more static dimensions that affect achievement or skills, whereas, the contextual factors or constraints offer a set of conditional factors affecting the successful transition from one level to the next in terms of achievements. For instance, the skills acquired by a girl, as measured by the scores achieved in many literacy and numeracy subtasks, may not only depend on the status being possessed by the girl's age, sex ethnicity or location, but also on whether this is achieved by them because existing environment at home, community and at school are (not) conducive. In addition, each type of constraints can have structural and stochastic components. The structural component reflects more permanent conditions characterizing a geographic and socioeconomic landscape such as language barrier, landlessness or chronic poverty; while the latter refers to any steep and sudden deviation from the permanent state, resulting from, say, teen pregnancy, underage motherhood, or any other shock.

This following part of the section presents disaggregated results based on various characteristics or subgroups, enabling the project and wider GEC programme to understand the results and challenges for

[23] GESI addendum provided by the FM in January 2018

marginalised girls in a more nuanced way. The following paragraphs summarize some of the descriptive characteristics of the sample in the context of the GESI-defined main barriers to educational achievement.

Impairment: Among GESI's gender specific universal marginalsation categories, physical and cognitive impairment of vulnerable girls deserve special attention. The project recognises that girls' educational marginalisation intersects with marginalisation of pupils with physical and cognitive challenges. The project has disaggregated data for physical disability, cognitive disability (based on Washington Consensus Questions) and marginalisation (economically) and used this data to look at attendance patterns, responses to interview questions (including ones relating to agency, self-belief, and gender attitudes), and assessment performance.

To measure physical and cognitive impairments, ET used Washington group indicators identifying both physical and cognitive impairment. Physical impairment identifies inability of hearing, seeing, walking, communication and self-caring to proxy for physical impairment. Cognitive impairment is measured by girl's inability to remember or concentrate as reported by caregivers. In Annex 3 we note from t-test some significant changes in reporting on cognitive and self-care impairment with the percentage of both caregivers and students identifying reductions in these impairments from baseline to midline. The DID regression in the same Annex show that cognitive impairment has significantly adverse effect on literacy score and successful transition while hearing impairment affect numeracy scores significantly adversely. Other impairments, though not significant, have shown evidence of adverse effect on learning.

While quantitative data shows some impairment as major deterrent for learning, the specific barriers to attendance children with disabilities may have was almost never brought up during FGDs unless prompted by survey staff. This may be because most FGD respondents don't see disability as something mainstream and neglect to consider these students when thinking about barriers at their community school. The other two probable reasons could be drop in reporting and dropout. Because of social stigma, it is highly likely that older girls will refrain from reporting their physical or cognitive impairment. After prompts 3 out of 4, OOSG focus groups agreed that disabled girls have a more difficult time in school. The fourth group said that a disability does not prevent a girl from learning, although it may be difficult to get to school. Many stated that girls with disabilities may have extra trouble reading because they could be blind or deaf. They are less likely to attend or participate in schools. These sentiments were largely consistent with reflections from other girls and boys FGDs. In addition, these groups noted that those with disabilities may be made fun of in class with one girl stating she had glasses but never wore them to school because of her friends' opinions.

Among the constraints or contextual characteristics, the indicators are grouped as follows.

- **Household identities**, is represented by girls from female headed households, level of education of the household, the principal caregiver and presence of parents in the family. Both baseline and midline survey data show that between 33-38% of students live in female-headed households. In terms of levels of education among heads of household and caregivers, it is also significantly challenging for a girl's educational development. As the survey data show, more than one-third of girls are from households where the head of the household does not have any education. The proportion is much lower for caregivers at 3% in baseline and less than 2 % in midline. While the midline shows a lower incidence, in terms of balance between treatment and comparison, survey data shows that these characteristics are evenly distributed across treatment and comparison groups. The DID regression results (Annex 3) show that household head with no education has

strong significant adverse effects on both numeracy and literacy. When the household head is a female, then it affect girls' learning scores in significantly positive way.

- **Language barrier** is measured by the language spoken by the student at home, school and the language of instruction. Table 58: Potential barriers to learning and transition at midline in Annex 4 on marginalized characteristics reports the language gap as one of the drivers of lower educational achievement. In a majority of the cases in both midline and baseline, the language of instruction is English. The language gap captures two main components: if the language of instruction is different from the language spoken at home, and if the girls do not speak the language of instruction at all. The proportion of the latter is very small. The baseline survey data shows that around 93-94% of girls in both comparison and treatment groups do not speak English at home even though it is the official language of instruction in school. Among these girls, more than 90% of girls do not speak the same language at home and school or do not speak the language of instruction at all. Similar to illiteracy among household heads, the DID regression results (Annex 3) show that language spoken at school is different than what is spoken at home, have strong significant adverse effects on both numeracy and literacy.
- **Social identity** is measured by a set of indicators such as, orphan status of the student; presence of parents at home. both in baseline and midline, the distribution is well balanced in terms of proportion of girls with similar characteristics. For example, the survey data shows that around 11-13% of girls in each group have either lost one or both parents, around 17% from each group live without both parents. Similarly, around 16-17 percent of girls are living in households without both parents. The situation is similar in both baseline and midline. In terms of their effects on learning outcomes and transition, the regression analysis in Annex 3 shows that if the girls' parents are dead or they live without parents then they affect their learning and transition scores adversely. Alternatively, when mother is present at home then girls are likely to transition more to upper grades.
- **Poverty** is measured from various indicators such as, difficulty to afford school, landlessness, poverty measured from roof condition, household's inability to meet basic needs and frequency of days the girl went to bed hungry. Evidence from survey data shows that poverty measured from roof condition has gone down in midline for both treatment and comparison group while, proportion of girls who have gone to bed hungry many or most days increased from baseline to midline by 1 percent among intervention group and 3 percent among comparison group. The landlessness remained stable over the period around slightly higher than 50 percent. A comparison of baseline and midline data across treatment and comparison group also shows increase in affordability of schooling. Evidence from survey data shows that difficulty to afford school has gone down significantly (10%) among intervention group as compared to 2 percent among comparison group. One reason of this gap across beneficiary group can be the financial assistance being provided to the beneficiary girls. The same regression results show that among poverty indicators, one crucial finding that does not have significant adverse effect on learning outcomes but the right direction is hunger. If the girl goes to bed hungry more often it affects results adversely but not significantly. Similarly, the family member not owning land, or going to bed hungry at night suggests lower rates of transition, though surprising, difficulty in affording school does not.
- Among **stochastic factors or shocks** as described above, such as marriage, early motherhood remained low (less than 1 percent for each category) in midline as well.

The TOC hypothesizes that severity of structural and constraining factors is conditional upon numerous factors, such as, quality of teaching, feeling of safety, gender bias in treatment that can be termed as access

constraints. Table 58: Potential barriers to learning and transition at midline in Annex 4 lists potential barriers to learning and transition. These barriers span the categories of orphan, feeling of safety, attendance, school facilities, and teacher behaviour. The prevalence of each barrier (percent) in the overall sample is shown in the Table 58: Potential barriers to learning and transition at midline in Annex 4 which displays that the prevalence of each barrier across treatment and comparison schools/communities and disaggregates each group over time. Comparing baseline with midline indicates whether any of these groups show any change in prevalence of a reported barrier in midline than in baseline. The main indicators are as follows:

- Girls feeling of safety measured by girls feeling of safety to travel to school as well as being at school;
- Girl's feeling about school environment, proxied by restrictions to play together with boys, movement around school easily, use of playground, toilet and drinking water facility when at school. About the teacher/teaching method as measured by differential treatment of boys and girls by the teacher, frequent absence of the teacher, not welcoming girls in the class etc.

The potential barriers found in baseline with the largest prevalence overall (not disaggregated into sub-categories) were teachers often being absent from class (26.23%), teachers treating boys and girls differently in the classroom (22.30%), and attending school less than half the time (22.40%). The midline survey data shows different pattern. As Table 58: Potential barriers to learning and transition at midline Annex 4 shows, teachers often being absent from class (12.2% in treatment schools and 12.7% in comparison schools) has gone down, teachers treating boys and girls differently in the classroom (15.1% in treatment schools and 11.6% in comparison schools) has also decreased, but girls missing school half of the time has gone up (12.6% in treatment and 7.78% in comparison schools). The regression on learning outcomes shows that in explaining girls' performance in literacy and numeracy, these factors did not affect the outcomes significantly but have the expected direction in relationship. Among them for example are girls' personal opinion about teacher's performance such as when teachers often absent from class, or the girls feel that teachers make them feel welcome and if boys and girls don' t play together. Some FGDs indicated similar things such as teacher quality. Some girls mentioned that they do not want to attend school for fear of answering questions incorrectly and being "disgraced" by teachers. Parents FGDs also noted poor teacher quality as a reason for pulling girls out of school.

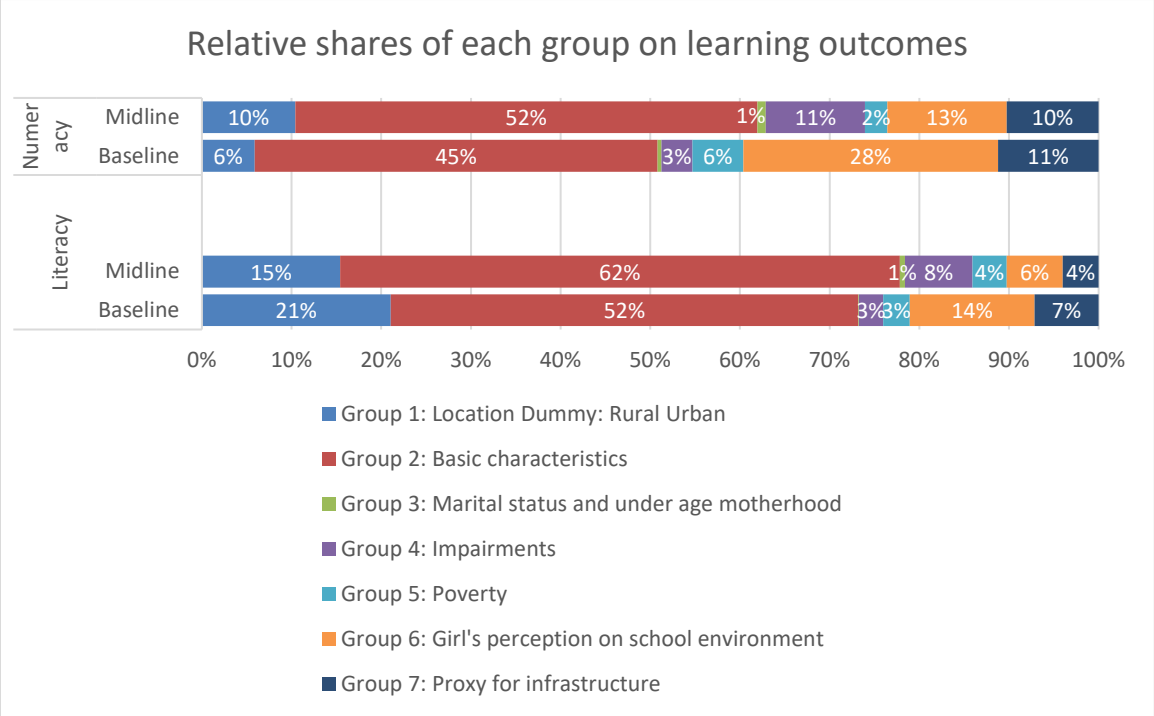
Validating the Theory of Change

The project theory of change identified several pull and push factors from both demand and supply side which are assumed to be the drivers of girls learning and transition outcomes. There are significant barriers to girls' education in Ghana, including lack of access to quality education, and high levels of absenteeism of girls. The ToC is based on the analysis of the circumstances of women in Ghana in general and girls' education in particular as well as interlinked issues such as economic poverty and social norms relevant to gender issues. A key source of such gendered challenges is the prevalent negative attitude towards girls' education – where priority is given to marriage, pregnancy and childbearing duties; to domestic labour; and to unpaid farm labour (to bring income into the household).

At baseline, the ET attempted to validate the underlying theory of change through the use of regression analysis combined with decomposition of group effects of several similar indicators that are expected to play a role in explaining literacy and numeracy scores as well as transition. A summary of findings related to the regression analysis as well as the validation of theory of change at baseline suggest that, among

other factors, (i) Cognitive impairment has a very strong and statistically significant adverse effect on literacy and numeracy learning outcomes as well as transition, (ii) A feeling of differential treatment of boys and girls by teachers, and low level of support to continue to study are found to have highly significant adverse effects on girls' performance in learning outcomes, (iii) Having an illiterate head of household has a very significantly strong adverse effect on girls' scores in literacy and numeracy, (iv) A composite index of poverty measures is significantly associated with poor performance of girls in numeracy and literacy and (v) Encouragement from teachers for good work matters significantly to perform better in numeracy and overall, but not as much in literacy.

Figure 1: Decomposition Analysis



Based on our baseline analysis, and project initiatives, we validate the relevance of the TOC in midline by (1) replicating the decomposition analysis and (2) exploring how situation has changed over time, particularly for the most vulnerable group of pupils with stringent barriers. The decomposition analysis in Figure 1 shows that basic marginalised characteristics continue to play the largest role in explaining learning outcomes. School location, marital status, underage motherhood, poverty and infrastructure (use of toilet and drinking facilities) continue to have a smaller but consistent role in explaining learning outcomes. The primary areas that shifted from Baseline to Midline is that the role of impairment has increased while a girl's perceptions of her school environment matter less. These shifts, while important underline that key focuses of the MGCubed program, including inclusion of Girls with Disabilities, remain valid at midline.

While the decomposition helps in understanding the role various characteristics and barriers play in learning outcomes it does not tell whether that relationship is positive or negative, nor the magnitude of that relationship. For that the ET has included regression analysis under key outcomes and in Annex 3. In addition, the following cross-tabulation explores how marginalised characteristics and some of the barriers present interplay with one another in the sample. The key hypothesis of the TOC is that marginalised girls with higher barriers find it harder to achieve same goal than their counterparts. Later regression analysis shows this is particularly true for girls who do not speak the language of instruction

well, orphan, married or come from a poor household. For instance, one in every 3 married girls reported that they do not feel safe to travelling to school. More than 20 percent of marginalised girls miss school more than half of the time if they are orphan (22.2%), head of the household is uneducated (24%), poor (22.8%) or do not speak the language of instruction (20%). Around 9 to 15 percent of girls from same marginalised groups think that teachers treat boys and girls differently in classroom or agrees that teacher is absent most of the time. Most dimensions of these marginalisation characteristics are also associated with higher than usual rate of feeling unwelcome by the teacher. As Table 2 shows, girls who come from a family where the caregiver has no education (4.88%), does not speak the language of instruction well (4.1%), is materially poor (4.1%).

Putting together baseline and midline aggregate scores and transition outcome, we used panel regression analysis to identify whether the marginalisation characteristics and barriers explain the changes in outcomes. We consider the relevance of the above indicators in terms of significant effect as well as direction of change, even if the association is not significant.

The significance of these indicators in regression analysis explaining learning outcomes did not change much in midline as well. What we also find from DID regression analysis that cognitive impairment is still a significant driver of lower learning scores and transition. In terms of their effects on learning outcomes and transition, the regression analysis in Annex 3 shows that if the girls' parents are dead or they live without parents then they affect their learning and transition scores adversely. Hunger, representative of extreme poverty, is another factor, that affected learning as well as transition outcome. Alternatively, when mother is present at home then girls are likely to transition more to upper grades. Girls' personal opinion about teacher's performance such as when teachers often absent from class, or the girls feel that teachers don't make them feel welcome and if boys and girls don' t play together are not affecting the outcomes significantly but the direction of relationship show they are still working as deterrent for going to school or achieving better results in learning.

Girls with disabilities largely experience the same barriers as their peers with some notable differences including they are statistically more likely to find it difficult to move around school ($p<.01$), more likely to report not drinking from the water facilities ($p<.05$), more likely to report not feeling safe at school ($p<.10$), and less likely to agree that teachers treat boys and girls differently ($p<.05$). It is unsurprising that girls with disabilities, especially mobile disabilities, find movement around school difficult. This is supported by qualitative evidence where community members suggested girls with physical disabilities, including sight, hearing and mobility, should attend specialised schools if financially feasible rather than local institutions. It is an open question as to whether there are programmatic resources to put in place the physical infrastructure to make the average school in the sample more disability friendly, especially when community sentiments seem to suggest those resources are best employed sending students elsewhere. The program can however investigate why girls are less likely to feel safe at school. Safety can refer to physical safety but also emotional safety and freedom from teasing or ridicule. While qualitative data did not highlight any physical dangers to impaired students, beyond those noted for mobility, it did emphasize teasing by peers as a deterrent to girls with disabilities.

Since baseline, VF at the project level, continues to operate a gender-responsive and gender-balanced team, including females in leadership positions. At the direct beneficiary level, girls partake in MGCubed Remedial lessons and afterschool clubs ('Wonder Women Basic' and 'Wonder Women Advanced') to enhance life skills (healthy eating; financial literacy, careers and adolescence) and to promote engagement with education. Since September 2018, the clubs have also evolved their approach by explicitly focussing on relationships between genders via structured collaborated activities between 'Wonder Women' and

'Boys Boys' clubs; and in 'Mixed' Clubs - developing a sense of solidarity between boys and girls in achieving aspirations. The project uses district level data to ensure that the timings of adult trainings enable equal access for males and females (e.g. by ensuring that courses do not overlap with market days and other

Barriers	One or both parents dead	Head of the household has no education	Girl does not speak LOI	Household is poor	Married
Doesn't Feel Safe Traveling To School	15.22%	13.59%	12.52%	12.64%	33.33%
Boys And Girls Don't Play Together	13.49%	11.06%	14.87%	15.59%	0%
Cant Move Around In School Easily	4.50%	4.88%	5.23%	5.48%	0%
Use Playground When At School	1.73%	1.51%	2.01%	2.13%	0%
The Girl Does Not Use Toilet In The School	11.42%	9.87%	10.38%	10.74%	0%
Doesn't Use Drinking Water Facilities	38.75%	42.39%	39.60%	39.56%	0%
Attends School Half The Time (Pcg_6Enr==2)	22.22%	12.12%	9.62%	10.34%	0%
Attends School Less Than Half The Time (Pcg_6Enr==3)	22.22%	24.24%	20.51%	22.76%sa	0%
Agrees Teachers Treat Boys And Girls Differently In The Classroom	8.65%	15.45%	13.26%	12.91%	0%
Agrees Teachers Often Absent From Class	9.00%	9.99%	11.51%	12.51%	0%
Disagrees Teachers Make Them Feel Welcome	3.11%	4.88%	4.10%	4.08%	0%

key economic activities) and monitors this by collecting attendance data broken down by gender.

Table 2 : Barriers to education by characteristic in Midline[24]

[24] Annex 4: Characteristics and Barriers includes an examination of changes in barriers and characteristics from BL to ML

Our qualitative findings support some of these findings. According to the qualitative data, the ET had found the major barrier to girls' education to be pregnancy and financial costs, consistent with findings from baseline. These two reasons had not surfaced in the intermediate findings on attendance. This might be due to girls who drop out no longer being counted for attendance. Additionally, the financial costs did not pertain to tuition; instead the fees were associated with the auxiliary costs of attending school such as uniform costs and lunch money. Consistent with the regional context of girls' mostly performing household chores, girls' attendance and engagement in schools were affected by household burden. This would affect girls' tardiness and level of engagement, affecting girls' performance and learning.

Despite these challenges and barriers affecting girls disproportionately, at midline, the ET found changing attitudes around girls' education and the importance behind attaining education. One respondent even noted:

> *…previously when their wards become pregnant and you want the parents to come and help see the way forward to helping the child they ignore and some do not even want to know the one responsible but all that has changed. They are now ready to help wean the child so that the girl can go back to school.*

Talking about generational change versus change within one's lifetime, the FGDs vouch for several interesting changes. Mothers talked about the generational shift in which more girls, and children in general, are attending school. Fewer girls are becoming pregnant as teenagers. The government provided free SHS program as made a tremendous difference in students' ability to continue schooling. Mothers discussed family planning with more frequency. They are having fewer children and can better afford to pay school fees. One said that parents need to support girls in attaining birth comparison (injections). With these changing attitudes, caregivers took note of large NGO's involvement with the communities and their education programs. Participating in community groups and school committees, caregivers had noticed a shift in attitudes not amongst themselves but also with other parents in the communities for girls' education. Respondents acknowledged the barriers of household chores largely being placed on girls, caregiver respondents reported there had been large improvements as girl enrolment seemed to have risen.

Mothers largely feel that the community supports girls' education and many mothers were excited about having daughters complete school to take on commendable jobs. From fathers we learned that overall, they were very supportive of girls' education and talked a lot about the generational shift in support for it. They noted larger support than woman. They too stated the importance of free SHS, scholarships, school feeding programs, and PTA support. According to the fathers distance learning helps combat absenteeism as well – though distance learning was rarely talked about. They note that pregnancy had reduced, and students are excited to learn. Girls are far more encouraged and supported to attend school. While all fathers were really enthusiastic about girls' education, they noted that some in the community

still support boys' education more or have girls work in the markets or care for younger siblings when they don't have much money.

They say overall, the workload placed on girls has decreased and some parents will encourage girls who have had children to return to school. They stated that orphans are at a disadvantage because they have less financial resources. Community leader help with school enrolment varies a lot by community. Some enforce laws that say students must go to school. Others say they don't help as much as they could.

3. Key Learning Outcome Findings

3.1 Learning Targets

Before going into details of outcome findings we first present the midline target scores for both literacy and numeracy. Based on the MEL guidance, the learning targets are calculated based on baseline standard deviations for treatment cohort girls and boys as follows: The following Table 3 on baseline assessment of standard deviations shows the grade level break up. To calculate target for a particular grade we consider .25 of standard deviation of the immediate next grade. For instance, target improvement for Grade P3 cohort students is .25 of Grade 4 baseline standard deviation. The target is calculated separately for numeracy and literacy for each grade. The midline assessment is undertaken on the cohort of girls which suggests that these are the same girls assessed who were at Grade 3 at baseline. No replacement girls are included in the analysis and targets are set based upon the panel tracked at midline rather than the full baseline sample.

The following Table 3 shows that overall target improvement for midline is similar for boys and girls which is between 5.067 and 5.8 percentage points in literacy and 3.98 and 4.3 percentage points in numeracy.

Table 3: Midline target score improvement for Literacy and Numeracy by grade

	Literacy		Numeracy	
Baseline Grade	BL Standard Deviation in the intervention group	Target improvement (.25 SD)	BL Standard Deviation in the intervention group	Target improvement (.25 SD)
Girls				
Grade P3		4.6		3.9
Grade P4	18.5	5.1	15.6	4.2
Grade P5	20.4	5.2	17.0	4.1
Grade P6	20.8	4.7	16.4	4.0
Grade JHS1	19.0	5.6	16.2	3.5
All girls	20.23	5.06	15.92	3.98
Boys				
Grade P3		4.9		3.8
Grade P4	19.5	5.5	15.1	4.3
Grade P5	22.0	5.5	17.2	4.2
Grade P6	22.0	5.5	16.8	3.3
Grade JHS1	22.1	4.1	13.3	3.9

JHS2	16.4		15.5	
All Boys	22.9	5.7	17.4	4.3
Note: Target improvement is calculated based on .25 of the next Grade SD.				

3.2 Literacy Assessments

3.2.1 Early Grade Reading Assessment (EGRA)

As described in the baseline report, the learning test for GEC-T is composed of two components. The subtasks under the first component, EGRA, test the reading ability or literacy skills of a student in terms of speed, accuracy, and fluency at least at the level of 3rd Grades or below, while the second component, SeGRA, is mostly geared towards the higher grades and measures a student's analytical and inferential ability. The EGRA tool directly links student's ability to advance in both reading and cognitive development.

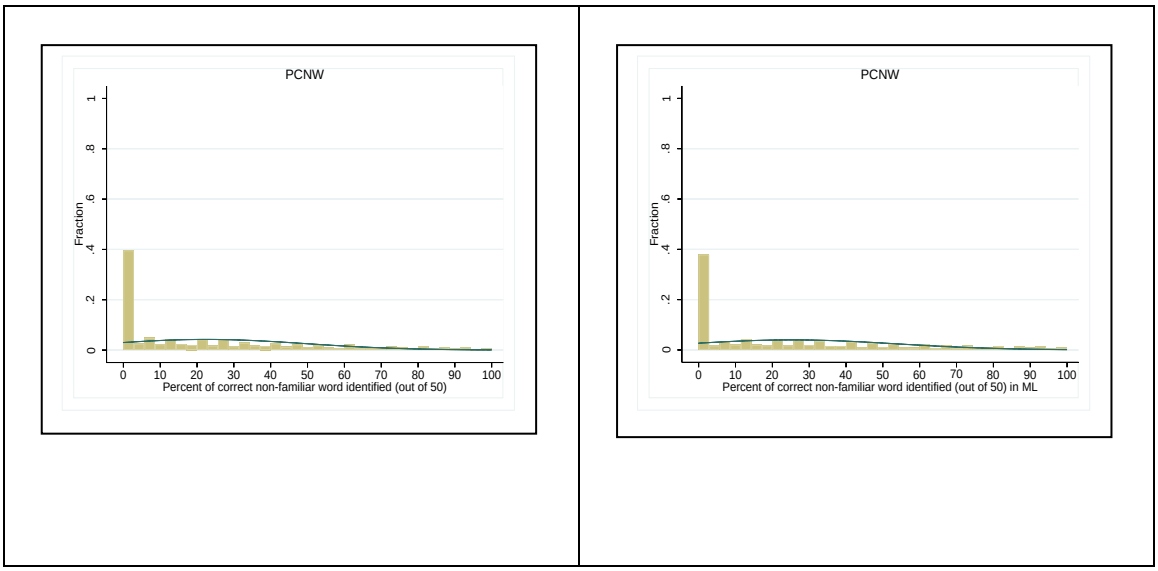
EGRA is designed to be a method-independent approach to assessment. The tool is adapted to fit the regional context and grade level. The following discussion refers grade level of cohort girls by their initial grade level at baseline which means that at midline the grade level cohort includes students who are repeating the same grade and those who have promoted to next grade. Based on specific guidance from FM, performance of cohort students is measured in terms of percentage correct responses instead of the usual per-minute counts of correct words, letters, or sounds for this evaluation. This specific approach allows us to assign equal weight to each subtask in calculation of aggregate scores for literacy and numeracy.

- **Letter sound identification**: This subtask of EGRA measures phonological awareness. The subtask is presented to the students with a word orally and the student is asked to isolate and pronounce the first sound of the word. The letter sound identification subtask tests children's ability to recognize the graphemic features of each letter and accurately map it to its corresponding sound. A set of 100 letters including both upper case and lower case were given to the students. The score is calculated as the percentage of letter sounds that the student correctly identified.
- **Oral vocabulary of familiar word reading**: This subtask presents a list of words that children are expected to be able to identify at their grade level and will have likely encountered before. The subtask has eight words to correctly identify. The score in this subtask was calculated based on percentage of correct responses.

➢ **Invented (Nonsense) words**: is a step up in skill difficulty. It is used to test students' mastery of the letter–sound correspondences to decode words. A set of 50 non-words were given to the students and the score was calculated as the percentage of correct responses out of 50. Although the ET tested the students on nonsense words as one of the EGRA subtasks, it later decided to drop it from analysis because of high incidence of floor effect as shown I nFigure 1. Since this subtask was included in baseline calculation of aggregation, ET dropped it from both baseline and midline to retain comparability.

Figure 2: Percent of correct non-familiar word (out of 50)

Baseline	Midline



- **Oral reading fluency**: along with the comprehension subtask, ORF is EGRA's most direct measurement of fluency. Given the importance of fluency for comprehension, it is the core component of the instrument. Cohort Students from P3 through JHS3 were given a short-written passage on a familiar topic and asked to read it out loud "quickly but carefully." A passage with 60 words was given to the students to read and the score was calculated as the reading of correct words per minute. This score was then standardised to a value between 0 and 100 with a cut-off for maximum as 150. Since the standardization was based on a cut-off point 100 at base line, we revised the baseline estimates with 150 as cut-off to make it comparable to midline standardized values. The maximum value was contextualised based on literature (Abadzi, 2011) that in the end an average student should be able to read between 90 and 120 words. Since it was meant for lower grade students than we have considered for this analysis, we increased the cut-off marks to 150. The total number of 60 words are given for the test.

The above EGRA subtasks are all timed and scored for speed and accuracy in terms of correct letters (or sounds) or words per minute. Because readers become increasingly more fluent as their reading skills develop, timed assessments help to track progress across all these measures and show where children are on the path to skilled reading.

- **Reading Comprehension**: The last subtask of EGRA is reading comprehension. EGRA measures reading comprehension through the reading comprehension subtask, based on the passage that students read aloud for the oral reading fluency subtask. After children read the passage aloud, they are asked five comprehension questions, both analytical and inferential. Reading comprehension is not a timed subtask and the students' performance is measured based on how many questions (out of 5) they can answer correctly.

3.2.2 Secondary Grade Reading Assessment (SeGRA)

At midline the evaluation team used a different version of the baseline SeGRA test with the same level of difficulty. SeGRA is comparatively a new test to assess the reading ability among secondary grade students. Unlike the Early Grade Reading assessment which is tested orally, SeGRA tests are designed to be written tests with three components. The first two subtasks, Subtask 1 and 2 are longer and more complicated than the reading comprehension passage in the EGRA test. The only difference between SeGRA subtasks 1 and 2 is the degree of difficulty. Subtask 1 focuses more on analytical

questions while Subtask 2 focusses on more inferential questions. Subtask 1, by design, is geared for Grade 4 and 5 while subtask 2 is a higher order test and geared towards Grade 6 and 7 (JHS1). The final Subtask 3 is of the highest level of difficulty and tests student's ability to construct a short essay based on a given topic. This subtask is geared to the level of Grade 8 and 9 or JHS2 and 3, keeping in mind that in the endline in 2021 many of the current students will have moved to JHS3. At midline, SeGRA/SeGMA subtask 3 was not used.

Table 4: EGRA/SeGRA Subtasks

EGRA/SeGRA Subtasks		
EGRA	Subtask 1	Letter Sound Identification
	Subtask 2	Oral vocabulary of familiar words
	Subtask 3	Invented Nonsense Words (removed)
	Subtask 4	Oral Reading Fluency
	Subtask 5	Reading Comprehension
SeGRA	Subtask 1	Comprehension (+ analytical)
	Subtask 2	Comprehension (+inferential)
	Subtask 3	Short essay

Note: Because of floor effect in invented words, the ET decided to drop the subtask.

3.3 Aggregate Literacy Score and Progress Against Targets

Aggregate learning scores in reading in midline are presented in Table 5. Average aggregate scores are separated by intervention type (treatment and comparison), grade (P3 through JHS 2) and by sex (girls and boys). The average aggregate score is broken down by grades in each case to assess grade level progression. For this analysis, we use baseline grade for each student and consider them as the cohort. Table 5 also presents the standard deviation of the aggregate scores for treatment students across grades for boys and girls. Corresponding sample sizes by grade and sex for treatment and comparison groups are presented in Annex 15 and can be used for reference.

Box 1: Aggregate Learning Score in Reading

The aggregate score for literacy includes all EGRA subtasks and SeGRA subtask-1. The range of subtasks is sufficient to ensure and demonstrate improvements in learning at midline and endline. These subtasks are tested on all students in our sample of students from grade P3 through JhS-2. The inclusion of overlapping subtask(s) in the calculation of aggregate scores ensure comparability across all cohort grades of our sample.

Similar to Baseline, an aggregate learning score in literacy is constructed to (i) compare overall learning levels and (ii) track progress in reading achievement overtime. The aggregate score ranges from 0 to 100 points and is constructed from all EGRA subtasks and SeGRA subtask 1-used in the learning test. Based on guidance from FM in the BL, the team used the standard approach of assigning equal weight to all subtasks equally, independently of the grade of the girls tested. This aggregate score will be used to estimate the project's impact on reading, the target via 0.25SD per year formula, and the project's achievement.

Each subtask's score in literacy is obtained as the percent correct answer of the total of correct answers over the total number of items. The Oral Reading Fluency score is an exception as its basic score is to be measured in Words Per Minute. The WPM does not naturally cap at any value and it is standardised to a 0 to 100 score. The arbitrary max is set to 150 WPMs as per FM's guidance which reflects the expectation that by the end of primary school, all students should be able to read 90-120 WPMs (Abadzi, 2011). Any WPMs higher than 150 is set to 150 for ORF for calculation of the percentage score.

Aggregate learning score in reading is constructed based on achieved scores in all EGRA and SeGRA subtasks-1 (see Box 1). Note that all students are tested on all EGRA subtasks and SeGRA subtask-1 but only students from Grade level P6 through JHS2 received additional SeGRA subtasks 2. The midline sample represents grade level P3 through JHS 2. Since all students were exposed to all EGRA and SeGRA subtask-1 in both baseline and midline, the evaluation team followed the instruction from FM to ignore scores from SeGRA subtasks 2 to construct the aggregate score. This score is however reported separately by grade. The students are not tested on subtask 3.

Table **5**, on average aggregate literacy score by grade in midline, provides two important findings. First, it shows clear grade level progression for both sexes irrespective of treatment status suggesting that girls and boys in midline across treatment status scored higher as they transitioned to higher grades. Second, along with grade level progression, the boys and girls from treatment schools performed better than their counterparts in comparison group suggesting improvement in literacy outcomes in midline across grades. The other observation from the standard deviation across grades and gender suggests that within a particular grade and overall, the variation around respective grade level means is similar for boys and girls except for JHS 1 suggesting absence of influence of outlier performers to drive the grade level averages.

Table 5: Aggregate Literacy score (EGRA/SeGRA) for girls in Midline

Baseline Grade	Intervention Group Mean aggregate Score	Comparison Group Mean aggregate score	Standard Deviation in the intervention group
Girls			
Grade P3	34.8	32.8	20.0
Grade P4	45.0	40.2	22.0
Grade P5	52.3	52.0	22.0
Grade P6	56.9	58.8	20.9
Grade JHS1	65.6	62.2	18.1
All girls	52.2	50.7	22.7
Boys			
Grade P3	35.4	32.2	19.9
Grade P4	46.1	42.9	22.0
Grade P5	52.3	48.6	21.9
Grade P6	58.4	56.7	19.8
Grade JHS1	75.6	60.8	11.5
All Boys	50.6	49.2	22.5

Note: Each grade level represents their baseline grades. As a result, comparison across measurement points (BL and ML) includes comparison of same girls and boys.

To explore the impact of the MGCubed program on learning outcomes the ET ran 3 analyses: Standard DID, T-Test and DID Regression Analysis. The Standard DID (Table 6) compares the change in learning outcomes for the treatment group, over the change in learning outcomes for the comparison group from baseline to midline. The T-Test (Table 7) examines whether the change in literacy outcomes for treatment students is significant from baseline to midline. Finally, the regression analysis explores how other student, school and community characteristics may also play a role in learning outcomes. Model 4 of this analysis is used to determine the projects progress against targets.

3.3.1 Standard DID for Literacy Outcomes

Table 6, delves deeper to compare aggregate literacy score in midline with baseline separately for treatment and comparison groups of students. It detects the extent of program effect by grade and sex. As mentioned above, we consider all cohort girls (and boys) with same baseline grade together and dropped the replacement girls from analysis. The main advantage is that without replacement girls whose baseline grade level is unknown we can avoid biased outcome. However, the disadvantage is that we lost slightly more than 10 percent cohort girls from baseline to midline due to dropout. Although it will not affect the minimum required sample size due to a buffer of extra 17.25 percent of girls, it may be of concern in endline if dropout rates are higher.

The difference in difference measures in column (7) of Table 6 is measured as follows. We first measured the change in aggregate literacy score of same cohort girls (for both treatment and comparison) from baseline to midline, represented in column (3) and (6) respectively. Measures in column (7) is the difference of these changes for treatment and comparison girls ((3)-(6)). The use of same grade level cohorts from baseline provides us the overall relative changes for same group of girls over different measurement points.

The grade level disaggregation of average aggregate score suggests that the relative difference in increase from baseline to midline (difference in difference) is highest among grade JHS1 treatment girls followed by Grade P3, P4 and P5 as compared to the comparison girls. The relative changes among Grade 6 treatment girls is lower than the changes among Grade 6 comparison girls. Overall, the average increase in literacy score is 0.7 percentage point higher for treatment girls than comparison girls.

We find marginally different evidence for boys. For boys, the relative improvement, as compared to their comparison counterparts is highest among Grade 3 boys followed by Grade P5 and Grade P4. For Grade P6 and JHS1, their relative increase between baseline and midline is lower than their counterparts from comparison schools. It is difficult to pinpoint the reasons behind the better performance of comparison boys. One reason can be that while students are pursued to stay in treatment schools, worse performers in comparison schools may have either dropped out, withdrawn or transferred at this key transition point due to lack of financial support, good infrastructure, or teaching staff. As a result, overall average has gone up. However, this is something that is hard to prove with evidence but heard in various FGDs that boys left schools for even low paying jobs, parents have withdrawn students for lack of good learning environment etc.

The striking difference between treatment boys and girls however is that the average difference in difference in boys is almost 3 times higher than that of girls. This could indicate significant influence of barriers and marginalization characteristics for girls in all grades. If attendance in school is any indicator of better performance then qualitative information gathered from FGDs, then it suggests that many respondents girls, though not all, feel it is easier for boys to go to school because they don't have to take care of households members who are sick. Menstruation and additional household chores are impediments faced by girls as they continue their education as compared to boys. Moreover, at times, boys may be prioritized by fathers to receive school funding, especially in families with many children since they are seen as future heads of household or "pillars' of the family.

Although we present boys' performance here, an important caveat of comparing boys' and girls' achievement is that boys are sampled to check relative performance. It is beyond the scope of the study to make any further meaningful conclusions around boys' scores due to a lack of sufficient analytical power.

Table 6: Change in Aggregate Literacy scores from Baseline to Midline

Baseline Grades	Baseline Literacy Treatment (1)	Midline Literacy Treatment (2)	Ml-BL Treatment (3)=((2)-(1)	Baseline Literacy comparison (4)	Midline Literacy Comparison (5)	ML-BL Comparison (6)=(5)-(4)	DID based on baseline scores (7)=(3)-(6)
Girls							
Grade P3	29.4	34.8	5.3	29.5	32.8	3.3	2.0
Grade P4	37.1	45.0	7.9	33.1	40.2	7.2	0.7
Grade P5	44.9	52.2	7.3	45.0	52.0	6.9	0.4
Grade P6	52.2	56.9	4.7	53.8	58.8	4.9	-0.3
Grade JHS1	58.8	65.6	6.8	58.0	62.2	4.2	2.5
All Girls	45.9	52.3	6.4	45.2	50.7	5.5	0.7
Boys							
Grade P3	26.3	35.4	9.1	27.0	32.2	5.2	4.0
Grade P4	37.0	46.1	9.0	35.8	42.9	7.1	1.9
Grade P5	43.6	52.3	8.7	43.6	48.6	5.0	3.7
Grade P6	52.1	58.4	6.3	49.6	56.7	7.1	-0.8
Grade JHS1	73.0	75.6	2.6	57.0	60.8	3.7	-1.2
All Boys	42.6	50.6	8.0	43.3	49.2	5.8	2.1

Note: Each grade level represents their baseline grades. As a result, comparison across measurement points (BL and ML) includes comparison of same girls and boys.

3.3.2 T-Tests for Literacy Outcomes

While the above Table 6 provides information on improvement of treatment boys and girls from baseline to midline, it fall short of shedding sufficient light on two aspects: whether their own improvement from baseline to midline is a significant change, and whether this small relative improvement is a significant change relative to the improvements achieved by the comparison group. Table 7 below examines the former using paired t-test for all cohort girls and boys separately by comparing their own scores between baseline and midline. Table 8 addresses the latter using regression model by accounting for drivers such as marginalisation characteristics, barriers and school environment. Note that these comparisons are made for the same cohort students who are surveyed in both baseline and midline.

Table 7 examines whether the same treatment cohort girls (and boys) performed better in literacy test in midline than in baseline. To achieve this conclusion, the evaluation team used paired t-test to compare each girl's (and boy's) aggregate midline literacy score with her baseline score. The evidence shows that on average, the treatment girls scored 6.4 percentage points higher (with p-value <0.001) in midline than their baseline literacy score. Among boys, the team found that boys on an average received 7.96 percentage points higher (with p-value <0.001) in midline literacy test than their baseline score. In both cases, these results are strongly statistically significant.

Table 7: Literacy Results for treatment girls (One-tailed t-Test)

Result	Details	Comments
t-Test: Aggregate literacy score **Hypothesis: Girls** **Ho: Midline score=baseline score for girls**	**Treatment cohort Girls:** Beta (difference) = 6.4 percentage points p-value Pr(T > t) = 0.000	The improvement in midline from baseline literacy score is strongly significant (p=<1%) among cohort girls and boys from treatment schools.

Ha: Midline score>baseline score for girls		
Hypothesis: Boys **Ho: Midline score=baseline score for Boys** **Ha: Midline score>baseline score for boys**	**Treatment cohort Boys:** Beta (difference) = 7.96 percentage points p-value Pr(T > t) = 0.000	

Note: The t-test used one tailed paired ttest. As a result, comparison across measurement points (BL and ML) includes comparison of same girls and boys.

While Table 7 suggests that same cohort treatment girls and boys outperformed their respective baseline scores in midline, it is hard to consider this as a significant learning achievement by the treatment group that can be attributable to the program unless we compare this improvement with the changes of the comparison group. The reason for estimating relative improvement is that changes in influencing factors over time even without the treatment can improve their score (time effect). Thus, this change cannot be attributable to the programme unless the relative change is measured by comparing their performance with that of a comparison group.

3.3.3 Regression Analysis for Literacy Outcomes

Table 8 provides DID results for beneficiary girls from regression analysis. We used a balanced panel of only cohort girls without replacement. To achieve this result, we explored 8 different models using a composite of student, school, household and teacher level marginalisation and barrier indicators to test the sensitivity of our DID regression results to model specification. The full DID regression results are provided in Annex 3. In this summary of key findings we rely heavily on the forth model in our analysis which controls for the maximum number of observed characteristics unlikely to change overtime that best define the marginalisation and barriers not influenced by the program. The estimated impact of the program on aggregate literacy score shows that the relative increase in literacy score among beneficiary girls is 1.16 percentage point higher than their counterpart in the comparison group ($p<.05$), 23% of the set target. The DID result shows that there is a strongly significant program impact on aggregate literacy scores of the beneficiary girls although the relative DID is small.

Section 3.1 Learning Targets above sets the target increase for treatment girls at 5.06% points over and above the increase for comparison girls in literacy. **Treatment girls achieved an increase in literacy scores 1.16% points higher than that achieved by comparison girls from baseline to midline, obtaining 23% of the set target.** One explanation for lower than anticipated scores among treatment girls could be the parallel improvement among comparison girls due to maturity effect over time. This observation however does not rule out the possibility of positive externalities from other factors as mentioned above (dropout, transfers or withdrawal of low performers from comparison schools), or other unobserved factors. For better understanding of difference in difference we used regression analysis that controls for observed marginalised characteristics, school environment and barriers below.

Table 8: DID Literacy Results

Result	Details	Comments

Literacy Baseline - Midline	Beta = 1.16 (adjusted) p-value = 0.023 Target = 5.06 over and above control Performance against target = 23% of target achieved	The change in literacy scores is statistically significant and can be confidently attributed to the program's impact.

Among the factors we controlled for, evidence suggests that – household head has no education and language spoken at school is different than what is spoken at home, and if student belongs to a rural school have strong significant adverse effects on literacy. Among impairments, we find that cognitive impairment has significantly negative effect on literacy score. Alternatively, among the factors that positively affect scores are if the household head is a female. Later models (5-7) also noted that among poverty indicators controlled for, landlessness of the household affects girls' literacy score significantly adversely while feeling safe at school has a significant positive effect.

While these factors have expected signs and significance in explaining girls' performance in literacy, there are several other factors that did not affect the outcomes significantly but have the expected direction in relationship. Some of them come from later models (5-7) and include girls' personal opinion about teacher's performance such as when teachers often absent from class, or the girls feel that teachers make them feel welcome and if boys and girls don' t play together. Among poverty indicators, one crucial finding that does not have significant adverse effect but the right direction is hunger or extreme poverty. If the girl goes to bed hungry more often it affects results adversely but not significantly. Findings from model 4 include if the girls' parents are dead or they live without parents, have sight, communication impairments etc. then girls' performance is adversely affected.

The two indicators that have confounding estimates are the use of drinking water and bathroom in school (model 7). They both show that the girls do better if they don't use it. It is possible that these sources are unhygienic and their use impacts health and furthermore performance. Alternatively, girls who don't use water at school probably bring it from home which shows their health consciousness or care from guardians. Although this is speculative, drawing a connection between less health hazards and more attendance with better performance may not be too far fetched

Qualitative data suggests that financial barriers remain the strongest impediment to doing well in school as well as community and family support. In addition, children with disabilities face additional barriers that may prevent them from achieving their achieving their best learning outcomes. FGDs noted that girls with physical impairments, such as sight and hearing impairments, required specialized services/support and, if they could afford it, would go to "specialized" schools elsewhere. This suggest that community members believe the barriers disabled children face are too high to be overcome in mainstream education despite the programs focus on integration. On drinking water and bathroom use, some references of not using them are noted in FGDs. There is further discussion on regression results and qualitative data in Annex 3.

3.4 Numeracy Assessment

3.4.1 Early Grade Mathematics Assessment (EGMA) and Secondary Grade Math Assessment (SeGMA)

Aggregate learning score in numeracy is constructed based on achieved scores in all EGMA and SeGMA subtasks-1 (see Box 2). Note that all students are tested on all EGMA subtasks and SeGMA subtask-1 but only students from Grade level P6 through JHS1 received additional SeGMA subtasks 2. The midline sample represents baseline grade levels P3 through JHS 1. For instance, the students from P3 are the original cohort girls who transitioned to 4th grade and those who could not transition successfully. This is true for all grades. Since all students were exposed to all EGMA and SeGMA subtask-1 in both baseline and midline, the evaluation team followed the instruction from FM to ignore scores from SeGMA subtasks 2 to construct the aggregate score. This score is however reported separately by grade. The students are not tested on subtask 3. The numeracy test is composed of the following subtasks from EGMA and SeGMA assessments**:**

1. **The number identification** exercise occurs in the beginning of the EGMA test to establish an understanding of children's knowledge and identification of written symbols. In this subtask, students orally identify 20 printed number symbols that are randomly selected and placed in a grid. The score was then calculated as the percent correct responses.
2. **Quantity discrimination** in EGMA measures children's ability to make judgments about differences by comparing quantities in object groups. This is done by using numbers or by using objects such as circles and asking which group has more objects. Quantity discrimination in early grades demonstrates a critical link to an effective and efficient counting strategy for problem solving. Students were given 10 questions and the percent of correct responses was then taken as the score.
3. **Identification of missing number** task asks children during EGMA to name a missing number in a set or sequence of numbers. Based on the objectives set by NCTM (2008) and national and international assessments (e.g., NAEP, TIMSS), children need to be familiar with numbers and able to identify missing numbers (USAID, 2009). Similar to previous subtask, students were given 10 questions and the percent of correct responses was then taken as the score.
4. **Addition and subtractions**: The students were also given 20 additions and 20 subtractions for two subtasks considered as level 1, and 5 questions each for level 2 additions and subtraction for two more subtasks. In each case percent correct answers represented the score for each subtask.
5. **Word problems** analyse children's informal concepts of addition and subtraction by following the strategies children used to solve certain items presented to them. Children's exposure to oral word problems in the mathematics curriculum enhanced their ability to apply mathematics concepts they had already learned to analyse problems. The word problem consisted of 6 questions. Similar to other subtasks, the score was calculated as the percent correct response.
6. **SeGMA subtask 1** tests students on advanced multiplication and division, proportions (fractions, percentages), space and shape (geometry), and measurement (distance, length, area, capacity, money) presentation questions. SeGMA subtask 1 contains 15 questions. Percent of correct responses was taken as the score.
7. **SeGMA subtask 2** focuses mostly on testing students' ability in algebra and was administered to P6 and higher grades and contains 8 questions carrying 3 points each. Percent of correct responses was taken as the score, though this subtask is excluded from the aggregate numeracy score.

8. **SeGMA subtask 3** includes data interpretation and sophisticated word problems, solved using complex, multiple operations including algebra and contains 8 questions carrying 3 points each. This subtask was not administered at midline.

Table 9: EGRA/SeGMA Subtasks

EGMA/SeGMA Subtasks		
EGMA	Subtask 1	Number Identification
	Subtask 2	Quantity Discrimination
	Subtask 3	Missing Numbers
	Subtask 4A	Addition (Level 1)
	Subtask 4B	Addition (Level 2)
	Subtask 5A	Subtraction (Level 1)
	Subtask 5B	Subtraction (Level 2)
	Subtask 6	Word problems
SeGMA	Subtask 1	Advanced multiplication, division etc.
	Subtask 2	Algebra
	Subtask 3	Data interpretation; word problems

Note: SeGMA Subtask 2 and 3 are not included in calculating aggregate score.

3.5 Aggregate Numeracy Score and Progress Against Targets

Aggregate numeracy score is presented in Table 10. Similar to the aggregate score in literacy, the aggregate score in numeracy is calculated for all cohort boys and girls who were surveyed in both baseline and midline and are separated by intervention type and by gender. The average aggregate score is broken out by grades to assess grade level progression. Aggregate numeracy score is constructed using achieved scores in all EGMA and SeGMA subtasks based on the method indicated in Box 2. All students were tested on all EGMA subtasks and SeGMA subtask 1. Only students from Grade level P6 thorough JHS1 received SeGMA subtasks 2.

Box 2: Aggregate learning score in Mathematics

The aggregate score for numeracy includes all EGMA subtasks and SeGMA subtask-1. The range of subtasks is sufficient to ensure and demonstrate improvements in learning at midline and endline. These subtasks are tested on all students in our sample of students from grade P3 through JhS-2. The inclusion of overlapping subtask(s) in the calculation of aggregate scores ensure comparability across all cohort grades of our sample.

An aggregate learning score is mathematics constructed to (i) compare overall learning levels in intervention and control group and (ii) track learning progress overtime. The score ranges from 0 to 100 points and aggregates scores from all EGMA and SeGMA subtasks used in the numeracy test. The team used the standard approach of assigning equal weight to all subtasks equally, independently of the grade of the girls tested. This aggregate score used to estimate the project's impact on learning, is the learning target via 0.25SD per year formula, and the project's achievement.

Each subtask's score is obtained as the percent correct answer of the total of correct answers over the total number of items.

Similar to Table 5 on aggregate literacy score by grade in midline, aggregate numeracy score is calculated for the cohort girls and boys and are represented by their respective baseline grade. Table 10 provides two important findings. First, it shows clear grade level progression across sex and treatment status. It suggests that girls and boys across treatment status scored higher in numeracy tests as grade level increased. Second, the treatment boys and girls in midline outperformed their comparison counterparts in each grade. The diminishing rate of change across grades however, shows a larger effects of MGCubed on lower grades than the higher grades. Between beneficiary girls and boys, the later performed better in midline than the former. In terms of SD, evidence suggests that it is more or less stable across all grades suggesting less variation around mean due to extremely good or bad performers. We find similar distribution in the case for boys.

Table 10: Numeracy (EGMA/SeGMA)

Baseline Grade	Intervention Group Mean aggregate Score	Comparison Group Mean aggregate score	Standard Deviation in the intervention group
Girls			
P3	48.9	46.4	16.8
P4	55.0	49.5	16.9
P5	59.1	57.5	16.9
P6	63.6	61.5	16.2
JHS1	67.5	63.9	16.5
All girls	59.6	56.6	18.3
Boys			
P3	52.9	48.4	17.3
P4	56.8	55.7	15.9
P5	62.3	57.6	17.3
P6	64.5	62.4	17.1
JHS1	79.1	65.6	11.7
All Boys	60.6	58.4	17.5

As noted above in the literacy section, to explore the impact of the MGCubed program on learning outcomes the ET ran 3 analyses: Standard DID, T-Test and DID Regression Analysis.

3.5.1 Standard DID for Numeracy Outcomes

While the distribution shows the pattern across grades, sex or treatment status, Table 11 compares aggregate numeracy score in midline with baseline across grades separately for treatment and comparison boys and girl. It detects extent of grade level program effect by considering baseline scores as the initial score in the absence of treatment. We consider baseline grades to represent cohort students in midline irrespective of their transition status. As a result, same students (recontacted) are compared between baseline and midline for each grade. This calculation does not include replacement students and those who dropped out after baseline and couldn't be recontacted.

The grade level disaggregation suggests that the difference in increase between treatment and comparison from baseline to midline (difference in difference) is highest among JHS-1 cohort treatment girls followed by Grade 3 and 4, as compared to the comparison girls. Overall, the average increase in numeracy score is about 0.4 percentage point higher for treatment girls than comparison girls. Relative increase in numeracy score among 5th and 6th Grade comparison girls is higher than that among treatment girls. The

same is observed for boys. As indicated for literacy, this maybe due to dropout, withdrawal or transfer of low performers from the schools (at these key transition points), although it is speculative. However, one important finding worth noting here. Disaggregation by gender suggest that overall, beneficiary girls and boys perform similarly in midline although boys JHS1, P4 perform better in terms of relative improvement over time as compared to their counterpart in comparison group. For other grades boys' relative performance is better than girls except for P6. For Grade 6, the relative improvement among comparison boys is better than the treatment boys.

Table 11: Numeracy scores from baseline to midline

Baseline Grades	Baseline Numeracy Treatment	Midline Numeracy Treatment	Ml-BL Treatment	Baseline Numeracy comparison	Midline Numeracy Comparison	ML-BL Comparison	DID based on baseline scores
Girls							
P3	43.7	48.9	5.2	42.8	46.4	3.7	1.5
P4	50.5	55.0	4.5	45.9	49.5	3.5	0.9
P5	55.2	59.1	3.9	53.4	57.5	4.1	-0.1
P6	61.1	63.6	2.5	58.9	61.5	2.6	-0.1
JHS1	64.2	67.0	2.8	62.6	63.8	1.2	1.6
All girls	56.1	59.8	3.7	53.6	56.6	3.1	0.4
Boys							
P3	46.1	52.9	6.8	41.5	48.4	6.9	-0.1
P4	51.8	56.8	5.0	51.8	55.7	3.8	1.2
P5	55.8	62.3	6.5	54.3	57.6	3.2	3.2
P6	63.8	64.5	0.6	57.9	62.4	4.5	-3.9
JHS1	71.1	78.3	7.2	64.5	65.6	1.1	6.1
All Boys	56.1	60.6	4.5	54.4	58.4	4.0	0.6

Similar to literacy, qualitative information gathered from FGDs, suggests that boys generally attend school more than girls. Most respondent girls feel that it is easier for boys to go to school study because they don't have to take care of households members who are sick. Menstruation and additional household chores are impediments faced by girls as they continue their education and move to higher grades. Girls also mentioned that, at times, boys may be prioritized by fathers to receive school funding, especially in families with many children since they are seen as future heads of household.

Table 11 shows that at in terms of relative performance against their comparison counterparts, beneficiary girls from P5, P6 performed worse than comparison girls from respective grades. One explanation could be that the parallel improvement among comparison girls can be due to maturity effect over time as mentioned in literacy section. The other factor maybe, as we find from FGDs that some girls find face to face teaching better than distance learning. Reasons cited in several occasions during FGDs include: sometimes distance learning teachers use difficult words and that it is also difficult to ask questions during distance learning classes. Although it is difficult to be conclusive, but putting these together, the distance learning maybe not be as effective (or interactive) particularly for higher grades than face to face learning environment. These observations however do not rule out the possibility of externalities from other factors such as, dropouts, withdrawal or transfer of low performers due to worse or deteriorating teaching quality, school environment or other unobserved factors.

3.5.2 T-Tests for Numeracy Outcomes

While the above Table 11 provides information on improvement of treatment boys and girls from baseline to midline, it does not provide any evidence on two aspects: whether their own improvement from baseline to midline is a significant change over baseline, and whether this improvement is a significant change relative to the improvements achieved by the comparison group. Table 12 below examines the former using paired t-test for all cohort girls by comparing their own scores between baseline and midline. Table 13 addresses the latter using regression analysis by controlling for drivers such as marginalisation characteristics, barriers and school environment.

Table 12: Numeracy results (paired t-test)

Result	Details	Comments
t-Test: Aggregate Numeracy score		
Hypothesis: Girls 3 **Ho: Midline Score=baseline score for girls** **Ha: Midline score>baseline score for girls**	**Girls:** Beta (difference) = 3.7 percentage points p-value Pr(T > t) = 0.000	The improvement in midline from baseline numeracy score is strongly significant (p=<1%) among cohort girls and boys from treatment schools.
Hypothesis: Boys 4 **Ho: Midline score=baseline score for Boys** **Ha: Midline score>baseline score for boys**	**Boys:** Beta (difference) = 4.5 percentage points p-value Pr(T > t) = 0.000	

Table 12 examines whether the treatment cohort girls (and boys) performed better in numeracy test in midline than at baseline . To achieve this conclusion, the evaluation team used paired t-test to compare each girl's (and boy's) aggregate numeracy score in midline with baseline score. Since we compare the cohort of students from same grades, it provides us information on their improvement between baseline and midline. The evidence shows that on an average, the treatment girls scored 3.7 percentage points (corresponding to 6.5 percent) higher in midline than their baseline score. Among boys, the team found that boys on an average received 4.5 percentage points higher in midline than their baseline score. Both results are statistically significant improvement. While Table 12 provides information on significant (or not) changes between baseline and midline, the following Table 13 examines whether treatment students are performing significantly better than their counterparts in comparison group.

3.5.3 Regression Analysis for Numeracy Outcomes

Similar to literacy, we also find parametric estimate of difference in difference measure of program impact on numeracy from regression analysis. The program impact, treatment and time effects are provided in Table 13 and are based off Model 4 of the analysis. A full analysis of the results, including the analysis of drivers are provided in Annex 3. Estimated DID in Table 13 shows that the program does not have any significant impact on the numeracy score for beneficiary girls over comparison girls. Two important information to note here: first, average score of beneficiary girls was 2.53 percentage point higher in

baseline may be because they have been part of the GEC-1 programme in Phase 1. This is corroborated by significant treatment status advantage for beneficiary girls. Second, the comparison girls experienced similar improvements in their score over time as the beneficiary girls did. It means that the change could have happened anyway due to factors outside the program, including the maturation effect of students over time. Putting them together, the relative gain in numeracy score by beneficiary girls remained marginal.

Section 3.1 Learning Targets above sets the target increase for treatment girls at 3.98% points over and above the increase for comparison girls in numeracy. **Treatment girls achieved an increase in numeracy scores 0.69% higher than that achieved by comparison girls from baseline to midline, obtaining 17% of the set target.** As notes above, one explanation for lower than anticipated scores among treatment girls could be the parallel improvement among comparison girls due to maturity effect over time. This observation however does not rule out the possibility of positive externalities from other factors as mentioned above (dropout, transfers or withdrawal of low performers from comparison schools), or other unobserved factors. For better understanding of difference in difference we used regression analysis that controls for observed marginalised characteristics, school environment and barriers below.

Table 13: DID Numeracy Results

Result	Details	Comments
Numeracy Baseline - Midline	Beta = 0.69 (adjusted) p-value = .178 Target = 3.98 over and above control Performance against target = 17% of target achieved	The results were not statistically significant meaning that the difference in numeracy scores between treatment and comparison schools cannot be confidently attributed to the program.

As noted for literacy, among other factors we controlled for, evidence suggests that – household head has no education, belonging to a rural school and language spoken at school is different than what is spoken at home, have strong significant adverse effects on relative improvement of treatment girls in numeracy. Among impairments, we find that hearing impairment affect numeracy scores significantly adversely. Similarly, in terms of school environment (models 6-7), relative performance of treatment girls is significantly worse if boys and girls do not play together. As such, this indicator does not mean much unless we consider it as proxy for norms and rules in the school in terms of gender desegregation. In many FGDs the girls noted that boys are better at math while girls are at literacy. Maybe stricter norms or rules about free mixing at schools worked as a deterrent in learning from peers. Alternatively, among the factors that significantly and positively affect scores are if the household head is a female (model 4), and the feeling of safety at school (model 6-7).

While these factors have expected signs and level of significance in explaining girls' performance in literacy and numeracy, as noted above under literacy there are several other factors that did not affect the outcomes significantly but have the expected direction in relationship. Some of them for example are girls' personal opinion about teacher's performance such as when teachers often absent from class, or the girls feel that teachers make them feel welcome (models 6-7). Among poverty indicators, one crucial finding that does not have significant adverse effect but the right direction is about hunger (model 5). If the girl goes to bed hungry more often it affects results adversely but not significantly. Similarly, if the girls' parents

are dead or they live without parents, have sight, communication impairments etc. then girls performance is adversely affected (model 4).

Similar to literacy, the two indicators that have confounding estimates are the availability of drinking water and bathroom (model 7). They both show that the girls do better if they don't use it. It is possible that these sources are unhygienic and their use impacts health and furthermore performance. It might as well be true that the girls themselves or their caregivers are conscious about their health and sickness. Although this is speculative, we can still draw a connection between less health hazards and more attendance with better performance.

Qualitative: A number of the barriers noted in the under literacy above, exist here as well. Another issue highlighted by girls is about distant learning which may be a contributing factor in learning mathematics. The reviews of distance learning were mixed, but largely negative. Many feel that they understand traditional teachers better. While participating in distance learning, they feel they cannot always ask questions when desired. They dislike that the machines break down, however, they enjoy the videos. They also said that the distant learning uses some unfamiliar English words that are difficult to understand for them.

3.6 Diagnosis of the Learning Scores by Subtask

Box3: Subtask scores bands

For a diagnosis of the gaps in literacy and numeracy skills, the subtask scores are cut into bands of achievements as follows: (i) Non-learner: 0% of items; (ii) Emergent learner: 1%-40% of items; (iii) Established learner: 41%-80% of items, and (iv) Proficient learner: 81%-100% of items. It is understood that the bands are set arbitrarily.

The Oral Reading Fluency score (Words Per Minute) is again an exception. The four learning categories should be taken as follows: (i) Non-reader: 0-5 WPMs; (ii) Emergent reader: 6-44 WPMs; (iii) Established reader: 45-80 WPMs; and (iv) Proficient reader: 80 WPMs plus

Based on this categorisation, the distribution of P3 to JHS1 students across the categories is provided in the tables below. For example: (i) Percent of students who are non-learners; (ii) Percent of students who are emergent learners; (iii) Percent of students who are established learners; and (iv) Percent of students who are proficient learners in all Subtasks.

This section aims at identifying the gaps in literacy and numeracy skills of treatment students (girls and boys), and their improvement, particularly in the foundational ones, over time between baseline and midline.

Table 14 and Table 15 separates beneficiary girls by their proficiency level in numeracy and literacy. To categorize girls at different levels of proficiency, scores are grouped into four bands based on criteria presented in the associated Box 3. For each subtask, the score is standardized between 0 and 100. Each cell represents percentages of cohort students from P3 through JHS1 who earned a score within that band. EGMA Subtasks are ordered from 1 to 6 based on their degree of difficulty, with SeGMA ordered 1 and 2. While all students were tested on all subtasks of EGMA and subtask1 of SeGMA, students from P6 and JHS1 received SeGMA subtask 2. The same is true of EGRA and SeGRA, although EGRA subtask 3 on invented words is excluded from this analysis due to floor effects. Another important point to note

here is that due to the change in scoring system to calculate ORF to avoid ceiling effect, the results may be different as reported in baseline report. The results reported here are comparable since we revised both, the baseline and midline incidence, based on revised scoring system.

3.6.1 Numeracy

Based on the aggregate scores in EGMA assessment and subtask score bands (Box 3), most beneficiary girls are either established or proficient learners at ML (Table 14). By subtasks, the findings show that from baseline to midline, 10.2 percentage points more girls became proficient in number identification , followed by subtasks addition 1 (8.1 pp), missing numbers (6.3 pp), addition 2 (6.0 pp), subtraction 2 (4.9 pp), word problem (3.1 pp), subtraction 1(4.8 pp) and quantity discrimination (3.2). No girls are found to be proficient in SeGMA subtasks 1 and 2. Importantly, as evidence suggests, the percentage point gain in proficient learners category from baseline to midline for number identification, addition-1 and 2, is the equivalent reduction in all three remaining categories. For missing numbers, and subtraction 1, gain in proficient learner and established learners' group are from non-learner and emergent learner group. For others, the distribution is reshuffled across groups. Therefore, it is safe to say that in EGMA tests, there is a clear upward shift in proficiency level among beneficiary girls from baseline to midline.

Table 14: Foundational numeracy skills gaps among beneficiary girls: (ML-BL)

Categories	Definition		Non-learner 0%	Emergent learner 1%-40%	Established learner 41%-80%	Proficient learner 81%-100%	
Subtask 1	Number Identification	Mean %	0.4	0.9	29.6	69.2	100%
		ML-BL	0.2	-0.9	-9.4	10.2	
Subtask 2	Quantity Discrimination	Mean %	0.7	4.1	33.9	61.3	100%
		ML-BL	-0.1	0.4	-3.5	3.2	
Subtask 3	Missing Numbers	Mean %	1.2	33.9	55.5	9.4	100%
		ML-BL	-0.4	-6.2	0.2	6.3	
Subtask 4a	Addition-1	Mean %	1.7	8.3	45.4	44.7	100%
		ML-BL	0.0	-4.7	-3.4	8.1	
Subtask 4b	Addition-2	Mean %	10.1	22.8	36.2	30.8	100%
		ML-BL	-2.8	-1.1	-2.2	6.0	
Subtask 5a	Subtraction-1	Mean %	5.2	20.1	52.3	22.3	100%
		ML-BL	-0.6	-7.4	3.2	4.8	
Subtask 5b	Subtraction-2	Mean %	26.3	23.3	36.0	14.4	100%
		ML-BL	0.2	-5.4	0.9	4.9	
Subtask 6	Word problems	Mean %	2.8	28.3	44.9	24.0	100%
		ML-BL	0.3	-2.2	-1.2	3.1	
Subtask 7	SeGMA Advanced multiplication, division etc.	Mean %	21.2	74.3	4.5	0.0	100%
		ML-BL	-7.5	6.1	1.4	0.0	
Subtask 8	SeGMA Algebra	Mean %	64.4	33.7	1.9	0.0	100%
		ML-BL	-9.9	8.4	1.5	0.0	

For SeGMA subtasks 1 and 2, no girl is found to be qualified as proficient learner. However, as our evidence show, there is a 7.5 percentage point reduction in non-learners for SeGMA subtask 1 which is distributed to higher proficiency categories. Similarly, for SeGMA subtask 2, the 9.9 percentage point reduction in non-learner category between base and midline is distributed to emergent learner category (8.4 percentage point) and established learner category (1.5 pp). All these movements from baseline to midline assure improvements in higher-level problem solving skills in numeracy.

Qualitative: From conducting FGDs and KIIs, both teachers and girls noted difficulty with mathematics among girls. Teachers largely attributed this trend to girls not being able to largely focus and invest more time in assignments due to their assigned role as a caretaker in households. Despite these challenges, girls were eager to learn mathematics as a subject in the interviews when asked by recognizing that the girls in general are not being able to perform well on maths and sciences due to lack of sufficient time after their household duties.

3.6.2 Literacy

Unlike numeracy, improvement in foundational literacy skills of beneficiary girls is not uniform (Table 15). By subtasks, the findings show that from baseline to midline, most of the EGRA subtasks show improvement of beneficiary girls to proficient level. The EGRA subtasks that show achievement of higher foundational skills are familiar word (proficient 8.8 pp), comprehension (proficient 3.1 pp and established 3.3 pp), letter sound identification (proficient 1.5 pp but established 6.3 pp), familiar word (proficient 9.3pp), EGRA comprehension (proficient and established 4.1 pp each). Only subtasks that show decline in proficient learner's category with subsequent increase in lower categories (e.g., established learner and emergent learner) is oral reading fluency (13.2 pp) with an increase in established learner (9.8pp) which is just below the proficient category. Note that due to the change in scoring system to calculate ORF to avoid ceiling effect, the results may be different as reported in baseline report. Based on the literature that all students should be able to read 90-120 WPMs (Abadzi, 2011), we standardized the percentage score based on 150 as the maximum cut-off point. The results reported here are comparable since we revised both, the baseline and midline incidence, based on revised scoring system. Two important points that stand out from the FGD with girls are that sometimes it is difficult for them to follow because the trainer uses difficult words. The other point to note is that they find it difficult asking questions during the distance learning program. Putting them together, the team feels that there is gap between what is being taught and what the students are capable of learning. This gap can be bridged by making these courses more interactive since the language of instruction is not their mother tongue and we find in our regression results (for DID estimation) that it is a significant deterrent for their learning.

Table 15: Foundational literacy skills gaps among beneficiary girls: ML-BL

Categories			Non-learner 0%	Emergent learner 1%-40%	Established learner 41%-80%	Proficient learner 81%-100%	
Subtask 1	Letter Sound Identification	Mean %	6.5	44.0	47.4	2.1	100%
		ML-BL	1.6	-9.4	6.3	1.5	

Subtask 2	Familiar Word	Mean %	0.7	2.8	18.5	78.0	100%
		ML-BL	-0.3	-0.4	-8.1	8.8	
Subtask 4	Oral Reading Fluency	Mean %	14.0	34.8	36.9	14.3	100%
		ML-BL	0.4	2.9	9.8	-13.2	
Subtask 5	Comprehension	Mean %	26.6	22.3	35.2	15.9	100%
		ML-BL	-8.2	1.8	3.3	3.1	
Subtask 6	SeGRA-1: Comprehension Analytical	Mean %	18.5	39.8	34.0	7.6	100%
		ML-BL	-13.8	-6.6	15.7	4.6	
Subtask 7	SeGRA-2 Comprehension (+inferential)	Mean %	20.5	42.6	33.2	3.7	100%
		ML-BL	-48.4	15.9	28.8	3.7	

SeGRA subtasks 1 and 2, show some improvement from baseline to midline. As our evidence show, there is a 13.8 percentage point reduction in non-learner category and 6.6 percentage point reduction in emergent learner's category leading to a 15.7 percentage point improvement in established learner category and 4.6 percentage point improvement in proficient learner's category. For SeGRA subtask 2, we find a 48.4 percent reduction in non-learners being distributed to 15.9, 28.8 and 3.7 percentage point improvements in emergent, established and proficient learners' categories, respectively.

3.7 Grade Level Achieved in Literacy and Numeracy

The ET used the following methodology to calculate grade level achieved by students in literacy.

Box 4 : Literacy grade level achievement descriptions		
Highest grade achieved	**Relevant subtasks**	**Literacy**
Grade 1 achieved	Subtask 1, 2 and 3 (EGRA)	Proficient in Letter Sound Identification, Familiar Word,
Grade 2 achieved	Subtask 4 (EGRA)	Established in Oral Reading Fluency
Grade 3 achieved	Subtask 5 (EGRA)	Proficient in Comprehension of short fluency paragraph
Grade 4 achieved	SeGRA Subtask 1	Established in Comprehension using simple inferences
Grade 5 achieved	SeGRA Subtask 1	Proficient in Comprehension using simple inferences
Grade 6 achieved	SeGRA Subtask 2	Established in Comprehension using complex inferences
Grade 7 achieved	SeGRA Subtask 2	Proficient in Comprehension using complex inferences
Grade 8 achieved	SeGRA Subtask 3	Established in Short Essay construction
Grade 9 achieved	SeGRA Subtask 3	Proficient in Short Essay construction

Note: Grade level achievement for 8th and 9th grade is not calculated since both of them are based on SeGRA/SeGMA subtask3 and these subtasks are not tested.

Based on grade level achievement cut-offs in Box 4, the team suggest that overall, more beneficiary girls achieved higher grades in literacy and numeracy than their baseline achievement. Most importantly, we observe a 10.3 percentage point reduction in number of students from baseline to midline in literacy who achieved no grade and 10.2 percentage points decline in who achieved grade 2 during the same period. The other two lower grade level that show reduction are P3 (3.3 pp reduction) and P1 (<1 pp reduction). Alternatively, we find that there is a 3.58 percentage point increase in grade 4 and almost 17.9 percentage point increase in grade 6 level achievement in literacy.

Table 16: Grade level achieved in Literacy in midline

Grade Level in BL	Grade level achieved by beneficiary girls in Literacy (% of row total)									
BL		**No Grade**	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**JHS-1**	Total (N)
P3	ML	76.32	0	9.21	1.97	11.18	1.32	0	0	237
	ML-BL	-10.52	0	-1.32	0	10.52	1.32	0	0	
P4	ML	56.07	0.42	9.62	1.26	29.29	3.35	0	0	379
	ML-BL	-10.46	0	-14.23	-0.41	22.6	2.93	-0.42	0	
P5	ML	44.86	0	9.93	1.37	17.81	1.03	22.6	2.4	460
	ML-BL	-13.02	-0.34	-11.65	-5.82	4.8	1.03	22.6	2.4	
P6	ML	33.23	0	10.25	1.55	15.22	1.86	33.85	4.04	492
	ML-BL	-6.83	0	-10.87	-4.35	-5.59	-1.87	25.46	4.04	
JHS1	ML	16.89	0	10.67	1.33	19.56	2.67	44	4.89	284
	ML-BL	-11.55	-0.44	-8.89	-4	-9.77	-2.66	32.44	4.89	
Total	ML	42.76	0.08	10	1.46	18.86	2.03	22.28	2.52	1,852
	ML-BL	-10.33	-0.16	-10.16	-3.34	3.58	0	17.89	2.52	

Note: Number in the ML-BL rows (highlighted Blue) represent differences between midline and baseline.

BOX 5: Grade level Achievement criteria in Numeracy

	Relevant subtasks	Numeracy
Grade 1 achieved	Subtask 1 and 2 (EGMA)	Proficient in Number Identification and in Quantity Discrimination
Grade 2 achieved	Subtask 3 and 4 (EGMA)	Proficient in Missing Numbers and Additions
Grade 3 achieved	Subtask 5 and 6 (EGMA)	Proficient in Subtractions and Words Problem
Grade 4 achieved	SeGMA Subtask 1	Established in Advanced multi and division etc.
Grade 5 achieved	SeGMA Subtask 1	Proficient in Advanced multi and division etc.
Grade 6 achieved	SeGMA Subtask 2	Established in Algebra
Grade 7 achieved	SeGMA Subtask 2	Proficient in Algebra
Grade 8 achieved	SeGMA Subtask 3	Established in Data Interpretation etc.
Grade 9 achieved	SeGMA Subtask 3	Proficient in Data Interpretation etc.

Box 5 presents the criteria for grade level achievements in numeracy. The grade wise distribution of midline and baseline numeracy percentages are given in Table 17. The table shows that the reduction of students in lowest grades are distributed in the higher grades, suggesting overall improvement in grade level achievement in numeracy. Similar to literacy, a 9.3 percentage point drop is noticed at 'no grade' level achievement from baseline to midline with a proportionate increase in immediate higher grades such as grade P1 (4.4pp), P2 (1.8pp), P3 (1.2pp), P4(.6 pp) and P6 (1.5 pp). In line with baseline findings, no student is found to achieve P5 and JHS 1 level in numeracy. The reason can be the strict cut-off point for their grade level. For instance, the cut-off point for P5 is to be proficient (>80% correct) in advanced multiplication and division etc. which is SeGMA subtask 1. Similarly, for JHS1 grade level achievement, the cut-off is to be proficient in SeGMA subtask 2. In contrast, the cut-off points for P4 and P6 are established in advanced multiplication and division, and established in Algebra.[25] Together with improvement in p4 and P6 from baseline, these high thresholds for cut-offs for P5 and JHS 1suggest that while the beneficiary

[25] Students that achieve P6 level in numeracy are likely to be proficient in advanced multiplication/division (P5) however they marked at their highest achievement level (P6). The evaluation did not find any students who were not established in algebra (P6) but were proficient in advanced multiplication/division. Therefore, any students not established in algebra (P6) were marked at a proficiency level of P4 or lower.

girls show improvement to established level (40-80 pp), they are not there yet to score more than 80 pp in SeGMA subtasks to be considered to be proficient and achieve grade level 5 and JHS1.

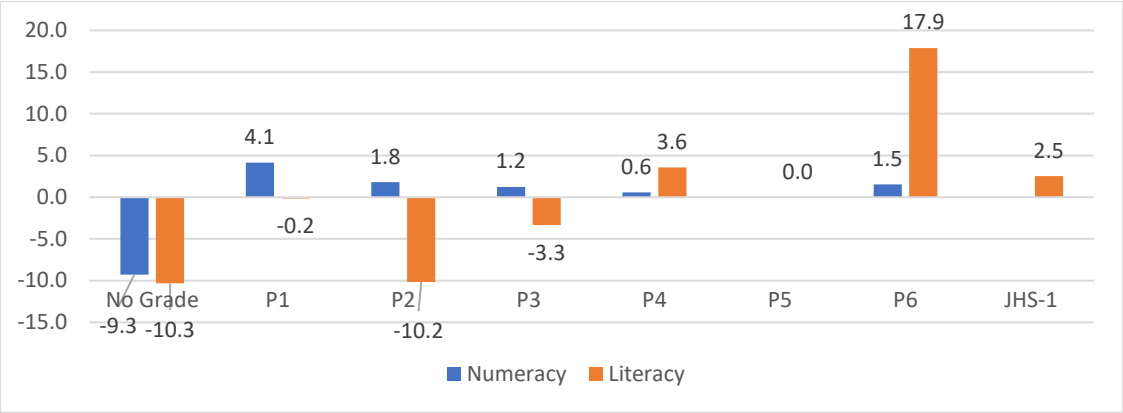
Table 17:Grade level achieved in Numeracy in midline

Grade Level in BL	Grade level achieved by beneficiary girls in Numeracy (% of total)									
BL		**No Grade**	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**JHS-1**	Total (N)
P3	ML	63.82	33.55	1.32	1.32	0	0	0	0	237
	ML-BL	-6.57	4.6	1.32	0.66	0		0		
P4	ML	46.86	48.54	2.09	2.09	0.42	0	0	0	379
	ML-BL	-12.55	8.79	1.67	2.09	0.42		-0.42		
P5	ML	46.92	44.86	3.08	1.71	2.4	0	1.03	0	460
	ML-BL	-7.19	2.05	1.37	1.03	1.72		1.03		
P6	ML	34.47	48.45	3.73	4.66	6.21	0	2.48	0	492
	ML-BL	-12.73	5.9	0.93	1.55	1.86		2.48		
JHS1	ML	29.78	51.56	4.44	2.67	5.78	0	5.78	0	284
	ML-BL	-5.33	-0.88	4	0.45	-2.22		4		
Total	ML	42.6	46.34	3.09	2.68	3.33	0	1.95	0	1,852
	ML-BL	-9.27	4.14	1.79	1.22	0.57		1.54		

Note: Number in the ML-BL rows (highlighted Blue) represent differences between midline and baseline.

Figure 2 shows an overall improvement in grade level achievements in literacy and this improvement is more pronounced than achievements in numeracy. In literacy, we observe a significant 10.3 percentage point reduction in students from no-grade, 10.2 percentage point reduction in grade 2 and 3.3 percentage point reduction in grade 3 achievements between baseline to midline and being redistributed to increase in higher grades like 4th grade (3.6pp), 6th grade (18 pp) and 7th grade (2.5 pp). In numeracy, we observe a significant 9.3 percentage point reduction in students from no-grade, and being redistributed to successive higher grades such as, 4 percentage point increase in grade 1, 1.8 and 1.2 percentage points increase in grade 2 and 3, and 3.6 pp in grade 4. We observe a 1.5 percentage point increase in grade P6. The qualitative information gathered from girls and teachers, supports the view that girls are more comfortable with literacy than numeracy, as they more generally claimed. The other deterrent can be, as claimed by girls, missing school due to high burden of chores at home, taking care of sick members in the households, passing through adolescence and less opportunity to ask questions during distance learning classes.

Figure 3: Change in Grade level achievements for Literacy and numeracy



3.8 Subgroup Analysis of the Learning Outcome

Table 18 helps us understand which subgroups might be left behind (or are excelling) in terms of learning. This helps projects determine the adaptations to design that may be required to ensure inclusion of girls with particular marginalised characteristics.

There are two important findings from this analysis. First, **evidence shows that girls with almost all of the identified marginalised characteristics performed significantly better in both literacy and numeracy in midline than baseline, though in general, these improvements were less than those seen in *all girls*.** The regression analysis in Section 3.2 above (and continued in Annex 3) note that the following marginalised characteristics play a significant role in differentiating scores in numeracy and literacy from all girls: household head has no education, and language spoken at school is different than what is spoken at home. Landlessness and cognitive impairment also significantly negatively impacted literacy scores while a female head of household, refusing to use the bathroom and drinking facilities as school, and feeling safe at school had significant positive impacts.

Second, <u>average increase</u> in score is much higher for literacy than numeracy across groups, albeit <u>average score</u> is more in numeracy than literacy. The only group that shows a decline in both literacy and numeracy from baseline to midline is married girls although the decline is not significant. Also notable is girls who became mother under 18 or under 16 performed marginally better in literacy but significantly worse in numeracy in midline than baseline.

Our analysis shows that girls with most types of impairments (e.g., seeing, hearing, cognitive, self-care and communication impairments) improved more than 5 percentage points in literacy. Only one group, with mobility impairment improved marginally (around 1.0 pp) in literacy and this improvement is not statistically different than zero. The same group achieved a significantly higher score in numeracy, though the effect at 2.8 pp is smaller than most other groups. In addition, girls with hearing impairment performed significantly better in literacy and numeracy than their baseline. In FGDs we find that mobility and hearing are issues. Their suboptimal performance can be due to their inability to go to school regularly as we understood from the FGDs. Some girls pointed out that while impairment in general are not a big impediment, going to school is difficult.

The subgroup analysis shows that beneficiary girls from economically poor background performed significantly better in midline than their baseline performance. One reason can be the financial assistance they receive from VF or other sources. Many girls in FGD informed that they prefer to go to school so

that they don't miss this assistance. The other reason maybe the understanding that higher education is the only way out of poverty. From many FGDs of parents or girls, we find that there is an overall shift in attitude among parents as well to send their daughters to school for a better future. Community members are also supportive.

Students from most ethnic groups performed significantly better at midline in both literacy and numeracy as compared to baseline. MGCubed lessons are broadcasted at a regional base where more than one local dialect is employed, explaining the difference in learning outcomes. In the Greater Accra region, lessons are delivered by MTTs who use English and the local language Dangme or Akan for the following ethnic groups: Akan (Twi speaking), Ga and Dangme. Most schools from Greater Accra can speak Dangme and in schools where Dangme is not employed, facilitators can translate from English to Twi or Ga to explain key concepts to the pupils as they are common languages.

In the Oti Region where schools are largely multi-dialectal, lessons are delivered by MTTs mainly in English and Ewe. Nonetheless, there are communities where segments of the pupils speak minority languages such as Likpakpa or Guan. In these cases, pupils may struggle to follow the lesson if the facilitators do not master all local dialects. MTTs, who do not speak some of the languages, insist that facilitators translate and re-enforce learnings to the pupils and a slot is given within every lesson called 'facilitators teaching time' to address such gaps but it depends greatly on the facilitators' language skills.

Overall, the marginalised groups that did better in both literacy and numeracy are those who live with both parents and married beneficiary girls. Young mothers saw the least improvement, and actually preformed significantly worse in numeracy at midline.

Table 18: Learning scores of key subgroups in Treatment Schools

	Average literacy score (aggregate)	Change in average literacy score since baseline	Average numeracy score (aggregate)	Change in average numeracy score since baseline
Characteristics:				
All girls	52.3	6.4 ***	59.8	3.7 ***
Living without both parents	56.5	6.8 ***	62.3	4.2 ***
Living in female headed household	55.4	6.5 ***	61.5	3.4 ***
Living with husband/ parents in law	49.8	6.7 ***	58.5	4.1 ***
Mother tongue different to LOI	52.7	6.7 ***	60.0	3.8 ***
Difficulty seeing	54.7	6.1 ***	60.7	5.1 ***
Difficulty hearing	48.8	5.2 **	58.3	3.3 ***
Difficulty walking or climbing stairs	44.1	1.0	54.8	2.8 ***
Difficulty remembering or concentrating	52.4	6.2 ***	59.3	4.0 ***
Difficulty with self-care	48.6	5.1 ***	57.1	5.7 ***
Difficulty with communication	50.0	5.9 ***	59.1	3.2 ***
Serious illness	50.6	6.5 ***	58.1	3.6 ***
Head of Household no education	47.0	6.1 ***	56.5	3.0 ***

Carer no education	48.5	12.4	58.3	7.2 ***
Poverty	52.2	6.3 ***	59.5	3.8 ***
Ethnic group - Akan	54.2	5.1 **	60.2	7.4 ***
Ethnic group - Ga	75.3	8.2 ***	69.5	3.2 ***
Ethnic group - Ewe	55.0	7.7 ***	59.6	4.4 ***
Ethnic group - Dangme	59.7	6.9 ***	65.7	3.2 ***
Ethnic group - Guan	47.8	8.8 ***	53.8	2.4 ***
Ethnic group - Lilkpakpa	33.6	5.3 ***	50.8	3.7 ***
Ethnic group - other	44.7	5.6 ***	54.7	4.0 ***
Married	66.7	4.3 ***	49.8	4.6 ***
Mother (under 16)	31.4	4.0	35.0	-6.0 ***
Mother (under 18)	34.6	3.5	40.5	-6.1 ***

Note '*', '**', '***' represent level of significance at 0.1, 0.5 and 0.01 percent.

3.9 Learning Scores of Key Barriers

Distribution of aggregate scores for girls across barriers helps us understand which barriers might be having the most or least impact on levels of learning. This helps the project to check they are addressing the right barriers to girls' learning. outcomes. Table 19 below shows that consistent with earlier findings, treatment girls facing barriers are generally improving over their baseline scores, in some cases more so than the average girl. What is most interesting is that the improvements, for the most part, surpass the improvements of *all girls*. This suggests that the program may be assisting in reducing the impact of these barriers. For example, girls who find it difficult to move around school had an average score of 42.8 at baseline, 3 percentage points less than *all girls* at that time. At midline that gap had shrunk to 2.3 percentage points. We also see similar changes on issues such as teacher absenteeism. According to fathers in some FGDs there is a belief that distance learning helps overcome the barrier of teacher absenteeism and provides the opportunity to promote learning.

Table 19: Learning scores of key barriers in Treatment schools

	Average literacy score (aggregate)	Change in average literacy score since baseline	Average numeracy score (aggregate)	Change in average numeracy score since baseline
Barriers:				
All girls	52.3	6.4 ***	59.8	3.7 ***
Difficult to move around school	50.0	7.2 ***	58.0	3.7 ***
Doesn't use drinking water facilities	56.6	7.0 ***	62.9	4.0 ***
Doesn't use toilet at school	60.2	3.1 ***	65.0	3.1 ***
Doesn't use areas where children play/ socialise	50.9	8.2 *	55.3	7.1 ***
Doesn't feel safe at school	52.4	6.5 ***	59.9	3.7 ***
Doesn't feel safe travelling to/from school	54.1	8.3 ***	58.7	3.0 ***
Disagrees teachers make them feel welcome	48.2	4.6 **	56.5	5.2 ***

Agrees teachers treat boys and girls differently in the classroom	49.4	6.8 ***	58.0	4.1 ***
Agrees teachers often absent from class	50.9	8.2 ***	58.7	5.4 ***

Note '*', '**', '***' represent level of significance at 0.1, 0.5 and 0.01 percent.

4. Transition Outcome

4.1 Transition Targets

Before going into details of transition findings we first present the midline targets. Based on the MEL guidance, and discussion with both the FM and Varkey Foundation the transition target for beneficiary girls was set at 5% points over and above the transition improvement realized by the comparison group.

4.2 Transition Assessments

Transition is the second key outcome of the GEC-T evaluation and focuses on a girl's journey as she progresses through school. Table 20 below sets out what defines a successful and unsuccessful transition from one part of a girl's scholastic journey to the next. In the case of MGCubed, the ET is particularly interested in tracking in-school girls who progress from one grade to the next, who repeat a grade, and who drop out. For out-of-school girls, the ET will look at re-enrolment into school. There are also times in a girl's educational journey known as key transitional points. These refer to her enrolment in lower primary, movement into upper primary, movement into secondary school, and graduation itself (though the duration of the project will not be long enough to see large-scale impact on graduation). It is at these key transition points that a girl is most likely to stop going to school and thus careful attention is placed on the rates at which she can transition at key transition points, and the barriers that keep her from continuing on with her studies.

Table 20: Transition Pathways

	Baseline point	Successful Transition	Unsuccessful Transition
Lower primary school	**Enrolled in Grade 1, 2 ,3**	In-school progression Drops out but is enrolled into alternative learning programme	Drops out of school Remains in same grade
Upper primary	**Enrolled in Grade 4, 5, 6**	In-school progression Moves into secondary school	Drops out of school Remains in same grade Moves into work, but is below legal age
Secondary school	**Enrolled in Grade 7, 8, 9**	In-school progression Enrols into technical & vocational education & training (TVET) Gainful employment	Drops out of school Remains in same grade Moves into employment, but is paid below minimum wage[26]

[26] At baseline and midline the survey did not ask questions about minimum wage in therefore employment is not considered to constitute successful transition without this information.

Out of school	**Dropped out[27]**	Re-enrol in appropriate grade level in basic education	Remains out of school

This analysis is derived from the entire baseline cohort. Unlike other outcomes presented in this report, effort was made to identify the transition status of every baseline girl through a combination of surveys, administrative and community level data including:

a. Cohort girls still enrolled at midline. 39 of these girls are missing the caregiver survey and their transition outcome was determined using evidence from the learning assessments on their enrollment and grade progression.
b. Non-enrolled girls who were successful tracked for the household survey.
c. Non-enrolled girls who were not successfully tracked for the household survey. This includes girls whose status was learned through school and community follow-up by the data collection partner as well as girls whose status remains unknown.

The first table presented includes the entire cohort as noted above, the exception being subgroup analysis on age or impairment which utilized the caregiver survey and could only be calculated for girls with completed caregiver surveys at midline. The table and discussion exclude girls whose midline transition status (either grade progression or enrolment) is unknown.

The current cohort, as defined above and inclusive of treatment and comparison girls, had a transition rate of 89.01%, a 6.7% increase from baseline to midline. Repeat grade is responsible for the vast majority of non-transition. The MGCubed evaluation utilised a "joint sample" approach, which follows the same cohort at both the school and in the community (in households). The transition outcome was then constructed through a combination of household responses and school level validation[28] and community follow-up.[29] Since all students were enrolled at baseline, transition is calculated from grade progression only at midline. At endline the ET will follow up with girls who had dropped out at midline to determine reenrolment status. 10.2% of girls did not successfully transition from the previous year, with 7.4% repeating a grade and 2.8% dropping out. The ET was able to determine another 3.9% of girls were enrolled, mostly baseline cohort girls who had moved schools as noted by community follow-up, but their grade progression and thus transition status is unknown. In addition, the enrolment and progression status of 98 baseline cohort girls could not be determined. These girls are included as "status unknown" in the table below.

[27] All girls were enrolled at baseline. Therefore reenrollment does not apply to the tracked panel sample at midline.
[28] School level validation included confirming enrolment at midline as evidenced by midline learning assessments which were administered only to enrolled students. It also included confirmation of enrolment the previous year as evidenced by baseline learning assessments and assisted in validating grade level progression by comparing baseline and midline grades.
[29] Community follow-up was conducted for non-enrolled girls (missing School level data) whose caregiver could not be interviewed to learn transition status. In those cases (159) the data collection firm followed up with teachers and community leaders to learn if the girl was known to be enrolled elsewhere. The follow-up excluded grade level progression data.

Table 21: Midline transition rates among girls

Baseline Grade		Successful transition (%)	Unsuccessful transition (%)	
		Progressed one grade	Repeated grade	Dropped Out
Grade 3	299	91%	7%	1%
Grade 4	518	90%	8%	3%
Grade 5	591	91%	6%	3%
Grade 6	631	88%	8%	3%
JHS 1	485	86%	10%	4%
missing	43	77%	19%	5%
Baseline Age				
Age 8	40	93%	8%	0%
Age 9	105	92%	8%	0%
Age 10	193	91%	6%	3%
Age 11	272	90%	9%	1%
Age 12	416	92%	7%	1%
Age 13	461	90%	8%	2%
Age 14	406	87%	9%	4%
Age 15	244	88%	8%	5%
Age 16	157	87%	6%	6%
Age 17	114	86%	7%	7%
Age 18	54	74%	9%	17%
missing	104	87%	13%	1%
Midline Impairment Status (caregiver survey)				
Non-impaired	2418	90%	8%	2%
Impaired[30]	64	83%	13%	5%
missing/don't know	85	64%	7%	29%
Total	**2566**	**89%**	**8%**	**3%**

[30] Impairment is identified through the caregiver survey as a girl experiencing difficulty in one or more of the following a lot/all the time: cognitive (learning, remembering, concentrating), sight, hearing, mobility, self-care (cleaning, dressing), communication.

Successful transition decreases overall as a girl progresses through school, albeit no clear drop in key transition points. Girls overall are more likely to have failed to transition to higher grades due to repeating grades at midline. Despite overall drop, no clear drop in transition is noticed at key transition points, specifically from P6 to JHS 1.

The decrease in successful transition as a girl ages validates the focus of the MGCubed program on transition in addition to academic achievement. Interviewed caregivers with students who had dropped out (n = 77) were asked why their child currently does not attend school. More common answers included cost of schooling (9.1%), child needing to work or help out in the home (14.3%), child having or about to have a child of their own (22.8%), or child not interested in attending school (22.3%). Factors further contributing to successful transition are explored further in the sub-group analysis below.

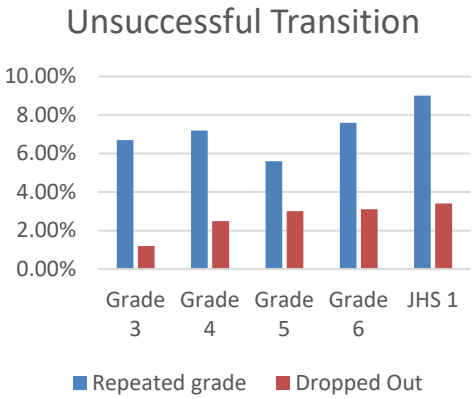


Figure 4: Unsuccessful Transition per BL grade

Important to add here is that many focus group discussions noted that over the past couple of years the perception on girls' education has changed, with many in the community understanding there is value as far as future income and job opportunities to girls who stay in school. At the same time, while expressing growing support for girls' education many FGDs noted that the prevalence of teenage pregnancy is a key barrier both to successful transition but also to the community's perceptions on the value of a girls' education. In addition, financial constraints play a large role in who can go to school and throughout the FGDs it was noted that if having to choose between children due to financial constraints, boys were more likely to attend school than girls. Addressing teenage pregnancy along with the financial barriers many households face in sending their children to school may be key factors in increasing community sustainability. Due to lack of information on teen age pregnancy, this claim however cannot be quantitatively verified from midline data.

It is also important to note that while, overall, the community expressed growing support for girls' education there are always some deviations. Mothers' FGDs (more so than fathers or students) often cited the importance of a girl supporting in household chores and income generating activities with one mother noting "My husband and I have decided to let the boys attend school and the girls attend [the] market with me." Furthermore, some girls FGDs emphasized the role a girls personal motivation plays in her success in school, even more so than financial or other challenges, which may explain the oft-cited reason of "child not interested in attending school" among dropouts. However, these sentiments which express a devaluing of education among some in the community are limited to very few.

4.3 Transition Outcomes and Progress Against Targets

In exploring changes in transition from baseline to midline the ET employs two approaches, an aggregate, cohort comparison and a DID analysis at the level of the individual. When selecting the baseline aggregated point of comparison, the ET could utilize either the baseline benchmark, a representative sample of transition outcomes taken from the community at baseline, or, the midline cohort transition outcomes. The advantage of using the baseline benchmark is that it is predictive for future rounds, including older students at the JSH II and JHS III level for which the cohort will be transitioning into. The disadvantage in

doing so is that the benchmark, unlike the program and study cohort, did not target marginalised students. As a result, we see a much higher transition rate in the benchmark group than we find in the baseline cohort. In addition, the baseline cohort provides additional information through a household and girls' survey which allows us to consider other factors, like impairment status, which may impact transition. It is for these reasons, the focus on marginalised girls and the ability to take a multi-dimensional look at transition, that the ET has set ML targets against the midline comparison cohort. In doing so our analysis is restricted to those girls whose baseline and midline transition status is known. In addition, given that transition outcomes are disaggregated and tracked by age group we have excluded girls whose baseline age is unknown.

4.3.1 Standard DID for Transition Outcomes

Table 21 below shows a percentage change in treatment and comparison communities' overtime. This is then supplemented by a regression analysis investigating transitional changes in the baseline tracked cohort of girls which investigates the role additional factors, such as impairment, play in transition outcomes.

One potential area of note is that large and statistically significant difference in transition rates from P6 to JHS1. As a transition point targeted by the project for its high rate of dropouts it is encouraging to note that treatments schools experienced transition rates at 10% points above that of comparison schools. The mechanism for doing so, such as cash transfers, is explored later under intermediate outcomes.

The project set a transition target of a 5% point increase in successful transition at ML and EL over the comparison group of the appropriate grade cohort. At ML the comparison group had a transition rate of 90.96%,[31] a 6.03% point increase. Therefore, a ML target for the intervention group was set at 11.03% points (5% points above the comparison group).

With a ML transition rate of 93.52%, the treatment group had a transition rate 5.54% points above the comparison group, achieving 111% of the target. The ET found that 93.52 % of cohort girls with a known transition status successfully transitioned from baseline to midline. This is a gain over the 81.95% noted as successfully transitioning at baseline. This gain is impressive given that a requirement for the baseline sample was the student must be enrolled in school at the time of sampling. In comparison, the midline sample tracks the cohort both in regard to repeated grade as well as dropouts.

Table 22: Transition Pathways Overtime

	Baseline Comparison transition rate	Baseline Intervention transition rate	Midline Comparison transition rate	Midline Intervention transition rate	DID
Grade 3	89.05%	84.51%	91.24%	94.37%	7.67% *
Grade 4	81.93%	79.64%	92.86%	90.95%	0.39%
Grade 5	85.49%	83.46%	93.33%	95.22%	3.92%
Grade 6	83.59%	79.87%	88.17%	95.38%	10.93% ***
JHS 1	86.16%	84.77%	90.18%	92.89%	4.10%

[31]This figure excludes girls whose BL or ML transition status and whose BL age is unknown. The project seeks to track transition status as a girl ages and thus knowledge of her age at project start is a necessary data point.

missing	91.67%	73.91%	75.00%	73.91%	16.67%	
Baseline Age						
Age 8	100.00%	90.48%	89.47%	95.24%	15.29%	
Age 9	94.23%	90.00%	94.23%	90.00%	0.00%	
Age 10	89.71%	77.27%	91.18%	94.55%	15.80%	
Age 11	86.18%	86.23%	88.62%	94.20%	5.53%	
Age 12	85.56%	80.98%	92.78%	94.15%	5.95%	
Age 13	84.31%	80.95%	91.67%	93.07%	4.77%	*
Age 14	83.90%	79.89%	88.78%	92.53%	7.77%	
Age 15	79.09%	81.42%	92.73%	91.15%	-3.90%	
Age 16	87.34%	87.50%	92.41%	96.88%	4.31%	
Age 17	74.60%	80.56%	92.06%	94.44%	-3.57%	
Age 18	88.00%	75.00%	80.00%	100.00%	33.00%	**
Non-Impaired*	85.16%	82.45%	91.11%	93.65%	5.25%	***
Impaired	81.43%	75.31%	88.24%	91.67%	9.55%	
LOI at school is the same as home	84.29%	84.34%	94.74%	84.00%	-10.79%	
LOI at school is different than home	84.97%	81.77%	90.76%	93.95%	6.40%	***
Total	84.93%	81.95%	90.96%	93.52%	5.54%	***

4.3.2 Regression Analysis for Transition Outcomes

Similar to the parametric estimates for learning outcomes for literacy and numeracy, we used logistic panel regression approach to estimate the program effect on transition outcome (difference in difference) for cohort girls. The reason for using logistic regression is the binary nature of the outcome variable which identifies successful transition as 1 and unsuccessful transition as 0. Unlike the panel regressions for learning outcomes, we estimate likelihood of transition of beneficiary girls as compared to the comparison girls. This likelihood is captured by odds ratio. Odds ratio 1 suggests equal likelihood, more than 1 implies more likelihood and less than 1 suggests less likelihood as compared to the comparison group. We comparison for student, school, household and teacher level indicators as described in previous section for learning outcomes.

The DID result were again calculated on 8 different models (Annex 3) and it shows that there is a strongly significant program impact on the transition outcome of the beneficiary girls. Between baseline and midline, the likelihood of a beneficiary girl to transition successfully increased by 80 percent (model 4) as compared to the comparison girls. As the following Table shows, this improvement in likelihood is strongly statistically significant. Annex 3 suggests that the barriers and marginalization characteristics are successfully overcome to a large extent by the program. Among few marginalization characteristics that have significantly influenced the transition outcome are cognitive impairment of the students, whether

girls and boys play together (model 5-7) or not and language barrier (i.e., different language spoken at school). No other barrier or characteristics have played any significant role to adversely affect the outcome significantly though some appear in the expected direction. For example, having a mother as part of the household suggest a greater likelihood of transition. The family member not owning land, or going to bed hungry at night (model 5-7)[32] suggests lower rates of transition, though surprising, difficulty in affording school does not.

In exploring barriers to transition through FGDs we note that some of the expected barriers, particularly those faced by students with physical or cognitive disability was not something that come up spontaneously in the FGDs. After prompts 3 out of 4, OOSG focus groups agreed that disabled girls have a more difficult time in school. The fourth group said that more than learning, it made it difficult to get to school which could eventually contribute to poor attendance and dropout. In addition, these groups noted that those with disabilities may be made fun of in class with one girl stating she had glasses but never wore them to school because of her friends' opinions and it is feasible that those with more prominent disabilities may also avoid school in order to deter teasing.

Similarly, another important factor which seems innocuous if we take it on its face value but is significant in terms of its broader implication is the regulations in schools on boys and girls to play together. In its extended form, this indicates stricter social norms on gender desegregation. In many FGDs it stood out that girls like games and sports in the school; community promotion of these activities, and acceptance of girls participation in them, may play a large role in encouraging attendance and successful transition.

Out of all the potential barriers discussed to transition financial distress was the most prominent in the FGDs. While parents and community members are supportive to send girls in schools, financial constraints make the trade-off between going to school and helping family financially (e.g., selling goods in the market) difficult. Some of the girls said they cannot attend school because they don't have proper attire or even shoes. In other cases girls noted that if family members had to choose between children to send to school they were more likely to pick boys or younger siblings to attend in their place. The later is particularly interesting in regards to transition at key points (like from primary to JHS). If parents find the need to prioritize basic education for all, rather than higher education for some, due to financial constraints than older students may find it harder to transition regardless of their sex. Transition outcomes are explored further with qualitative data in Annex 3.

Table 23: Impact of MGCubed program on transition outcome of beneficiary girls

Transition (Model 4)	Odds ratioCoef.
Program effect (DID)	1.80***
Treatment Status verified at ML	0.80
Round: [BL=0 and ML=1]	1.71***

Note '*', '**', '***' represent level of significance at 0.1, 0.5 and 0.01 percent.

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4.4 Subgroup Analysis of the Transition Outcome

Table 24 and Table 25 help us understand which subgroups might be left behind (or are excelling) in terms of transition and which barriers may also play a role. This helps projects determine the adaptations to design that may be required to ensure inclusion of girls with particular marginalised characteristics.

Evidence shows that girls with almost all of the identified marginalised characteristics had significantly higher transition outcomes in midline than baseline, and in many cases higher improvements than *all girls*. The exception being girls in which the caregiver had no education were much less likely to successfully transition (70% compared to 90% for all girls). The regression analysis above (and continued in Annex 3) which comparisons for a number of characteristics and highlights those which play the most significant role in transition notes that cognitive impairment of the students, whether girls and boys play together or not, and language barrier (i.e., different language spoken at school) play a significant role.

Table 24: Transition scores of key subgroups in treatment schools

	Transition Rate (aggregate)	Change in transition rate since baseline	
Characteristics:			
All girls	90.4%	8.5%	***
Living without both parents	92.4%	10.2%	***
Living in female headed household	93.6%	8.9%	***
Mother tongue different to LOI	93.9%	12.1%	***
Difficulty seeing	100.0%	20.0%	
Difficulty hearing	100.0%	50.0%	
Difficulty walking or climbing stairs		0.0%	
Difficulty remembering or concentrating	90.9%	9.1%	
Difficulty with self-care	100.0%	100.0%	
Difficulty with communication	100.0%	100.0%	
Serious illness	92.9%	17.0%	***
Head of Household has no education	92.4%	10.4%	***
Caregiver has no education	70.0%	10.0%	
Poverty	88.2%	-6.6%	
Married	100.0%	100.0%	
Mother (under 16)	100.0%	0.0%	
Mother (under 18)	100.0%	16.7%	
Ethnic group - Akan	90.2%	8.2%	
Ethnic group - Ga	88.9%	13.9%	
Ethnic group - Ewe	94.2%	8.2%	**
Ethnic group - Dangme	92.6%	8.2%	***
Ethnic group - Guan	96.3%	32.1%	***
Ethnic group - Lilkpakpa	93.1%	10.5%	**
Ethnic group - other	94.5%	15.8%	***

Regardless of the barriers faced almost all girls had improved transition outcomes from baseline to midline with the smallest improvements concentrated around perceived teacher performance including whether or not the teacher was absent from class and whether or not the teacher

treats boys and girls differently. The high rates of transition for subgroups may be a result of programmatic focus assisting in overcoming some traditional barriers and marginalized characterises. However, it is important to consider not just these characteristics in isolation but also how they relate to one another and well as how transition rates are changing for marginalized girls and those facing barriers at comparison schools to really understand the role these barriers play. This is more thoroughly explored in the DID regression analysis above and in Annex 3.

Table 25: Transition Outcomes of key barriers in Treatment Schools

	Transition Rate (aggregate)	Change in transition rate since baseline	
Barriers:			
All treatment girls	90.4%	8.5%	***
Difficult to move around school	91.2%	10.5%	
Doesn't use drinking water facilities	93.4%	12.2%	***
Doesn't use toilet at school	95.4%	8.8%	**
Doesn't use areas where children play/ socialise	100.0%	11.1%	
Doesn't feel safe at school	93.7%	11.9%	***
Doesn't feel safe travelling to/from school	91.8%	9.2%	**
Disagrees teachers make them feel welcome	89.6%	8.7%	
Agrees teachers treat boys and girls differently in the classroom	90.4%	7.0%	*
Agrees teachers often absent from class	89.3%	6.2%	

4.5 Target setting for the transition outcome

In setting targets for transition, the ET considered the benchmarking data as well as the project and local context. Prior to baseline data collection, in order to calculate sufficient sample sizes to arrive at 80% statistical power, the ET reviewed the Ghana EMIS database, looking specifically at transition rates. Rates were calculated based on 2015-2016 enrolment data, and showed average transition rates of 97%, taking into account repeat grades, dropouts, and flows of students in and out of schools. While the quality of the EMIS data was uncertain, it is important to note that MGCubed project areas are mostly rural and by definition, marginalised in nature. The 83.32% transition rate calculated from baseline cohort data is an accurate rate and probably one somewhat lower than rates in urban areas that are less marginalised in Greater Accra and Oti regions.

At BL the ET conducted a secondary review of Ghana national level data gathered and organised by FHI360,[33] UNESCO,[34] and the World Bank.[35] The data, which came from a range of years between 2015-2017, tracked transition rates from primary to secondary school among girls, and helped to both triangulate the ET's findings among the cohort and benchmark samples, and ultimately inform transition target setting. FHI360 data projected a 95% secondary transition rate of female students for 2018 while

[33] https://www.epdc.org/sites/default/files/documents/Ghana_trends_2013.pdf
[34] http://uis.unesco.org/country/GH
[35] https://data.worldbank.org/indicator/SE.SEC.PROG.FE.ZS?locations=GH

UNESCO and the World Bank each reported a 93.4% secondary transition rate (2016). The sources also report primary completion rates of 83% (projected 2018 in the FHI360 paper) and actual primary completion rates of 83% (2016) for females.

With these considerations in mind, the ET has strong confidence in its findings at baseline which show an overall transition rate of between 81-84% in the cohort and the community. Given these numbers, the ET proposed a target at midline of a 5% increase in transition over the comparison cohort as proposed by the FM. Using benchmarking data the comparison cohort transition rate at ML (for P4-JHS2) was estimated at 93.45%. A 5% increase estimated the target for the treatment group at 98.12%. However, as noted previously, benchmark data was collected at the community level and may be inflated for two reasons:

1. Incorrect self-reporting by caregivers

2. Unlike the program and this evaluation, it does not focus specifically on marginalized girls

Therefore targets were recalculated at midline as a 5% point increase over the midline comparison cohort. These results are reported in the proceeding sections.

Endline targets are set at a 5% point increase over the endline comparison cohort. Again, they are estimated based on benchmarked data with the understanding that they will be reviewed and likely revised upon completing EL data collection. The transition rate for the benchmark cohort for P5-JHSII is 91.46% and the ET tentatively estimates the treatment groups transition at 96.45% at EL.

Table 26: Transition target setting

OUTCOME 2 - Transition	**Outcome Indicator 2.1: Transition**		**Evaluation point 1 Baseline March 2018**	**Evaluation point 2 Midline March 2019**	**Evaluation point 3 Endline March 2021**
Number of marginalised girls who have transitioned through key stages of education, training or employment (with sub-indicator for boys where reported)	Transition rate: Percentage of marginalised girls who have made a transition to the next stage of their educational journey (Boys with improved transition can be tracked as secondary beneficiaries)	Girls Disaggregated by: Grade; language spoken at home; impairment		Target 89.6%	Target 96.45%
			Actual 84.6%	Actual 90.8%	Actual
		Boys Disaggregated by: Grade; language spoken at home; impairment		Target N/A	Target N/A
			Actual N/A	Actual N/A	Actual N/A

5. Sustainability Outcome

Sustainability marks the third high level outcome in GEC-T. The following section on sustainability details the efforts that the project is undertaking to ensure sustainability, the ways in which the ET seeks to measure sustainability, the current midline status, barriers and context around sustainability as informed by qualitative and quantitative data, and ways forward for both measuring and improving the sustainability of MGCubed interventions. The sustainability scorecard was revised after baseline data collection to adjust for more reasonable and realistic expectations based on baseline data, including the updating and inclusion of new indicators. In reporting sustainability scores, the ET assigned a score of 1.0 to most indicators at baseline given there was not sufficient context to assign higher scores. Due to the high level of modifications at midline a score of 1.0 has again been applied to most indicators with the intention that endline reporting will provide a more nuanced picture. At midline, however, we find an overall weighted sustainability score of 1.5 meaning that the project is experiencing some emerging changes but that, overall sustainability improvements are needed. The scorecard can be found later in this section in Table 25: Sustainability Scorecard.

Table 27: Sustainability indicators

	Community	School	System
Indicator 1:	UPDATED: Percentage of girls that report having been forced to stay home from school for any one day in the past school term due to a family-related issue. **BL:** 19.4% Sustainability Score: 1.0 **ML:** 19.8%: Sustainability Score: 1.0	UPDATED: Number of schools where there is an established process and/or approach to supporting girls' Transition to secondary school. **BL:** 39.71% Sustainability score: 1.0 **ML:** 54.17% Sustainability score: 1.0	UPDATED: Percentage of DEOs that have attended VF trainings who use monitoring tools, as a result of the training. **BL:** 66.20%[36] Sustainability score: 1.0 **ML:** 96.67% Sustainability score: 1.0[37]
Indicator 2:	UPDATED: Parents/ Caregivers reporting they will continue to allow their	School leaders actively encourage student-centred gender-sensitive education	UPDATED: Number of policies, initiatives, or plans at the MOE/GES that the Varkey Foundation

[36] 66.20% is the percentage of schools that received some type of feedback after a visit from GES officials as measured in the school survey at baseline. This figure and the sustainability score associated with it, as reported in the baseline report, have been included here though the previous definition of the indicator at Baseline, "DEO staff collaborate with the Varkey Foundation to update review school and classroom monitoring tools," has been updated.

[37] At midline the DEO survey only captured the % of DEOs who had attended training and did not include how they used those tools. Therefore, the ET has assigned a score of 1.0 until use of tools is quantified at endline.

	children to continue in school **BL:** n/a **ML:** 93.94% Sustainability score: 3.0	**BL:** N/A Baseline approach was not found to be sufficient due to lack of evidential support **ML:** 6.08 Sustainability score: 1.0	provides technical assistance to over the life of the Project." **BL:** N/A Sustainability score: N/A **ML:** 12/15 Sustainability score: 1.0[38]
Indicator 3:		NEW**:** Percentage of Facilitators who report that they are able to solve technical issues that the technical training prepares them to solve. BL: N/A **ML:** 64.14% Sustainability score:1.0	Government officials formally recognise the GEC project and its contribution to promoting girls' education in Ghana **BL:** 70% headteachers noting DEOs positively about the program and 44.29% of headteachers noting DEOs expressed desire for continuing support (average score of 57.14%) Qualitative narrative – sustainability score: 1.0 **ML:** 80.82% headteachers noting DEOs positivity about the program and 58.91% of headteachers noting DEOs expressed desire for continuing support (average score of 69.87%) Sustainability score: 3.0 (quantitative)

[38] As this is the first time this indicator is being measured, there is no point of comparison to score this indicator at midline, and a score of 1.0 has been assigned.

Baseline Sustainability Score (0-4)	**1.0**	**1.0**	**1.0**
Overall Sustainability Score (0-4, average of the three level scores)	**1.0**		
Midline sustainability Target (0-4)	2.0	2.0	2.0
Midline score (0-4)	**2.0**	**1.0**	**1.6**
Weighted	**40%**	**35%**	**25%**
Overall sustainability Score (0-4, average of the three level scores)	**Unweighted: 1.53** • Weighted: 1.55		

Table 28: Sustainability Scorecard

Rating	Community	School	System
0 – Negligible (null or negative change)	➢ Indicator 1: >20.00% ➢ Indicator 2: <80.00%	➢ Indicator 1: <38.03% ➢ Indicator 2: <5.76 ➢ Indicator 3: <60.00%	➢ Indicator 1: <50.00% ➢ Indicator 2: 10/15 ➢ Indicator 3: <57.57%
1 – Latent (changes in attitude)	➢ Indicator 1: >18.00%, <19.99% ➢ Indicator 2: >80.00%, <85.00%	➢ Indicator 1: >38.03% ➢ Indicator 2: >5.76 ➢ Indicator 3: >60.01%	➢ Indicator 1: >60.00% ➢ Indicator 2: 12/15 ➢ Indicator 3: >57.57%, <63.33%

2 – Emerging (changing in behaviour)	➢ Indicator 1: >16.00%, <17.99% ➢ Indicator 2: >85.00%,<90.00% FGDs/KIIs indicate changing support for girls' education and distance learning	➢ Indicator 1: >60% FGDs/KIIs indicate implementation of transition plans ➢ Indicator 2: >6.19 ➢ Indicator 3: >70.00% Interviews show increase in teachers/facilitators able to resolve technology issues in the past year without outside assistance	➢ Indicator 1: >90.00% attendance with >60% having employed trainings in the workplace ➢ Indicator 2: 13/15 ➢ Indicator 3: >63.33, <69.66% FGDs/KIIs indicate support at DEO level
3 – Becoming established (critical mass of stakeholders change behaviour	➢ Indicator 1: >14.00%, <15.99% ➢ Indicator 2: >90.00% FGDs/KIIs clearly show support for girls' education	➢ Indicator 1: >80% FGDs/KIIs clearly indicate a focus on transition plan implementation ➢ Indicator 2: >6.66 ➢ Indicator 3: >80.00% Interviews show increase in teachers/facilitators able to resolve technology issues in the past year without outside assistance	➢ Indicator 1: >90.00% attendance with >80% having employed trainings in the workplace ➢ Indicator 2: 14/15 ➢ Indicator 3: >69.66%, <76.63% FGDs/KIIs clearly show DEO support
4 – Established (changes are institutionalized)	➢ Indicator 1: <13.99% ➢ Indicator 2: >94.99% FGDs/KIIs clearly show support for girls' education	➢ Indicator 1: >100% FGDs/KIIs clearly indicate a focus on transition plan implementation ➢ Indicator 2: >7.16 ➢ Indicator 3: >90.00% Interviews show increase in teachers/facilitators able to resolve technology issues in the past year	➢ Indicator 1: >95.00% attendance with >90% having employed trainings in the workplace ➢ Indicator 2: 15/15 ➢ Indicator 3: >76.63%

		without outside assistance	FGDs/KIIs clearly show DEO support

5.1 Community-level sustainability

At the community-level, the project has sought to measure sustainability by looking at attitudes of community-members with regard to girls' education. Indicators 1 and 2 at the community level measure the extent to which the community hinders or facilitates girls' education, from the perspective of girls themselves (indicator 1) and more generally as informed by data collected about the community by the ET (indicator 2). The MGCubed project addresses sustainability at the community level by holding workshops and trainings with community members including parents, SMCs, community leaders, and head teachers. Community attitudes with regard to girls' education may also be affected by spill-over effects from girls' and boys' themselves, who are exposed to related programming in after-school clubs (the project reports that a number of schools have begun to run their own Afterschool Clubs on days where MGCubed clubs are not running).

Indicator 1: Percentage of girls that report having been forced to stay home from school for any one day in the past school term due to a family-related issue (updated from Baseline)

At baseline, for indicator 1, the ET used questions from the Girl's Survey that ask a girl to describe her level of agency in education-related matters, specifically "whether or not you will go to school" and "whether or not you will continue in school past this year." Answer choices include the girl herself, jointly between the girl and her family, and the family alone decides. However, upon reflection, indicator 3.1.1 was updated from "Girls report that family members are supportive of their education and/or do not provide a barrier to attendance or achievement," to its current phrasing in order to be more specific about the number of girls who have been required to stay home for family related matters.

Indicator 1 now utilizes a question from the Girl's Survey which asks, if the girl was ever absent in the current school year, and what are the reasons are for that absence. Family related reasons include supporting parents/family at work, family issues (travel, wedding, sickness of family member), household duties such as chores, taking care of siblings or taking care of one's own children. **19.8% of treatment girls noted being absent from school at least once in recent school year for family related issues.** This is slightly higher than the 19.4% that treatment girls reported at baseline. However, it should be noted that at BL girls were asked *for the reason they were last absent from school,* not all the reasons they were absent in the current school year, which potentially reduced reporting of family related issues at the baseline. The question was expanded at midline to be more inclusive, capturing all reasons a girl was absent over the course of a school year.

We estimated a target at midline and endline of a 10 percent and then 19 percent reduction over baseline at each data collection phase, which corresponds with an increase in one point on the Sustainability scorecard at each stage. This target was not achieved at ML though it is difficult to discern if this is a result of minimal progress in the community or a change in the format of the question capturing this data on the questionnaire.

Indicator 2: Percentage of caregivers reporting that they will allow their children to continue in school next year.

Similarly to indicator 1, this indicator was updated from "Community members are not found to act as a barrier to girls' Transition" to its current form to improve the specificity of the measurement, quantifying the number of households that will allow their children to transition next year. Without baseline data on this specific question a target of 85% of caregivers responding "no" to the question "Are there any reasons you would not allow a girl to go to school next year" was set. **This target was well exceeded with 93.94% of treatment caregivers stating there was no reason they would not allow their girl to go to school next year.** Common reasons provided for not allowing a girl to continue her education were financial barriers (cited by 58.44% of treatment and 75.76% of comparison caregivers), too many children to send to school, needing girl to support household income generation, girl doesn't want to go to school and pregnancy. Not a single caregiver cited seeing no point in a girl being educated or not seeing the value of education.

Focus group discussions with children and community caregivers presented a mixed picture of the perceived value of girls' education in the community. Many focus group discussions noted that over the past couple of years the perception on girls' education has changed, with many in the community understanding there is value as far as future income and job opportunities to girls who stay in school. At the same time, while expressing growing support for girls' education many FGDs noted that the prevalence of teenage pregnancy is a key barrier both to successful transition but also to the community's perceptions on the value of a girls' education. Addressing teenage pregnancy along with the financial barriers many households face in sending their children to school may be key factors in increasing community sustainability.

5.2 School-level sustainability

At the school-level, VF has chosen to measure sustainability by looking at the existence of transition plans as well as student-centered, gender-sensitive education. To address sustainability at the school level, the MGCubed project works with Head Teachers to discuss the importance of girls' education and girls' transition with the hope that school-level actors subsequently develop plans, systems, and processes to help facilitate the transition of girls in their educational journey. An important piece of this work is the inclusion of other community-level actors alongside the Head Teacher, such as parents, PTA, and SMC members, to ensure that the work receives important and diverse input and is sustainable. At baseline the ET recommended the addition of a third indicator focused on the sustainability of the MGCubed technology itself, including the ability to solve technology issues and this has been included at midline.

Indicator 1: Number of schools where there is an established process and/or approach to supporting girls' Transition to secondary school.

This indicator is measured by looking at the proportion of schools that have a plan in place to facilitate girls' transition with the wording updated from "Schools develop and adopt plans to facilitate Transition to secondary school" to the current language. A question is asked directly to the school director on the School Survey about the existence of such plans, as well as follow-up questions on what the plan itself looks like, why or why not the school does not have a plan, if they expect to have one in the future, who helps develop the plan, and who executed the plan. **The question about the existence of a plan was**

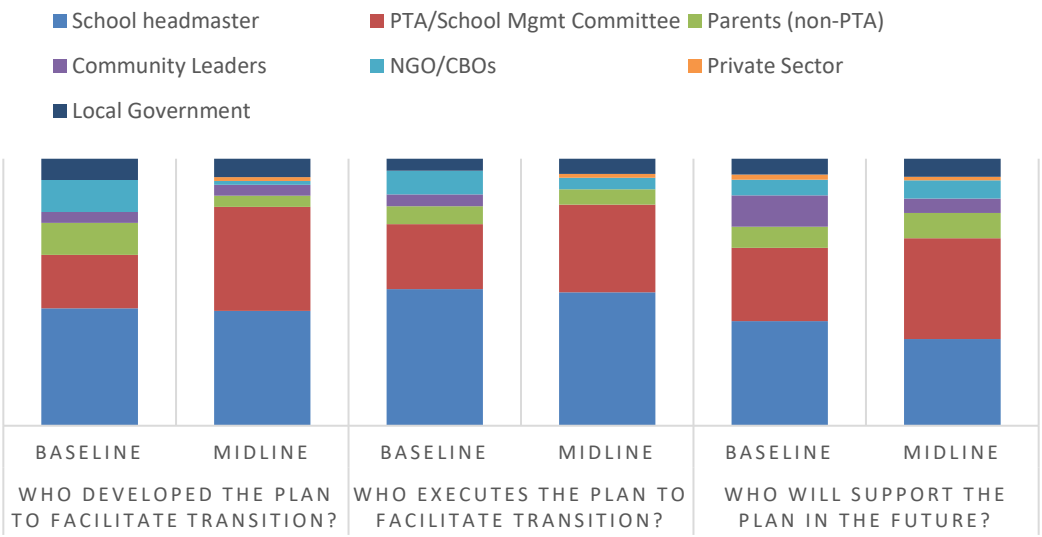
asked to MGCubed treatment and comparison schools and yielded a rate of 39.71% of treatment schools at baseline which has increased to 54.17% of treatment schools at midline against a target of more than 60%. Having a plan for transition at school is only one piece of sustainability, however. Ensuring that relevant parties are involved in the development and execution of the plan, and that the plan had adequate resources to be executed in the future will further bolster the school-level sustainability with regard to transition. To that extent, the ET looked at the proportion of different actors' involvement in development and execution of the plan, as well as who will support it in the future. The questions involved in scoring this indicator come from the School Survey and are the following:

- Do you have a plan for transition at this school?
- Who developed this plan?
- Who currently executes this plan?
- Who will continue to support this plan in the future?

The Sustainability score at baseline was 1.0; and at midline and endline the ET is examining changes not only in the proportion of schools with a plan, but also who develops, executes, and supports the plans. Increases in Sustainability score will correspond to increases in schools with plans, as well as increases in community members' (parents and PTA/SMC) involvement in a plan's development, execution, and future support. It is important to note when examining these changes that head teachers could select more than one entity to provide the necessary support. Figure 4 below therefore compares the percent each entity contributes to the whole of the work leading to the development, execution and future support of the plan. The ET observed a shift at midline in the role head teachers consider PTAs/School Management Committees to play in the overall work of supporting a transition with PTAs/School Management Committees expected participation perceived as increasing in proportion to other entities across all stages of the transition plan. While this impacts all actors, potentially lessening the burden they will play it is most notable in the reduction of the role of NGOs/Community Based Organizations like Varkey VF itself. This may indicate a positive shift towards more sustainable outcomes as head teachers consider the role of community actors, like PTAs, to being growing in importance overtime.

The ET believes it is feasible and expected that all MGCubed schools have a plan for transition. To that extent, ambitious targets for midline and endline were set at baseline for this indicator. A measure of 60% scores a 2.0 on the sustainability scorecard, 75% scores a 3.0, and 100% scores a 4.0. To receive an increase in the sustainability score at midline or endline, the project must cross these thresholds and also have any increase (over the previous data collection phase) in the proportion of PTA/SMC or parents that are involved in developing, executing, and supporting the plan. While the latter was realized the project fell short of the 60% target for schools with written transition plans, realizing 54.17% midline. However, this is still strong progress with an increase of 36% over baseline outcomes and the ET believes the target of 80% of MGCubed schools having a transition plan by endline to still be feasible.

Figure 5: Transition Planning and Ownership



To provide further background on the transition plans themselves, the ET asked teachers at the school to provide ways in which the school supports transition. While transitions plans in of themselves are valuable their execution requires those at all levels of the school, and community, to be aware of the opportunities available to support girls' transition. The ET asked "How does the school support girls' transition to the next stage of their education?" with "next stage" referring to transition from primary to junior high school of teachers at both treatment and comparison schools. On average, 64.1% of teachers at treatment schools (compared to 65.2% at comparison schools) were able to provide at least one way their school was supporting transition with the most common methods being working with a girl's parents, targeted academic support for struggling girls and an early warning system in place for girls at risk of not transitioning. Despite over 50% of head teachers at treatment schools claiming a written transition plan only 11% of treatment teachers appeared to be aware the documents existed. Surprisingly given the focus of transitional plans at MGCubed schools, teachers at comparison schools were just as likely to be able to cite at least one way in which their school was assisting in transition. While teachers at MGCubed schools were, on average, able to come up with more examples of transition support than comparison schools this difference was not statistically significant.

Table 29: Transition Comparison and Treatment

How does the school support girls' transition to the next stage of their education?	Comparison	Treatment
A written plan or document that commits the school to supporting transition, e.g. SPIP	9.78%	11.03%
Active liaison with parents when a girl is at risk of not transitioning	25.00%	27.59%
Active tracking and follow up of OOSG and their families in the community	8.70%	14.48%
Outreach to OOSG in the community to get them back to school	4.35%	2.76%
Independent Afterschool Clubs (i.e. non-MGCubed)	8.70%	14.48%
Targeted academic support for struggling girls (avoidance of grade repetition)	19.57%	20.69%

Early Warning System for girls who are at risk of not transitioning	15.22%	22.76%
Additional staff training and/or support to understand the barriers to transition	2.17%	10.34%
A culture which celebrates girls who do well in school, e.g. prizes, assemblies	2.17%	4.83%
Outreach from JHS to primary feeder schools	7.61%	4.14%
Fundraising to support families without the means to send girls to JHS	7.61%	3.45%
Don't know	27.17%	17.93%
% of teachers that could cite one or more ways the school supports transition.	65.22%	64.14%
Average number of reasons cited	1.11	1.37

Indicator 2: School leaders actively encourage student-centred gender-sensitive education.

To answer this indicator, originally the ET planned to utlilise a question in the School Survey which asked a head teacher whether the school practiced student-centred gender-sensitive education. At baseline, 94.37% of MGCubed school directors responded affirmatively. However, if head teachers cannot define how they put the concepts into practice, this proportion does not hold as much weight. Further, this indicator is wholly measured by one answer from a head teacher, with little to no explanation or investigation into if the head teacher understands the concept or not. A school leader may encourage the teaching, but if teachers themselves are not implementing it on a regular basis, sustainability is threatened. In light of these assumptions, the ET proposed a different way to measure the indicator as well as a slight change to the indicator itself, which was focused on activities in the classroom. At baseline, the ET used the teaching quality index displayed in the IO section on Teacher Quality to answer this indicator. This index has been expanded and updated to better understand sustainability at ML.

- Girls have equal access to desks, learning materials, etc. (e.g. girls share the same amount of books, desks as boys).
- Boys and girls are mixed together in the seating arrangement.
- Teacher provided positive, encouraging feedback to BOYS (e.g. "Good answer", "nice try", "you're close") verse Teacher provided positive, encouraging feedback to GIRLS (e.g. "Good answer", "nice try", "you're close").
- Do BOY students ask more questions than GIRL students?
- Does the teacher call on BOY students more than GIRL students?
- When called on, girls and boys were given approximately the same amount of time to answer a question (before moving on to the next student).
- Does the teacher use a harsh tone with BOYS more than GIRLS?
- The teacher asks girls and boys questions of the same difficulty.

Each classroom was observed for up to 3 periods, with each period given equal weight. Each question, or question subset, was given a score of 1 if boys and girls were treated equally and a score of 0 if they were not. Unequal treatment could favour girls over boys or vice versa and therefore a point was only given if the treatment to both were equal. In addition, a lack of student engagement, for example a teacher not asking anyone questions or a teacher using a harsh tone, regardless of the gender, was considered not

conducive with student-centred education and also given a 0. A period could receive a maximum score of 8 (equal across all questions) and a minimum of zero.

Treatment schools at midline received on average higher scores on almost all student-centred, gender-equal index compared to the comparison group. Treatment schools scored high on equal access to materials, positive feedback from teacher to both genders, calling on students equally and allowing students equal time to respond to questions. Lower scores were typically a result of not meeting a student-centred focus rather than unequal treatment. For example, when questions were asked by students, boys and girls asked questions in almost equal measure; however 34% of the time students did not ask any questions.

	Comparison	Treatment	Average
Girls have equal access to desks, learning materials, etc. as boys	71.30%	80.61%	75.93%
Boys and girls are mixed together in the seating arrangement	58.24%	67.37%	62.78%
Teacher provided the same level of positive, encouraging feedback to BOYS as GIRLS	85.68%	85.08%	85.38%
Boy and girl students ask the same number of questions	60.56%	59.48%	60.02%
Teacher calls on boy and girl students equally	88.66%	89.93%	89.29%
When called on, girls and boys are given approximately the same amount of time to answer a question	94.44%	96.25%	95.34%
The teacher does not use a harsh tone with either boys or girls	60.32%	66.74%	63.52%
The teacher asks girls and boys questions of the same difficulty	84.26%	78.22%	81.26%

Without baseline data is challenging to set a benchmark for improvement. **At midline the composite score for treatment schools was 6.08 against a target of 6.19.** However, 98% of head teachers at midline noted their school encouraged student-centred, gender-sensitive education and therefore it is reasonable to expect increases in this indicator overtime. Therefore, the ET has set a target of 7.0, a 15% increase over midline levels, for endline which could be achieved by improving the student-centred approach of encouraging students' questions and moderating the tone used with students to provide a conducive learning environment.

In its own internal monitoring of project sustainability with regards this indicator, the Varkey Foundation considered to what extent school staff were engaged in peer observation and feedback with a view to embedding the gender-sensitive student-centred teaching pedagogy modelled by MTTs and promoted in teacher training. The Project found that over three quarters (75.6%) of teachers interviewed (*n*=39) during the 2018-2019 academic year reported being observed by another teacher. In addition, of 19 Headteachers interviewed during the academic year 100% reported observing a regular class that term; while slightly fewer (89.5%) reported observing an MGCubed class that term. This is a strong signal that while peer observation is not necessarily occurring as a result of MGCubed, it is fair to assume that if the school's leadership and other staff members and knowledgeable and bought in to the Project's pedagogical approach then the seemingly high level of peer observation is serving to embed this in schools.

More generally, the Project notes an overwhelming commitment to the promotion of gender-sensitive education from Headteachers: every Headteacher interviewed could clearly detail what they would like to do to create a more girl-friendly school environment. Plans included visits from a qualified counsellor to support girls through socio-emotional difficulties, the promotion of women role models who were present in school, and collaborating with parents to ensure both boys and girls in a household are supported equally in their educational journeys.

Indicator 3: Percentage of technical issues solved by schools other than through the Varkey Foundation.

This indicator was added after baseline in order to capture the importance of distance learning as part of the MGCubed program. Given the nature of the MGCubed intervention – the use of a projector, modem, computer, and solar charger – questions around the upkeep, maintenance, and security of these components are critical when examining the sustainability of the system. For instance, at the time of baseline data collection, one MGCubed school's technology had been stolen and was not functioning. While this did not affect baseline data collection, the inability to replace stolen or non-functional technology will inevitably bias results. Adding this third indicator at midline and endline captures the situation around the sustainability of the technology itself.

Teachers and facilitators were asked if they felt they could solve the following technology issues on their own: computer problems, charger problems, project problems and other hardware issues. **64.14% of teachers and facilitators in treatment schools expressed confidence that they could solve at least one of the potential issues against a target of 70%,** but only 17.93% expressed confidence in resolving all potential issues. It is important to recognize these are self-reported and the ET cross referenced their responses with technical issues experienced in the past year and found that despite expressing confidence to solve all the technical issues flagged in the questionnaire only 20% had solved all the technical issues they faced in the past year, with 26% noting they were unable to solve any of the issues that arose. This could be attributed to several factors including the technical issue faced was not one included in the issues above, fixing the issue required a new part or investment (rather than simply knowledge or training) or that after the issue arose the individual sought information on how to resolve it in the future and feels confident going forward.

When considering the sustainability of this indicator the ET considered factors beyond the expressed confidence of the teacher/facilitator. They also examined school level factors as captured in the school survey and explored further in IO5.3 below. In general head teachers believe they are largely responsible for the management of the technology now and in the future. However, at the same time they placed a large level of responsibility for the upkeep of technology on the Varkey Foundation with 89% noting that Varkey Foundation pays for the upkeep of the technology and 93% noting Varkey Foundation is responsible for fixing the technology and had done so in the past year. For these reasons the ET gave the current index a sustainability score of 1.0. In order to ensure sustainability the program will have to address how technology will be maintained finically and technically post-program.

5.3 System-level sustainability

The final component of sustainability looks at the system level, or changes within the public education institution. To answer this question, the evaluation interviewed GES officials at the district-level, also known as District Education Officers (DEO) and Girl Child Education Officers (GEO). Measuring system-

wide change and sustainability is inherently difficult, with some new quantitative levels of measurement added at midline. Even so, change would probably come in the form of knowledge gained, new policies developed, or activities implemented. These indicators would not yield large frequencies and some, in particular policy change and implementation, could take years to develop and assigning quantitative scores to all three system-level indicators is not possible. The following paragraphs, however, indicate the ET's methodology in addressing the system-level sustainability indicators. Analysis for this indicator is done for all schools, regardless of treatment status, as it is assumed that work with district-level officials will affect schools equally within a given district.

Indicator 1: Percentage of DEOs (Circuit Supervisors) that have attended VF trainings who use monitoring tools, as a result of the training

This indicator was updated from "DEO staff collaborate with the Varkey Foundation to update and review school and classroom monitoring tools" to its current form in order to quantify the number of DEOs who are improving their monitoring practices by attending Varkey workshops. The following questions were included on a new DEO survey introduced at Midline:

1. Have you attended any monitoring tool workshops?
2. If so, which ones?
3. What in the trainings did you find useful (open response)?
4. What, if anything, in the trainings did you not find useful? (open answer)

At the time of baseline data collection, no collaboration between DEO personnel and VF with regard to monitoring tools had yet taken place. In February 2019, GES staff participated in VF-led training that included modules on Monitoring tools and GES standards. As part of this training, participants were encouraged to review the Varkey Foundation's tools, analyse differences between the tools and that of GES, and be supported to integrate the two tools based on perceived needs. GES staff had also the opportunity to apply their learning on the Project monitoring tools with the district monitoring teams in Greater Accra and Oti region during Term 2 monitoring. **At ML the team found that 96.67% of the DEOs surveyed had attended a VF training with 72% attending for the first time in January 2019. This level of attendance far surpasses the 60% target for DEO's trained set after baseline and is a strong indication of progress on system level outputs.** However, to ensure sustainability there must be evidence of use of the trainings in DEO's everyday work. At ML DEO's noted that the training familiarized them with classroom monitoring tools and checklists and provided hands-on engagement in the process but DEO's were not explicitly asked if they had yet applied these techniques to their job, a question that will be followed-up at EL.

To further supplement data collection on this indicator, the ET utilised quantitative data collected in the School Survey. Within the School Survey, head teachers were asked several questions about monitoring visits. These included:

1. Has a member of the District Education Office come to the school in the past year to monitor facilities, teaching quality, or teacher attendance?
2. What did they monitor?
3. How many times has a District Circuit Supervisor visited in the last year?
4. Has there been an increase in monitoring visits from the year before?

5. After the MOE/GES officials leave, do you receive any feedback or reports about these monitoring visits?
6. What did you receive?

All but one school responded that they had received a visit, with an average of 10.60 visits per year (up from 8.4 at baseline). If inspectors are supposed to visit schools monthly, as dictated by GES policy, these numbers appear to be a good sign. It is encouraging that monitoring visits happen at schools and happen at a regular frequency, however, if a school is not made aware of its weaknesses or successes, it cannot improve. To that end, the ET looked at the extent to which schools received feedback from GES officials after a visit. Among all schools, 66.4% received some type of feedback after a visit, a figure almost unchanged from the 66.2% at baseline. This rate had previously been used for Indicator 1 and was assigned a sustainability score of 1.0 at baseline. While the indicator was revised at BL to focus on DEO trainings the ET strongly recommends that this indicator is more inclusive and able to account for both the frequency and effectiveness of monitoring visits post DEO training to ensure sustainability.

Indicator 2: Number of policies, initiatives, or plans at the MOE/GES that the Varkey Foundation provides technical assistance to over the life of the Project.

VF has demonstrated that its approach can be used to deliver high quality education at scale to the most hard-to-reach parts of the country, either by delivering lessons directly to students, or by training teachers in remote communities. The government has introduced several reforms recently in the Education sector in accordance with priorities in the Education Strategic Plan 2018-2030, Sustainable Development Goal 4 and the African Union Agenda 2063. The newly released Education Sector Plan 2018-2030 (ESP) sets clear policy objectives for education in Ghana. Since Baseline, VF has engaged the Ministry of Education in discussions to identify how the Project could support the new ministry-level focus on strengthening teacher quality and ICT reform in education which offers new opportunities for the Project to align its sustainability plans more closely with the government reform agenda. The Project's Sustainability Plan has been reviewed by the Ministry of Education to ensure it aligns with government priorities and focus. In addition, the Project has supported several initiatives from the Ministry of Education over the course of the year. Below is a list of the policies, initiatives and plans where VF has provided or is providing assistance:

1. ESP Plan 2018-30: VF is currently supporting this through several initiatives described below.
2. Reform Agenda: VF is currently working with the Reform Secretariat to identify a plan to embed MGCubed technology-aided teacher training approach into government education reform initiatives to enhance quality training delivery across the sector.
3. ICT Reform Agenda: The Varkey Foundation has also been engaging the Center for National Distance learning and Open Schooling (CENDLOS) as directed by the Minister of Education. CENDLOS visited the studios and some schools to observe how our system works. The Project has plans of holding further discussions with CENDLOS to look at how our Tech model can be aligned to government school tech reforms and interventions being implemented by CENDLOS.
4. Non-Formal Education Division (NFED) ICT integration: VF has provided technical advice to NFED on research of ways ICT can be integrated into Non-Formal Adult

Education Programme delivery. Specifically, VF provided advice on the required ICT equipment needs, delivery methods and implementation experience.

5. NFED Literacy mission (VF initiative): VF is engaging with NFED to arrange the provision of Literacy lessons for caregivers where MGCubed operates. This comes as a result of the findings from BL and ML in regard of key barriers of girls for Learning and Transition. VF will provide assistance on the planning of this exercise.
6. NTC: The NTC has already used the VGF technology to reach CoE students to communicate key messages relating to teacher licensing. This demonstrates that the approach can be used to reach large numbers of CoE students in geographically diverse locations quickly, with a consistent message, and in an extremely cost- and time-effective way. The Project continues to explore ways in which the technology can be leveraged to improve teaching and learning in collaboration with the relevant government agencies.
7. NaCCA: The Project's content has been reviewed and approved by the National Curriculum and Assessment unit and the Project received invitation to participate in national curriculum review discussions leading to the design of a new national curriculum. The Project will be sharing key lessons from Midline with NaCCA to consider for integration into the curriculum.
8. Girl Education Unit' 2019-24 strategy: VF is part of the Girl Education Network that provided input for the new 2019-24 strategy and objectives to ensure quality education for all girls.
9. T-TEL: The Project is discussing with the government how to support current T-TEL's effort to improve teaching quality. The Project is leveraging on other existing programmes that were designed with learning from MGCubed (Train for Tomorrow) to strengthen the linkage between basic schools and Colleges of Education.
10. Monitoring support at GES (VF initiative): The Project works very closely with Girls Education Officers and Circuit Supervisors in the districts and they have the responsibility of monitoring schools at that level. As part of the Project's sustainability strategy, a workshop was organized to get officials to familiarize with the Project's monitoring system and tools and to look at how to align them. The Girls Education Officers and Circuit Supervisors have started administrating some of the Project tools in the schools to collect feedback after embarking on joint monitoring with Project team in the previous term.
11. Provision of Data to GES districts (VF initiative): The Project has shared GEC-T monitoring data on key challenges and issues in schools with district level GES officials to ensure the project is informing local level planning and prioritization.
12. Informal assistance: The Ministry of Education leadership communicated with the Varkey Foundation to provide ad hoc, informal advice on more than ten separate occasions since the beginning of the GEC-T project.

Indicator 3: Government officials formally recognise the GEC project and its contribution to promoting girls' education in Ghana.

This indicator is not measured quantitatively and instead is an appraisal of the Project's relationship to the Government of Ghana and their attitudes towards the Project based on the Project's GES Engagement Logs and interviews with DEO officials. To an extent, the evidence base for this indicator is the same as that of indicator 3.3.2 above, in that the Project can confidently conclude that demand-led contributions

to policy processes are a strong reflection of the Government of Ghana's recognition and endorsement of the Project. In particular, this indicator is concerned with the Government of Ghana's recognition of the Project in contributing to girls' education in the country, which the Project is directly recognised through in its active participation in the Girls' Education Network, formed in 2018. Notably, the VF Country Director spoke at its launch (as reported in the Baseline) and was invited to provide input into the 2019-2024 Strategy.

Not only does this act as an opportune lever for the Project to scale its impact through influencing the policy process (indicator 3.3.2) but is also serves to make space for GES to highlight the Project's ongoing role in enhancing educational outcomes and opportunities for girls through teaching quality and the use of technology. In addition, in November 2018 MTTs were asked to participate in a workshop organised by the MoE to discuss the implementation of a new educational curriculum.

It is also of significance that representatives from MoE attended VF's GESF in March 2019 at the behest of Varkey Foundation Ghana, a public display of partnership and the Government of Ghana's endorsement of VF's work in Ghana. This builds on the MoE's attendance at GESF in 2018 where a major formal partnership with VF was announced, on the back of the success of the MGCubed initiative. While the partnership is still in development following internal changes at the Varkey Foundation, evidence from indicator 3.3.2 concerning the Project's input into the policy process provides a strong indication that VF is a leading partner in shaping Ghana's education space.

Looking at progress from Baseline, it is clear that government officials recognise the Project on an ongoing, district and regional level basis, as would be expected during the later implementation phase. Of particular note is that the DEO is represented at the Annual Stakeholder Meeting held in each district in July. Here the Baseline results were presented with additional insights from the Project, generating an important dialogue between the Project and district educational officials regarding the contribution of the Project to the sector. Further, DEO representatives attended the launch and closing ceremonies for the Facilitators' Training in August 2018, again recognising the role the Project is playing in improving teaching quality and the opportunities it provides for GES staff in the district.

In terms of demonstrable recognition of the Project's contribution by DEO officials communicated in termly interviews. 100% of the interviewed DEO officials agreed that the MGCubed Project aligned with their priorities.

In addition to the district level engagements demonstrating government's recognition of the project's contribution, the on-going transition process of the Varkey Foundation has highlighted the extent to which government of Ghana recognises the Project and the work of the Foundation nationally. The Ministry of Education, the Director General of the Ghana Education Service and other key Directors of the Ministry have all been actively involved in the transition discussion and the choice of a new partner. In the context of Ghana, this is an unusual occurrence and demonstrate the highest level of recognition of a project implemented by an NGO. The Project has identified three key education sector reform areas that it will be contributing to and the Ministry has assign the Chief Technical Advisor of the Reform Secretariat to work with the Project to ensure alignment with reforms and importantly, identify what is working in the Project for government to consider scaling up for the benefit of the whole nation.

In addition to the qualitative data provided by VF, the ET was asked post-data collection to contribute narrative regarding how Head Teachers viewed government interest in the program. Specifically head teachers were asked what district-level education officials thought of the program and if they had ever expressed anything about future support for the program. Answer options for the first question ranged from "They have said very positive things" to "They have said very negative things" to "They have said

nothing at all." For the second question, Head Teachers could respond with "They said they wanted to extend support," "They have said they do not want to extend support," "They are not sure," or "They have not said anything." The measurement for this indicator was calculating by averaging the percentage of respondents who had chosen the best possible answer for both questions: "They have said very positive things" and "They said they wanted to extend support." At baseline, this amounted to 70.00% and 44.29%, respectively, and at ML this response increased significantly ($p < .05$) to 80.82% and 58.91% respectively.

Table 30: Changes needed for sustainability

	Community	School	System
Change: what change should happen by the end of the implementation period?	Communities will buy in to the importance of girls attending school and staying in school, and will need to understand the long-term benefits of girls' education, not only to the girls themselves, but to their families and communities. They will also understand the value of the technological infrastructure for education purposes and commit community resources to their upkeep. Current pupils will become parents and will share their new attitudes and perceptions with the new generations.	School governance and management: Head teachers will understand and be willing to act on the importance of girls' education, and should be able to direct and support their teaching staff to use girl-friendly teaching strategies; ensure that school environments are girl-friendly; be able to follow up on any girl-specific issues that occur in their schools, either directly or by involving other stakeholders or agencies (such as those involved in child protection); and engage parents, through PTA meetings and other parental engagement activities, in enrolling and keeping their daughters in school. Teaching quality in classrooms: School teachers in MGCubed, and non-MGCubed classrooms (having been exposed to MGCubed lessons and training), will be able to teach in girl-friendly ways, including using gender-sensitive pedagogy; ensuring their classrooms are set up in ways that do not disadvantage girls; and being aware of unconscious bias in their attitudes and teaching resources. They also need to be able to identify where girls are falling behind and where issues	Ghana Education Service engagement in girls' learning and transition: The Ghana Education Service and its network of Girls Education Officers, will understand the specific needs of the girls in their communities, and how best to support them and their families to allow them to access education. They will understand the networks of other stakeholders around them that exist to support girls with various needs, so that they can help reduce the barriers to education. National level actors embed gender-responsive pedagogy and improved content at system level: National level actors with take responsibility for teacher training and curriculum development will adopt content and pedagogy which support girls' education, and improved education

		are arising for their students as well as understand the appropriate actions and reporting mechanisms for their context. When Teachers transfer to other schools, they will carry with them the MGCubed approach contributing to the capacity building and continuous professional development process in other schools.	opportunities for all. Specifically, NaCCA (National Council for Curriculum and Assessment) have released a new curriculum which is intended to be more gender-responsive and will ensure that practice and delivery reinforces this aim. Other national level authorities will embed gender responsive pedagogy theories into teacher standards and training. National level actors adopt the MGCubed technological approach to improve teacher quality across Ghana: Government agencies will adopt the project delivery approach using technology as a medium for improving the quality of teacher training at scale across Ghana.
Activities: What activities are aimed at this change?	Community Training – this involved awareness raising and discourse-changing discussion and reflection Engagement with PTA/SMCs to ensure school-community relations are functional and that the community is engaged in the direction of the school	Teacher Training School Leader training Consultations and local input on education activities in the district Periodic training and quarterly meetings on monitoring project monitoring activities Sharing feedback on project performance, quarterly	School Leader training GES leadership training Advocacy and updating of project outcomes and impact Formal annual reporting and invitation to Steering Committees Consultation on strategic issues and sustainability measures

	Face to face training, quarterly meetings and feedback sharing.	Bi-annual meetings with DCEs on project's updates Participating in Social Service committee meetings of the District Assemblies. Secure invitations to mid-term planning and budgeting meetings in the districts to ensure district commitment to schools and project sustainability is reflected in plans. Sharing reports on project update on bi-annual basis	Development of a partnership agreement between MoE and the Project to set out a roadmap for how the Project infrastructure will becoming embedded into government strategic plans. Explore opportunities with other existing Projects such as T-TEL to use Project infrastructure to support the roll-out of their training programmes. Consultation on Child Protection matters Consultation on MoE partnership discussions to ensure that the Project serves to promote equity and inclusion, particularly relating to girls' education. Provision of examples of good gender responsive pedagogical practices to support NaCCA's roll-out of the new curriculum. Support to the Government in identifying gaps in the new curriculum and support in addressing these gaps. Aligning Project curricula content with

			national curriculum and seek NaCCA approval Consultation on strategic issues relating to gender and child protection Member of evaluation Steering Committee Regular updates on project process in order to supplement wider policy influencing and build momentum for longer term MoE adoption and project sustainability Engagement at national level girls' education stakeholder events Regular updates to Regional stakeholders Targeted visits and invitation to Project activities
Stakeholders: Who are the relevant stakeholders?	Members including caregivers, PTA, SMC, Headteachers. Pupils, Teachers, District Education Community Officials	Community Members including caregivers, PTA, SMC, Headteachers. Pupils, Teachers, District Education Officials	Community Members including caregivers, PTA, SMC, Headteachers. Pupils, Teachers, District Education Officials, Ministry of Education officials, Donors, Private sector actors (Technology, Renewables; Education providers and investors)

Factors: what factors are hindering or helping achieve changes? Think of people, systems, social norms etc.	Financial need drives caregivers to privilege income-based activity over schooling; Community members have low expectations of some girls: early marriage and pregnancy is not actively encourages in all cases yet it is expected; Low aspirations for pupils: hardship experienced by communities means there is a low level of aspiration. Community members are often unable to see a way "out" of a situation. Frustration with schools: Community members often view staff as ineffective, e.g. absenteeism and corruption. Tacit community values and norms: Girls' education (and education in general) is not championed in the home due to a "business as usual" approach Low education levels of caregivers: Community members often lack formal education themselves. Supporting their children either in word or need is often difficult.	Low expectations: Schools have low expectations of teachers, and communities have low expectations of schools. This means that quality is not prioritized and there is a lack of accountability in the system. Lack of trained teachers: Teachers, particularly in the lower years of primary, are often untrained. Lack of trained School leaders: Headteachers receive no formal training in order to lead schools; Lack of motivation: Educators are not remunerated in a way commensurable with the level of effort required to attract talent or to put in additional effort to drive quality; Policy frameworks on girls' education: These are often unclear or not enforced. Lack of funds: Schools are woefully under-resourced.	Low expectations: The system has low demands on schools, in practice. This means that quality is not prioritized and there is a lack of accountability in the system. Lack of funds: District level offices are chronically underfunded, and Circuit Supervisors often lack the basics required to their job (e.g. fuel, transportation); Systems and processes for ensuring quality: Officials lack standardised systems for monitoring and reporting, and also the capacity to collect analyse and use data in a meaningful way.

Provide narrative analysis here of the points raised in the table above. Explain the change the project intends to achieve. Highlight cross-cutting activities, stakeholders and factors, but also those that relate to only one level of sustainability. Link the analysis here with that under question 1 above drawing on the scores given for each level. Link the analysis to the other Outcomes and Intermediate Outcomes.

6. Key Intermediate Outcome Findings

The evaluation included 5 Intermediate Outcomes for exploration: Attendance, School Governance and Management, Quality of Teaching, Community-Based Attitudes and Behaviours and Life Skills. The following narrative explores the IOs progress against targets at the midline stage. Unlike key outcomes targets are set as an improvement over baseline results in treatment students, schools and communities and not in direct relationship to changes in comparison students, schools and communities. However, when beneficial the EE has included narrative and data on the comparison sample as well to help illustrate changes occurring in both groups (i.e. due to nationwide policy changes, an aging cohort, etc.) over time.

Throughout the IO's, where data was available to the EE, the relationship between IOs and Learning and Transition Outcomes was included. These relationships should not be viewed as causal but do help to underscore some the mechanisms in which the MGCubed project may be contributing to the learning and transition outcomes realized in the previous sections.

6.1 Attendance

As a school-based education intervention, the MGCubed project is reliant on regular attendance of its targeted pupils in order to ensure that they are exposed to, can practice, and retain the knowledge from lessons. Girls and boys in treatment schools attend grade-level classes (P3-JHS2) as well as after-school remedial courses (Basic, Intermediate, and Advanced). Through its work in after-school lessons with students and trainings with teachers, heads of schools, parents, and other community members, VF focuses on the importance of girls' education and regular school attendance. Taking attendance in these courses helps VF and the EE better understand if attendance is improving or not, if it poses a barrier to learning, and in which grades and classes it may be most problematic. The following two indicators were developed to measure this IO:

IO1.1 Improvement in marginalised girls' attendance in schools throughout the life of the project (weighted average percentage)
IO1.2. Marginalised girls report being motivated to attend school as a result of the project (including OOSG who intend to return to school)

IO 1.1: Improvement in marginalised girls' attendance in schools throughout the life of the project (weighted average percentage)

To measure this indicator, the EE used an attendance spot check tool and compared the number of girls in attendance on a given day compared to the number of girls enrolled against a target of 85% attendance. This target was achieved with 85% of enrolled girls at treatment schools appearing in the headcount

The tool was administered by an enumerator in each school in a maximum of one grade-level class per grade – at baseline, Grades P3 to JHS1, and at midline, Grades P3 to JHS2 -- for a total of 5 spot checks, plus up to two spot checks in afterschool remedial MGCubed classes per treatment school. Comparison schools therefore received five spot checks and treatment schools received seven. In the data presented below, grade-level attendance refers to daytime classes in Grades P3 to JHS2 (regardless of being an MGCubed distance-learning class) while MGCubed attendance refers to afterschool remedial classes only. To measure this IO the evaluation had to first determine if:

1) Teachers were taking attendance at all
2) Teachers' attendance records matched the number of students enrolled that day

First, the ET looked at how frequently over a five-day period attendance was recorded by teachers. The data was examined on a grade-level basis, and on a per-school basis. This metric measured how well attendance records were kept; in other words, it was not indicative of students' presence in or absence from class, but only whether teachers were taking attendance. However, it is worth considering that less rigorous attendance records could mean lower disciplinary repercussions for students who do miss class. They could also be an indication of how frequently the teacher was present or absent. Table 28 shows that **there is an overall decline in average number of days attendance taken**, over the last 5 days in all schools, including MGCubed basic, intermediate and advance classes from baseline to midline in treatment schools. However, the decline is small and, on average at baseline and midline, both by grade and by school, attendance was recorded between 4 and 5 of the last five days.

Table 31: Recorded attendance by grade

Average number of days attendance taken, over the last 5 days (N in parentheses)	Treatment (Midline)	Treatment change from Baseline	Comparison (Midline)	Comparison change from Baseline	Total (Midline)	Total change from Baseline
Grade P3		-4.77		-5.03		-4.90
Grade P4	4.34	-0.46	4.49	-0.54	4.41	-0.50
Grade P5	4.34	-0.42	4.49	-0.54	4.42	-0.48
Grade P6	4.34	-0.43	4.48	-0.55	4.41	-0.49
Grade JHS1	4.34	-0.45	4.47	-0.60	4.40	-0.53
Grade JHS2	4.34	N/A	4.47	N/A	4.40	N/A
MGCubed Basic Class	4.37	-0.65			4.37	-0.65
MGCubed Intermediate Class	4.34	-0.32			4.34	-0.32
MGCubed Advanced Class	4.29	-0.28			4.29	-0.28

Note: JHS2 classrooms were not visited during Baseline.

According to teacher records at midline, attendance rates rose slightly from baseline consistent across all grades in the treatment group. When grade levels were examined at baseline, there was virtually no difference (on average) between the intervention and the comparison groups. However, at midline, we saw that there was a larger increase in attendance rates for treatment groups than the comparison groups as recorded by the teacher. In a number of comparison grade levels attendance rates actually decreased. The largest increase in attendance rates recorded by teachers from baseline was seen in MGCubed Basic Class for treatment groups and in P5 level for comparison groups. There is some difference in attendance rates between boys and girls in the treatment group with girls, on average, having higher increases from baseline especially in MGCubed classes. Most notable, while MGCubed classes, on average, saw an increase in attendance rates, the increase was much smaller for boys at the intermediate level and negative at the

advanced level. While both boys and girls agree in FGDs that MGCubed classes are valuable one group of boys noted that extra incentives, for example distribution food, were available only to girls. While the project is primarily focused on girls it is worth exploring the change in attendance overtime to ensure activities are not creating any animosity between sexes.

Table 32: Recorded attendance by grade and sex

"Students marked as present" as a percentage of students enrolled	Intervention (Midline)	Intervention Change from Baseline	Comparison (Midline)	Comparison Change from Baseline	Total (Midline)	Total Change from Baseline
Girls						
Grade P3	--	-84.6%	--	-87.2%		-85.9%
Grade P4	88.4%	3.3%	85.7%	-1.2%	87.1%	1.1%
Grade P5	87.2%	2.4%	86.4%	1.7%	86.8%	2.0%
Grade P6	87.4%	0.0%	87.2%	-2.4%	87.3%	-1.2%
Grade JHS1	89.3%	4.9%	85.8%	-1.3%	87.7%	1.9%
Grade JHS2	87.9%	NA%	86.6%	NA	87.3%	NA
MGCubed Basic Class	76.4%	8.3%	--	--	76.4%	8.3%
MGCubed Intermediate Class	79.6%	7.4%	--	--	79.6%	7.4%
MGCubed Advanced Class	71.8%	3.1%	--	--	71.8%	3.1%
Boys						
Grade P3	--	-83.2%	--	-84.4%	--	-83.8%
Grade P4	86.3%	2.9%	82.4%	-0.8%	84.3%	1.1%
Grade P5	83.8%	-1.7%	86.6%	1.5%	85.2%	-0.2%
Grade P6	84.2%	0.6%	84.8%	-2.1%	84.5%	-0.8%
Grade JHS1	85.2%	4.9%	84.1%	2.1%	84.7%	3.5%
Grade JHS2	85.3%	NA	87.6%	NA	86.4%	NA
MGCubed Basic Class	68.6%	7.5%	--	--	68.6%	7.5%
MGCubed Intermediate Class	65.1%	1.1%	--	--	65.1%	1.1%
MGCubed Advanced Class	52.0%	-12.5%	--	--	52.0%	-12.5%

The next area of attendance analysis examined how the number of students counted as present by the enumerator compared with the number of students marked as present by a teacher in a classroom on a given day (Table 31). As seen in baseline, instances in which enumerators would over count accounted for about 5%. Possible reasons for enumerator headcount exceeding recorded attendance could be that students came late to class (and were not subsequently marked as present). Also, classes might have been

attended by students who were not officially enrolled and would not be counted by the teacher. Considering that attendance numbers seem to fall short of official enrolment numbers, extra students may not necessarily be a burden on the class and the extent to which extra or non-enrolled students are turned away from a class is unclear.

Table 33: Headcount as a percentage of students marked as present by grade and gender

Headcount as a percentage of "students marked as present"	Treatment (Midline)	Treatment change from Baseline	Comparison (Midline)	Comparison change from Baseline	Total (Midline)	Total Change from Baseline
Girls						
Grade P3		-97.6%		-98.9%		-98.2%
Grade P4	96.3%	-1.2%	99.2%	1.9%	97.8%	0.4%
Grade P5	98.9%	1.4%	98.8%	-1.0%	98.9%	0.2%
Grade P6	97.3%	1.4%	102.3%	1.2%	99.7%	1.2%
Grade JHS1	99.1%	1.8%	99.5%	0.5%	99.3%	1.1%
Grade JHS2	97.0%	NA	99.4%	NA	98.1%	NA
MGCubed Basic Class	101.5%	-1.7%			101.5%	-2.0%
MGCubed Intermediate Class	102.2%	-1.3%			102.2%	-3.8%
MGCubed Advanced Class	107.8%	1.9%			107.8%	107.8%
Boys						
Grade P3		-97.8%		-98.8%		-98.3%
Grade P4	99.7%	1.9%	99.9%	1.5%	99.8%	1.7%
Grade P5	98.7%	0.6%	98.7%	-0.7%	98.7%	0.0%
Grade P6	100.7%	5.2%	102.2%	4.8%	101.5%	5.0%
Grade JHS1	99.1%	1.9%	100.3%	0.9%	99.7%	1.4%
Grade JHS2	98.0%	98.0%	100.3%	12.5%	99.1%	-10.1%
MGCubed Basic Class	104.0%	-5.2%		-87.8%	104.0%	-1.1%
MGCubed Intermediate Class	108.2%	3.0%			108.2%	-2.6%
MGCubed Advanced Class	112.6%	1.8%			112.6%	112.6%

Finally, for attendance, the ET examined how the student headcount taken by the enumerator compared with the school's enrolment numbers (Table **32**) and is defined as the percentage of students marked present over the number of students enrolled. It is this final measurement that sets the project targets.

At baseline the percentage of girls present verse those enrolled was 81% among treatment schools and a targeted increase of 5% over baseline was set. **This target was achieved with 85% of enrolled girls at treatment schools appearing in the headcount.** Considering that headcounts taken by the enumerator were closely matched to teacher-taken attendance, it reasonably followed that similar patterns emerged when comparing teacher-taken attendance to enrolment. Consistent with baseline, at midline, headcounts were lower than enrolment numbers, headcounts of comparison group students were on average higher than of intervention group students though this difference is not statistically significant, headcounts of girls were higher than of boys (statistically significant, $p < 0.01$), headcounts of grade level classes were higher than MGCubed afterschool remedial classes, and headcounts of girls in MGCubed afterschool remedial classes were higher than those of boys in the same classes.

Table 34: Attendance headcount as a percentage of enrolled students by grade and gender

Headcount as a percentage of students enrolled	Intervention (Midline)	Intervention change from Baseline	Comparison (Midline)	Comparison change from Baseline	Total (Midline)	Total Change from Baseline
Girls						
Grade P3		-83.6%		-85.8%		-84.7%
Grade P4	84.4%	2.1%	84.7%	0.7%	84.5%	1.4%
Grade P5	85.5%	3.3%	84.3%	0.4%	84.9%	1.9%
Grade P6	85.6%	2.1%	88.0%	-0.9%	86.8%	0.5%
Grade JHS1	87.4%	5.6%	84.0%	-0.6%	85.8%	2.6%
Grade JHS2	84.2%	NA	84.1%	NA	84.1%	NA
MGCubed Basic Class	77.5%	3.0%			77.5%	3.0%
MGCubed Intermediate Class	80.8%	9.9%			80.8%	9.9%
MGCubed Advanced Class	78.6%				78.6%	
Boys						
Grade P3		-81.9%		-83.5%		-82.7%
Grade P4	85.3%	3.4%	83.9%	1.7%	84.0%	1.9%
Grade P5	83.1%	0.8%	85.2%	1.2%	83.5%	0.4%
Grade P6	84.0%	4.9%	82.5%	-1.3%	84.6%	3.1%
Grade JHS1	82.5%	3.8%	85.5%	4.5%	82.5%	2.7%
Grade JHS2	84.2%	NA		NA	84.8%	NA
MGCubed Basic Class	69.7%	3.3%		-63.0%	69.7%	3.3%
MGCubed Intermediate Class	70.0%	4.8%			70.0%	4.8%

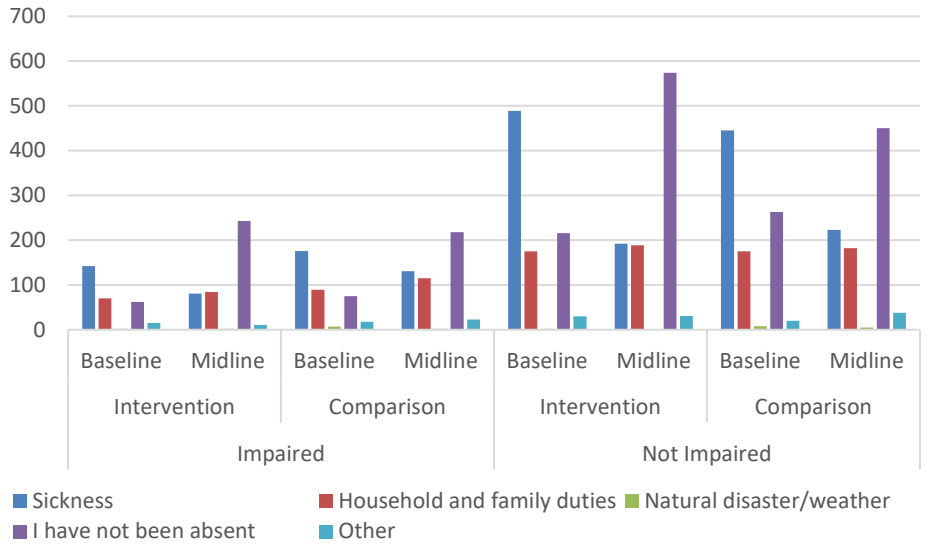
MGCubed Advanced Class	54.3%	54.3%			54.3%	54.3%

Unlike at baseline, girls have consistently across all groups noted they have not been absent, a large increase from baseline as seen in Figure 5. Girls participating in the study were asked about the reasons for their last absence from school.

Figure 5 below shows the reasons for absence grouped into three main categories: Personal (PS), Family or household-related (HH), and Transportation-related (T). The large increase in girls reporting that they had not been absent may reflect respondents' belief that regular school attendance is important or belief that regular school attendance would be favourably regarded by the enumeration team.

Apart from a large increase in girls reporting that they had not been absent, falling sick was the most frequently cited reason for absence (this was understood as the girls' own illness, rather than needing to stay home to care for a sick family member, for example). This was true across all sub-categories: intervention and comparison, and students with and without disabilities, except for girls with disabilities in the treatment group. The next most frequent answer across all sub-categories was household and family duties. Household and family duties include responses for: "Supporting parents at work," "Family issue," "Duties in the household," "Sickness - family member," and "Taking care of children."

Figure 6: Reason for last absence as reported by girls

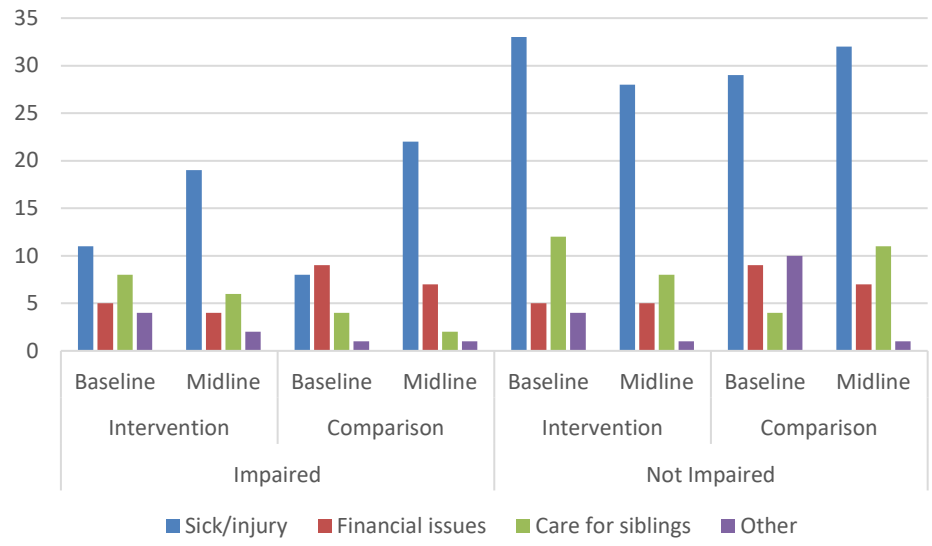


** "Other" includes responses for: Transportation issues, Did not want to come to school, Menstruation, Don't Know, and non-responses*

The major reason reported by caregivers for a girl's absence remained as "sickness/injury" as at baseline; however, "caring for siblings" was reported at a higher rate than financial issues, which was the second largest reason for girls' absence at baseline. Caregivers were asked for the reasons for *any* absence on the part of the student since the start of the recent school year, *if* the student had missed "most days of school" that year. Despite the fact that this represented only 7% of respondents, and that responses to

this question could not be matched exactly to girls' responses, the chart below gives a count of how frequently each reason was selected. Note that the total number of reasons exceeds the number of respondents because girls could be absent more than once, and could have had different reasons for different absences. Girl's own illness or injury was cited as the major reason at a higher rate for non-impaired girls across treatment status and data collection wave. (Figure 14).

Figure 7: Reason for last absence as reported by caregivers



** "Other household and family duties" includes responses for: Family traveled, Household chores, and Care for siblings*
*** "Other" includes responses for: School was too far, Menstruation, and Other*

According to VF's own attendance tracking of girls who had reported missing school in the past term, since the beginning of the 2018/19 academic year, the primary reason cited was their own illness, with 64% of girls reporting that this was the reason for their absence. Thirty-two percent of girls who had missed school in the past term cited family reasons for missing school, including household duties, family issues such as funerals, and supporting parents at work.

Reasons for boy absenteeism was not explored in quantitative data, nor asked directly as part of FGDs. However, some FGDs noted that boys had better financial opportunities outside of school than girls do, with some parents noting boys were attracted to income opportunities presented by living in a fishing community. In some cases increased income opportunities were seen as a benefit toward continuing education, providing boys with the needed funds to then pay for school fees and other costs, while in other times they were viewed as a deterrent to school attendance.

Attendance and Learning and Transition Outcomes:

Girls attending treatment schools where the average school attendance rate was higher (IO 1.1) were more likely to have higher reading scores than those with worse attendance outcomes, though the relationship is not statistically significant. The relationship between school attendance rates and math outcomes is not statistically significant.

In addition to considering the average school attendance rate the ET also looked at how girls' self reported attendance correlated with learning outcomes. Girls were asked "Since the start of the recent school

year, have you attended school all of the time, more than half the time, about half the time, or less than half the time?" Treatment girls reporting they attended school all of the time were significantly more likely to have higher math and reading scores. Treatment girls who reported they attended school all of the time had a literacy score that was, on average 3.6% points higher than girls that reported they had been absent ($p < 0.01$) and a numeracy score that was 1.93% points higher than girls that reported they had been absent ($P < 0.05$). While comparison girls also saw an increase in literacy scores their increase was not statistically significant.

Unlike learning outcomes, average school attendance rates as defined in IO1.1 did not have a significant relationship with transition outcomes at midline for the treatment group. For the comparison group higher attendance rates actually seemed to have a statistically negative impact on transition.

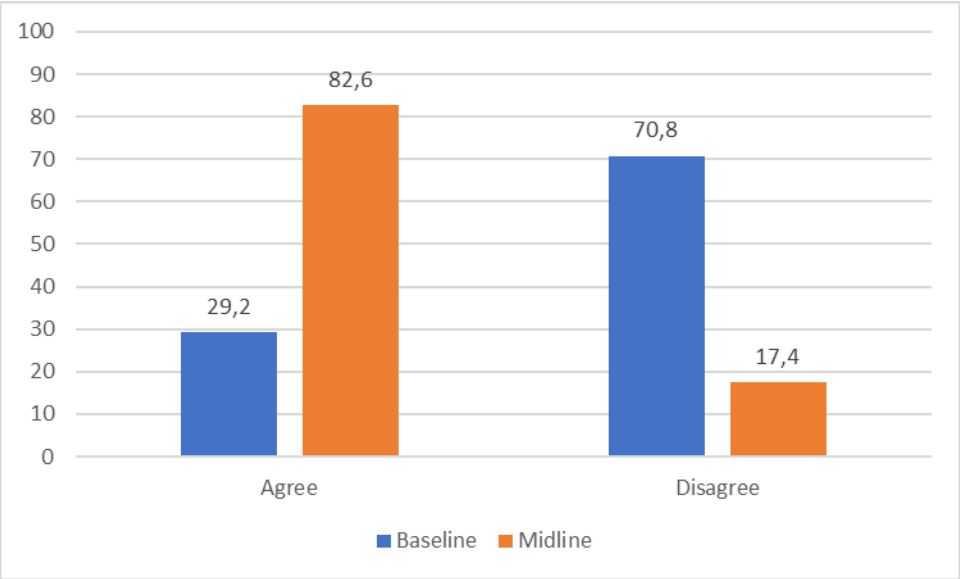
The ET also looked at how girls' self reported attendance correlated with their transition rates. Treatment girls reporting they attended school all of the time we statistically more likely to have transitioned successfully ($p<.05$). For both learning and transition outcomes in treatment schools individual attendance rates, as reported in the girls survey, seem to be a larger indicator of overall success than school level achievements in attendance.

IO 1.2: Marginalised girls report being motivated to attend school as a result of the project (including OOSG who intend to return to school)

Marginalised girls, as the targeted beneficiary of GEC-T are defined as (i) pupils who are over-age in their class, (ii) pupils who travel more than 30 minutes to school, (iii) pupils who have been absent from school for more than 10 times in a term, and (iv) and/or pupils who have more than four siblings. The ET did not measure this indicator at baseline in a quantitative manner, and OOSG girls were not involved in baseline data collection. At midline, the indicator is measured via quantitative and qualitative methods.

The project's internal monitoring data for the 2018-2019 academic year shows a huge increase in the proportion of girls reporting that they were incentivised to attend school because of the MGCubed project. **At Baseline, close to 30% (29.2%) of girls (*n*=95) reported that MGCubed is a motivating factor in attending school, while at Midline this had increased 53% pp to 83%. (*n*=104), far exceeding project targets.** This coheres with the large increase in girls reporting that they had not been absent from school, but is reflected to a lesser extent in the actual attendance figures for treatment schools which show smaller increased in attendance. Overall however there is a clear positive trend amongst treatment girls with regards their reported and actual attendance, and - as the results of indicator shows – a clear reason for this is thought to be MGCubed.

Figure 8 Girls are being motivated to attend school due to MGCubed, by percentage



The Project exceeded its target of increasing the proportion of girls agreeing that MGCubed was a motivating factor in attending school by 147.5%.

When asked in interviews, what the reasons were behind absences, girls often cited their household duty to take care of the sick in the household, to generate income for the school, and sickness, this is consistent with finding from FGDs. Students also cited the need to repair uniforms as a reason for their absences. Given that the attendance rates are also affected by dropout rates if the student decides to drop out mid-year, the evaluation team asked for what the reasons behind such instances. Girls often noted pregnancy and financial constraints to not only be barriers to continuing education but also why they discontinue education. Students noted that despite the community's shift in perspectives – with resulted in active community initiatives and events to support girls' education – the preference for education was still given out for boys. In cases where financial costs are a burden, these households have chosen boys to go to schools over girls. As mentioned previously, the financial costs are often not in regard to tuition but the auxiliary costs for attending school and affected attendance if the student had to generate income to supply for textbooks and other school supplies. To curb absences, teachers in focus group discussions shared that they threatened to penalize students if they were absent often by having the students repeat a grade – though it is uncertain if this policy was the official school policy or if such policy was enforced, though girls with lower self-reported attendance were less likely to successfully transition (IO1.1). Teachers often noted household chores to be the main reason for girls' absences and absences often eclipsing with market days.

6.2 School Governance and Management

School governance is an important part of the MGCubed program. Head teachers are exposed to studio-based training remotely at their schools via the same distance-learning technology which students are exposed to. Trainings focus among many things on school leadership, management, and child protection. In the MGCubed MEL Framework, school governance is the fourth[39] intermediate outcome. Per the program's Log Frame, IO4 has three indicators:

[39] IOs are presented in this report in the same format as the guidance and baseline report. Therefore, while this is the fourth IO it is presented second in the report.

IO 4.1: Percentage of schools assessed as having "Highly satisfactory" or "Outstanding" school leadership and management
IO 4.2: Percentage of schools where the use of physical punishment is observed.

IO 4.3: Percentage of schools with functioning PTAs/SMCs

IO 4.1: Percentage of schools assessed as having "Highly satisfactory" or "Outstanding" school leadership and management

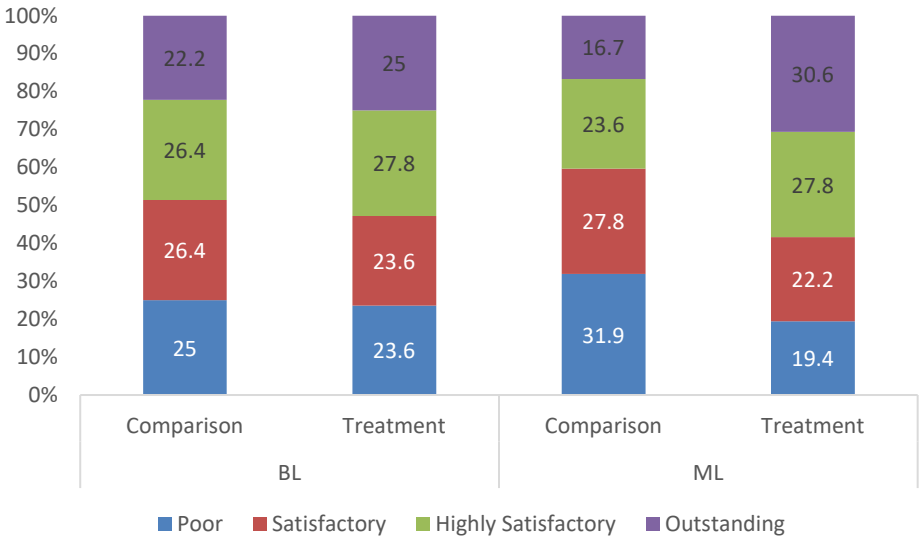
In order to answer IO4.1, the ET developed a composite index of school management-related questions. The questions that makeup the index come directly from the household survey—the primary caregiver of a girl was asked four questions about the management of the girl's school. The questions were given point values based on the answer choices possible, points added up, and then sums binned into quartiles. The four questions that make up the index can be found below:

- How well is the school that the girl attends managed?
- Do you know the name of the head teacher/head master/director at the girl's school?
- How would you rate the performance of the school head teacher or principal?
- Have you been informed about girl's progress at school in the last 12 months?

Consistent with baseline, treatment schools are more likely to have "Outstanding" management than comparison schools at midline. More treatment schools were deemed outstanding (30.6%) than comparison schools (18.1%), though more comparison schools were deemed highly satisfactory (26.4%) than treatment schools (23.6%). **54.2% of treatment schools seen as "highly satisfactory" or "outstanding" exceeds the target of 20%.** When school management index scores are not binned and simply averaged treatment schools experience a small but significant ($p < 0.05$) increase from 6.57 to 6.77 (out of a maximum on 9). The score decreased for comparison group from 6.49 at baseline to 6.46 at midline.

When looking at the individual questions that make up the index, overall at midline, 90% of treatment respondents reported that the school was managed well or excellently, 91% rated the performance of the head teacher as good, and 72% of the caregivers were notified of the girls' progress at school. In general, treatment and comparison caregivers rated school management positively with treatment caregivers providing slightly higher ratings in management and performance of the head teacher. When transformed into an index and collapsed at the school level, treatment schools have more generally better responses on the management indicators compared to comparison schools (Figure 9).

Figure 9: School management quality as reported by caregivers, by treatment status

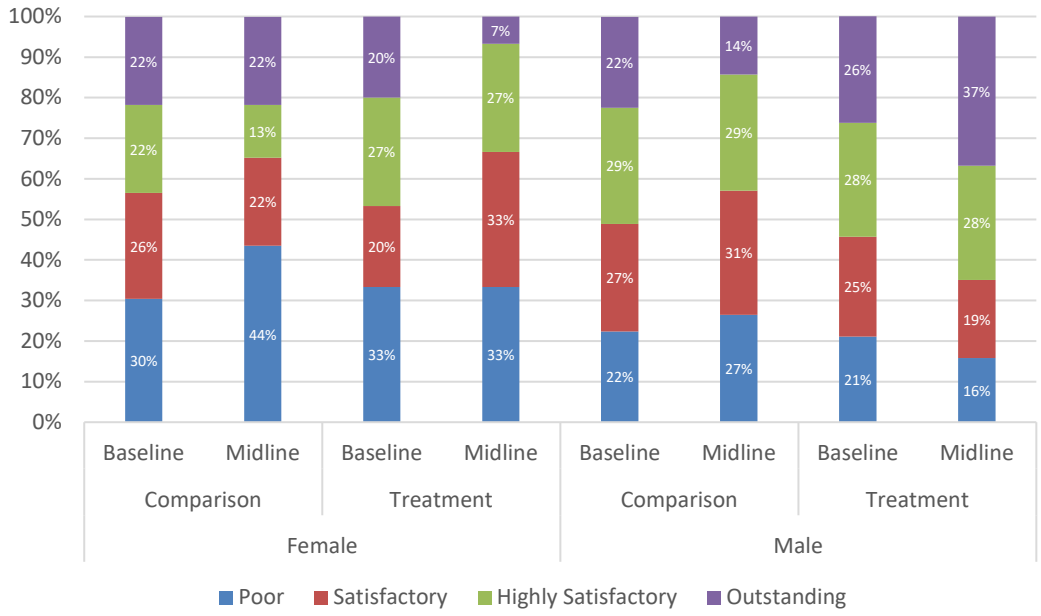


Broken out by the four questions in the index, comparison and treatment schools do equally well on average, though slight differences can be found. Disaggregated data on school management indicators by grade level is further provided in Annex 7. The scores reported below are the calculated scores for the school management quality index in which the max score is 9.

Consistent with baseline, according to caregivers, schools with male head teachers are more likely to have "Outstanding" management quality. At midline, less than thirty percent of schools (26%) are headed by a female, a decrease from baseline. When disaggregated by gender of the head teacher and binned into quartiles, treatment schools with male head teachers at treatment schools are more likely than female head teachers to have "Outstanding" quality (37%), an increase from baseline (26%). When it comes to treatment schools that are of "Poor" management quality, 33% are headed by females and 16% are headed by males. Without any binning, the management quality score of schools by head teacher gender showed a gap, with male-run schools scoring higher (6.70) than females (6.39) ($p < 0.05$).

Though the gap closed from baseline, caregivers of girls who attend schools with male head teachers remained to be more likely to know the head teacher's name and have received feedback on their girls' performance at school in the past 12 months when compared to schools with female head teachers. To better understand what it is exactly that male and female head teachers are "doing better" at when it comes to school management, the ET disaggregated of the questions that make up the index. Most of these findings were consistent with what was reported at baseline and the trend had continued at midline. Caregivers of girls at treatment schools with male head teachers were more likely to say that the school their child went to was managed well or excellently compared to schools with female head teachers (86% and 83%, respectively), and more likely to rate the performance of the head teacher as good (87% versus 85%). More caregivers of girls at schools run by a male head teacher knew the name of their girl's head teacher (34%) compared to caregivers of girls at female-run schools (29%). However, unlike at baseline, caregivers of girls in schools headed by a male were slightly less likely to report that they received feedback from schools on their daughters' performance compared to caregivers of girls in female-run schools (74% versus 76%). Overall, the averages of each question of the index are potentially large enough to represent the gap in management quality between schools run by a male and schools run by a female; certainly, when transformed into an index and collapsed at the school level, a more accurate picture emerges of the concentration of caregiver responses per school (Figure 10).

Figure 10: School management quality as reported by caregivers, by gender of head teacher



VF's project data indicates a similar pattern, based on a survey of 68 participating schools (including 14 JHS) during the review period, using an index which relies on data derived from both observation and interviews. The Project's School Management index consists of the following areas: Community engagement; School leadership; Safe and supportive learning spaces; and Supporting girls' education. Figure 8 shows the distribution of schools, with the single largest number of schools being deemed Satisfactory, followed by Highly Satisfactory, Poor, and Outstanding. Overall 77.9% of schools surveyed were at least Satisfactory, while 44.1% were Highly Satisfactory or Outstanding. This exceeds the Midline target of 20% by over 120%. When considering these results disaggregated by gender the Project found that schools led by women were more likely to be in the Highly Satisfactory or Outstanding category, while Poor schools were more likely to be led by men (Table 33).

Figure 11: School performance on School Management Index, distribution of schools by percentage

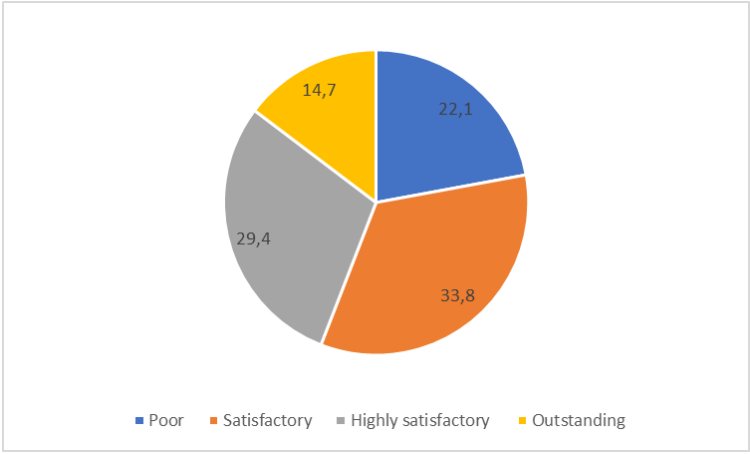


Table 35: School performance on School Management Index by gender of Headteacher, distribution of schools in each category by percentage

Poor		Satisfactory		Highly satisfactory		Outstanding	
Male	Female	Male	Female	Male	Female	Male	Female
59.46%	40.54%	72.22%	27.78%	81.08%	18.92%	82.35%	17.65%

In terms of specific areas of particular weakness and strength, the project survey data reveals that important features of a well-managed school that the Project is specifically aiming to improve and strengthen are already present in the vast majority of schools. Figure 11 consider four aspects of the data, indicating that VF staff saw evidence of a School Improvement Plan (as mandated by GES for every school in Ghana) in three-quarters of schools; some evidence of school leadership supporting staff professional development in all schools surveyed; a Child Protection Policy in over 70 percent of schools; and a clear enforcement of the Government's Girls Re-entry Policy, which makes provisions for girls who have given birth during their school career to return to school, in nearly two-thirds of schools surveyed.

In articulating how schools were supporting staff development in more detail the Project's data reveals that the majority of schools referred to the teacher training provided by MGCubed as constituting the professional development system; while over half the schools surveyed referred to in-service training, though the provider of this training was not recorded. In only one case was references made to any feedback and/or appraisal system; while teacher-facilitated inset training was also mentioned only once.

School Improvement Plans were described to the Project's District Coordinators by highlighting key priorities the school is focusing on. This largely covered the acquisition and upgrading of hardware including classrooms, classroom furniture, and TLMs. However, notable examples of planned improvements (some of which are already being implemented) and/or objectives included:

- Improving teaching and learning, particularly in relation to literacy rather than numeracy.
- School as the foundation of multiple educational journeys: "**Students should be able to transition to the SHS and those unable should be able to acquire basic life skills for their use.**"
- Focusing on examination results: "**One of the objectives is to provide quality and conducive environment for pupils to excel in their BECE. The target for BECE this year is 100%.**"
- Provision of additional lessons: "**free extra classes for all pupils on Tuesdays Wednesdays and Thursdays after** MGCubed **classes.**"
- Closer monitoring of pupil progress through the m**onthly assessment of exercise books**.
- Designated point person for extra-curricular activities: "**Coordinating officers have been put in place to coordinate activities in the school for example, coordinating officer for Health and Sanitation, coordinating officer for sports and coordinating officer for guidance and counselling.**"

School Management and Learning and Transition Outcomes. The EE found a small but significant *negative* correlation between school management and reading outcomes at treatment schools ($p < 0.01$). That is, girls who attended schools receiving higher management scores based off the perception of caregivers were likely to preform worse on reading. Maths also had a negative correlation, but the relationship wasn't significant. It is unclear why this might be though one theory is that poor performers who would have otherwise left school are better identified, supported and retained in schools with better management systems. This theory is slightly supported in that schools with better management were also more likely to have better transition outcomes for girls in both treatment and comparison as shown in Table 34, however these improvements are not statistically significant.

Table 36: School Management and Transition

School Management Index	ML Transition Rate (Treatment) - % of Successful Transition	ML Transition Rate (Comparison) - % of Successful Transition
Poor	88.19	86.49
Satisfactory	91.70	89.80
Highly Satisfactory	92.88	87.72
Outstanding	91.54	89.52

IO 4.2: Percentage of schools where the use of physical punishment is observed.

A key measure of good governance in schools, as well as teacher quality, in Ghana is use of physical punishment in the classroom. Generally, despite a strict rule against canning, use of the cane, or physical punishment, is ubiquitous – in interviews with students, many did not consider the use of the cane or physical punishment as actual punishment but a normal part of the class. To measure IO4.2, the ET triangulated data from the classroom observation tool and the girls' survey to better understand the existence and visibility of the cane in the classroom, the frequency of its use or that of other physical punishment (pulling ears, slapping, requiring a student to kneel) and on whom (boys and girls) it was used upon. This indicator was updated a midline to be inclusive of all forms of observed physical punishment, including caning.

Compared to baseline, the instances of physical punishment observed in treatment schools decreased by almost half ($p < 0.01$). **The drop in physical punishment from 12.5% at baseline to 6.9% at midline in treatment schools exceeds the target of 10.63% (or less).** Comparison schools found an even larger decrease of 18.7 percentage points. To answer the exact wording of this indicator, the ET looked at the percentage of classrooms where physical punishment (use of the cane, pulling ears, using other tool or body parts to physically discipline student., requiring kneeling) was observed being used on either a girl or a boy, and then collapsed this analysis by school.

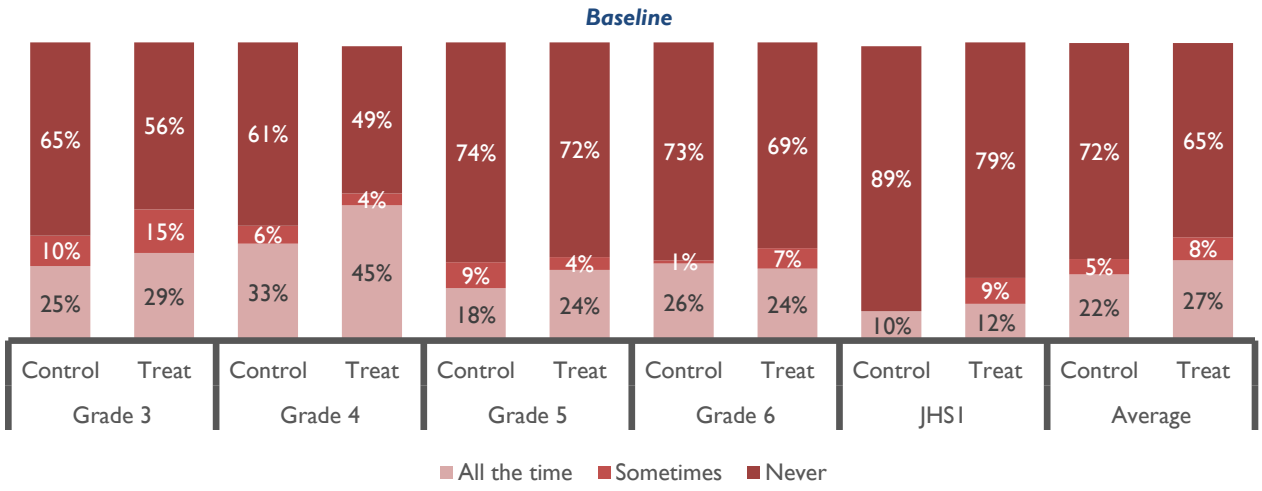
Table 37. Physical Punishment Observed

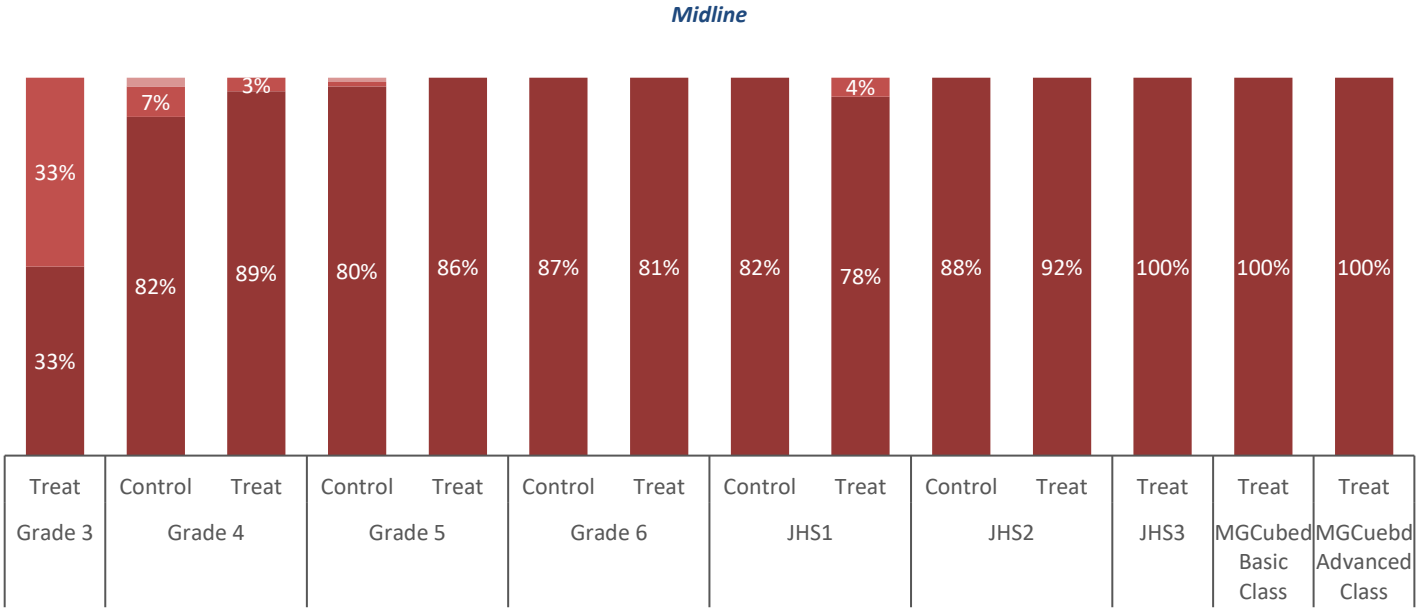
Treatment at Midline	Treatment at Baseline	Treatment change from Baseline	Comparison at Midline	Comparison at Baseline	Comparison change from Baseline
6.9%	12.5%	-5.6%	5.6%	24.3%	-18.7%

The large drop in physical punishment across all schools may be attributed to a nationwide growing effort to diminish the use of physical punishment in the classroom environment. FDGs reported girls and boys being deterred from going to school due to the use of physical punishment, especially caning. In addition, several students noted they enjoyed distance learning since it made caning impossible. However, the perceived future impact of removing the cane was mixed. Parents particularly noted concern that removing physical punishment would demotivate some students in the classroom and cited the Biblical proverb "Spare the rod, spoil the child." In addition, some students from the OOSG's FGDs noted that while they did not like being canned they felt it made them better students. While it is clear there is a nationwide movement away from physical punishment in schools it may be valuable given parent perceptions from focus group discussions for VF to explore how these attitudes are transferring to the household environment and whether or not physical punishment is used in the home to address school performance.

The classroom observation tool and girls' survey allowed the ET to do further analysis around use of the cane/physical punishment in the classroom. Figure 11 summarizes data from the classroom observation tool around visibility of the cane in the classroom. On average, the cane was visible sometimes or all the time in 2.68% of classrooms - with little difference between comparison and treatment schools.

Figure 12: Cane visibility

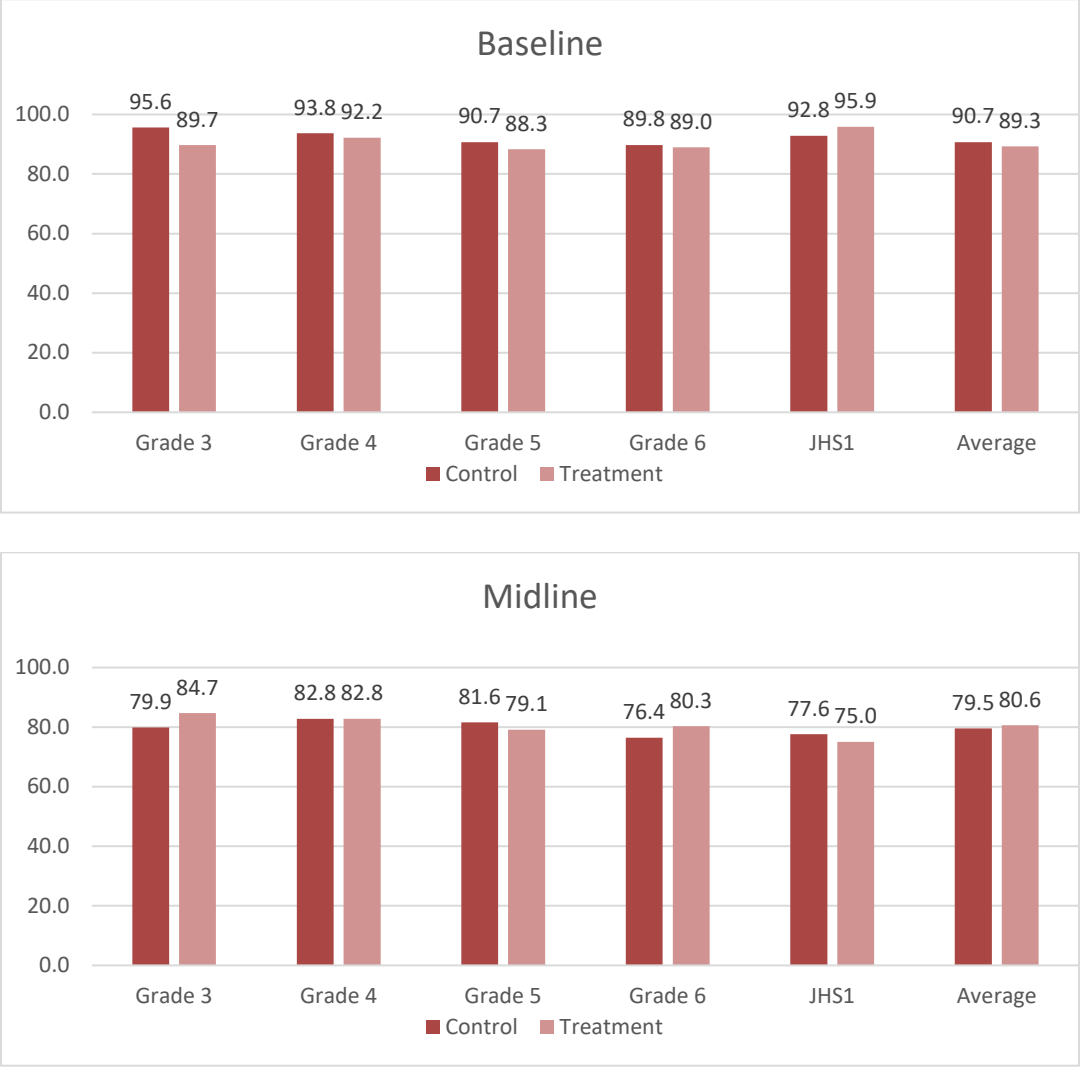




The classroom observations tools asked two questions specifically around the use of the cane. First it asked whether or not the cane is used in class. Use of the cane is not specified as to whether it is used on a child or simply as a prop to encourage discipline. However, a sharp drop in "use" is noted from baseline to midline in all schools. In treatment classrooms the "use" of the cane sometimes or always during a classroom observation decreases from 37.76% at baseline to 4.76% at midline, a highly significant drop ($p<.01$). In addition to observed "use" of the cane several questions were added a midline to clarify if the cane was used on a student and, if so, whether the student was a boy or girl. In treatment schools girls were less likely to be caned than girls than boys (1.36% compared to 2.04%) or girls in comparison schools (2.05%) though these differences are not statistically significant.

When it comes to reports of cane use, consistent with baseline, both comparison and treatment girls were similar in their responses. From baseline, reflective of the trend seen in classroom observation, there was a significant ($p<.01$) decrease in girls reporting the use of cane – by 8.6 percentage points among treatment girls from baseline to midline. However, rates of cane use as reported by girls is much higher than that observed in the classroom at baseline and midline. This is likely due to the teacher acknowledging that the use of the cane is no longer considered a desirable practice, at least at the national level, and is therefore less likely to use it under observation.

Figure 13: Percentage of girls reporting teachers' use of cane in class, by BASELINE grade



Differences in reports of punishment existed across impairment status. At treatment schools, non-impaired girls reported a higher rate of punishment than impaired girls at 40% though this difference was not statistically significant. Surprising, the evaluation team observed the opposite at comparison schools where 80% of impaired girls reported being punished compared to 52% of non-impaired girls ($p < 0.10$).

Physical Punishment and Learning and Transition Outcomes: Treatment schools in which the use of physical punishment were observed by the teacher were significantly correlated with worse learning outcomes

among treatment girls (-6.82 percentage point drop in math and -8.55 percentage point drop in reading ($p<.01$)). There appears to be no association between physical punishment and learning outcomes at comparison schools. The use of physical punishment is significantly associated with worse transition outcomes at both treatment and comparison schools.

It is important to reemphasize here that these are not considered causal relationships and the direction of the relationship is difficult to determine. It is feasible that an environment that allows physical punishment is not conducive to learning and therefore produces worse outcomes. It is also likely, however, that in the presence of poor outcomes teachers utilize physical punishment in an attempt to promote better standards.

IO 4.3 Percentage of schools with functioning PTAs/SMCs

Further indications of well-run schools are the existence of active parent-teacher associations (PTA), school management committees (SMC). Simply having an association or committee is not necessarily enough to guarantee a well-run school; ensuring that the organizations have active, regular meetings and communicate well between schools and parents is essential. In the School Survey, a head teacher was asked various questions about the existence of PTAs and SMCs, how frequently they meet, and about communication with these bodies. The following questions were analysed:

1. Does this school have an active parent-teacher association?
2. How many times does the PTA meet each school year?
3. Does this school have an active school management committee?
4. How many times does the school management committee meet each school year?
5. Does the school management committee participate in the preparation of the school budget?

Though caregivers are more likely to rate comparison schools and male head teachers as having higher management quality, treatment and female-headed schools mostly have stronger community involvement at the school. More treatment schools have active PTAs than comparison schools (97% compared to 84.6%), consistent with baseline finding though comparison schools' PTAs meet more frequently (4.77 times per year compared to 4.38 times in treatment schools). The frequency of PTA meetings also increased from baseline across treatment and comparison schools with treatment schools increasing by 0.34 more times and comparison schools 0.17 more times since baseline. Similarly, more treatment schools have SMCs and they meet slightly more times per year than in comparison schools, which was reverse at baseline. As far as gender of head teacher, schools with female head teachers have better community involvement statistics when compared to male-headed schools – a finding consistent with baseline: they are 3 percentage points more likely to have an active PTA which meets on average 2 times more in each school year and they are 6 percentage points more likely to have an active SMCs that meets on average 0.65 times per each school year.

Table 38: Community-involvement at the school level at midline

Indicator	Treatment at Midline	Comparison at Midline	Male head teacher	Female head teacher
School has an active parent-teacher association	97.0%	84.6%	90.3%	92.7%
Average number of times the PTA meets each school year	4.72	4.94	1.78	3.68
School has an active school management committee	79.4%	78.6%	77.0%	83.33%
Average number of times the SMC meets each school year	4.06	3.89	3.79	4.44

VF's internal monitoring of school management and governance encompasses an annual tool to consider the status of PTAs and SMCs in each of the 72 schools. Based on data from 70 schools, at Midline 100% of schools had a PTA in place; though two of these were deemed not to be functional. VF data therefore generally aligns with that of the ET's: 97.2% of schools were found to have established PTAs. "Functioning"" has been defined using the GES SMC/PTA Guidance document, and covers a wide range of indicators based on the following areas: 1) Set up and Formation; 2) Management; 3) Access and Participation; 4) Improving the quality of teaching and learning. Scores are calculated based on a range of checklist questions, from which a status is derived:

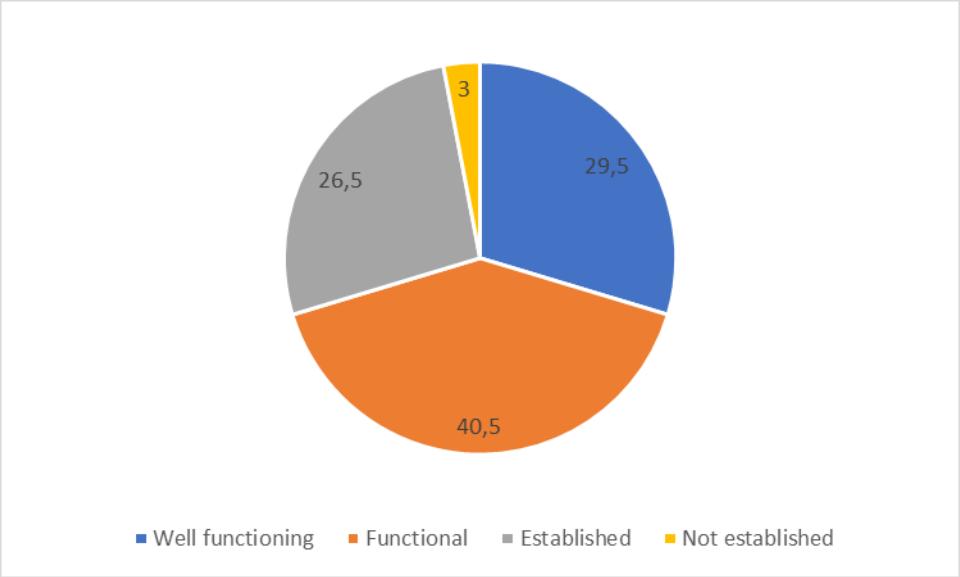
- 75-100%: Well functioning
- 51%-74%: Functional
- 26-50%: Established
- 0-25%: Not established

70% of schools were deemed to have PTAs and SMCs which were functional or well functioning. This means that the Project exceeded its target (55%) for the proportion of schools with functional PTA and SMCs by 15 percentage points.

Table 39: PTA and SMC status

	Well functioning	Functional	Established	Not established
Status	29.5%	40.5%	26.0%	3.0%

Figure 14:Proportion of schools with functioning PTAs and SMCs



However, their functioning and alignment to GES guidance varied. Other findings relating to the composition and functioning (based on GES guidance) of the PTAs are as follows:

- Nearly half (47.2%) of PTAs are reportedly elected rather than nominated.
- Encouragingly, nearly 80% of PTAs and comprised of at least one third women.
- Only six (8.3%) of PTAs were found not to have regular, established meetings.
- Less than 20% (16%) reported submitting reports to the DEO
- Half of the PTAs report that they make an effort to meet with the parents of pupils with repeated absences.
- 65% have procedures in place to scrutinize the school's exam results.
- Only 4.3% do not conduct regular monitoring visits to schools.

The exercise shows clear pockets of potential improvement, though there is a clear positive trajectory following the Baseline findings. FGDs with parents revealed the PTAs are generally respected and active in the community. The purpose of PTAs expressed in FGDs conducted by the ET focused on resource improvement (painting the school, gaining supplies) rather than parent engagement (following up on pupils with repeated absences). Both the ET and Project's data indicates that the number of schools with active PTAs has increased since Baseline, and it is expected that the next two years of the Project serve to strengthen these structures.

6.3 Quality of Teaching

As part of MGCubed activities, teachers receive regular teacher training sessions through the distance-learning platforms that students also use for classroom lessons. Teachers typically attend 2 weeks of teacher training at the beginning of every academic term. Teacher training focuses on teaching effective pedagogy for literacy and numeracy, gender-centered teaching approaches, and other good teaching techniques to manage the classroom. In its entirety, there are just 2 modules with numeracy and literacy focus. The course thinks about teaching practice in general. Term 1: Climate for Learning; Term II: Planning and Pedagogy; Term III: Assessment. The overall aims and objectives of the course are: (a) To be able to improve pedagogical methods - for positive learning environments; student centered learning; gender responsiveness; and effective assessment practice in everyday GES classes; (b) To be able to expand teaching subject knowledge in order to support 1; and (c) To develop an understanding of continued professional development through self-evaluation, and apply this to their roles as teacher

In the GEC-T iteration of MGCubed, all teachers at an MGCubed school are free to attend teacher training. Some teachers at a school are trained as "facilitators," who are taught how to facilitate the technology. Per the program's Log Frame, IO2 has four indicators:

IO2.1 Percentage of observed lessons where facilitators are assessed as "Highly Satisfactory" or "Outstanding" in MGCubed and Afterschool sessions
IO2.2. MGCubed facilitators can satisfactorily demonstrate MGCubed strategies being used in non-MGCubed lessons
IO2.3 MGCubed facilitators and teachers can describe how they are applying MGCubed in non-MGCubed lessons
IO2.4. Varkey Foundation actively reflects on the level of teaching quality improvement and mechanisms contributing to it and participates in policy and research discussion teaching quality and learning outcomes and identifiable non-cognitive outcomes

IO2.1 Percentage of observed lessons where facilitators are assessed as "Highly Satisfactory" or "Outstanding" in MGCubed and Afterschool sessions

To measure the quality of teaching among teachers, the ET created a composite index based on teacher behaviours and practices noted in the classroom observation. The index had four parts: (1) preparedness for the lesson; (2) confidence and clarity of delivery, (3) promoting equitable learning; and (4) managing classroom behaviour. Each part included 4-5 questions from the classroom observation survey. The composite index yielded a minimum score of 0 points and a maximum of 36. Scores ranged from 10 to 33 and were binned into quartiles based on the distribution of scores. The top quartile were teachers deemed "Outstanding," followed by "Highly satisfactory," "Satisfactory," and "Fair." These can be found in the Table 50 below. **The program target was set at 36% of treatment schools receiving a "highly satisfactory" or "outstanding" score and was exceeded with 55.1% being assessed as such.**

Table 40: Teaching quality index components

Index section	Question
Managing classroom behaviour	Teacher called on or actively tried to involve a student who was not participating.
	The teacher makes eye contact with all of the students while presenting the lesson.

	The teacher effectively managed unruly behaviour in class.
	Girls are disciplined physically in class.
	Boys are disciplined physically in class.
Promoting equitable learning	GIRLS have equal access to desks, learning materials, etc. (e.g. girls share the same amount of books, desks as boys).
	Does the teacher call on BOY students more than GIRL students?
	Does the teacher use a harsh tone with BOYS more than GIRLS?
	Observer: In your opinion, did the teacher try to include girls and boys equitably?
Preparedness for the lesson	The teacher uses range of (e.g., books, tools, manipulatives) and strategies (e.g., audio, visual) to explain concepts.
	The teacher uses different strategies (e.g., audio, visual) to explain concepts.
	The teacher has lesson notes.
	The teacher holds the lesson notes in his or her hands.
	Does the teacher use TLMs (Teaching and Learning Materials') (where appropriate)? E.g. Teaching aides or resources
Confidence and clarity of delivery	The teacher appears comfortable and knowledgeable with the material.
	The teacher reads well.
	The majority of the students participate in the lesson.
	Learners appear to understand what the teacher is saying.

At midline, the ET found a significant improvement in teaching quality from a baseline composite score of 22.0 to 24.5 ($p < 0.01$) realized by treatment schools. At baseline, teachers in comparison schools had higher teaching quality scores than teachers in treatment schools. It is reversed in midline when teachers are binned into quartiles**.** On average in midline, teachers in treatment schools had higher scores on the composite index compared to comparison schools (24.50 verse 23.83). Though this difference is not statistically significant it shows important progress among treatment schools. When binned into quartiles, 17.1% of comparison teachers are "Outstanding," compared to 27.5% of comparison teachers in baseline. For treatment schools, the percentage increased from 22.4% to 30.6%. Similarly, the share of highly satisfactory of comparison group decreased from 29% to 27% as compared to the treatment group which experienced an increase of 7 percentage points. Just over a third of treatment school teachers received "Fair" scores (the worst possible score) in baseline on the teacher quality composite index in comparison group and this was reduced to 24.5% at midline. **In summary, the percentage of treatment teachers being assessed as highly satisfactory or outstand at midline was 55.1%, exceeding the target of 36%.**

Table 41: Teaching quality of observed teachers by treatment status (%)

	Baseline		Midline		Change over time	
	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment
Fair	16.2%	34.3%	27.4%	24.5%	11%	-10%
Satisfactory	27.5%	25.9%	28.1%	20.4%	1%	-6%
Highly satisfactory	28.9%	17.5%	27.4%	24.5%	-2%	7%

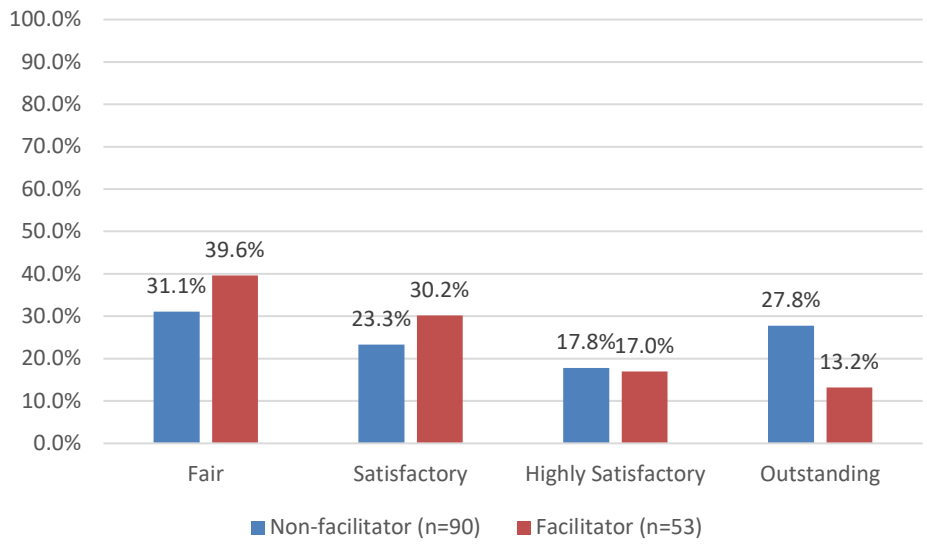
Outstanding	27.5%	22.4%	17.1%	30.6%	-10%	8%

To better understand in which areas of teaching comparison and treatment teachers do better (or worse), the ET broke down the various components of the index. The major differences between treatment and comparison teachers are highlighted below:

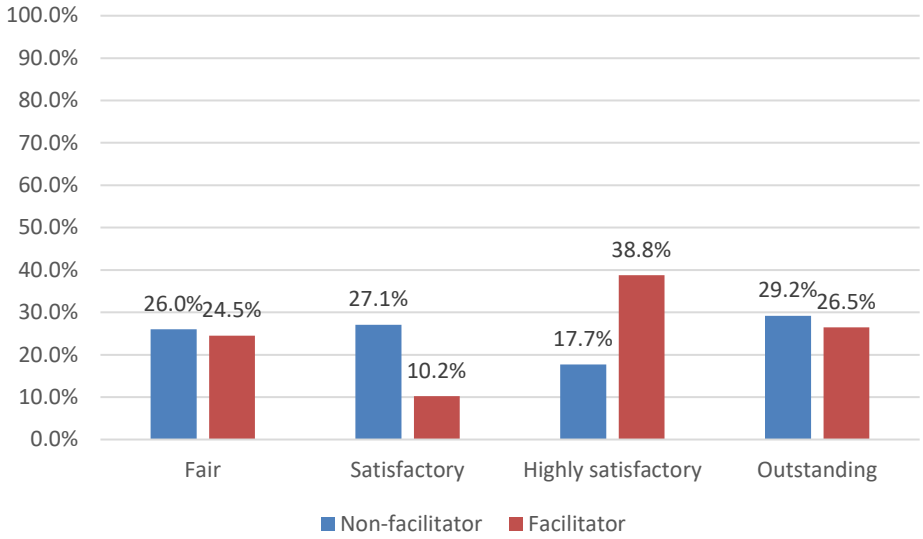
1. **Managing classroom behaviour:** At midline, treatment school teachers were better at managing unruly behaviour (16.3% of teachers managed unruly behaviour well all the time) than comparison teachers (15.1%) though the difference is not significant. Comparison teachers were slightly less likely to physically discipline than treatment schools (97.3% never use physical punishment compared to 96.6%) but this difference is not statistically significant. A number of FGDs mentioned recent government policy preventing corporal punishment which likely contributes to the statistically significant reduction in physical punishment from BL to ML across both treatment and comparison schools.
2. **Promoting equitable learning:** More observers reported that treatment teachers tried to include girls and boys equitably than comparison teachers (96% versus 90% ($p < 0.05$)).
3. **Preparedness for the lesson:** Treatment teachers were significantly more likely than comparison teacher to display preparedness for class through the employment of a variety of teaching strategies and resources, the use of lesson notes, and the use of teaching aids and resources with 34.7% of treatment teachers using all of these methods sometime or all the time during the course of a lesson compared to 24.0% of comparison teachers ($p < 0.05$).
1. **Confidence and clarity of delivery:** at midline, treatment teachers were observed as appearing significantly ($p < 0.05$) more comfortable and knowledgeable about the material "all the time" in 68.7% of treatment classes compared to 56.9% in comparison classes.

Figure 15: Teaching quality of observed teachers in treatment schools, by facilitator status(%)

Baseline

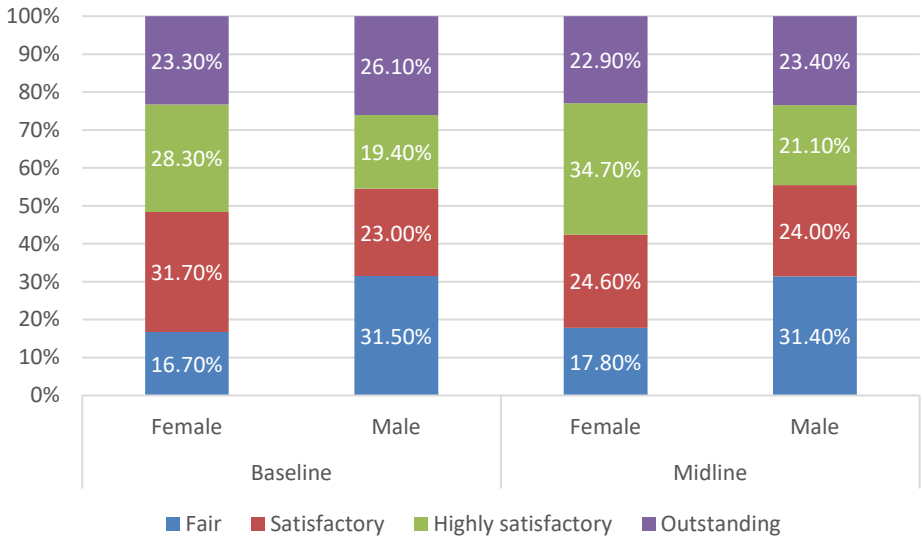


Midline



When broken into quartiles, a higher percentage of female treatment teachers were "outstanding" or "highly satisfactory" (62.3%) compared to male teachers (50%). Teacher quality on average scored the highest in MGCubed Basic Class (Outstanding) and the lowest in P3, with a general trend of teaching quality to be improving as grade level goes higher. When disaggregated by facilitator status, teacher quality was only slightly higher at mildine when the class was led by facilitator (24.78 points) as opposed to when the class was led by a non-facilitator (24.02 points) and the difference is not statistically significant.

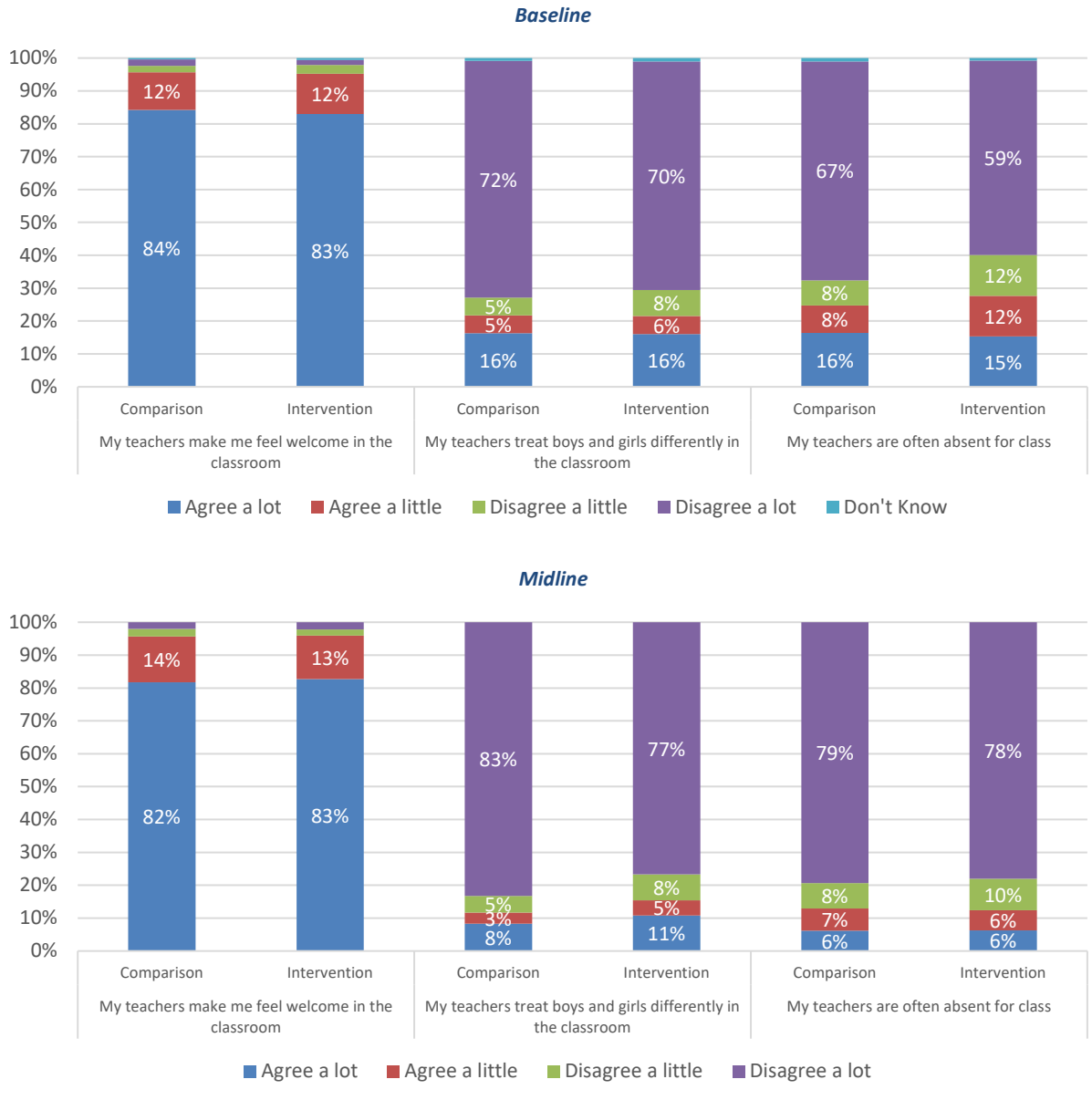
Figure 16: Teaching quality of observed teachers, by gender for treatment and comparison schools (%)



Girls overwhelmingly feel welcome in the classroom by their teacher, though nearly a quarter feel that teachers treat girls and boys differently in class similar to baseline. There is very little difference between treatment and comparison girls. To triangulate the data from the classroom

observation tool, the ET examined responses on teacher quality from the girls' survey. Girls overwhelmingly agree (over 80%) that teachers make them feel welcome in the classroom and this was consistent with baseline. However, girls with disability perceived classroom welcome differently than their peers. In treatment schools 63% of impaired girls strongly agreed to feeling welcome compared to 82% of non-impaired girls ($p < 0.05$). This difference is starker than that in comparison schools (75% and 82%). A notable improvement from baseline can be seen with both comparison and treatment girls reporting significantly ($p < 0.01$) more disagreement to statements such as "my teachers treat boys and girls differently in the classroom" and "my teachers are often absent for class" as seen in Figure 17. This is consistent regardless of impairment status.

Figure 17: Teaching quality as reported by girls (%)



The Project's own data from classroom observations conducted during the 2018-2019 academic year totals 120 observations conducted by Project staff, primarily the District Coordinators. The table below presents the different types of observation undertaken, showing that the majority were of MGCubed classes.

Table 42: VF's observations breakdown

Total classroom observations	MGCubed class	Regular class	Intervention class - Facilitator	Intervention class - Teacher
293	147	146	49	96

Qualitatively, teachers comment strongly that they use lessons learned from GEC-T trainings. Teachers have reported that classroom management and pedagogy, violence awareness and prevention and gender sensitivity training have helped improve their teaching quality. They have expressed that the trainings had eased certain lessons that were difficult to teach before such as sound pronunciation. Apart from resourcing and environmental limitations as reported during baseline (e.g. poor infrastructure and lack of school materials) the difficulty however with administering the class was the inconsistency of technology, in which teachers reported to use without. The inconsistency in the technology could affect pedagogy, though training has been constructed specifically with limited TLMs in mind (e.g. developing teacher expositions; I/We/You method, etc.). In regard to gender sensitive teaching, many emphasized the importance of teaching to both girls and boys and the changing perception of girls' education. Teachers were also open to involving parents with their agenda and update students of their progress as they commented on their involvement with PTA meetings.

Project's internal data show that a small number of teachers at MGCubed schools are actively reaching out to MTTs for additional guidance and support on specific areas of teaching and learning. This level of support does not make up an explicit part of the Project's Outputs and is therefore a demand-led provision of support. These engagements were almost exclusively with Facilitators, though in one instance a teacher requested guidance and additional support for a boy in her class who was struggling with counting numbers. The subject of discussion relate to technology, attendance and teaching and learning – in 14 cases the Education Team were asked to provide support to teaching staff on academic issues, ranging from the provision of pupil feedback to advice on working with a pupil with a cognitive disability. This is a limited but notable indication that teaching staff are thinking more widely about the application of MGCubed techniques to regular classroom settings, and recognising that engagement with MTTs presents an opportunity for their own professional development. IO2.2. MGCubed facilitators can satisfactorily demonstrate MGCubed strategies being used in non-MGCubed lessons.

Teacher Quality and learning and transition outcomes: High teacher quality was significantly associated with higher learning outcomes at both treatment and comparison schools. When the ET average teacher quality scores as defined above per school and compared it with math and reading outcomes schools with a higher average teacher quality were associated with significant increases in both math ($p<.01$) and reading ($p<.10$). This relationship underlines the importance of investment in teachers, including teacher trainings and equipping teachers with strategies in classroom management and equitable learning opportunities. Teacher quality was not significantly associated with better transition outcomes. It is feasible to see how the relationship with teacher quality and transition could work both ways and bring about this result. First, higher quality teachers may be better at identifying struggling students and retaining (repeating) them thus

lowering transition. Alternatively, higher quality teacher may be better at supporting students throughout the year leading to higher progression.

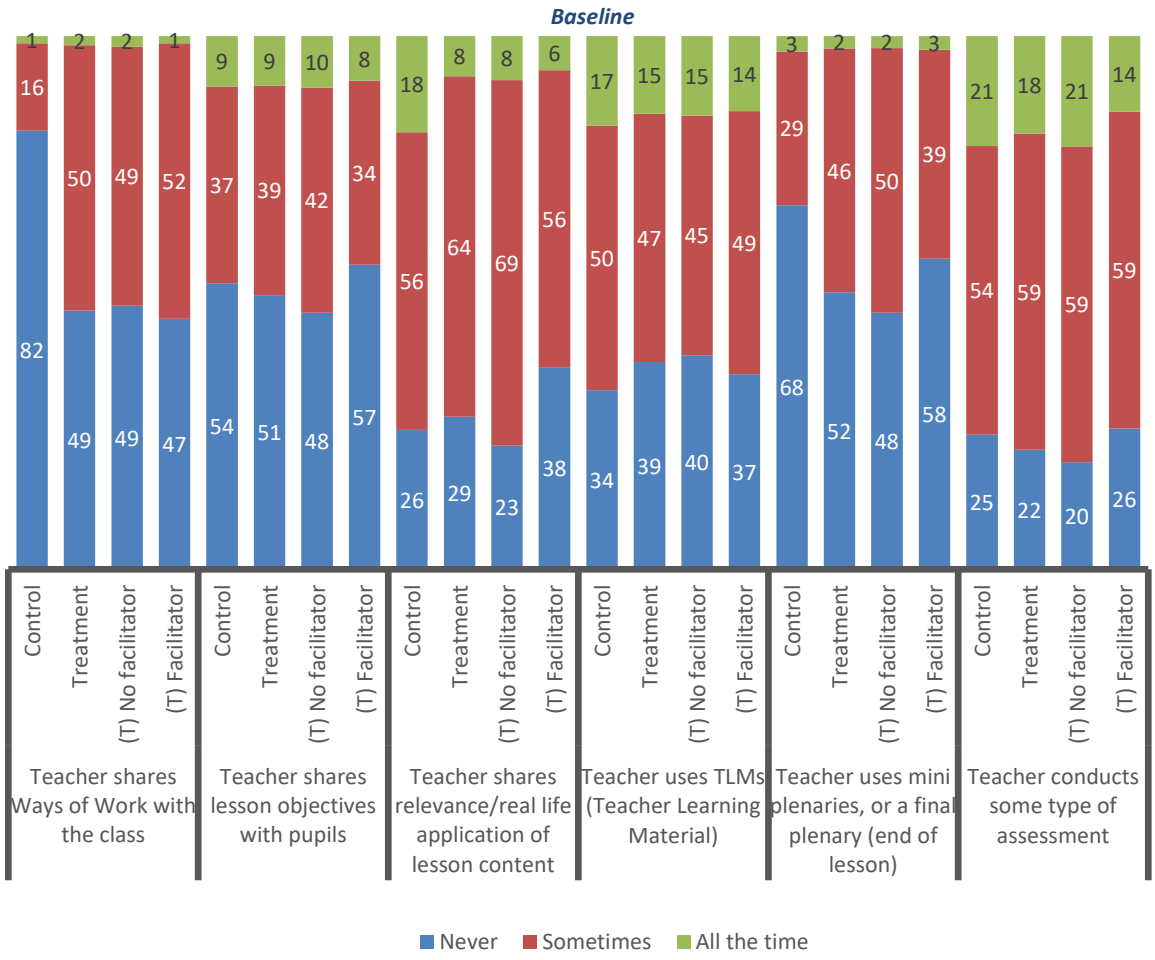
It is important to note there are limitations when aggregating teacher quality at the school level based off two classroom observations. The DID regressions in Annex 3 further explore how student perceptions of teacher quality including how teachers treat boys verse girls, etc contributes to learning and transition outcomes. In addition, FGDs suggest that poor teacher quality plays a role in students willingness/excitement to attend school and may lead to parents removing their students from school to pursue alternative opportunities in education or work if they perceive teacher quality as poor.

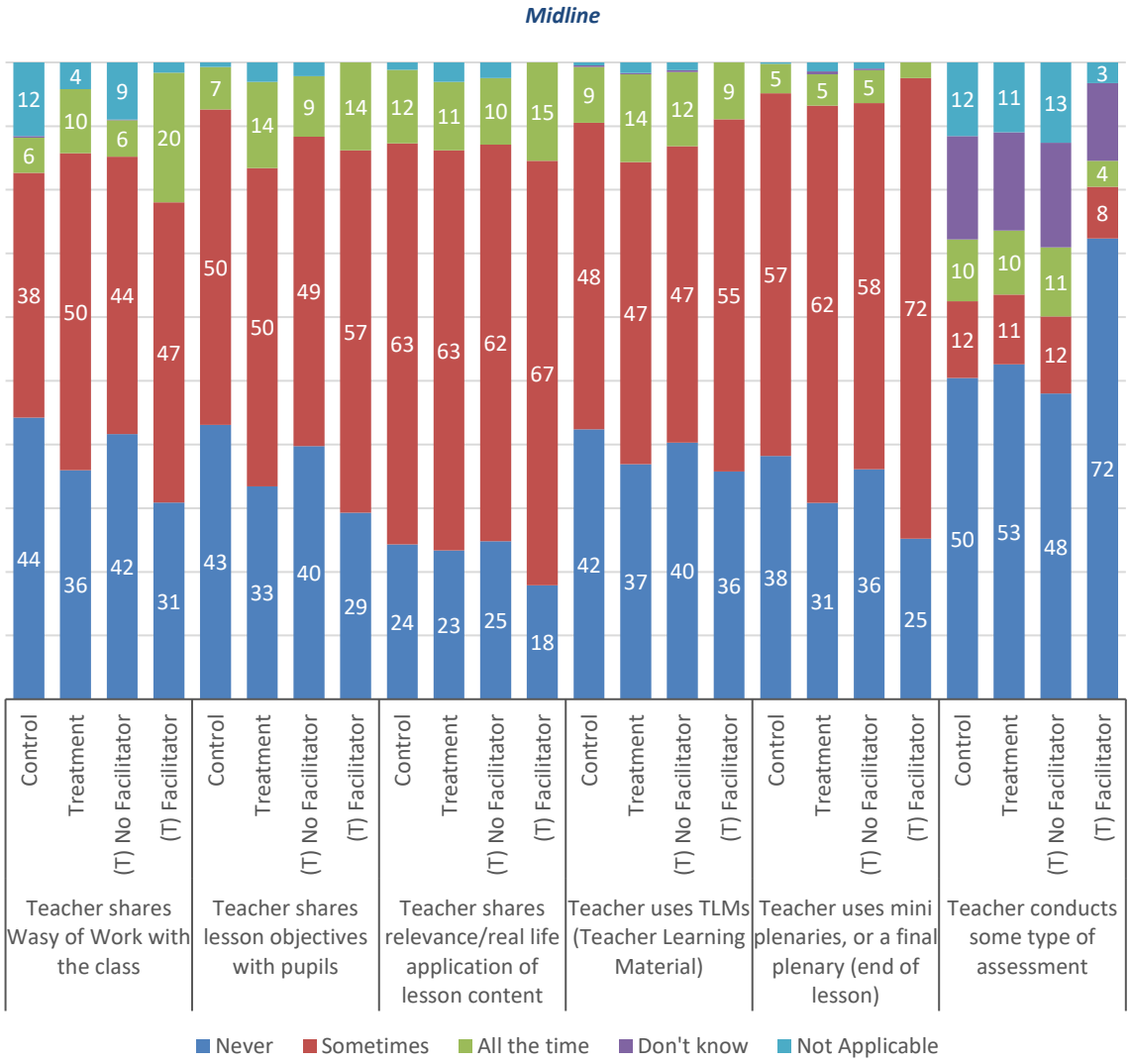
IO2.2. MGCubed facilitators can satisfactorily demonstrate MGCubed strategies being used in non-MGCubed lessons

To answer IO2.2., the ET included a limited number of questions in the classroom observation tool on MGCubed specific strategies, based off of the MGCubed curriculum provided to the ET. These included questions on the use of TLMs, Ways of Working, setting class objectives, use of plenaries, and use of assessments. Given that classroom observations were held only in grade-level classes, the data below shows the use of MGCubed strategies in non-MGCubed lessons. The use of MGCubed specific strategies was measured for both comparison and treatment schools with the understanding that some comparison teachers may deploy MGCubed strategies even if they are unfamiliar with the terminology included here.

MGCubed teachers utlilise specific MGCubed teaching techniques in non-MGCubed classes, particularly Ways of Working and plenaries. There is no clear pattern among facilitators and non-facilitators. Figure 18 shows a clear gap between comparison and treatment schools for use of "Ways of Working," with about half of treatment classes using it "All the time" or "Sometimes" compared to less than 20% of comparison classes. Similarly, the use of mini-plenaries is higher in MGCubed schools (about 50%) compared to comparison schools (30%). More generalized teaching techniques, such as sharing lesson objectives, relaying lessons to real life applications, and using formative assessments— are also promoted by MGCubed. When observing use of those behaviours, comparison and treatment schools are similar. Figure 18 also disaggregates by facilitator and non-facilitator. In doing so, no clear pattern emerges, however, non-facilitators conduct the MGCubed-specific techniques more often than facilitators in four of the six key indicators measured. One reason could be that MGCubed facilitator might not have found opportunity to demonstrate their wide ranging skills since they were being observed **To give a quantitative measurement to this indicator, the ET has averaged the sum of "sometimes' and "all the time" proportions for facilitators in each of the six categories below to arrive at a proportion of 55.8% against a target of 73%.**

Figure 18: MGCubed techniques prevalence in observed classrooms, by treatment and facilitator status (%)


Baseline
Control
Treatment
(T) No facilitator
(T) Facilitator
Teacher shares Ways of Work with the class
Teacher shares lesson objectives with pupils
Teacher shares relevance/real life application of lesson content
Teacher uses TLMs (Teacher Learning Material)
Teacher uses mini plenaries, or a final plenary (end of lesson)
Teacher conducts some type of assessment
Never
Sometimes
All the time



In line with its provision of weekly teacher training to all teaching staff, as well as additional support to MGCubed classroom facilitators, VF expressed that it expects to see relatively immediate evidence that classroom practice has changed. In Output 2.2 (Annex 3), VF reports that over 60% of teachers said that they had changed their teaching style as a result of training received by MGCubed, and could provide an example of how. This finding is similar to the 64% of teachers the ET found who were able to cite at least two MGCubed strategies they utilize under IO2.3 below.

Internal observations undertaken by Varkey Foundation District Coordinators indicated a high rate of uptake of student-centred learning strategies. VF has conducted 146 observations of facilitators in Remedial and By-grade Lessons, and 124 After-school Club sessions observations which indicate a positive trend in Teaching Quality. These observations indicate that: In Year 2, facilitators' performance in MGCubed sessions has increased to 90% against the 87% performance of Year 1. In Year 2, 89% facilitators met the MGCubed standard. 84% of MGCubed facilitators and GES teachers used student-centred techniques learned during regular GES lessons. It is unclear why VF's observational findings differ from that of the ET. It is feasible that the ET was more likely to observe teachers rather than facilitators or that VF familiarity with the methodology improved identification of the techniques when deployed in the classroom.

Interviewed facilitators were able to describe the main strategies learned from the MGCubed Teacher Training. Though sample sizes are disproportional, VF noted that facilitators and non-facilitators performed differently with regard to the use of specific MGCubed approaches and techniques. In the 22 observations of non-facilitators, 13 (59%) used MGCubed techniques. Non-facilitators who were not exposed to MGCubed studio broadcasts were three times less likely to use a variety of activities and share lesson objectives. With regard to visibility of the cane in class, 32% of facilitators had a cane visible in their regular lessons versus 23% of non-facilitators. Of the facilitators who demonstrated MGCubed techniques, the use of differentiation techniques and the use of plenaries were identified as "inadequate" or requiring improvement in about 5% of cases.

Demonstration of MGCubed strategies and Learning and Transition outcomes: The ET averaged the presence of observed MGCubed activities in the classroom by school and compared them to learning and transition outcomes. Similar to teacher quality the ability to demonstrate MGCubed strategies was significantly associated with higher learning outcomes for both treatment ($p<.01$) and comparison ($p<.05$) schools. The presence of observed MGCubed strategies did not, however, correlate with transition outcomes. As noted above, it is feasible that the observation of just a couple classrooms to the school level is not sufficient to identify the relationship between MGCubed techniques and key outcomes but it is still encouraging that the direction of the relationship is positive.

IO2.3 MGCubed facilitators and teachers that can successfully cite how they applied at least two student-centred learning activities

Data for this indicator is the percentage of MGCubed facilitators and teachers who noted that they applied at least two student-centred learning strategies from the MGCubed training. At baseline this indicator was measured through internal monitoring data by the Project. At midline and endline it is included in the teacher interview. The survey asked if teachers or facilitators employed MGCubed student-centred learning strategies and they were able to choose however many strategies they utilized. The eight student-centred learning strategies asked in the survey were using starter activities, pair work, group work, peer learning, digital learning material, sharing ways of working and lesson objectives, and recapping previous lessons. **Of the 145 treatment teachers and facilitators interviewed 64.14% were able to cite at least two student-cantered learning activities they utilize in their classroom against a target of 65%.** Female teachers were slightly more likely than males to cite two or more activities (65.6% of female teachers verse 63% of male teachers) but this difference is not significant. Overall, treatment teachers, cited they utilize 2.3 strategies out of 8 when asked. The most commonly cited strategies were Pair Work (cited by 60% of teachers) and Group Work (cited by 72% of teachers). The least cited strategy was the use of digital learning material (cited by 11%).

Overall based on the FGDs the project team conducted with teachers, when asked about MGCubed trainings, teachers had a positive response and reported to have improved their teaching. Many noted that classroom management improved due to these trainings. At large, teachers understood student-centred learning as having the class be more engaging and student-driven. In one response, the use of ice breakers to start the class was noted to have been very successful as it engaged the class from the start. Another group of teachers shared that peer learning encouraged more participation among students. Many noted the importance of stepping back and letting the students take charge in problem-solving, encouraging them to come up with their solutions to questions. Teachers had also noted that incorporating gender-sensitivity was important for equal participation among boys and girls. One group also discussed about menstruation and how to provide support for girls during that time for their continued education. Gender sensitive teaching extended onto what subjects get encouraged to boys versus girls as some teachers

noted the awareness to encourage girls to pursue math and sciences. Lastly, some noted that training male teachers was important to have the way they teach girls to be equal to the way they teach boys.

Student Centred Approaches and Learning and Transition Outcomes. Teacher's ability to cite the use of student centred approaches in their classrooms is a useful proxy for knowledge and use of these techniques at the school level. The ET average the number of cited approaches per school and compared those with learning and transition outcomes. Each additional approach cited was correlated with a 2.3-point increase in reading and a 1.6-point increase in math scores ($p<.01$) among treatment girls. Citation of student centred approaches did not, however, have any correlation with transition outcomes.

IO2.4. Varkey Foundation actively reflects on the level of teaching quality improvement and mechanisms contributing to it and participates in policy and research discussion teaching quality and learning outcomes and identifiable non-cognitive outcomes

This indicator relies on the Varkey Foundation's internal Engagement Logs which are designed to track staff participation in learning and influencing activities outside the organisation. The indicator also refers to the learning processes and mechanisms which are operating within the organisation.

VF Ghana has robust learning activities in place to ensure regular reflection on monitoring and evaluation data regarding teaching quality. This covers both the teaching quality of its own studio-based teachers and teaching staff in MGCubed schools. In terms of its own teaching cadre, the Education team has a comprehensive Continuous Professional Development (CPD) system which incorporates the following: regular peer observation and feedback (see Output 1); termly CPD journals completed by teaching staff to pinpoint areas of progress and potential improvement; termly mentoring with the Education Advisor; wider reading and discussion around specific GES teaching standards; and monitored implementation of skills development plans. The Project is keen to ensure insights from MTTs are better integrated into the MEL process without adding to their already-high workload.

When it comes to improving the teaching quality of staff in treatment schools, a number of lessons have been captured, through both interviews with teachers and Headteachers and during Education Team consultations. Primarily, teachers are more receptive to training when it is approached as a collective project and one that is led by the senior leadership: rather than being an "add on" to their jobs, when training is seen as an integral part of the school system it is respected and the common commitment to reform amongst staff members as a collective reinforces the changes MGCubed aims to inspire.

Secondly, it is important to recognise and reward Facilitators for their significant engagement with the Project, and understand that Facilitators need continuous development in order for the Project not to become stale. One way of ensuring this is to focus on their professional development through teacher training, but further - sustained engagement and enthusiasm demands integration into key project processes, such as the definition of Scopes and Sequences of Work, engagement with project data, and close connections with the Master Teachers and Master Trainers for one-to-one mentoring and support. Thirdly, modelling of best teaching practice through the Master Teachers and Master Trainers is vital. With the continuous reinforcement of pedagogical approaches promoted by the Project, teaching staff in treatment schools would have found the translation of training to practice far more difficult.

The Varkey Foundation has engaged in numerous events and developed knowledge products to communicate these reflections and data relating to the importance of teaching quality to learning outcomes. At district level, the Project has:

- Held July 2018 Annual Stakeholder meetings where key data from the External Evaluation and Internal Monitoring data is presented and discussed. Issues relating to teaching quality that have been raised during these high level meetings include the need to improve teacher's preparedness and the promotion of equitable learning.
- Delivered capacity training to District GES officials in monitoring. The Project used its expertise to develop monitoring tools and train GES officials on their use last February 2019. The Project has been collaborating effectively with District Education Offices to ensure integration and alignment of monitoring and supervision of the Project into the existing structures. Girls Education Officers and Circuit Supervisors in the districts have the responsibility of monitoring schools at that level. Further, a regional workshop on Project monitoring tools was organized to get officials to familiarize with the Project's monitoring system and share feedback on how to align the tools. The Girls Education Officers and Circuit Supervisors have started administrating some of the Project tools to monitor Teaching Quality in the schools to collect feedback after embarking on joint monitoring with Project team in the previous term. This will be an ongoing process and they are experiencing the tools and providing feedback and receiving further training to a point where the systems is aligned.

Varkey Foundation staff have been very actively disseminating learnings from GEC-1 and communicating VF's experience in the second phase, particularly at a global level. This has included:

1) Varkey Africa Teacher Ambassador Summit in July 2018 in Kenya: in which MGCubed learnings were shared with Africa-based Global Teacher Prize finalists and the experience of the Project was used to encourage Ambassadors to think about how they could best champion girls' education across the continent.
2) Think Tanks Africa Summit in July 2018 in Johannesburg: on the use of evidence in education to inform policymakers in July 2018, using insights from MGCubed to discuss the role of "beneficiary populations" - specifically, teachers - in MEL.
3) Duke of Edinburgh International Award Foundation panel discussion: VF Country Director discussed the work of the Varkey Foundation to empower the youth in Ghana through education. Representatives from the Duke of Edinburgh International Award Foundation also visited the MGCubed Studio and observed the lesson delivery in November 2018.
4) WEI Material Development Workshop: A MTT participated in the 'Material Development' workshop organised by World Education Inc. (WEI) in November 2018. The Project shared knowledge on the development of teaching and learning materials to support marginalised girls achieve better learning outcomes and life skills.
5) Education Workforce Initiative: The MGCubed Project Manager delivered a presentation about MGCubed and its relationship to teacher workforce development at the Third High-Level Steering Group (HLSG) meeting of the Education Commission in March under the invitation of the Education Workforce Initiative (EWI). EWI will be featuring MGCubed in the next EWI workforce report in Q9 as an example of a significant and transformative education programme in the country, and an innovative approach to workforce deployment.
6) GESF 2019: VF hosted the 7th annual GESF in Dubai in March 2019. The Country Director spoke in a session entitled 'A world with education equity - Local champions of change for girls in classrooms, sharing her insights from MGCubed, focusing on the role of the community in supporting the relationship between teachers and pupils.

Clearly, the Project has gained an extremely high profile on the global education stage. At local and national level the Project continues to share date with stakeholders each July (the second annual event is planned for July 2019), focusing specifically on the performance of teachers in the district and the role of caregivers and school leaders in promoting learning outcomes. The event is designed reach an agreement with key stakeholders on specific measures that can be taken to support teachers, particularly in regard to professional development.

6.4 Community-based attitudes and behaviour change

The MGCubed project holds workshops and trainings with community members including parents, SMCs, community leaders, and head teachers with the goal of changing their attitudes and behaviours towards girls' education. To gauge the effectiveness of these trainings, MGCubed includes Community-based attitudes and behaviour change as IO5 in their Log Frame, with the following three indicators:

IO5.1: Percentage of caregivers who can cite one way in which they changed with respect to girls' education in the past year.
IO5.2: Community members express support for Afterschool club content
IO5.3: Community acts as guardians for technology packages in schools

IO5.1: Percentage of caregivers who can cite one way in which they changed with respect to girls' education in the past year.

Attitudes towards girls' education are crucial to understanding transition rates. If community members place little value on girls' education, then they are unlikely to make the necessary investments to keep their girls in school and successfully transitioning each year. Chores around the home or earning money at a job can supersede education. Quantifying these attitudes presents a set of unique measurement challenges. Social desirability bias is likely, and it can cause a primary care giver to express higher levels of support for girls' education than their true beliefs. For example, upon being asked by someone from the organization implementing technological investment in their daughter's school, a primary care giver may indicate that they want their daughter to graduate from a University when surveyed while believing that girls should stop attending after Senior High School. A second measurement problem is that the specific wording of a question can change how respondents reply. It is important to keep these kinds of measurement challenges in mind while attempting to draw conclusions on a community's beliefs towards girls' education.

To precisely measure caregiver support for girls' education this indicator (IO5.1) was updated from the baseline indicator of "Community members demonstrate an understanding of the importance of girls' education" to the current "Percentage of caregivers who can cite one way in which they changed with respect to girls' education in the past year." Specific questions were added to the caregiver survey at the midline evaluation to provide more meaningful understanding of how parents are responding to and adopting the Project's measures.

In addition, the project continued to measure general attitudes to girls' education through additional questions retained from baseline regarding caregivers desired level of schooling for their girls, the level of their girls' involvement in education decision-making, and a battery of hypothetical questions designed to probe their evaluation of girls' education.

84% of treatment caregivers could list one or more ways they have changed their behaviour in the past year to positively promote girls' education, surpassing the 60% target. There is statistically significant variation between treatment and comparison groups with treatment caregivers able to provide more examples (0.14 more) of how they changed their behaviour than those in the comparison group (p-value < 0.05). However, without baseline measurements it is difficult to attribute this change to the program itself rather than pre-existing variation between the two groups.

Table 43: Positive changes noted by caregivers

Change in support in the past year	Comparison	Treatment	P-value
Caregiver cites at least one way in which they have changed their behavior	83.87%	84.36%	0.74
Average number of reasons cited by caregiver	1.94	2.08	T>C 0.01

Looking at the variation provided by each example of a change in support may highlight areas of the MGCubed-T program that are having the greatest effect in the home. Caregivers of girls attending treatment schools were more likely to say that in the past year they have met with their child's teacher to discuss learning progress, encourage the child to share what they were learning with their siblings and been more involved in SMC/PTA meetings (p-value < 0.05). In one FGD a treatment mother noted "I sometimes arrange for some time to check on my ward to access her performance and learning progresses in the school." Meanwhile, caregivers from comparison schools were more likely to note they verbally encouraged their child to study or learn. FGDs from both groups noted changes in community attitudes toward schooling overall though they reflected on this as a result of larger societal changes and governmental programs rather than specifically attributing these changes to the MGCubed-T program.

Table 44: Primary changes noted by caregivers

Main ways caregivers have changed in support in the past year	Comparison (N = 1402)	Treatment (N = 1436)	P-value
Asking about the child's school day, including what they have done at school	43.78%	45.20%	0.47
Meeting with a child's teacher to discuss the child's learning progress	22.01%	27.01%	T>C 0.00
Looking at a child's work	30.01%	30.01%	1.00
Being aware of a child's homework	38.16%	36.22%	0.31
Supporting the child to complete homework tasks	15.52%	15.20%	0.82
Encouraging the child to share knowledge with siblings/other family members	6.10%	11.05%	T>C 0.00
Becoming more involved with SMC/PTA meetings to monitor educational quality	14.25%	20.95%	T>C 0.00
Providing additional financial support	5.93%	5.75%	0.85

When caregivers were asked if there was any reason they would not allow their girl to attend school the following year those in the comparison group were more likely to say yes or they were unsure than those in the treatment group (p-value < 0.5) though the proportion of those saying yes or that they were unsure was a small part of the population overall (4% of comparison caregivers compared to 3% of treatment). Financial barriers were the most commonly cited reasons for not allowing girls to attend the following year for both groups. This is explored further in **the Economic empowerment section** below.

Table 45: Caregivers not allowing girls going to school

Caregiver's noting a reason they would not allow a girl to go to school next year	Comparison	Treatment	P-value
Caregiver states there is a reason or there may be a reason they would not allow girl to attend school next year	8.8%	5.9%	C>T 0.01

Another area where MGCubed-T may be having effect is decision making within the home. While this is explored further under 6.6 Life Skills below caregivers were asked if decision about girls' education is made in consideration of the girls' views and opinion or if these decision are decided by adults only. 20% of caregivers said these decisions are made by adults only, a small but significant ($p < 0.05$) drop from baseline. At ML this number increased to 27% if the caregiver considered the girl impaired with comparison households more likely than treatment households to note only adults would make a decision on education when their child was considered impaired (32% verse 23% of treatment households).

Caregiver Change and Learning and Transition Outcomes. The role of caregiver support, as measured by whether or not the caregiver could site at least one way in which they changed their approach to their girl's education in the past year, plays a limited role in learning outcomes but may affect transition. Treatment girls of caregivers who expressed changes in at least one area of their girl's education in the past year scored better on both reading and math outcomes by 2-3 points but these changes were not statistically significant. However, treatment girls whose caregivers expressed changes were more likely to successfully transition in the past year ($p<.01$). These results are consistent with the understanding that caregivers themselves may have limited education in which they are able to provide educational support in the form of tutoring, etc. but that they (caregivers) play an important role in motivation and continued education.

IO5.2: Community members express support for Afterschool club content

At Baseline the ET did not measure this indicator with any quantitative and qualitative tools and relied solely on VF's internal monitoring, interviews with 19 parents, to report out on baseline findings. As part of those interviews, all parents reported that they felt the afterschool club content delivered by the Varkey Foundation was relevant to community needs, and was therefore contributing to wider community development. This buy-in from community members is essential for the long-term sustainability of the project. No complaints about the afterschool club content were received, which to some extent validated some of the programmatic changes that VF took between GEC-1 and GEC-T with respect to afterschool clubs. For example, the project's decision to split the Wonder Women sessions between Basic and Advanced (dependent on age and grade) was not criticised; it appears to have helped the project better target girls.

At Midline the ET included questions within the caregiver survey in order to quantify not only whether the community member, in this case caregiver, supports Afterschool Club content but also whether they have engaged knowledge of this content. Caregivers were first asked to list topics covered during the sessions and then the survey was intended so that, if they were able to list at least one relevant topic, the caregiver was then asked follow-up questions as to their level of support. This was to ensure community members were responding to this question knowledgably. However, an error in survey coding led to all caregivers being asked their level of support for Afterschool content whether or not they were able to list any of the topics covered. This provided some interesting insight into how familiarity with the program may impact support as seen below.

45.8% of treatment caregivers were able to provide at least one example of Afterschool content which is slightly lower than the targeted 50%. The most common topics cited by caregivers included teenage pregnancy, sanitation, understanding adolescence (e.g. physical changes), planning for school and a future career and the importance of education. **Out of caregivers who were able to provide at least one example of Afterschool content support was high with 97.5% of these caregivers expressing moderate or strong approval for the topics covered.** Out of the 15 caregivers in this group who did not express approval 4 disapproved of the content, 7 thought the content was not relevant and 4 both disapproved and thought the content was not relevant to their child. As noted above, the survey also captured approval for caregivers who were unable to cite any components of the programs content. While approval in this group was still high at 77.2% it does suggest that greater familiarity with the program improves program perceptions (Figure 19). Key reasons for non-support were explored further in qualitative data with some caregivers suggesting during FGDs that afterschool programs took too much of the girl's times that could be better delegated to other tasks (e.g. household chores).

Figure 19: Caregiver Knowledge and Support of MGCubed Content

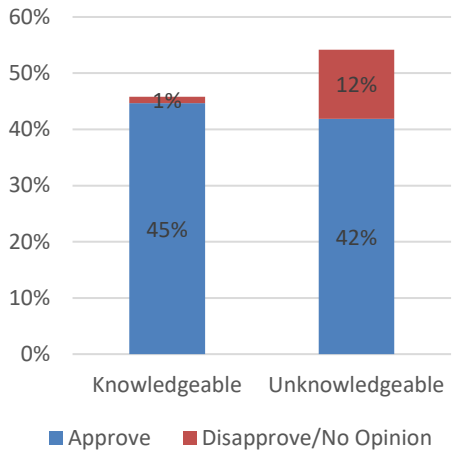


Table 46: Content of MGC-T Lessons cited by caregivers

	Treatment only
Meeting Role Models	5.40%
Awareness-raising on important days, e.g. International Day of the Girl	5.56%
Awareness raising on the importance of education	11.88%
Planning how to achieve at school	12.21%
Understanding income generation	3.74%
Understanding how to save money and budget	6.64%
Plan a future career	10.47%
Create an arts and crafts item	7.48%
Working in teams	4.73%
Understanding adolescence, e.g. physical changes	16.36%
Nutrition	6.98%
Sanitation	22.09%
Teenage pregnancy	23.42%
Understanding and overcoming gender stereotypes and gender norms	3.74%
Create personal goals and plans	2.33%
Out of School Girls	1.33%
Informal education	1.83%
Personal communications and peer relations	3.99%
Leadership	1.33%
Assertiveness	0.17%
Safe spaces	0.50%

VF's internal monitoring (interviews with 14 caregivers during Term 1) revealed that close to half of those interviewed were expressly engaged with the Project and could cite specific examples of Afterschool Club content. The others either could not answer (1) or did not attempt to answer (6). Those that were knowledgeable about the content were also explicitly supportive of the content; the others could not answer. None of the respondents provided any recommendations on alternative or new content, nor did any make any comment on the content being inappropriate.

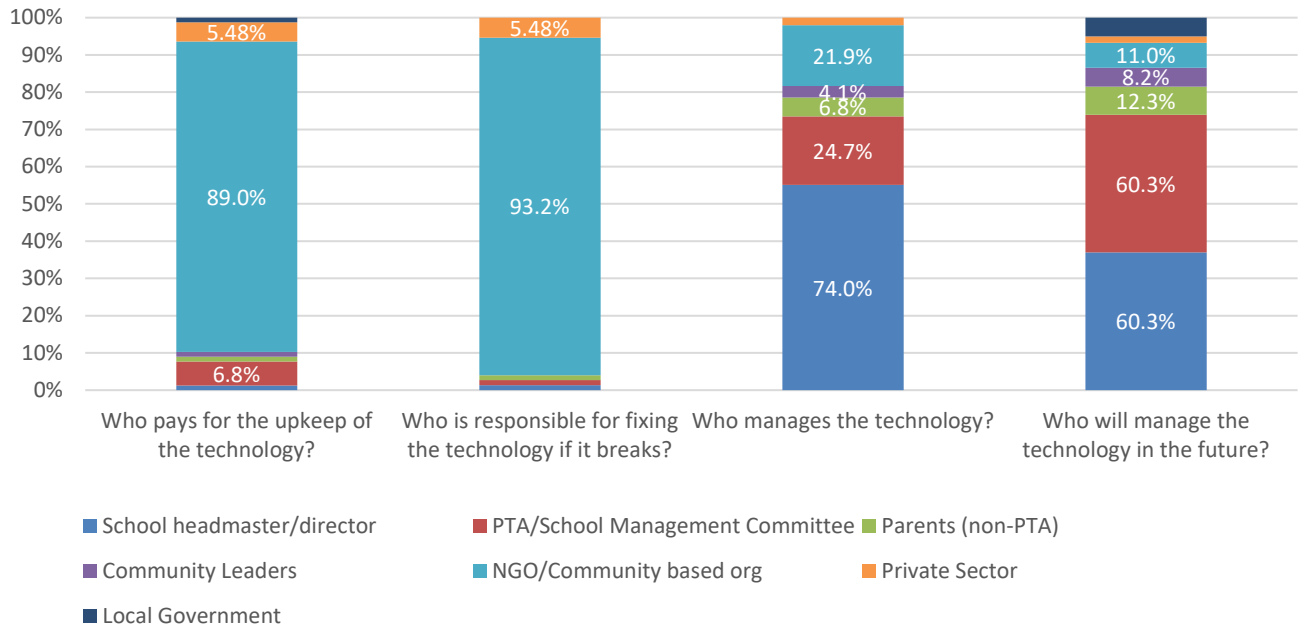
Caregiver change and Learning and Transition Outcomes. Since the level of support for afterschool content was universally high the ET instead focused on how awareness of the content, or the ability to cite at least one component of afterschool programming, correlated with learning and transition outcomes.

Similar to IO5.1 caregiver knowledge, as a proxy for support here, plays a limited role in learning outcomes by may affect transition. Treatment girls of caregivers who could site at least one component of afterschool content scored better on both reading and math outcomes by 2-3 points but these changes were not statistically significant. However, treatment girls whose caregivers could site at least one component of afterschool content were more likely to successfully transition in the past year ($p<.01$). The mechanism for how this indicator effect transition could be two-fold. One, caregivers are more likely to be aware of content if their girl attends afterschool programs and it is the programs themselves effecting transition or, two, caregivers who are more aware of content are also more involved in their child's education and would promote higher transition outcomes regardless.

IO5.3: Community acts as guardians for technology packages in schools

At midline, VF pays for and upkeeps the technology through technical engineers based within districts; head teachers overwhelmingly manage the technology and expect to continue to manage it in the future. Head teachers were consistent in their attitude towards stewardship of the technology provided by the Varkey Foundation. They currently rely on Varkey Foundation's technical support, with 94% indicating NGOs as having responsibility to fix technology if it breaks (an increase from 84% at BL). Looking towards the future, head teachers appear to be preparing for communities to play a larger role in managing the technology, a consensus that has been growing since Baseline. 25% of head teachers report PTA or school management committee members as managing technology now (comparted to 16% at BL), but 61% expect this group to help manage the technology in the future (compared to 46% at BL). Similarly, community leaders' role increases from 4% now to 8% in the future. Head teachers themselves are the most commonly cited managers of the technology with 75% noting they manage it now and 62% expecting to continue to do so in the future. It should be noted that upkeep and management of the technology are never considered to be exclusively performed by one entity which is why a large proportion of both community members and head teachers are expected to manage this technology in the future. Figure 20 below standardizes and compares the percentage that each entity contributes to the total ownership of technology at midline as indicated by the head teacher.

Figure 20: Technology Ownership at MGC-T Schools



Over 74% of head teachers have received training on the technology and feel they can properly manage it in the future. Maintenance is another key component of technology-based interventions. Developing head teachers' capacity to effectively manage the technology will be a key aspect of the program's sustainability. MGCubed appears to be making good progress, though the percentage of head teachers reporting have received training has dropped from 86% at baseline to its current level. This may be due to staff turnover among head teachers as the training is delivered face to face once a year. However, the number of head teachers expressing confidence in their ability to manage the technology in the future was closer to baseline levels(79% at midline compared to 86% at baseline) and may indicate teacher assurance that either they will be trained in the future or already have the capacity to manage the technology (Table 44). Additional information on the role of technology, school and community-level actors, and sustainability is found in the Sustainability Outcome section of this report.

Table 47: Headteacher Training and Management on Technology

	Do you receive training to operate the technology for the distance learning?	Will you be able to manage the technology in the future?
No	26.4%	18.1%
Yes	73.6%	79.2%
Don't Know		2.8%

The sustainability of the technology is dependent on buy-in from the community to ensure it is not damaged or stolen; thus it is also dependent on the school leadership to ensure adequate security. **This indicator is primarily measured through the rate of thefts recorded by the Project.** At Baseline this figure was three; at Midline only one case had been recorded in the intervening period. This shows a positive movement towards the technology being cared for at community level, aided by Project and

Headteacher efforts to engage the community and encourage support for the Project's objectives though it misses the target of 0 thefts at midline.

Theft incidents are a barrier to the Project functioning in a community: missing equipment hinders or halts delivery of broadcasts and disrupts scheduling. The resolution of theft incidents are necessarily community-led and demonstrate increasing responsibility on the part of the community to respond to incidents that threaten the Project. Encouragingly, one school has succeeded in mobilising the community to cover the costs of replacement, while in other two instances the Community members identified the thief and recovered most of the stolen items. At this stage, Communities are mobilising funds to pay back VF for the stolen items that have not been recovered.

Communities willingness to act as guardians of the technology is also dependent on their perceived value of district learning. While FGDs showed large parental support with caregivers noting that distant learning decreased teacher absenteeism and provided valuable lessons most students had mixed reviews. The primary negative review was that the technology doesn't always stream properly, disrupting lessons and, at times, the teacher can be difficult to understand or the audio is not clear. For these reasons the ability to fix and use the technology will continue to be as important as the ability to safeguard the physical property and it is recommended that the project invest in community trainings.

Guardians of Technology and Learning and Transition Outcomes. While community ownership of the technology is a good proxy for project support the low level of variation in this outcome (i.e. the lower level of theft) means that transition and learning outcomes are better captured in a comparison of the presence of the project in treatment and comparison schools as included in Section 3 and 4 above.

6.5 Economic empowerment

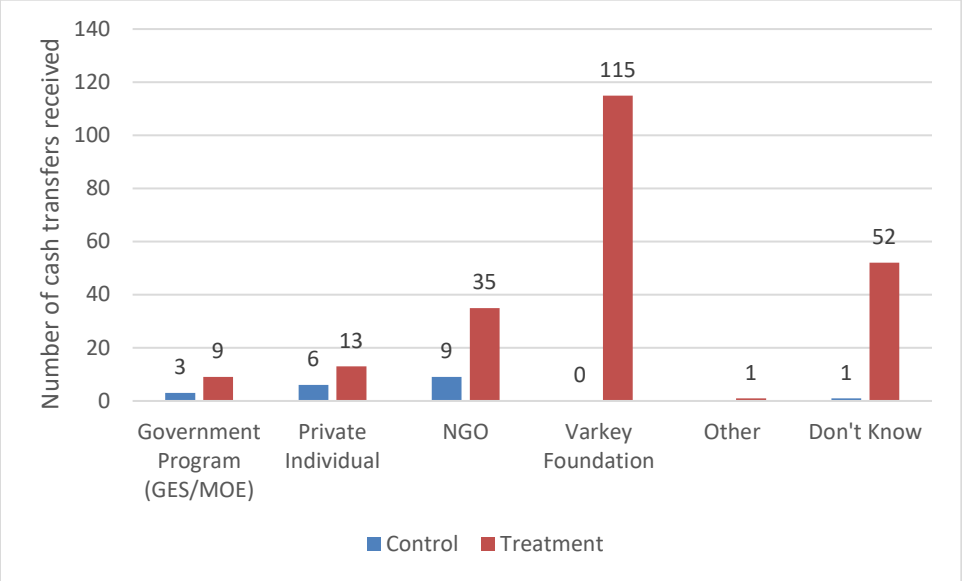
Financial barriers were the most commonly cited reason a caregiver would not allow a child to attend school the following year. Likewise, the girl survey noted that a common reason VF aims to address this issue by providing cash grants. Findings from GEC-1 pointed out that one of the key barrier to Transition is financial, as parents are unable to support the associated costs of education, such as books, uniforms and exam fees, as well as needing their girls to contribute to the family's income, often during school hours. With this in mind, the MGCubed GEC-T Project incorporated an unconditional cash transfers to support girls transitioning from Primary 6 to JHS, or from out-of-school back into school, in order that the sundry costs do not create a barrier to their progression. This constitutes Output 6 of our log frame and its efficacy will be considered under Outcome 2 (Transition).

Following an open call for proposals in selecting the cash transfer provider, the national network provider Tigo was selected due to the cost effectiveness of their provision. During Year 1 of the Project, VF carried out engagement activities with the main stakeholders of each school to ensure the success of the Cash Transfer Scheme in each of the 72 communities. The Project held meetings with the PTA/SMCs, and the caregivers to explain the rationale of the Cash Transfer Scheme. These meetings showed the importance of girls' access to education and the value of Transition. The meetings at the school sought to explain the larger barriers that girls suffer to Transition in education and the role of Cash Transfers to bridge the gap. Caregivers and the PTA/SMCs were also given information on the use of the Cash Transfers. Each family was allocated a specific amount based on calculations of the items and expenses necessary to ensure Transition to JHS1. VF shared a list of recommended items were the funds were could be used such as uniforms, exercise books, stationary, sandals, school bag, feeding allowance, PTA dues, etc. The families were not limited by VF recommended items but could use the cash to support other related costs. The

Project worked hand in hand with the PTA/SMCs to ensure that recipients employ the funds accordingly. VF rolled out the Cash Transfer programme during the 2018/19 academic year. The Cash Transfer programme seeks to financially support P6 girls to Transition to JHS1. During the first year of this intervention, 862 Female pupils benefited from Cash Transfers and 100% of the beneficiaries successfully transitioned to JHS1 confirmed that transition to JHS1 was a smooth process.

Household caregivers were asked if they received a cash transfer towards their girl child's education to which 17.5% of treatment caregivers and 1.5% of comparison caregiver noted they had. The majority of cash transfers issued came from the Varkey Foundation (47.2%). Treatment caregivers also noted a higher level of transfers from other NGOs (17.4%), and government (5%). Around 21 percent of participants didn't know the source. Treatment girls, on average, were more likely to note receiving a cash grant from all sources than comparison girl. While it is feasible that treatment girls are getting more transfers than comparison girls across providers, it should also be considered that these are VF grants mistakenly identified as coming from another partner.

Figure 21: Source of Cash Transfers for Girl's Education



As this question specifically asked about cash transfers for girls' education the ET included follow-up questions to understand the caregivers' perspectives regarding how cash transfers impacted girls' attendance and overall household income. A majority of caregivers (73.7% in the comparison and 78.7% in the treatment group) noted that the cash transfer increased school attendance. This finding is somewhat supported by the girls' survey where 17% of girls noted being absent to support a family business and 5% noted staying home for a financial issue (e.g. unable to pay school fees, lack of pocket money, etc). For the transition outcome, SI could confirm that 236 girls or 97% of those receiving a cash transfer transitioned successfully in the past year compared to 89% of those without a cash transfer ($p < 0.01$). VF internal monitoring data on the cash transfer confirms that during the first year of this intervention, a total of 862 Female pupils benefited from Cash Transfers and 100% of the beneficiaries successfully transitioned to JHS1 confirmed that transition to JHS1 was a smooth process. This was confirmed through a follow up on the enrolment and attendance data of cash transfer beneficiaries.

Cash transfers may have positive impacts on household income beyond supporting the targeted child, including increased educational spending on other children in the household. Over 70% of households

noted that receiving a cash grant impacted the rest of their income with approximately a 1/3 noting they now spend more money on another child's education. This redistribution of funds within the household may be especially valuable at encouraging education for all children. Though most caregivers involved in FGDs noted that gender should not determine if a child attends school, when it came to financial constraints, it was typically the female child who was removed from school. One father noted "We ought to enrol all of them [our children], but without money I made the girl stop." Mothers were even more likely to note financial reasons, specifically income generating opportunities, for girls to stay home including "My husband and I have decided to let the boys attend school and the girls attend [the] market with me" and "If my girls attend school it will not help me because selling [in the market] is better." Based on these views it can be said that economic empowerment is one of the major drivers of attitude towards sending girls to school. Before cash transfer, when they were sending them to schools it was viewed mostly as an hindrance rather than being supportive. However, that said, it is difficult to generalise since there are households who send their girls to school despite being constrained by poverty and lack of affordability.

The ET will continue to explore the role of economic empowerment at endline. This issue becomes more critical as girls age and the opportunity for income making activities outside of school increases. The MGC-T program plays a valuable role in educating girls on the benefits of continued education for their future income, as well as opportunities support household income now without disrupting their studies. This is explored further in the Life Skills section below.

6.6 Life Skills

The MGCubed program provides the opportunity to learn about various life skills. FGDs noted a positive response across respondents (both students and caregivers) regarding afterschool programs which taught self-care, hygiene, sexual reproductive health (SRH) and financial literacy. A mothers' FGD noted the acquisition of a diverse set of skills including education on "how to keep themselves (girls) clean and hygiene" how to "make slippers with beads and design their own bags" and that the programs taught girls "respect." These changes were quantified in the following IOs.

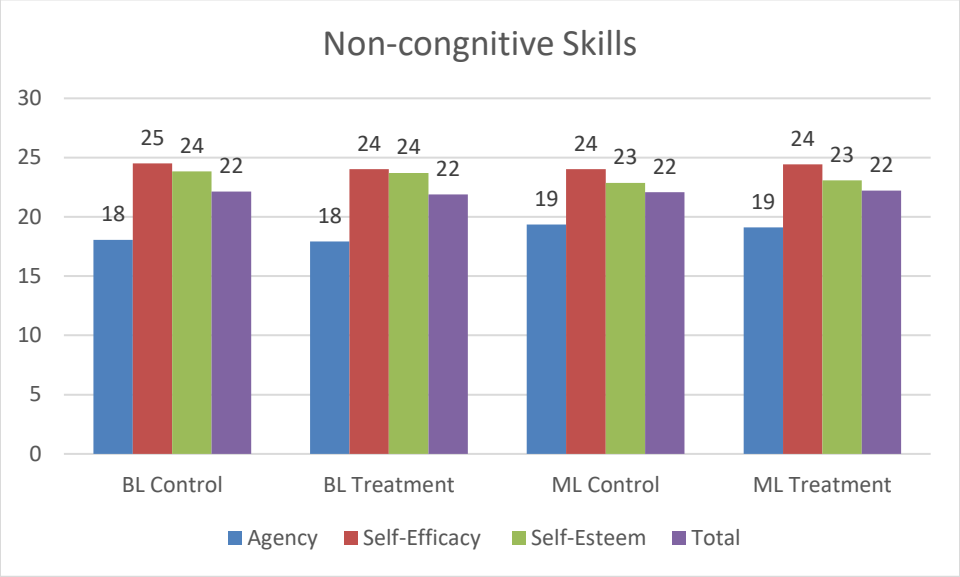
IO3.1 Percentage of sampled girls demonstrating an improvement in non-cognitive skills across multiple areas (agency; self-efficacy; self-esteem)
IO3.2 Percentage of sampled girls demonstrating knowledge and understanding of 1) Health and Sanitation; 2) Financial Literacy
IO3.3 Percentage of community members reporting changes in girls' attitudes and behaviours

IO 3.1: Percentage of sampled girls demonstrating an improvement in non-cognitive skills across multiple areas (agency; self-efficacy; self-esteem)

For IO3.1, the ET constructed three composite indices for the various non-cognitive skills. All indices and the questions they were derived from came from the girls' survey. The first index had to do with a girl's agency, or decision-making power. The second index dealt with self-efficacy. The third index dealt self-esteem. To answer IO3.1, the ET averaged the scores from the three indices to arrive at 22.22 for treatment girls at midline. This is a significant ($p < 0.01$) though small increase against a score of 21.88 for the treatment group at baseline **with 51% of treatment girls improving their non-cognitive skills against a target of 20%.** For comparison girls their overall non-cognitive scoring decreased slightly from 22.14 at baseline to 22.07 at midline. In other words, treatment girls had lower score than comparison at baseline and it increased slightly in midline to overcome the gap so that the differences between the two groups is no longer statistically significant. In both the largest declines were found around self-esteem

(Figure 22). This is reflective of baseline results, repeated at midline which showed that self-esteem, unlike agency and self-efficacy does not display large improvements as a girl ages.

Figure 22: Index of Girls' Non-Cognitive Skills



When it came to agency, the ET constructed an index based on six key questions asked to all girls. The questions revolved around key decision-making points in a girl's life, such as her going to or staying in school and getting married. Girls could answer that they made the decisions themselves (a score of 5), that they made decisions jointly with their family (a score of 3), or that their family made the decision for them (a 1-point score),[40] with more overall points signifying higher agency. The index had a minimum possible score of 6 and a maximum of 30. The six questions are below:

Who mostly makes decisions about the following, or if this is in the future for you, who do you expect will make this decision?

- Whether or not you will go to school
- Whether or not you will continue in school past this year
- When/ at what age you will get married
- If you will work after you finish your studies
- What type of work you will do after you finish your studies
- How often you spend time with your friends

It is important to note that while emphasis, and therefore value, are being placed on a girl's ability to make decisions regarding her future, it does not mean that she will always make the best decision. Girl FGDs noted that poor performance and student absence could be commonly attributed to the girl's choice or mannerisms (e.g. laziness) rather than parental interference (e.g. requiring the girl to stay home and help with household chores). Therefore, while agency is important, especially as the girl ages, there is value in considering her decision making both alone, and jointly with family.

[40] This scale was updated from baseline (I decide = 3, Jointly decide = 2, Family decide = 1) in order to match the scale range (6-30) of the other two indices when averaging and therefore give equal weight to agency as to efficacy and esteem.

Girls have some agency over decisions that have to do with their education, with just over half saying they make the decisions themselves or jointly with their families to go to school or continue studying after the end of the term. This finding holds true for treatment and comparison girls. Girls generally gain more agency as they age which is appropriate, especially in regard to life decisions. At midline treatment girls were slightly more likely to claim agency in the amount of time spent with friends while comparison girls were more likely to decide the age of marriage. Overall, however, comparison and treatment girls scored the same, around 19/30 points, with agency scores following a similar pattern as baseline and rising steadily from Grade 4 to JHS11 (Figure 23). This progression in agency is encouraging, as it is expected that as a girl ages, she has more comparison over the major decisions in her life. When looking at the individual decision-making questions (Figure 24), themes present from baseline are again noted. For example, while over 80% of treatment girls, on average, say they make the decision themselves or with family as to how often they spend time with friends, only 57% responded the same way when it came to the age at which they would get married. Similarly, 53% of treatment girls decided themselves or with family if they would continue on in school past the current school year and 59% said they decide alone, or with family, if they will enrol in school or not. Across all questions, girls expressed more agency at midline than baseline. This is not surprising as agency intends to increase with age, a finding noted at baseline and consistent as the cohort itself ages although at each grade, the girls from comparison schools scored higher in agency than beneficiary girls from treatment schools.

Figure 23: Agency Scores by Midline Grade

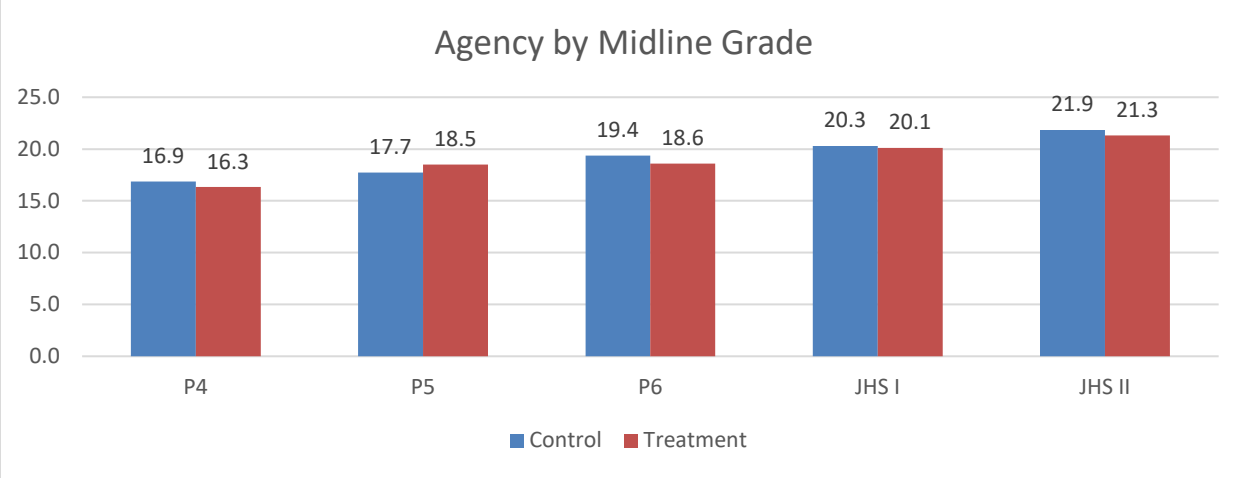
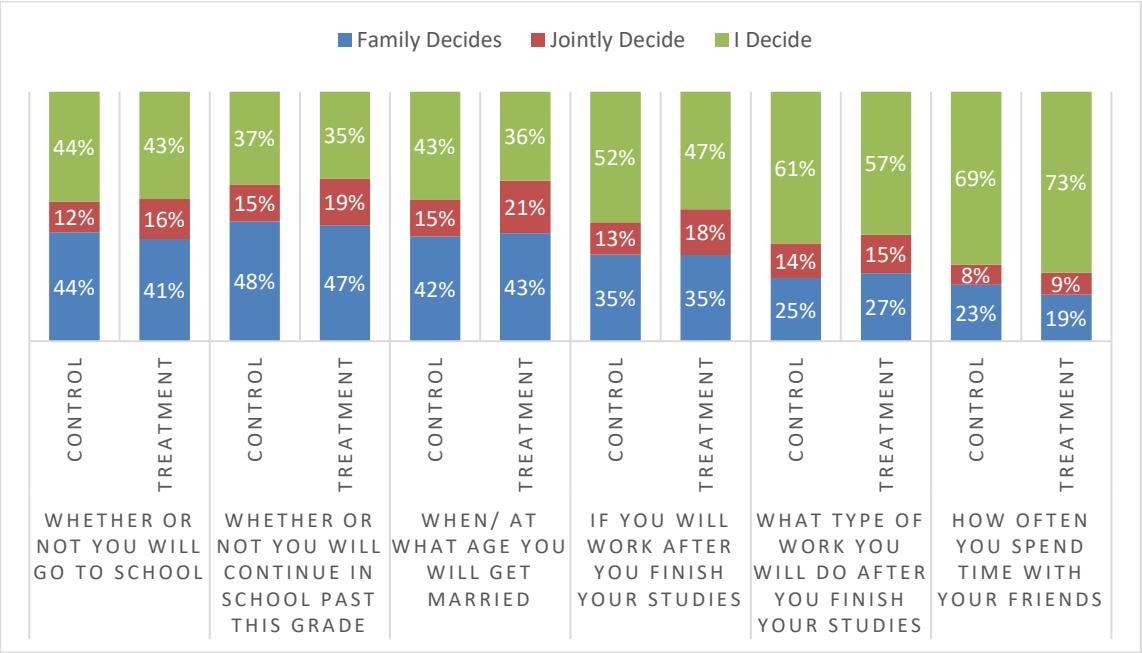


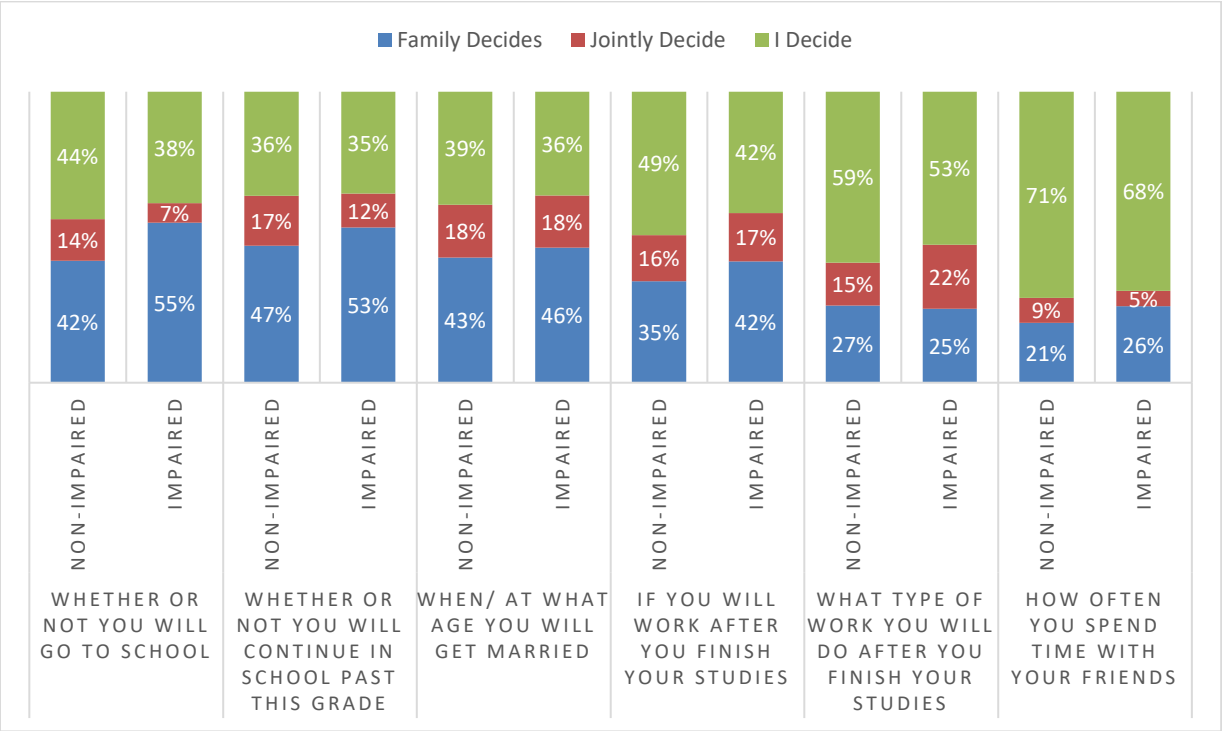
Figure 24: Agency by Question and Treatment Status



Impaired girls have less agency over educational decisions when compared to non-impaired girls. When disaggregated by impairment status, it is quite clear that impaired girls have substantially lower agency than non-impaired girls. On average, impaired girls scored 18.03 on the index and non-impaired girls score a 19.2/30, or nearly 7% higher. Perhaps surprisingly this gap is most noticeable and significant ($p < 0.05$) in treatment schools where impaired girls score 15.88/30 while non-impaired girls score 19.12/30.

Looking at the six questions that constitute the index, there persist differences in agency between non-impaired and impaired girls on whether or not she will attend school. At baseline, non-impaired girls have nearly 20% more agency than impaired girls in determining by themselves or jointly with their families whether or not they would attend school currently or enrol next year. At midline this gap narrows to 13% more agency for non-impaired girls making decisions regarding current attendance and 6% for non-impaired girls making decisions (themselves or with family) on whether or not they will attend next year.

Figure 25: Agency by Impairment Status at Midline



The second index created under IO3.1 had to do with self-efficacy, or a girl's belief in her ability to succeed in various life situations. The self-efficacy index was similarly constructed of six questions, which can be found below. The six questions had a range of five possible answers, from strongly disagree (a score of 1) to strongly agree (a score of 5), and thus yielded a minimum possible amount of 6 and a maximum of 30. The six questions were chosen for inclusion in the index as they were the only six questions that all girls received, regardless of their age. The questions included:

To what extent do you agree with the following statements?

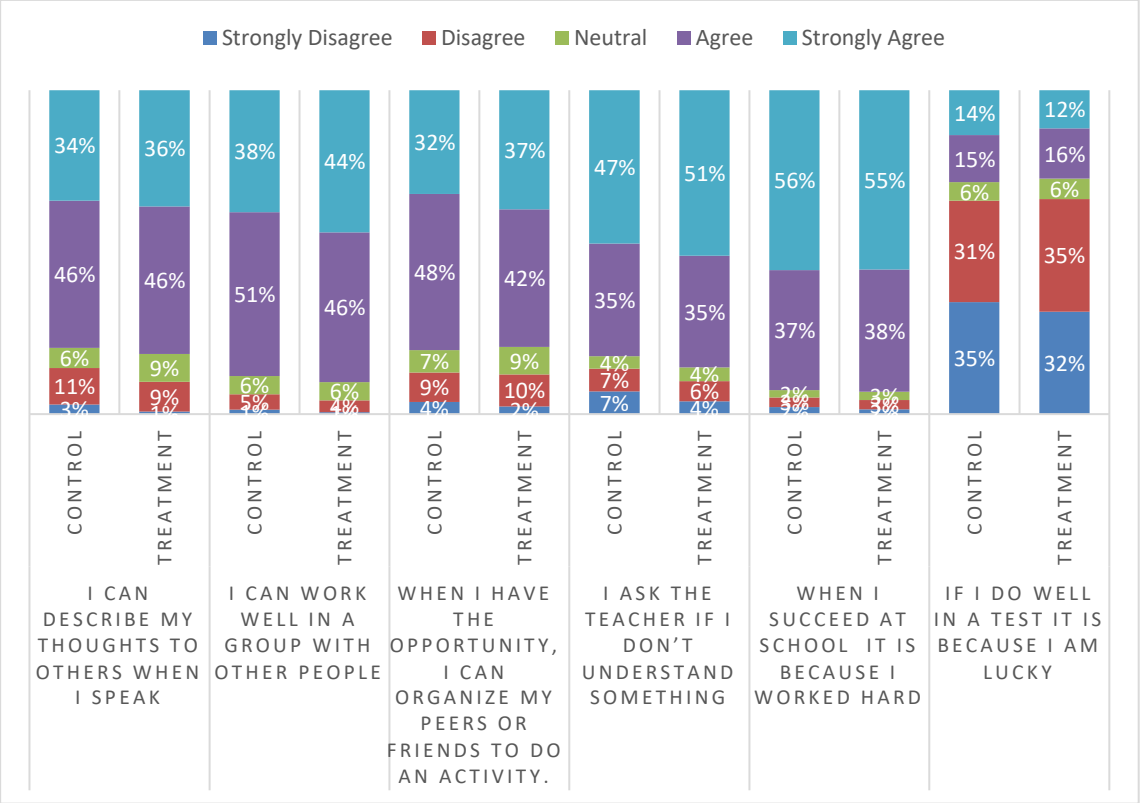
- I can describe my thoughts to others when I speak
- I can work well in a group with other people
- When I have the opportunity, I can organise my peers or friends to do an activity.
- I ask the teacher if I don't understand something
- When I succeed at school it is because I worked hard
- If I do well in a test it is because I am lucky (reversed scale with 1 = strongly agree, 5 = strongly disagree)

Girls in both treatment and comparison schools have relatively high self-efficacy scores. Treatment girls scored significant ($p > 0.01$) but higher amount on the self-efficacy index compared to comparison girls (24.44 verse 24.03), with a very slight progression observed across grades. Scores are slightly lower for comparison girls than their baseline counterparts (24.52 at baseline) and slightly higher for treatment girls at midline (24.02 at baseline). Despite small differences, important to note that at baseline, the treatment was lower than comparison and again this difference was significant ($p < 0.01$) though small. However, by midline this had reversed.

When looking at the individual questions themselves, patterns reflect those observed at baseline with the distribution of the self-efficacy scores consistent across almost all questions except for one: how well girls

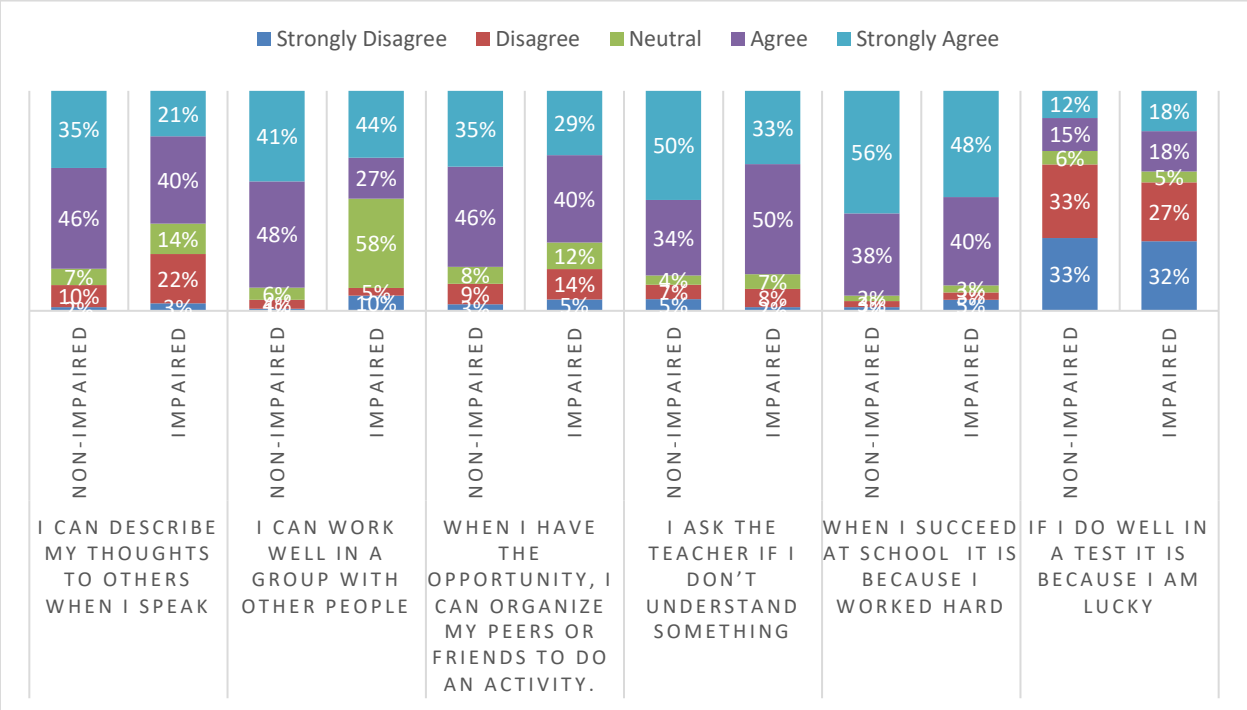
do on tests. When asked "If I do well on a test, it is because I am lucky," the distribution of answers was wide, with nearly 30% of comparison and treatment girls agreeing or strongly agreeing with the statement. The bulk of the variation in the self-efficacy index comes from this question; however, it is worth noting that this is down from the almost 40% observed at baseline. When it comes to the relationship between the teacher and the students, 5.5% of girls strongly disagreed that they would ask their teacher if they did not understand. 10% of treatment girls disagreed overall, compared with 14% of comparison.

Figure 26: Efficacy by Treatment Status at Midline



Impaired girls have slightly lower self-efficacy scores than their non-impaired counterparts. When disaggregated by impairment status, impaired girls have slightly lower self-efficacy scores than non-impaired girls on the composite index (22.7 and 24.2, respectively). This imbalance is consistent among treatment and comparison girls and seems to be largely attributed to less confidence among impaired girls in "describing their thoughts to others" and "working well in a group of people." The large variation, especially on the second question, was not as distinct at baseline.

Figure 27: Efficacy by Impairment Status at Midline



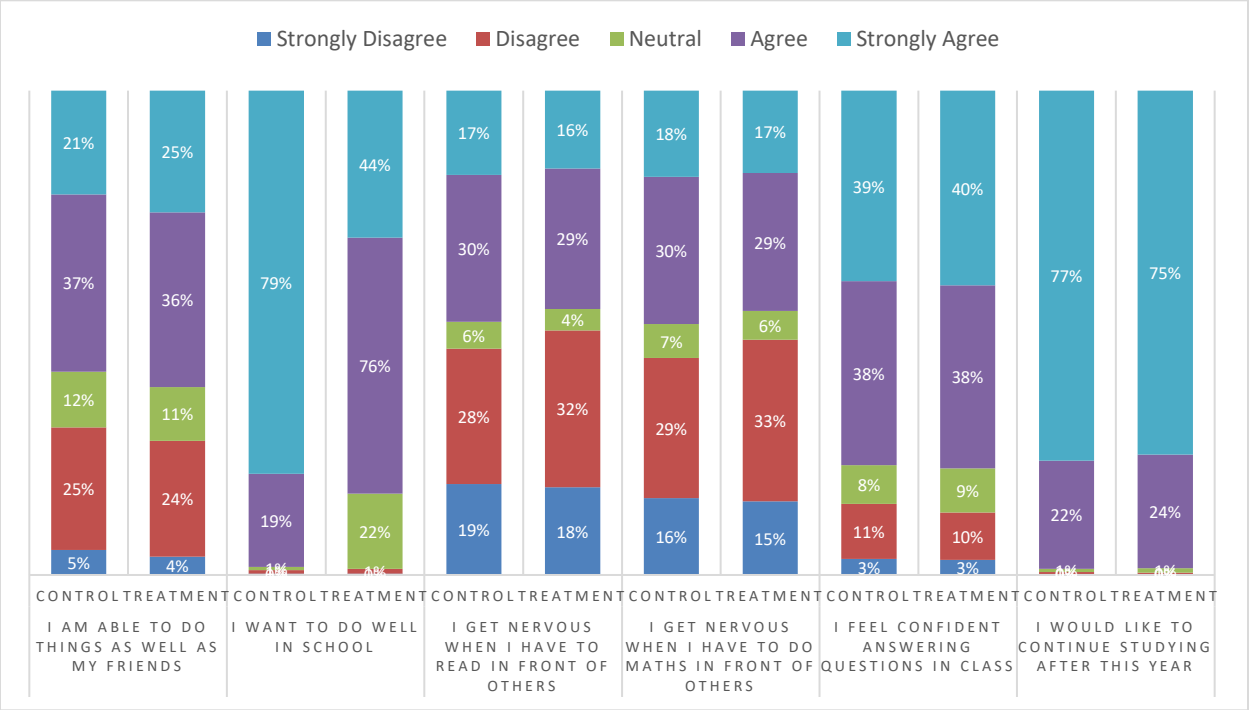
The third indicator for IO3.1 examines self-esteem. Similar to agency and self-efficacy, the ET constructed a composite index to measure self-esteem. The index included six questions, whose answers ranged from strongly disagree (1) to strongly agree (5). This resulted in a composite score with a minimum of 6 and a maximum of 30. The questions were as follows:

- I am able to do things as well as my friends
- I want to do well in school
- I get nervous when I have to read in front of others (reversed scoring)
- I get nervous when I have to do maths in front of others (reversed scoring)
- I feel confident answering questions in class
- I would like to continue studying/ attending school after this year

Girls have generally high self-esteem, which stays relatively consistent as a girl ages. When it comes to self-esteem, the ET found very little differences between comparison and treatment girls: almost all girls had relatively high self-esteem (around 23/30) according to the composite index constructed. Interestingly, self-esteem levels stay almost constant, increasing by only 0.3 points from P4 to JHS2. These findings are contrary to those associated with agency (4.8 point increase) and self-efficacy (1.9 point increase); as a girl ages, it may not necessarily mean that her self-esteem grows. The onset of puberty, increased household duties, and family/friend relationships may be enough to stymy the growth of self-esteem expected from maturation.

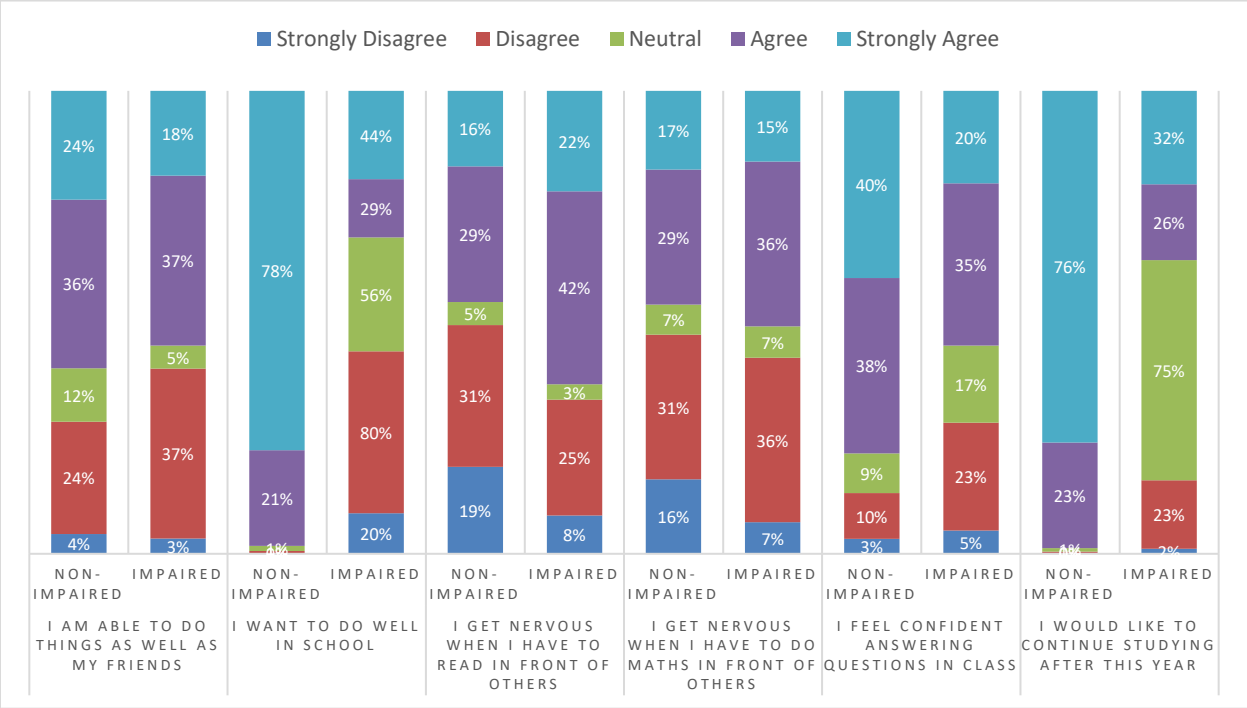
When analysing the six specific questions used to create the index, we find that girls are most confident around their desire to do well in school and continue studying after this year. Their self-esteem is much more varied when asking questions associated with individual actions, such as reading in from of others and answering questions in class and there is increased variation (and a drop in confidence) when noting they are able to do things as well as their friends from that recorded at baseline.

Figure 28: Self-esteem by Treatment Status at Midline



When disaggregated by impairment status, impaired girls have slightly lower self-esteem scores than non-impaired girls on the composite index (21.8 and 23.0, respectively). Looking at the six questions that constitute the index for self-esteem, impaired and non-impaired girls have varied responses across most of the questions. The major differences are found for the statements "I want to do well in school" and "I would like to continue studying after this year". There is however a considerable disparity between non-impaired and impaired girls with non-impaired are three times as likely to not want to continue school. This is a change from baseline where impaired girls were more likely to note disagreement with the statement "I feel confident answering questions in class" and agreement with "I get nervous when I have to read in front of others."

Figure 29: Esteem by Impairment Status at Midline

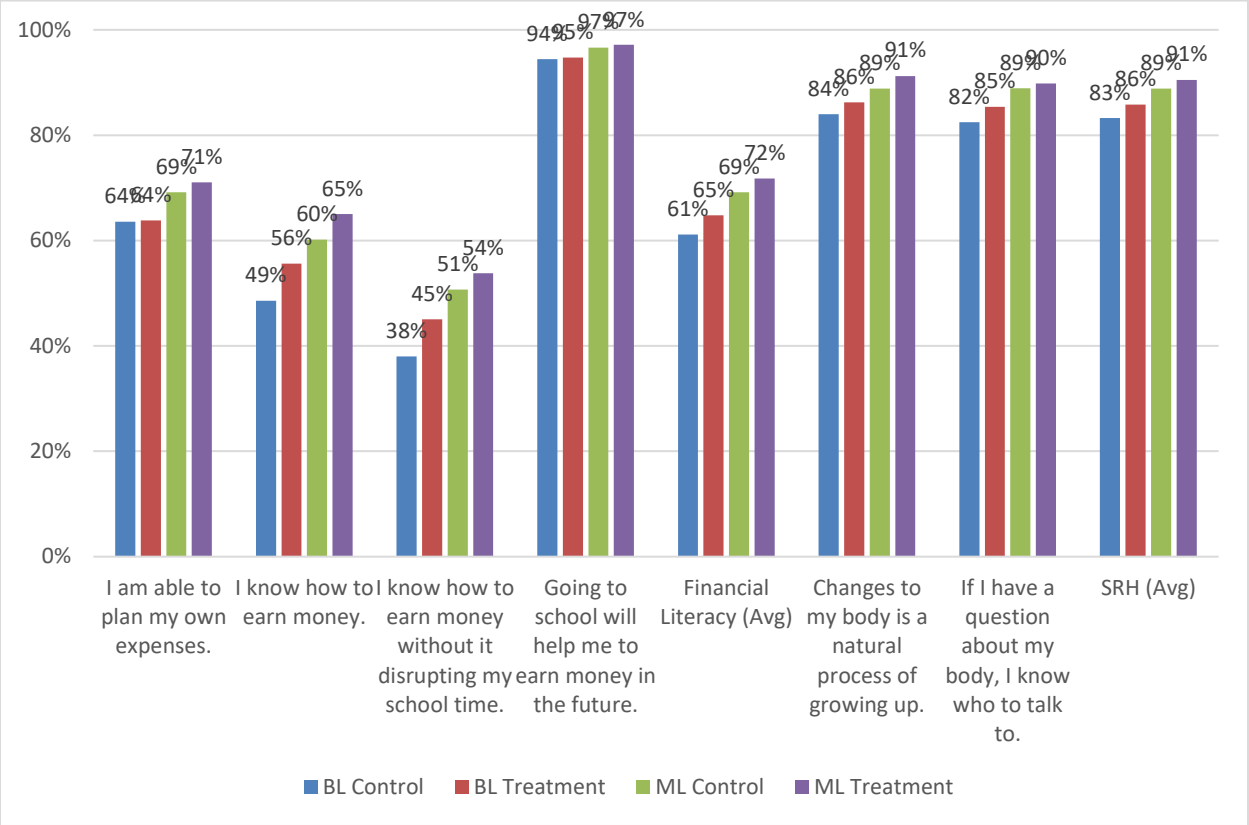


Non-Cognitive Skills and Learning and Transition Outcomes. Non-cognitive skills are significantly correlated with higher learning and transition outcomes. For both treatment and comparison girls those with a higher non-cognitive index score preform better on both math and reading learning assessment ($p<.01$). Girls with higher non-cognitive skills are also significantly more likely to experience successful transition ($p<.05$). While non-cognitive improvements are likely to extend beyond the classroom, these finding strengthen the position of MGCubed programming in increasing esteem, efficacy and agency among girls (the findings remain consistent even when broken out by esteem, efficacy and agency separately).

IO 3.2: Percentage of sampled girls demonstrating an improvement in knowledge and understanding of 1) Health and Sanitation; 2) Financial Literacy

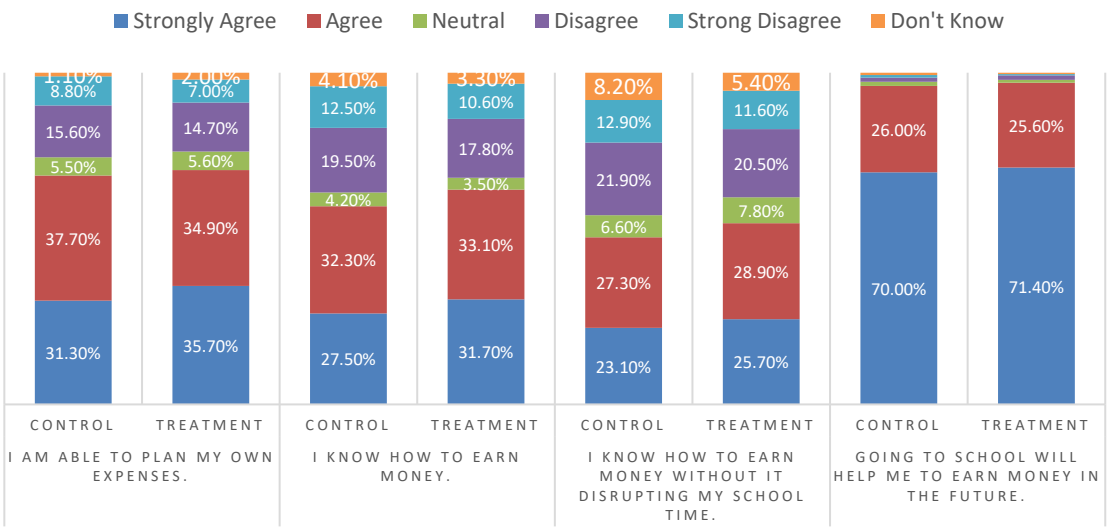
MGCubed after-school clubs, known as Wonder Women (for girls) and Boys Boys (for boys) – as well as mixed-gender clubs – involve a holistic curriculum that focuses, among many things, on practical life skills. Foremost in this area is financial literacy and sexual/reproductive health (SRH). The following section details findings on financial literacy and SRH as they pertain to MGCubed-specific curriculum. To answer IO 3.2, the ET took the average sums of "strongly agree" and "agree" answers for financial literacy, and then separately for SRH and reported them in the Log Frame. **The team found that at midline 71.8% of treatment girls "strongly agreed" or "agreed" in response to questions on financial literacy and 90.5% did so on questions regarding sexual reproductive health against a target of 77% and 83% respectively.**

Figure 30: Changes in Financial Literacy and SRH from Baseline to Midline



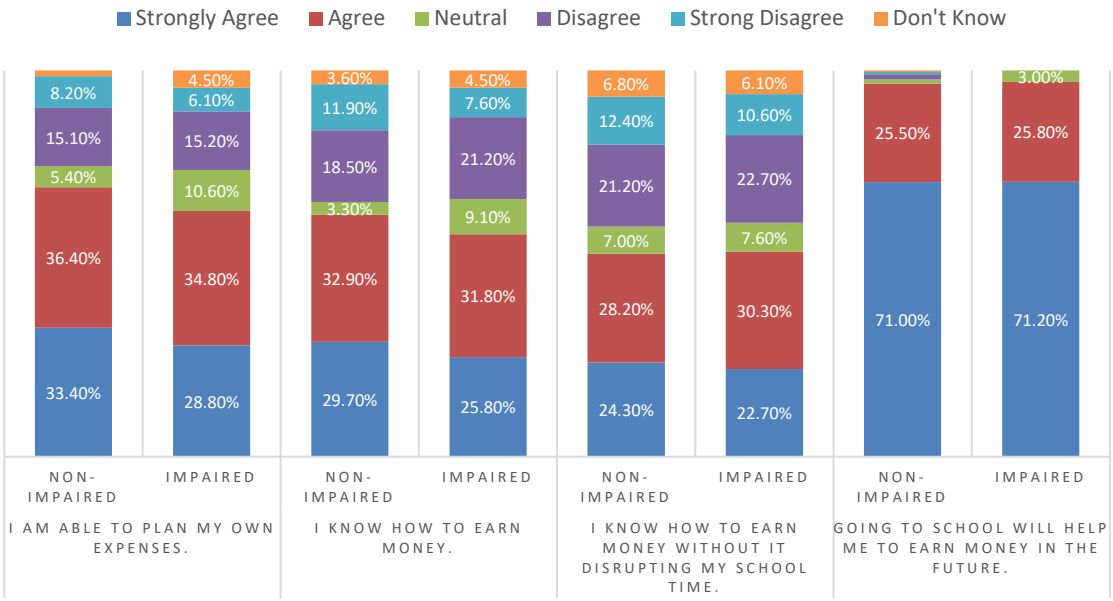
There is wide variation in girls' knowledge around earning money, with just over half of girls knowing how to earn money without it disrupting their school time. For financial literacy questions, there were no objective questions or tests given that measured financial literacy. Instead, all girls were asked about their knowledge around earning money, saving, and planning for the future. Results show that comparison and treatment girls answered about the same. Over 60% agree or strongly agree that they are able to plan their own expenses. Differences in comparison and treatment groups begin to emerge specifically around earning money. Greater proportions of treatment girls agree or strongly agree that they know how to earn money (65% compared to 60%) and that they know how to earn money without it disrupting their school time (55% compared to 50%). Over 95% of all girls believe agree or strongly agree that going to school will help them earn money in the future. In all cases, girls were more likely to report increased financial literacy, as measured here, improving from baseline levels.

Figure 31: Financial Literacy by Treatment Status at Midline



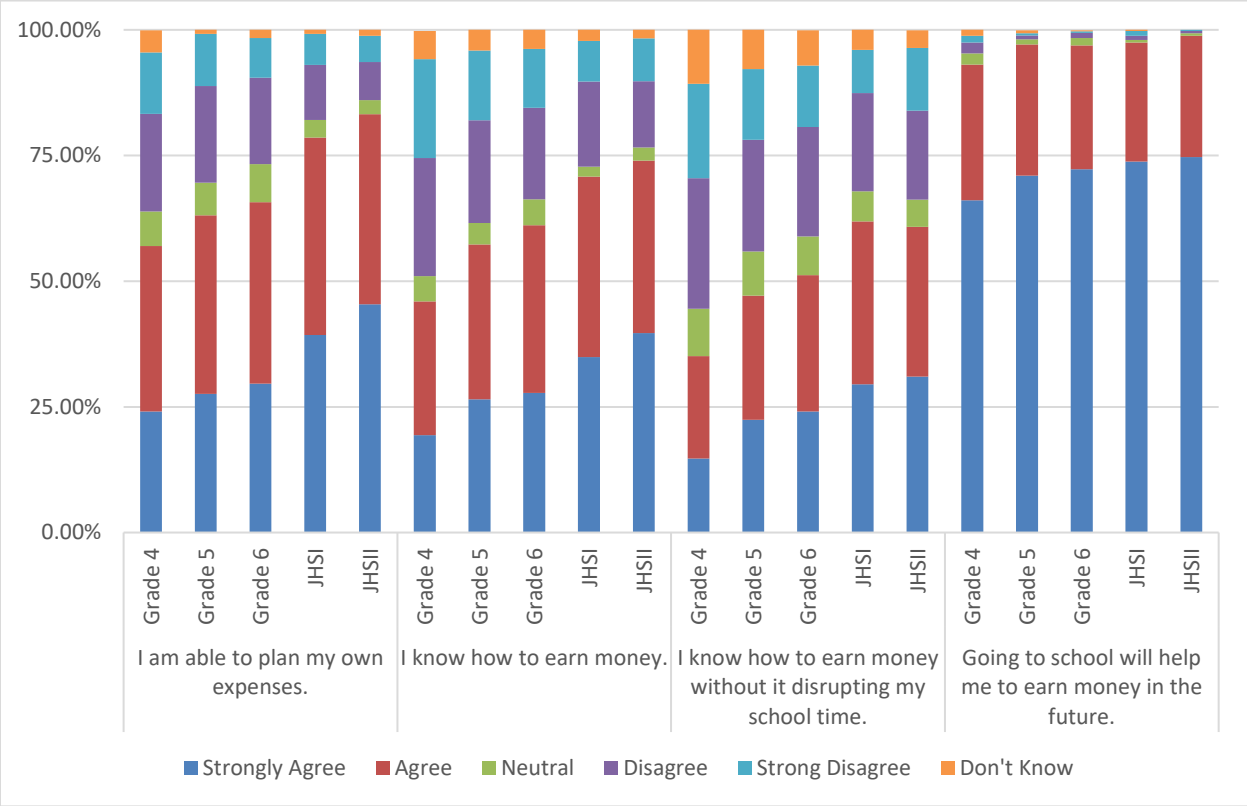
Broken out by impairment status and similar to baseline, there are no major differences between impaired and non-impaired girls, though impaired girls have slightly higher proportions than non-impaired girls when it comes to agreeing or strongly agreeing with the statements "I know how to earn money" and "I am able to plan my own expenses."

Figure 32: Financial Literacy by Impairment Status at Midline



In Figure 33, financial literacy indicators are displayed by grade. The results show a clear pattern of more positive responses with regard to financial literacy skills and knowledge as a girl ages. This makes sense given a girl's exposure to MGCubed courses as well as work and family business as she ages and follows patterns observed at baseline.

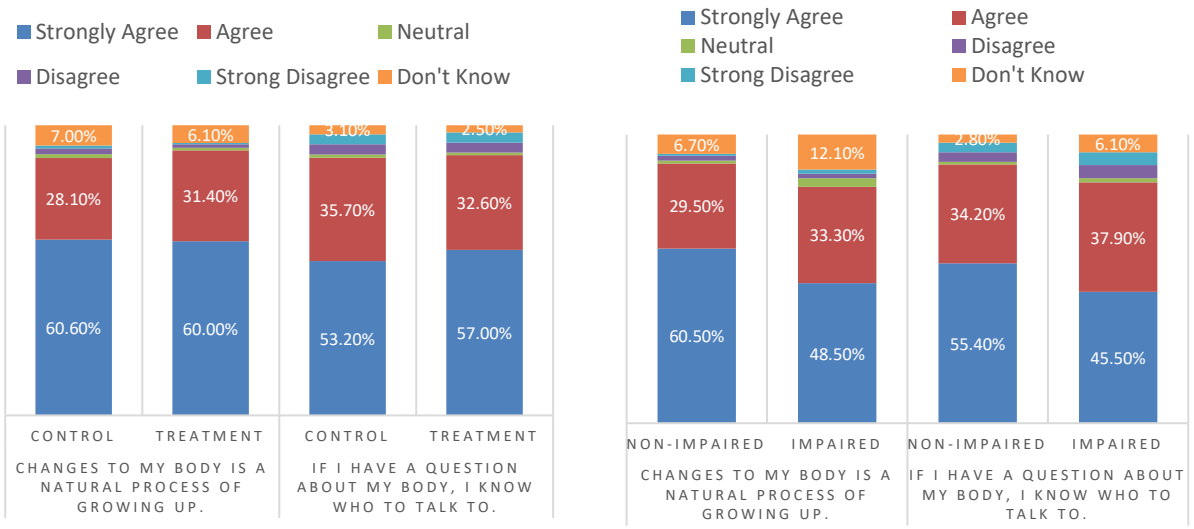
Figure 33: Financial Literacy by Grade at Midline



With respect to SRH, all girls were asked questions about changes to their bodies as they grow and about how to access help should they have questions about their bodies. Given the sensitive nature of these questions all attempts were made to have female enumerators administer the entire girl's survey to a girl, or at least have female enumerators administer this portion of the survey.

Girls are generally aware of key sexual and reproductive health issues and gain more knowledge as they age. Impaired girls have slightly lower knowledge than their counterparts. Figure 34 shows that around 90% of girls, regardless of comparison or treatment status, agree or strongly agree with the statement that "change to my body is a natural process of growing up" and "If I have a question about my body, I know who to talk to." This is an increase around 5% points expressing the same at baseline and an indication that girls gain confidence in SRH issues as they age. When it came to impairment status, impaired and non-impaired girls answer similarly positive, though non-impaired girls have, on average, about 8-10 percentage points higher proportions of "agree" or "agree strongly" when compared to impaired girls.

Figure 34: SRH by Treatment and Impairment Status at Midline



When asked about specific changes to their bodies, girls in comparison, treatment, impaired, and non-impaired groups had similar responses. Among all types of changes to the body, breast development was mentioned the most frequently (69-80% of girls), followed by menstruation (51-57%), body hair (42-51%), and body odour (9-13%). Between 12-20% of girls could not mention a change to their bodies. Comparison girls were almost twice as likely to provide a don't know response when asked about changes to their body than treatment girls (20% compared to 12%). Impaired girls were also more likely than non-impaired girls to give a "don't know" response (26% compared to 16%).

Figure 35: Cited Ways in Which the Body Changes Over Time by Treatment and Impairment Status

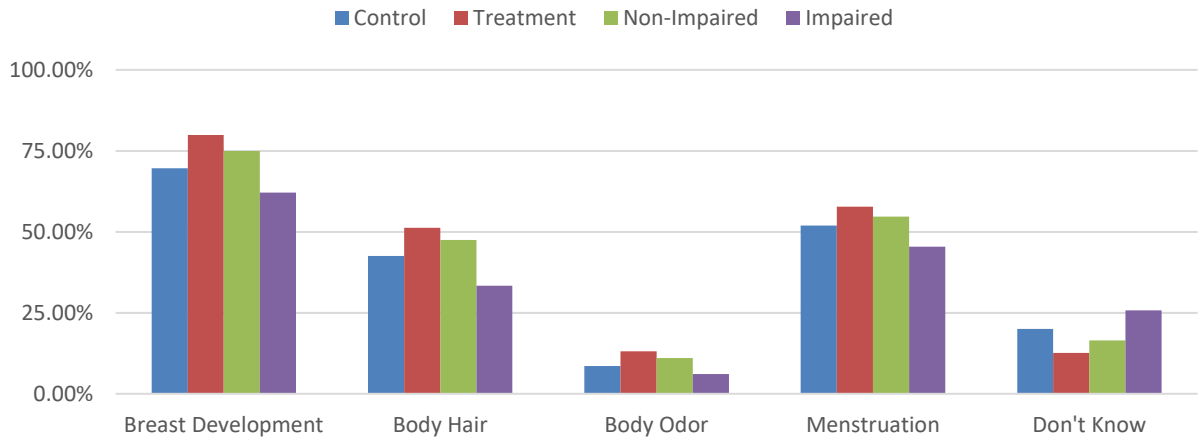
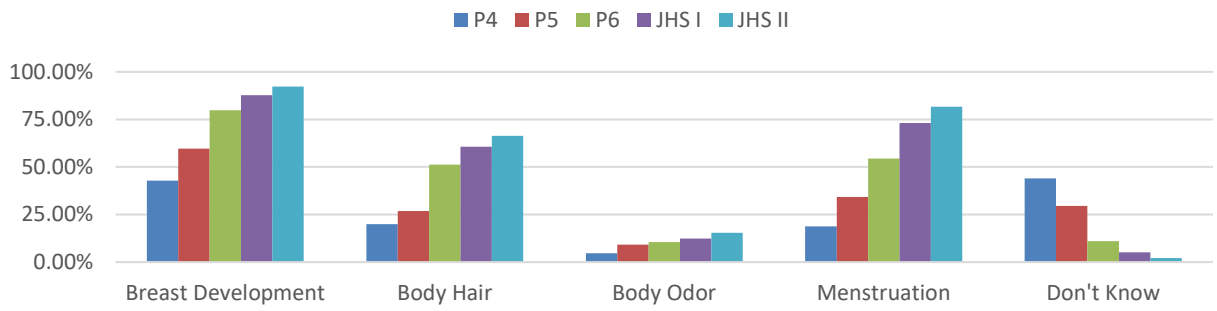


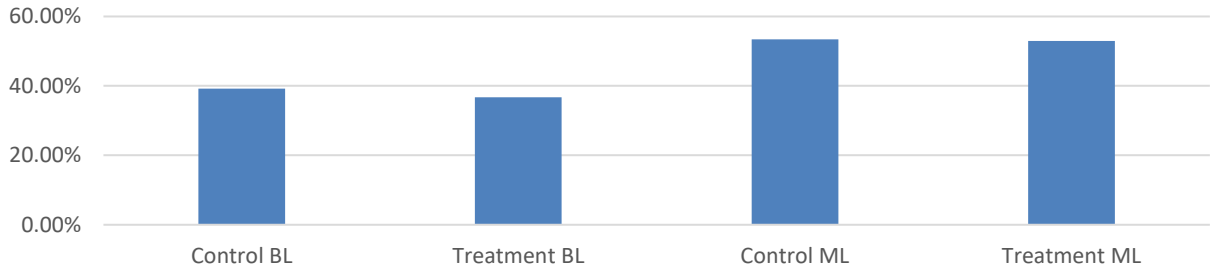
Figure 36 shows that as a girl ages, her knowledge about certain changes to her body increases quickly. This is expected and consistent with baseline findings.

Figure 36: Cited Ways in Which the Body Changes Over Time by Grade



To gauge knowledge on fundamental SRH processes, the ET asked girls how frequently menstruation occurs. Fifty-three percent of treatment and comparison girls, 53% of non-impaired, and 42% of impaired girls answered correctly (monthly). As expected, girls' knowledge of the frequency of when menstruation occurs grows steadily, and the incorrect answers as well as "don't knows" steadily decline over time. This is evident in the increase in the number of correct responses in both comparison and treatment groups from BL to ML.

Figure 37: Percentage of Girl's Correctly Identifying when Menstruation Occurs



SRH and Financial Literacy and Learning and Transition Outcomes. Financial Literacy and knowledge of SRH as measured by the level to which girls agree or strongly agree with their ability to manage their financial and SHR outcomes is significantly associated with higher learning outcomes ($p<.01$) for both treatment and comparison girls but does not appear to have any correlation with transition outcomes (SRH knowledge was marginally associated with an increase in transition outcomes among treatment girls only ($p<.10$)). The mechanism for the association between SRH, Financial Literacy and learning outcomes is difficult to quantify. However, information from FGDs suggest that trainings on both SRH (i.e. how to take care of oneself) and financial literacy in the form of trainings of savings or income opportunities (e.g. beadwork) are the most notable components of the program for both caregivers and students. It is feasible that students heavily engaged in these parts of the program are also likely to gain other benefits in the form of distant learning and remedial coursework. An alternative explanation is that girls who preform well in school, measured by learning outcomes, are more likely to express confidence in other areas of their life including SRH and financial management.

IO 3.3: Community members report changes in girls' attitudes and behaviours

The ET did not collect data on this indicator at baseline and instead relied on internal reporting from the Varkey Foundation. At midline a question was added to the household survey asking "What has the impact of the project been on girls in your household?"

Of the treatment caregivers, 70.26% were able to cite at least one or more ways in which the MGCubed program has impacted girls in their household against a target of 60%. The most commonly cited reasons, noted by 33-42% of caregivers pertained to education including "Taking school more seriously," "Attending school more regularly," and "Being punctual at school." "Showing greater respect in the household" was also highly noted with 40% of caregivers saying that girls were doing chores, not talking back, etc. This is in line with internal reporting from the Varkey Foundation at baseline in which one mother said, "now girls are respectful in the community, doing their responsibilities in the house perfectly as compared to that of the boys".

The Project's interviews conducted with caregivers after Baseline identified that girls are "keeping themselves clean", an increasing interest in education amongst girls compared with boys, and arriving at school on time. Importantly, the Project has helped transform personal relationships: "It has helped them to know things about how to relate with boys and the boys also how to relate with girls." Unlike at Baseline however no caregivers referred to girls doing more household chores, which had been a concern at Baseline.

Observed changes and learning and transition outcomes. As the ability to cite at least one way in which the MGCubed program impacts girls is tied to the caregivers overall knowledge of the program it is unsurprising that the relationship between observed changes and learning and transition outcomes are similar to IO5.1 and IO5.2 (caregivers knowledge and support of the program). Specifically, observation of changes in the girls attributed to the program were not statistically correlated with a change in learning outcomes. However, treatment girls whose caregivers could site at least one change were more likely to successfully transition in the past year ($p<.01$).

6.7 Intermediate Outcomes Overview

Table 46 below summarizes the findings and progress against targets for all Intermediate Outcomes.

Table 48: Intermediate outcome indicators as per the logframe

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
1.1 Attendance	1.1. Girls marked as present' as a percentage of 'students enrolled'"	81.00%	85.00%	85.00%	Y	Target: +11% (90%)	Y
Attendance	1.2. Marginalised girls report being motivated to attend school as a result of the project	33.55%	38.50%	83.00%	Y	Target: +53% (46%)	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
2.1 Teacher Quality	Percentage of observed lessons where facilitators are assessed as "Highly Satisfactory" in (a) MGCubed (remedial after-school classes and by-grade classes) and (b) Afterschool sessions.	30%	36%	55.1%	Y	Target: +53% (46%)	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
2.2 Teacher Quality	MGCubed Facilitators and Teachers can satisfactorily demonstrate student-centred learning strategies shared in MGCubed training being used in non-MGCubed lessons	59%	73%	55.8%	N	Target: +60% (90%)	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
2.3 Teacher Quality	Percentage of MGCubed Facilitators and Teachers that can successfully cite how they applied at least two student-centred learning strategies, not including Starter Activities or Energisers, shared in MGCubed training in a non-MGCubed lesson in the last term	56.5%	65%	64.1%	N	Target: +18% (66.7%)	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
2.4 Teacher Quality	Varkey Foundation uses learning on how to improve teaching quality to influence policy discussions and the wider policy agenda	Narrative described in LF and ML	Narrative described in LF and ML	Y	Y	Target: Evidence of the Varkey Foundation's influence at national, regional and district level with GES/MOE based on project evidence on Teaching Quality and Teacher Education derived from the GECT project (Midline and monitoring data)	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
3.1 Lifeskills	Percentage of sampled girls demonstrating an improvement in non-cognitive skills across multiple areas (agency; self-esteem; self-efficacy)	Composite score: 21.88	20% of girls have demonstrated improvement in non-cognitive skills	51%	Y	50% of girls have demonstrated improvement in non-cognitive skills	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
3.2 Life Skills	Percentage of sampled girls demonstrating knowledge and understanding of 1) Health and Sanitation; 2) Financial Literacy, based on aggregate scores across two indexes.	FL: 64.81% SRH: 85.82%	20% increase FL: 77% SRH: 83%	FL: 71.78% SRH: 90.52%	N	40% increase FL: 90% SRH: 97%	Y
3.3 Life Skills	Percentage of community members reporting changes in girls' attitudes and behaviours, derived from a pre-coded list.		60%	70.26%	Y	80%	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
4.1 School Governance	Percentage of schools assessed as having "Highly satisfactory" or "Outstanding" school leadership and management	No data was collected on this at BL.	20% of schools surveyed	Highly satisfactory – 27.8% Outstanding –30.6%	Y	Target: 60% of schools surveyed	Y
4.2 School Governance	Percentage of schools where use of physical punishment is observed	12.5%	10.63%	6.9%	Y	-30% (8.75%)	Y
4.3 School Governance	Percentage of schools with functioning PTAs/SMCs.	93.5%	55%	70%	Y	75% for both PTAs and SMCs	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
5.1 Attitudes and Perceptions	Percentage of community members who are caregivers who can cite one way in which they changed [their behaviour] with respect to girls' education in the past year		60%	84%	Y	80%	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
5.2 Attitudes and Perceptions	Percent of community members (including caregivers, religious leaders, community representatives) who can specify afterschool club content and express support for it.		50% can cite a specific afterschool club content, 65% have strong or very strong support for content	46% can cite a specific afterschool club content, 98% have strong or very strong support for content	N (close)	75% can cite a specific afterschool club content, 85% have strong or very strong support for content	Y

IO	IO indicator	BL	ML Target	ML	Target achieved? (Y/N)	Target for next evaluation point	Will IO indicator be used for next evaluation point? (Y/N)
5.3 Attitudes and Perceptions	Community acts as guardians for technology packages in schools, expressed in terms of number of avoidable thefts and preventable damage	2 avoidable thefts; 1 instance of preventable damage which lends itself to a security risk (windows falling off); 4 schools where security guards are not in place.	0 avoidable thefts or instances of preventable damage; security guards in place in 72 schools	2	N	0 avoidable thefts or instances of preventable damage; security guards in place in 72 schools	Y

7. Conclusion & Recommendations

7.1 Conclusions

Section 7 of the report synthesizes findings presented in Sections 3-6. The ET contextualizes conclusions within the GESI standards of marginalization by taking care of interesting sub-group conclusions, particularly around sex, age, and impairment. This has been done in addition to focusing directly on high level outcomes and intermediate outcomes.

Sample size

In midline, a total of 1,405 beneficiary girls were evaluated, out of which 1,259 girls were re-contacted or tracked successfully from the baseline including the out of school girls. A total of 146 (10percent) new beneficiary girls were added as replacement though their data has been excluded from analysis. Similar to the beneficiary group of girls, around 12percent or 164 girls were replaced and added with 1206 re-contacted girls. The DID analysis is restricted to girls with both BL and ML learning outcomes to measure learning outcomes (n = 2412) and BL and ML transition outcomes with BL age to measure transition (n = 2286) The boys' sample at midline consisted of 482 treatment and 482 comparison boys. The ET replaced 6 percent treatment boys and 12percent comparison boys though their data has been excluded from analysis at this time.

Evaluation Approach

The ET added to the initial mandatory GEC-T questions to ensure that key GEC-T outcomes were captured in the evaluation and the effect of the various MGCubed interventions at the school, community, and system levels on higher level outcomes of learning, transition, and sustainability are taken into account. By addressing these evaluation questions, the midline evaluation ultimately seeks to capture a reference point for the MGCubed outputs, outcomes, and intermediate outcomes at a specific point in time, and provide a point of comparison against the already completed baseline evaluation.

The GEC-T evaluation follows a quasi-experimental, longitudinal panel design that tracks a cohort of comparison and treatment girls over three years. At baseline, the ET selected the statistical matching method known as coarsened exact matching (CEM) to construct a valid counterfactual comparison group. At midline, ET utilised a difference in difference approach (DID) to calculate the changes in outcomes of interest in midline.

Quantitative data collected at midline are compared against baseline data and midline targets to determine their appropriateness and areas of potential improvement. The inclusion of qualitative data collection at all stages of the project help paint a more nuanced picture of the level of improvement of girls' education since project inception. Midline data also helps all involved parties better understand the profile of the typical girl targeted by MGCubed programming as well the barriers that she faces with regard to key educational outcomes such as learning and transition.

Profile of beneficiary girls

While the sample realized some changes in barriers and marginalization characteristics between baseline and midline, we believe that the theory of change is still relevant in midline. In midline, sampled cohort students face similar multitude of marginalization characteristics as was in

baseline; those who are poor, don't speak the language of instruction well, or impaired are the most marginalised. At midline nearly 2 in 3 girls live in a household where it is difficult to afford to send children to school. The situation improved slightly from baseline for the beneficiary girls. At baseline, nearly 3 out of 4 girls were from households who found it difficult to afford school. Similar to baseline, still over 90 percent of girls' language of instruction is different from their mother tongue and rarely spoken at home, and more than 30 percent girls still live in a female headed household. Despite a marginal decline of around 2 percent from baseline, more than one-third of household heads in midline still do not have any education. Evidence from the DID regression shows that when boys and girls don't play together, household head has no education, a different language is spoken at school, the girl has cognitive impairment, or the girls belong to rural schools, the aggregate learning scores are severely adversely affected. Alternatively, if the girl feels safe at school, or lives in female headed household, then their learning scores improve significantly. Considering marginal or no change in relative severity of marginalised characteristics among the girls in midline sample, and their significant influence on aggregate scores, it can be said that the marginalised characteristics are still relevant to validate the project's theory of change.

Learning Scores: Literacy and Numeracy

Increase in average aggregate literacy and numeracy scores by grade in midline, suggests a clear grade level progression and progress over time. Evidence shows clear grade level progression for both sexes irrespective of treatment status suggesting that girls and boys in midline across treatment status scored higher as they transitioned to higher grades. Second, the boys and girls from treatment schools performed better than their counterparts in comparison group.

Project made a strongly significant impact on literacy outcomes of beneficiary girls. Our standard DID analysis suggest that relative improvement in aggregate literacy score among beneficiary girls is greater than that of the comparison girls and that the difference is statistically significant. Between baseline and midline, the relative increase in literacy score in the adjusted regression model is 1.16 percentage point higher for treatment girls than comparison girls and this significant change can be attributed to the intervention. Based on this evidence it can be concluded that the project made a strongly significant impact on literacy outcomes of beneficiary girls.

Despite significant improvement in individual numeracy score from baseline to midline (paired t-test), evidence from DID estimates find no significant impact of the program on numeracy outcome. Between baseline and midline, the relative increase in numeracy score is 0.69 percentage point higher for treatment girls than comparison girls in our adjusted regression. Despite a better start and overtime improvement in score, the lack of evidence on statistical significance suggests that the comparison girls also experienced similar improvement in performance caused by influence outside the program. The other reason could be that both the beneficiary and comparison cohort girls experienced similar maturity effect over time.

An assessment of gaps in literacy and numeracy skills by categorizing subtask scores into bands of achievements show that—

More girls achieved proficiency level in both foundational literacy and numeracy skills in midline than in baseline. As evidence suggests, a 10.2 percentage points (pp) increase is observed in number identification, followed by subtasks addition-1 (8.1 pp), missing numbers (6.3 pp), addition 2 (6.0 pp), subtraction 2 (4.9 pp), word problem (3.1 pp), subtraction 1(4.8 pp) and quantity discrimination (3.2). No girls are however found to be proficient in SeGMA subtasks 1 and 2. Unlike numeracy, improvement in foundational literacy skills of beneficiary girls however is not uniform. Findings suggest that from baseline

to midline, most of the EGRA subtasks show improvement to proficient level. ORF is the only subtasks that show decline in proficient learner's category with subsequent increase in lower categories (e.g., established learner and emergent learner).

Overall, higher grade level achievement is observed in midline in both literacy and numeracy, although the improvement in literacy is more pronounced than achievements in numeracy. Between baseline and midline, overall improvement in grade level achievements is observed among girls in both literacy and numeracy, although the improvement in literacy is more pronounced than achievements in numeracy. We observe a significant 17 percentage point reduction in students from no-grade, 8 percentage point reduction in grade 2 and 3 percentage point reduction in grade 3 achievements between baseline to midline and being redistributed to higher grades like 4th grade (5pp), 6th grade (19 pp) and 7th grade (3 pp).

In numeracy, we observe a significant 16 percentage point reduction in students from no-grade, and being redistributed to successive higher grades such as,10 percentage point increase in grade 2 2 percentage point increase in grade 3, 4 and P6.

Evidence shows that girls with most of the identified marginalised characteristics performed better in midline than baseline except for mothers under 18 and 16. In midline**,** we find that girls with most types of impairments (e.g., seeing, hearing, cognitive, selfcare and communication impairments) improved more than 6 percentage points in literacy. Their scores in numeracy also improved but with lower margins. Girls living with husband or living in female headed households or a girl from poor households improved more than 6 percentage points in literacy as compared to around 3 to 4 percentage points in numeracy.

Among barriers, such as, situations when the girl feels that teacher treats boys and girls differently or teacher is mostly absent, travelling to school or being at schools is not safe affected girls' overall learning outcomes though improvements were still realized from baseline to midline.

Transition Rate

In the midline, the transition rate of the current cohort of treatment and comparison girls reached to 89.01 percent which is a 6.7 percent increase from baseline (when inclusive of drop-outs). Our evidence suggests that repeat grade is responsible for the majority of non-transition. At midline, around 10.2 percent of girls did not successfully transition from the previous year, with 7.4 percent repeating a grade and 2.8 percent dropping out.

Successful transition decreases as a girl progresses through school with girls at higher grade levels at baseline more likely to have repeated or dropped out of school at midline than girls in lower grades. However, a clear drop in transition around key transition points, specifically from P6 to JHS II is not noticeable in the data.

With a ML transition rate of 93.5%, the enrolled treatment group had a transition rate 5.54 percentage points above the change in the comparison group, achieving 111% of the target. The ET found that 93.5% of enrolled, P4 – JHSII girls successfully transitioned from baseline to midline. Due to the grade level focus this figure excludes dropouts as a girl required an assigned grade at midline to be included in the analysis.

Regression analysis shows that there is a strongly significant program impact on the transition outcome of the beneficiary girls. Between baseline and midline, the likelihood of a beneficiary girl to transition successfully increased by 80 percent as compared to the comparison girls. The regression results suggest that if different language is spoken at school, and the girl suffers from cognitive impairment, her transition outcome is severely adversely affected. The poverty indicators such as landlessness or inability to afford school also has adverse effects on transition outcome, though the effect is weakly severe.

Sustainability

Community members are not found to act as a barrier to girls' Transition. At community level, 19.8% of girls noted being absent from school at least once in recent school year for family related issues. Against a target of 85%, 93.94% of caregivers stating there was no reason they would not allow their girl to go to school next year. Many focus group discussions noted that over the past couple of years the perception on girls' education has changed, with many in the community understanding there is value as far as future income and job opportunities to girls who stay in school.

At school level, 54.17% of schools at midline agreed that an established process and/or approach to supporting girls' transition to secondary school exist. It is an improvement over 39.71% at baseline. Average number of examples of transition support cited by teachers from comparison schools is 1.11 as against 1.37 from treatment schools.

Treatment schools at midline received higher average score on the student-centred, gender-equal index. Treatment schools scored high on equal access to materials, positive feedback from teacher to both genders, calling on boys and girls students equally within the class and allowing them equal time to respond to questions. Lower scores were typically a result of not meeting a student-centred focus rather than unequal treatment.

At ML, 96.67% of the DEOs surveyed had attended a VF training with 72% attending for the first time in January 2019. Attendance level far surpasses the 60% target for DEO's trained set post-BL and is a strong sign of progress on system level indicators.

All but one school responded that they had received a visit from DEO, with an average of 10.60 visits per year (up from 8.4 at baseline). If inspectors are supposed to visit schools monthly, as dictated by GES policy, these numbers appear to be a good sign. It is encouraging that monitoring visits happen at schools and happen at a regular frequency, however, if a school is not made aware of its' weaknesses or successes, it cannot improve.

Intermediate Outcomes

At midline, attendance rates rose slightly from baseline consistent across all grades. When grade levels were examined, there was virtually no difference (on average) between the intervention and the comparison groups at baseline. However, at midline, we saw that there was a larger increase in attendance rates for comparison groups than the treatment groups. The largest increase in attendance rates recorded by teachers from baseline was seen in MGCubed Basic Class including both numeracy and literacy for treatment groups and in JHSI level for comparison groups.

At midline, headcounts were lower than enrolment numbers. Results are found to be consistent with baseline. Headcounts were about 20% lower than official enrolment numbers and varied somewhat by gender of student and class type (grade-level versus MGCubed afterschool remedial). Headcounts of comparison group students were on average higher than of intervention group students,

headcounts of girls were higher than of boys, headcounts of grade level classes were higher than MGCubed afterschool remedial classes, and headcounts of girls in MGCubed afterschool remedial classes were higher than those of boys in the same classes.

At midline 70.26 percent of treatment caregivers were able to cite at least one or more ways in which the MGCubed program has impacted girls in their household. The most commonly cited reasons, noted by 33-42 percent of caregivers pertained to education including "Taking school more seriously," "Attending school more regularly," and "Being punctual at school." "Showing greater respect in the household" was also highly noted with 40% of caregivers saying that girls were doing chores, not talking back, etc. This is in line with internal reporting from the Varkey Foundation at baseline in which one mother said, "now girls are respectful in the community, doing their responsibilities in the house perfectly as compared to that of the boys."

There is wide variation in girls' knowledge around earning money, with just one in every two girls knowing how to earn money without it disrupting their school time. For financial literacy questions, results show that over 70% of treatment girls agree or strongly agree that they are able to plan their own expenses. Differences in comparison and treatment groups begin to emerge specifically around earning money. Over 95% of all girls believe agree or strongly agree that going to school will help them earn money in the future. In all cases, girls were more likely to report increased financial literacy, as measured here, improving from baseline levels. ET however find no evidence of major differences between impaired and non-impaired girls regarding financial literacy.

Around 5% points more girls in midline show gain in confidence in SRH issues as they age. Around 90% of girls, regardless of comparison or treatment status, agree or strongly agree with the statement that "changes to my body are a natural process of growing up" and "If I have a question about my body, I know who to talk to."

To analyse improvement in girl's non-cognitive skills, ET used the same approach as was taken in baseline and constructed three composite indices for the various non-cognitive skills. All indices and the questions they were derived from came from the girls' survey. To answer IO3.1, the ET averaged the scores from the three indices to arrive at a score of 22.22 for treatment girls at midline. This is just a 0.3 unit increase against a score of 21.88 for the treatment group at baseline. For comparison girls their overall non-cognitive scoring decreased slightly from 22.14 at baseline to 22.07 at midline. In both cases the largest declines were found around self-esteem.

Midline data shows girls have generally high self-esteem and stays relatively consistent as a girl ages. ET found very little differences between comparison and treatment girls: almost all girls had relatively high self-esteem (around 23/30) according to the composite index constructed. Interestingly, self-esteem levels stay almost constant, increasing by only 0.3 points from P4 to JHS2. These findings are contrary to those associated with agency (4.8 point increase) and self-efficacy (1.9 point increase); as a girl ages.

Agency: **Midline analysis suggests that girls generally gain more agency as they age and it is reflected from their response irrespective of treatment status**. Girls have some agency over decisions that have to do with their education, with just under 4 in 10 girls saying they make the decisions themselves to go to school or continue studying after the end of the term. At midline treatment girls were slightly more likely to claim agency in the amount of time spent with friends while comparison girls were more likely to they decide the age of marriage or the work they will do after school. Overall, however, comparison and treatment girls scored the same, around 19/30 points, with agency scores following a similar pattern as baseline and rising steadily from Grade 4 to JHS11.

INPUT FROM VF

As outlined in the context to this report, there are significant barriers to girls' education in Ghana, including lack of access to quality education, and high levels of absenteeism of girls. The ToC is based on the analysis of the circumstances of women in Ghana in general and girls' education in particular as well as interlinked issues such as economic poverty and social norms relevant to gender issues. A key source of such gendered challenges is the prevalent negative attitude towards girls' education – where priority is given to pregnancy and childbearing duties; to domestic labour; and to unpaid farm labour (to bring income into the household). As well as providing quality education (student centred) programmes, the project continues to focus on tackling the source of gendered challenges by fostering gender equitable attitudes and behaviour at three levels: at the direct beneficiary level (girls at school level); at the indirect beneficiary level (boys at school level; teachers, head teachers, education officials, and community members), and at the project level (the VF team in Ghana). A lack of female education centred role models reinforces unhelpful gender identities – creating a cycle of girls' marginalisation from education. Exposure to positive role models is also something that the project continues to focus on at all three levels.

At the project level, leading by example, VF operates a gender-responsive and gender-balanced team, including females in leadership positions, (a female Country Director, a female Finance Manager, a female Education Team Lead and a female Education Adviser). The education team in Accra consists of males and females who strive to model best practice in gender equity. The education team who deliver content are all Ghanaian – providing a strong sense of local citizenship and positive Ghanaian role models as advocates for gender equity. The education team are internally monitored for continuous development of gender responsive teaching practice, and regularly given targets for their young learner and adult learner training sessions and (via lesson observations and self-assessment of their practice in continuous professional development journals). Project delivery monitoring is also analysed with the same lens. The Project logframe includes specific indicators aimed to assess the Inclusion and equality standards of Ghanaian girls. These indicators include quantitative and qualitative indicators and help the Project to ensure gender equity is applied through the project activities.

At the direct beneficiary level, girls partake in MGCubed Remedial lessons and afterschool clubs ('Wonder Women Basic' and 'Wonder Women Advanced' and 'Wonder Women Mixed') to enhance life skills (healthy eating; financial literacy, careers and adolescence) and to promote engagement with education.. On the other hand, the clubs also enable girls to be a part of a safe and supportive after school environment (addressing pastoral needs and thus supporting educational attainment); and to develop understanding of gender equity and build self-confidence ('gender stereotypes' sessions include critical analysis of social norms for refined belief systems). The clubs design seeks to ensure girls can participate, for instance, the timetable of the clubs was shifted to earlier times so that parents allow girls to attend.

The clubs (since September 2018) have also evolved their approach by explicitly focussing on relationships between genders via structured collaborated activities between 'Wonder Women' and 'Boys Boys' clubs; and in 'Mixed' Clubs - developing a sense of solidarity between boys and girls in achieving aspirations. The clubs include sessions on assertive communication, and on supporting girls in leadership positions during sport and financial entrepreneurship (via arts and crafts) sessions. As per the latest thinking on gender and development, the project has identified that work on ideas of masculinities in 'Boys Boys' clubs (e.g. empowering boys, and enabling

boys to be advocates for gender equity) is important to tackle gendered challenges holistically, and to not simply see it as a girls' problem. All after school clubs incorporate carefully selected role model (often Ghanaian advocates for gender equity who have been successful with education through adversity) sessions from the studios in Accra, to support delivery and application of content, and to stimulate vicarious reinforcement. In numeracy and literacy lessons, particular attention is paid to proportional and active involvement of girls in lesson activities, and for targeted formative assessment. Formative assessment has been refined this academic year – with a range of pupil and teacher feedback activities incorporated in each session – to support comprehension and to scaffold summative assessment skills. Studio teachers work closely with on the ground classroom teachers, with the expectation that best practice will be cascaded on the ground.

At the indirect beneficiary level, the project has developed a new teacher training course in collaboration with external specialist consultants (Institute for Teaching). This, combined with comprehensive and robust data from Baseline which has identified the overall knowledge and skills gaps of teachers in schools where MGCubed operates, has informed the new teacher training content. As a result, the teacher training delivered during Year 2 includes units on 'Climate for Learning' (with focus on positive discipline and growth mindset); 'Planning and Pedagogy' (with sessions on inclusion and subject knowledge for literacy and numeracy); and 'Formative Assessment' (with focus on pupils' progress). The 'Planning and Pedagogy' unit incorporates latest thinking gender responsive pedagogy (under the umbrella of inclusion) where teachers plan gender responsive lesson activities. The project has also collected feedback from head teachers and facilitators during termly monitoring and the 'Annual Review Stakeholder Meetings' held in term 3. The available data has informed the teaching modules delivered during the face-to-face training, which now include subject specific strategies such as 'Teaching Phonics'; 'Being an Effective Teacher' (including critical examination of challenges faced in managing the MGCubed style classroom, with strategies for development); and 'Duties of a Facilitator' (identifying best practice in supporting MGCubed approaches to teaching and learning).

The project has also evolved its' approach by developing separate targeted head teachers' and school leadership courses; and by developing a new community training course with refined emphasis on gender and social inclusion. The adult trainings draw on Ghana's Education Service's (GES) gender and social inclusion guidelines to aspire towards the progress of all learners, with particular attention to girls, and individuals with special educational needs (Transforming Teacher Education and Learning in Ghana (T-TEL), 2017[41]). All courses include specific units on identifying and challenging unhelpful gender attitudes and behaviours, and implicitly refer to this throughout. The head teacher and GES officials' trainings look at leading gender equity at the whole school level (e.g. using school improvement plans for equity of access, equity in learning processes, equity in progress, equity in education and career outcomes; and monitoring and evaluation of this) and now focus significantly on the GES national teacher standards as a basis for school development. Community training has refined its' focus on the use of parent teacher associations (PTAs) as a channel for raising awareness of gendered challenges; practicing advocacy of gender equity; and for and checks and balances of gender equity in school settings. Community training also has incorporated additional units on supporting girls' educational success in the household, reproductive health education, and supporting progress in literacy. The project recognises the need for the education delivery team to continue to build subject knowledge and capacity to deliver adult

[41] Transforming Teacher Education and Learning in Ghana (T-TEL) (2017) 'Learning Hub – Gender and Inclusion', available at http://www.t-tel.org/hub/gender-and-inclusion.html accessed 2nd July 2019.

learner courses (e.g. via wider reading, small scale research, self-reflections on practice for continuous development, and support from external subject specialists where appropriate).

The project uses district level data to ensure that the timings of adult trainings enable equal access for males and females (e.g. by ensuring that courses do not overlap with market days and other key economic activities) and monitors this by collecting attendance data broken down by gender. The project anticipates that informed female teachers, head teachers, school leadership and community members will have a positive impact on girls' learning outcomes – as they support their success at the whole school and community level. In order for adult learner sessions to be more transformative, the project has dedicated the final activity of each adult learner session to action setting, with follow up to this at the start of the next session. It is important to continue to think about how to measure this in a valid way – inside and outside of training time. The project should continue to focus on maintaining and improving attendance to these sessions for them to be transformative.

- **Analysis of project approach to social inclusion and disability.**

In the same line as gender and social inclusion interventions, VF has continued to focus on inclusion of pupils with (physical and cognitive) disabilities in terms of attitudinal and institutional barriers. The Project has identified and entered data into the Salesforce contact management system including the pupils' grade and disability across beneficiary schools. The Project also started to collect data on disability for adult participants.

VF has focused on awareness raising in community trainings and teacher trainings (with additional units added on inclusion), and in after school clubs (including commemoration of international disability awareness day; and sessions with studio guest role models who have been successful in education and have physical and/or cognitive disabilities). VF maintains that inclusion of diverse cognitive and physical needs should be a normalised discussion in mainstream settings, and seeks to embed this in the narrative of the courses that it delivers, and within the education team in everyday planning and teaching. The project sees this as a key way to begin to tackle ethical concerns in relation to inclusion and disability, i.e. the stigmatisation and marginalisation of individuals with physical or cognitive disabilities.

During lesson delivery, the project has maintained inclusive practice, such as the use of kinesthetic activities; interactive discussions; differentiation by task and assessment (using Blooms Taxonomy levels of questioning (Anderson and Krathwohl, 2001[42])); and inclusive PowerPoint presentations for lesson delivery (for example, by providing oral instructions alongside written; through the use of visuals, local language/s and contextually relevant themes to support content; and through the use of colour and accessible font – as per the 'Education Team's Lesson Conduct Standards'). This academic year, the project has evolved its' approach by placing greater emphasis on assessment for learning activities in the numeracy and literacy curricula – in order to support engagement and progress of more of a range of learners. Furthermore, the education team have been given targets of reducing content (writing) heavy PowerPoint slides – to support inclusion for both young and adult learners.

The project has delivered capacity building training on inclusion to studio teachers by partnering with a specialist inclusive education organisation, Multikids Academy ('Module 1: Understanding Students with

[42] Anderson, L. W., & Krathwohl, D. R. (Eds.) (2001) A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational outcomes: Complete edition, New York: Longman

Special Educational Needs and Disabilities (SEND)'; 'Module 2: Inclusion: how to cater for all needs'; and 'Module 3: Practical Strategies in the Classroom'). The education team have visited Multikids Academy to observe lessons for pupils with SEND, raising awareness and developing best practice within the team – which has been cascaded to on the ground facilitators during face – to – face trainings.

Key risks which the project has considered in relation ethical issues associated with social inclusion involve:

a. Identification of pupils with disabilities – including potential stigmatisation at the school and community level – which will exacerbate issues of marginalisation
b. Misdiagnosis of SEND at the school and/community level - and consequent social and psychological harm to pupils

In order to prevent the above, the project will maintain focus on awareness raising (including on the complexity of diagnosing SEND) and general practice for inclusion in mainstream settings. Whilst the project has collected data on students with physical disabilities and is using this to track attendance and progress, the project recognises the need to examine critically how it will move forward in regards to identifying particular cognitive needs within the students that it works with, in order to determine more targeted support – in line with ethical guidelines (including confidentiality of data, and protection from social and psychological harm).

The project recognises that girls' educational marginalisation intersects with marginalisation of pupils with physical and cognitive challenges, and further with marginalised ethnic groups and other socioeconomic groups. The project has disaggregated data for physical disability, cognitive disability (based on Washington Consensus Questions) and marginalisation (economically) and used this data to look at attendance patterns, responses to interview questions (including ones relating to agency, self-belief, and gender attitudes), and assessment performance. A key area for the project to consider in order to be more transformative is to disaggregate data in terms of age, gender, disability, ethnicity (e.g. Albino ethnicities), and other relevant contextual factors to consider the intersectionality of marginalisation, and to use this data to explicitly raise awareness and target social inclusion in a more holistic way – with ethical considerations in mind.

7.2 Recommendations

Based on the evidence from the baseline and midline data, the recommendations laid out in this section are generalized in nature but are action-oriented, targeted at specific actors, and ultimately rooted in evidence set forth in this report. In the baseline we made some recommendations considering that the GEC-T is practically a follow up after GEC-1. In this section we will compare those with our midline findings to see how the project evolved to accommodate those recommendation. At this point, ET does not recommend any further change on measurement and sustainability indicators since both project and the ET spent a considerable amount of time after baseline to identify and revise the IO indicators. Moreover, changing any indicator after midline will cause the loss of comparability.

Table 49: Recommendations on design and sustainability

Recommendation	Evidence	Targeted Actor
Carry out a study to identify children with cognitive disabilities in treatment catchment areas, and/or inclusion in mainstream settings	This recommendation was made in BL based on our evidence that cognitive impairment was both the largest type of	Varkey Foundation

including awareness raising classes/lessons. Consider targeting these children specifically with specialized lessons.	impairment found in the sample and the most insidious: it was one of the only factors in regression analysis that significantly negatively affects both learning and transition. Our midline analysis also finds that cognitive impairment has had significantly high adverse effects on numeracy score and transition. As the transition DID regression suggests, these girls are 42 percent less likely to transition successfully.	
Program should focus more on developing foundational mathematics skills.	Evidence from ML report suggests that most of the improvement in numeracy over time is due to maturity effect. Or in other words, students performed better as they moved to higher class. This is corroborated by the fact that the comparison school girls also improved over time with almost same pace. The program should focus more on developing foundational skills so that the girls have a strong base when they transition to higher grades.	Varkey Foundation
Include curriculum on spoken languages to make marginalized girls more well versed with the language spoken at school.	For a vast majority of girls, the language spoken at home is different than the language spoken at school. While they perform better even when the language of instruction is different, ML results show that this group of girls perform significantly worse in both learning outcomes as well as in transition outcome.	Varkey Foundation
Include curriculum in community trainings on gender equitable roles and responsibilities of boys and girls, particularly around household duties.	At baseline, 19.4 percent of marginalized girls reported that they missed schools because of burden of chores at home and the ET hypothesizes that it may be a major reason for dropping out of school for many girls. In midline, the percentage is more or less similar -19.8 percent- which underscores that the recommendation is still valid in order to improve attendance and other outcomes.	Varkey Foundation

Ensure that teachers are not only knowledgeable about MGCubed teaching strategies but feel comfortable deploying those strategies in the classroom.	While treatment teachers largely met targets regarding their knowledge (ability to cite the use) of various MGCubed strategies, classroom observations found that only MGCubed strategies were deployed only 55.8% of the time against a target of 73%. Furthermore, while treatment teachers were more likely than comparison teachers to deploy Ways of Work and Plenary strategies other teaching techniques (e.g. use of lesson plans) was equal among treatment and control schools. It is feasible that while teachers at treatment schools are familiar with MGCubed teaching strategies they could use additional, practical examples of how to deploy them on a daily basis.	Varkey Foundation
Conduct additional exploration as to the barriers facing girls who are married or who are mothers and consider targeted, remedial classes for girls who are married or mothers as appropriate.	While mothers did not constitute a major part of the sample, qualitative data suggests that pregnancy and the resulting dropout from school is a major problem in communities. A comparison of BL and ML quantitative results show that aggregate score for married and early age mothers dropped alarmingly (to the range of 8-19 percentage points) in learning outcomes, more particularly in numeracy. The mechanism behind this drop is not while understood and it is recommended the project explore the barriers facing these sub-groups further and take appropriate action which could include remedial classes or alternative support (e.g. household negotiations, childcare, etc)	Varkey Foundation
Follow up to ensure that at least 80% schools have a Transition plan.	The ET believes it is feasible. To that extent, ambitious targets for midline and endline were set at baseline for this indicator. To receive an increase in the sustainability score at midline or endline, the project must cross these thresholds and also have any increase in the proportion of PTA/SMC or parents	Varkey Foundation

	that are involved in developing, executing, and supporting the plan. While the latter was realized the project fell short of the 60% target for schools with written transition plans, realizing 54.17% midline. This is still strong progress with an increase of 36% over baseline outcomes and the ET believes the target of 80% of MGCubed schools having a transition plan by endline to still be feasible.	
Involve local community actors (PTA/SMC, parents, GES) in management of the technology packages.	In general head teachers believe they are largely responsible for the management of the technology now (ML) and in the future. However, at the same time they placed a large level of responsibility for the upkeep of technology on the Varkey Foundation with 89% noting that Varkey pays for the upkeep of the technology and 93% noting Varkey is responsible for fixing the technology and had done so in the past year. Keeping sustainability in mind, including local community actors in management will help transfer technology successfully and address FGD concerns regarding breaks in the technology which was frequently cited as disruptive to studies.	Varkey Foundation; GES
Ensure students feel empowered to engage with distance learning, including the freedom to ask questions or request clarification.	FGDs noted that several girls found it hard to understand the instructor when using distance learning or that it was difficult to ask questions. These drawbacks may limit the potential impact of the technology even if technology management is addressed. The program may need to work with both instructors and students to ensure the same student-centred approach applied in regular classrooms can be utilized in distance learning when feasible.	Varkey Foundation
Encourage parents to join PTAs and support PTAs with resources as necessary. At PTA meetings, push the idea of dedicated reading	Although, there is a sign of progress since the frequency of PTA meetings increased from BL to ML across treatment (and comparison) schools	Varkey Foundation; GES

time at home between parents and their children.	with treatment schools increasing by 0.34 more times, it is an area where constant push is needed in order to keep or encourage most/all parents engaged. In addition, equipping PTAs to address performance challenges such as following up on absenteeism may strengthen the identity and role of PTAs in the community. FGDs highlighted the role of parental engagement as a key factor in school performance and helping girls transition with one girl noting increased challenges at school due to her parents not being involved.	
Scale up WW/BB clubs to include as many marginalized girls in the community/school catchment area. Encourage students themselves to create their own offshoots of the clubs with dedicated teacher mentors.	At baseline, regression findings show statistically significant positive associations between higher levels of self-esteem and self-efficacy and learning scores. WW/BB clubs provide students with an outlet where they can discuss their issues, learn about their rights, and be exposed to important life lessons and mentors. In addition, girls of community members who were more aware of MGCubed content (able to cite examples of content) had better transition outcomes, showing a need for community ownership of these programs. While participation in WW/BB and higher levels of non-cognitive ability has not changed much in ML, a particular focus on this area will help improve overall performance of the group. The demand needs to be identified in order to scale up such initiative.	Varkey Foundation
Ensure that MGCubed activities are welcoming and engaging for both boys and girls.	The ET noted that while attendance was increasing for in MGCubed classes for girls the change for boys at the intermediate level was minimal and negative at the advanced level. Some boys during FGDs expressed dissatisfaction in the program noting that certain incentives, such as food distribution, were primarily targeted at	Varkey Foundation

	girls. To ensure the program does not create hostility between boys and girls it is worth further investigating boys perceptions of the program.	
Investigate and work to address barriers unique to girls with impairments including challenges with mobility and perceptions on safety in the school environment.	Several barriers, including difficulty moving around the school and a decreased feeling of safety in the school environment, were higher among impaired girls than their peers. In additional, FGDs noted that girls with physical impairments would be better off attending specialised schools where they could receive assistance for their disabilities and not be subject to teasing by peers. These finding reflect a lack of inclusion at the school and community members for disabled students which is worth further exploration by the project.	Varkey Foundation
Refocus tracking efforts at endline on the tracked cohort.	After careful consideration the ET has refocused the ML report exclusively on the tracked cohort in order to provide a consistent narrative on key and intermediate outcomes. Given attrition rates of ~10% at ML against a 17% buffer the ET recommends an increased focus on tracking of cohort girls at EL. EL will not include any addition replacements to the sample. Instead, girls no longer enrolled in their baseline school will be tracked, to the extent feasible, to their home and learning and transition outcomes will be collected for analysis.	Evaluation Team
Revisions to Community Level Sustainability, Indicator 2	This measure was not collected at BL and was proven to have little variation at ML with most caregivers agreeing their child would attend school next year. In order to achieve greater variation and potentially explore differences in treatment and comparison communities the ET recommends considering another indicator community engagement including PTA involvement or caregivers perception of school	Varkey Foundation/ Evaluation Team

	management (i.e. if the caregiver knows the name of the head teacher).	
Staggering Qualitative Data Collection	If budget and timeline permit it is advised that qualitative data collection take place after preliminary quantitative data analysis at EL. Doing so will allow the team to structure qualitative questionnaires to explore nuances or unexpected findings from quantitative research.	Evaluation Team

Annexes

Annex 1: Midline Evaluation Submission Process

Annex 2: Intervention roll-out dates

Please provide a timeline of roll-out of your interventions in the table below.

Table 50:Intervention roll-out dates

Intervention	Start	End
MGCubed Remedial and By-grade lessons	October 2017	Ongoing – end date July 2021
Teacher Training	October 2017	Ongoing – end date July 2021
Afterschool Clubs	October 2017	Ongoing – end date July 2021
GES Training	November 2017	Ongoing – end date July 2021
Community Training	October 2017	Ongoing – end date July 2021
Cash Transfer Programme	October 2018	Ongoing – end date September 2020

Annex 3: Midline evaluation approach and methodology

Annex 3 outlines the evaluation approach and mixed method methodology. This section contains reference to the evaluations MEL Framework and the ET's Inception Report and is organized as follows:

1. Outcomes and Intermediate Outcomes
2. Evaluation Methodology
3. Midline Data Collection Process
    - Pre Data Collection
    - During Data Collection and Data Collection Tools
    - Post Data Collection
4. Challenges and Limitations
5. Sample
6. Contamination and Compliance
7. Learning and Transition Outcomes Estimation

1. Outcomes and Intermediate Outcomes

As part of the midline evaluation, the ET collected data on three key outcomes and five intermediate outcomes. These are presented below in Table 48 and are consistent with the project Log Frame. modifications from baseline are noted below and can also be found in the revised project's MEL.

Table 51: Outcomes for measurement

Outcome	Level at which measurement will take place, *e.g. household, school, study club etc.*	Tool and mode of data collection (please specify both the quantitative and qualitative tool used)	Rationale, i.e. why is this the most appropriate approach for this outcome	Frequency of data collection, i.e. per evaluation point, annually, per term	Who collected the data?	Discuss any changes from BL (including whether this indicator is new)
Outcome 1: Learning - Marginalised girls are supported by GEC to improve their learning outcomes in literacy and numeracy						
1.1 Literacy Improvement - Improvement in marginalised girls' aggregate score in literacy assessment	Student	**Quant:** EGRA & SEGRA (subtask 1) Learning assessment	Per GEC Guidance	Per evaluation point	External evaluator	None, though a different version of the test was used at ML.
1.2 Numeracy Improvement - Improvement in marginalised girls' aggregate scores in numeracy assessment	Student	**Quant:** EGMA & SEGMA (subtask 1) Learning assessment	Per GEC Guidance	Per evaluation point	External evaluator	None, though a different version of the test was used at ML.
Outcome 2: Transition - Number of marginalised girls who have transitioned through key stages of education, training or employment						
2.1 Transition - Number of marginalised girls who have transitioned through key stages of education, training or employment	Student	**Quant:** Household Survey & School Level verification	The caregiver is in the most appropriate place to answer about enrolment status of girls; results triangulated by qualitative events with all relevant school and community-level stakeholders to better understand the nuances of transition.	Per evaluation point	External evaluator	Since the cohort included only enrolled students at baseline, baseline included a transition benchmarking exercise in the community in order to capture a more holistic picture of transition in the treatment and comparison areas. The benchmarking exercise was not needed at midline and only the cohort will be tracked moving forward.
Outcome 3: Sustainability – 3.1 Community level: Community actively support girls' education beyond primary school						

3.1.1 Percentage of girls that report having been forced to stay home from school for any one day in the past school term due to a family-related issue	Student Level	Girl's Survey	The girl's survey allows the ET to note, not only absences, but the reason (from the student's perspective) for those absences.	Per evaluation point	External Evaluator	This indicator was rephrased to better quantify the number of girls required to stay home for family related issues.
3.1.2 Percentage of caregivers reporting that they will allow their children to continue in school next year	Household Level	Household Survey	Caregivers are best positioned to provide this information	Per evaluation point	External Evaluator	This indicator was rephrased to better quantify the specific number of households that will allow their children to Transition next year.
Outcome 3: Sustainability – 3.2 School level: School actively attempts to sustain the project						
3.2.1 Percentage of schools where there is an established process and/or approach to supporting girls' Transition to Junior Secondary School	School Level	School (head teacher) Survey	The headteacher is best positioned to know if a transition plan exists. However, this finding is cross-referenced with information from the teacher's survey to ensure the plan is known at multiple levels	Per evaluation point	External Evaluator	This indicator was rephrased to better quantify the specific number of schools who are working to ensure girls' transition.
3.2.2 School leaders actively encourage student-centred gender-sensitive education	Classroom Level	Classroom Observation cross referenced with School Survey	At baseline a high proportion of headteachers agreed the school supported student-centred gender-sensitive education. Using observation to verify this response will reduce bias in reporting.	Per evaluation point	External Evaluator	Baseline approach was not found to be sufficient due to a lack of evidential support (relied primarily on the School Survey with Headteachers) and did not verify responses. A new approach focused on classroom observation has been adopted.
3.2.3 Percentage of Facilitators who report that they are able to solve technical issues that the technical training prepares them to solve.	Teacher Level	Teacher Interview	Teachers and Facilitators are best able to comment on their familiarity and ability to solve technical issues	Per evaluation point	External Evaluator	New indicator to monitor schools' learning on the management of technology packages. This will help to ensure that technological issues will be fixed in a more timely manner, supporting the effectiveness of the Project and long-term sustainability.
Outcome 3: Sustainability – 3.3 System level: Government of Ghana adopts the project approach for scale-up						
3.3.1 Percentage of DEOs (Circuit Supervisors) that have attended VF trainings who use monitoring tools, as a result of the training	DEO Level	DEO Survey	DEO's are best positioned to comment on how trainings were used. However this will be verified with school level surveys.	Per evaluation point	External evaluator	Indicator was adapted to reflect progression. Data was not collected at baseline as training had not yet taken place.

3.3.2 Number of policies, initiatives, or plans at the MOE/GES that the Varkey Foundation provides technical assistance to over the life of the Project, e.g. agenda setting, needs assessment, evidence gathering, policy drafting, review, piloting of policy initiatives	Project level	GES Engagement Log	Best record of GES/MOE policies	Per evaluation point	Project	This indicator attempts to quantify the Varkey Foundation's support to the MOE/GES. This is reflective of the systemic impact that the Project is having on national policy and practice.
3.3.3 Government officials formerly recognise the GEC project and its contribution to promoting girls' education in Ghana	Project level	GES Engagement Log	Provides a narrative response based on various sources of data contained in log	Per evaluation point	Project	
Intermediate outcome 1: Attendance: Marginalised girls are incentivised to attend school more regularly, and OOSG are incentivised to return to/begin attending school.						
1.1 Improvement in marginalised girls' attendance in schools throughout the life of the project	Classroom Level	Attendance Spot-Check	Spot-check tool, triangulated with VF's monthly virtual log best confirms quantitative measurements; a secondary measure is adopted to ask a caregiver at the HH to recall the number of days of school a girl has missed in the past 2 weeks. Interviews with girls helps contextualise absence and related reasons for absence	Per evaluation point	External evaluator	
1.2 Marginalised girls report being motivated to attend school as a result of the project	Student Level	Girl's Interview by Implementor		Per evaluation point	Project	Responsibility for this indicator was transferred to the project since they already collect this data.
Intermediate outcome 2: Teaching Quality: Teaching quality is improved as a result of engagement with and support from MGCubed Studio Teachers and teacher training						
2.1 Percentage of observed lessons where facilitators are assessed as "Highly Satisfactory"	Classroom Level	Classroom Observation	SI used an adaptation of the Stallings classroom observation tool, which has been proven to produce robust quantitative data with relatively limited training. Teacher interviews help to understand why teacher quality is or is not changing and in what ways.	Per evaluation point	External evaluator	This indicator has been rephrased to reflect the percentage of Facilitators that are assessed with a minimum of Highly Satisfactory (70%).
2.2 MGCubed Facilitators and Teachers can satisfactorily demonstrate student-centred learning strategies shared in MGCubed training being used in non-MGCubed lessons.	Classroom Level	Classroom Observation		Per evaluation point	External Evaluator	This indicator previously referenced "MGCubed" strategies, which made the indicator unclear for the External Evaluator.

2.3 Percentage of MGCubed Facilitators and Teachers that can successfully cite how they applied at least two student-centred learning strategies shared in MGCubed training in a non-MGCubed lesson in the last term	Teacher Level	Teacher Survey	Project logs and GES logs provide an opportunity to track changes and influence of the project overtime.	Per evaluation point	External Evaluator	At Baseline data was taken from the project's internal monitoring
2.4 Varkey Foundation uses learning on how to improve teaching quality to influence policy discussions and the wider policy agenda	Project Level	Project logs and plans; GES engagement Logs		Per evaluation point	Project	The indicator is rephrased to be more specific. This indicator explicitly assesses whether the Foundation is using its learning on how to improve teaching quality to influence policy.
Intermediate Outcome 3: Lifeskills: Marginalised girls build transformative non-cognitive skills which allow them to make the most of their education						
3.1 Percentage of sampled girls demonstrating an improvement in non-cognitive skills across multiple areas (agency; self-esteem; self-efficacy)	Student Level	Girl's Survey	The HH survey contains a module administered directly to a cohort girl which asks specific questions on life-skills and other non-cognitive material that she has been exposed to. These, along with a battery of psychosocial questions will make up the indicator around non-cognitive change. This quantitative measure is best triangulated qualitatively with girls' FGDs. This is triangulated with VF's after-school observation tool and caregiver survey to be able to objectively evaluate the afterschool activities as well.	Per evaluation point	External Evaluator	
3.2 Percentage of sampled girls demonstrating an improvement in knowledge and understanding of 1) Health and Sanitation; 2) Financial Literacy	Student Level	Girl's Survey		Per evaluation point	External Evaluator	
3.3 Percentage of community members reporting changes in girls' attitudes and behaviours	Household Level	Household Survey		Per evaluation point	External Evaluator	Question added at midline.
Intermediate Outcome 4: School Governance: School leaders are incentivised and able to introduce sustainable school-level changes that support girls' learning and transition, supported by the DEO						
4.1 Percentage of schools assessed as having "Highly satisfactory" or "Outstanding" school leadership and management	Household Level	Household Survey	School assessments and conduct checklists are already developed by VF have been supplemented with household interviews. Indicators around use of the cane are best	Per evaluation point	External Evaluator	Responsibility transitioned to the external evaluator to better capture community perceptions.

4.2 Percentage of schools where physical punishment is used	Classroom Level	Classroom Observation Survey	answered objectively (via classroom observation) and qualitatively in safe spaces, such as through FGDs with girls or KIIs with teachers.	Per evaluation point	External Evaluator	Removed of 'permitted' because the distinction between 'used' and 'permitted' was difficult for the External Evaluator to define in a context where caning might be forbidden (not permitted) but still accommodated. We are measuring whether physical punishment is used.
4.3 Percentage of schools with functioning PTAs/SMCs	School Level	PTA/SMC Status Survey		Per evaluation point	Project	This is new. This will help the Project to specifically quantify the number of PTA/SMCs during the Project. Intermediate Outcome 4 requires school leaders to introduce sustainable school-level changes that support girls' learning and Transition, supported by the DEO. One step to achieve this objective is for each school to have a functioning PTA/SMC to support changes that contribute to girls' learning and Transition.
Intermediate Outcome 5: Attitudes and Perceptions: Community members show increased awareness and understanding of the benefits of girls' education and transition						
5.1 Percentage of community members who are caregivers who can cite one way in which they changed [their behaviour] with respect to girls' education in the past year (indicator uses pre-coded areas of activity that are included in quantitative instrument)	Household Level	Household Survey	This IO is measured at the girl level and community level (among parents). The HH survey includes quantitative measurements for both girls and parents and allows us to measure the IO in one event. The nuances around attitudes and perception are best interpreted through qualitative events with girls, parents, and teachers, and further supplements and explain the quantitative findings. Theft and technical logs provide an objective view of the maintenance of technology in the system.	Per evaluation point	External Evaluator	Rephrased to measure the number of caregivers who can be precise with examples of how they support girls' education. The Project chose the term 'caregiver' as it refers to the person in charge of providing home-based support for the pupil. The change will allow for a more meaningful understanding of how parents are responding to and adopting the Project's messages. It is easy for caregivers to express support for girls' education but still act in a way that undermines this. The Project is moving towards a more behaviour-oriented indicator in order to capture concrete changes in activity as well as attitude.
5.2 Percent of community members (including caregivers, religious leaders, community representatives) who can: 1) specify afterschool club content and 2) express support for it.	Household Level	Household Survey		Per evaluation point	Changed it to Project	This will quantify not only whether community members support the Afterschool Club content (i.e. topics that are covered during the sessions) but also whether they have engaged with this content. This is to ensure that community members are responding to the question knowledgeably. If they do not know anything about the content, they will

						not be asked the question about whether they support the content.
5.3 Community acts as guardians for technology packages in schools, expressed in terms of number of thefts and preventable damage	School Level	Theft Logs; Technical Issue logs		Per evaluation point	Project	Indicator has been rephrased to provide more clarity on what is expected from community members.

2. Evaluation Methodology

In general, the GEC-T evaluation follows a **quasi-experimental, longitudinal panel design** that tracks a cohort of comparison and treatment girls over three years. At baseline, the ET selected the statistical matching method known as coarsened exact matching (CEM) to construct a valid counterfactual comparison group, and utilised a difference in difference approach (DID) to calculate the changes in outcomes of interest in midline.[43] Further detail on the matching process can be found in the Baseline Report.

At GEC-1, the external evaluator implemented a randomized-comparison trial (RCT). Due to the fixed selection of 70 treatment schools at GEC-T the continuation of the RCT design was no longer feasible as treatment schools had 3 additional years of program exposure under GEC-1. Instead, CEM was utilized to identify a new set of comparison schools that could provide a robust counterfactual to the treatment group. CEM attempts to establish a valid comparison group by matching observable baseline characteristics of a set of comparison schools to those of treatment schools such that the differences between treatment and comparison are minimized and approximate the results of a randomized selection. The advantage of making a new selection of comparison schools was that it was possible to find counterfactuals with more similar GEC-T baseline characteristics as treatment schools (e.g. better learning outcomes, better equipped school environments). To account for any remaining differences in outcomes between comparison and treatment groups at the start of GEC-T, the study evaluation utilizes a difference-in-difference (double-difference, DID) methodology by adjusting for baseline differences and comparing differences over time in order to comparison for time-confounding effects and adjust for any baseline inequivalence.

The **evaluation's cohort approach is to track a "joint sample"** as defined by GEC, as opposed to a "split sample." A join cohort means that learning and transition are linked for the cohort girls and their households. In practice, this meant that a girl was tested at school, followed by an interview at her household with the head of household (HOH) and/or the girl's caregiver. Linking learning and transition in this manner not only facilitated data collection and analysis, but it also allowed the ET to better understand the influence of key household and demographic characteristics on cohort girl learning outcomes in subsequent regression analysis models, which assisted in answering the evaluation questions.

This cohort approach has not changed at midline with the midline analysis being applied to the cohort sample. However, replacements were identified for students who were no longer enrolled at their baseline school. Consideration was given to focusing the core DID analysis on the cohort sample, while using replacements to supplement a holistic picture of the current MGC-T population at midline through the inclusion of replacements in summary statistics of midline findings. However, upon feedback from the FM regarding the need to clarify and, perhaps streamline, the analysis and after confirming the midline sample is still sufficiently powered, we have removed replacements from our analysis. Replacement data will be retained and potentially utilized at endline but is not included here.

To supplement and explore the quantitative data, the ET collected qualitative data about the program's impacts. Whereas the quantitative data elucidates the program's impact, qualitative data provided deeper insight into the mechanisms for how and why these impacts took place. Since qualitative data collection takes place alongside quantitative data there are some limitations in its ability to explain deviations in the

[43] Initially, the Varkey Foundation considered involving the same control group as in the pilot, employing a triple difference (DDD) design to ensure contamination effects are teased out. After discussions with the FM, this option was discarded.

quantitative findings. However, qualitative data still provides the opportunity to gain a nuanced picture of program impacts.

At midline, qualitative data was collected via focus group discussions (FGDs). FGDs were carried out with six distinct populations: boy students, girl students, mothers of students, fathers of students, OOSGs partaking in MGC-T programming and OOSGs outside of MGC-T programming. Approximately six to 10 participants were chosen for each FGD via convenience sampling. To the extent possible, qualitative events were carried out at both comparison and treatment schools at baseline.

In order to successfully track, measure, and validate the linkages of intermediate outcomes and outcomes, the **ET developed and piloted several different quantitative and qualitative tools that integrated IO specific questions in order to inform outcomes**. Analysis of data from these instruments yields not only interesting descriptive statistics, but also provides important explanatory variables to include in quantitative regression models with the goal of teasing out the effect of various factors (at the household, school, classroom, and community levels) on the outcomes of interest (learning and transition).

With these tools, the ET will also be able to adequately and accurately **address the GESI minimum standards, ensuring to disaggregate by and conduct meaningful analysis of impairment, sex, grade/age, and other interesting sub-groups.** All outcome and intermediate outcome-level reported data in this report follows GESI standards where applicable and relevant.

As part of The evaluation design, the ET **created benchmarks in learning and transition at baseline against which future (midline and endline) treatment girls and boys in the cohort could be compared.** Benchmarks act as a counterfactual, demonstrating what future cohort grades would have scored without the intervention in the treatment area. To create these benchmarks, at baseline, the ET tested two girls and two boys in JHS 2 and JHS3 (future grades for current cohort girls and boys) from each of the 72 treatment schools and analysed their data. For transition, the ET employed the Benchmark Transition tool, which randomly selected up to 6 girls in households of catchment areas of treatment and comparison schools in order to establish the current transition rates in communities. Benchmark data is fixed at baseline measurements. At midline and endline, learning and transition scores and rates will be compared to these benchmarks to assist in the overall picture of distinguishing the impact of the program.

3. Midline data collection process

- **Pre data collection**

As noted above **the project follows a tracked cohort of students overtime**. At baseline, the ET included a 17.25% buffer in the sampling design to account for attrition over the lifetime of the project. Attrition realised at midline (10% for girls and 6% for boys) was well within this guideline (see **Table 50** below) and therefore additional sampling was not required. However, the ET made the decision to include replacements for attrited students at midline with the original intention they would be included as a part of a picture of the MGC-T sample. As noted above, however Replacement students were eventually excluded from midline analysis. However, we have retained the replacement data which may be useful for alternative purposes and exploration and therefore clarify the replacement strategy here. Replacement students were selected following the criteria established at baseline:

1) Of the same age, grade (assuming progression for midline), and school and
2) of marginalised status:
    a. (i) pupils who are over-age in their class,
    b. (ii) pupils who travel more than 30 minutes to school,
    c. (iii) pupils who have been absent from school for more than 10 times in a term, and/or
    d. (iv) pupils who have more than four siblings

The use of replacements to supplement the main cohort did not require an adaptation of the sampling frame.

Data collection tools were reviewed and approved by the FM prior to the start of Midline data collection. The ability to incorporate changes at the time of review in early 2019 was constrained due to the inability to process a local IRB revision in time for field work. It is recommended that for endline the timeline for FM guidance and review is moved up in order to allow for IRB submission and that the process of FM review is transparent to the EE. In addition, changes to qualitative data collection were further constrained by available resources. To the extent feasible, requested revisions were incorporated in the modified tools. Learning assessments, household, girls and school surveys were all piloted and calibrated at baseline. Changes to survey instruments and new tools developed for midline were tested in the field during enumerator training and minor modifications were made at that time.

Household survey (revised). The household survey included minor updates at midline to include new questions around household cash transfers, girl absenteeism, SMC/PTA meetings, changes in caregiver behavior around girls' education and caregivers impressions of the MGC-T program. Many of these questions were captured qualitatively at baseline and their inclusion in the caregiver survey was an opportunity to provide a quantitative analysis. Household surveys were administered in person and responses entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Learning assessments (new version). At baseline, SI successfully developed, validated, piloted and finalized the SeGRA and SeGMA tools. In conjunction with a local Ghanaian education expert, SI developed three versions each of the SeGRA and SeGMA tools in October 2017, details of which can be found in the baseline report. For the EGRA/EGMA, at baseline SI had two versions ready for deployment. Given the need to have three different versions of the test for the full evaluation, SI agreed with the Fund Manager to develop a new instrument prior to the endline by blending questions from the first and second.

At baseline, all grades received EGMA/EGRA (all tasks) and SEGRA/SEGMA subtask 1 while SEGRA/SEGMA subtask 2 and 3 were administered to levels 6 and higher only to avoid floor effects at lower levels. However, upon instruction from the Fund Manager to ensure comparability of cohorts when aggregating scores, subtasks 2 and 3 were excluded from analysis at baseline. This procedure of excluding subtasks 2 and 3 from analysis is followed at midline and endline unless directed otherwise by FM. The Evaluation team, believes based off piloting that SEGRA/SEGMA subtask 1 is significantly complex to avoid realizing ceiling effects. However, the team administered subtask 2 at midline and will continue to do so at endline to levels 6 and higher in the event that ceiling effects are realized. Should this occur analysis will look to standardize scores in subsequent data rounds following guidance of the fund manager.

EGRA/EMGA were administered in person and student responses entered by the enumerator into a pre-coded form in a tablet. SEGRA/SEGMA were administered on paper completed by the student. Student

responses were later scored and enumerators entered the scores into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Attendance spot-checks. This instrument is largely unchanged from baseline. Paper records were reviewed and entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

School assessment survey (Head Teacher/Director Survey). This instrument is largely unchanged from baseline. School assessment surveys were administered in person and responses entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Classroom observation tool (revised). This instrument is largely unchanged from baseline though some questions were modified to better capture the level of the instructor (teacher verse MGC-T facilitator), and new questions were added around classroom gender dynamics to better quantify student-centered gender-centered learning. Classroom observations were done in person and entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Focus group discussions (revised and new). In addition to baseline FGDs, at midline, FGDs with Out-Of-School-Girls were introduced in four districts. Two FGDs per district were conducted, one with OOSGs who are attending GEC – T afterschool activities aimed at transitioning back into the classroom and one with OOSGs who are not attending any GEC – T programming. These FGDs provide additional insight into the challenges and barriers facing this population.

FGDs were administered in person by a facilitator. IRB approvals did not include the provision to record FGDs and this was not done at midline. Instead the facilitator was accompanied by a notetaker who took detailed notes throughout the interview. Notes and a thematic summary of the FGD were digitalized by the notetaker.

Key informant interviews (dropped). As part of the evaluation, key informant interviews (KII) helped to inform quantitative findings at baseline for various Outcomes and IOs, as well as Output indicator 5 on DEO capacity building. KIIs were held with teachers, and District Education Officers (DEO) personnel to understand attitudes about girls' education and barriers to change, as well as perceptions of GEC implementation and management.

- Upon completion of the baseline KIIs were assessed as to their value added for informing quantitative findings gleaned from other instruments. It was determined in consultation between SI and VF that the information provided would be better captured in quantitative surveys to teachers and circuit supervisors implemented at midline and endline.

Teacher survey (new). Based upon repeated discussion with Varkey Foundation, and prior approval from the FM, the teacher survey was developed for the midline and endline evaluations to better capture various Outcomes and IOs among a larger population than that available through KIIs. The teacher survey is used to understand components of school management, trainings, assistance provided to girls in transition and distant learning at GEC – T schools. This survey will be administered to two randomly selected teachers from each treatment school and one randomly selected teacher from each comparison school. Teacher surveys were administered in person and responses entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Circuit supervisor survey (new). The circuit supervisor survey was developed for the midline and endline evaluations to verify attendance and perceptions of monitoring tool workshops. 5 circuit supervisors are randomly selected from each of the seven participating districts. Circuit supervisor surveys were administered over the phone and responses entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Girl school survey (revised). The Girl's Survey (which takes approximately 15 minutes) is administered to each cohort girl, both treatment and comparison, at baseline, midline, and endline. The survey was typically administered at either the household after the completion of the household survey or at school. The Girl's Survey asks pertinent questions on school management, life skills, and attitudes toward education. It will contribute to answering IO4 on Life Skills and IO5 on School Management. SI has extracted key questions from the core-girls survey in the HH survey and added them to the larger Girl's Survey to facilitate logistics. Girl's surveys were administered in person and responses entered by the enumerator into a pre-coded form in a tablet. Data was uploaded daily to a secure server.

Data collection and **staff recruitment was conducted by the survey firm JMK Consulting Limited.** Established in Ghana in 2006 JMK has built up a core staff of 25 qualified personnel and a strong network of enumerators and qualitative researchers after implementing over 100 evaluations for more than 15 organizations. Utilizing their network enumerators and qualitative researchers were recruited from previous JMK evaluations. Minimal qualifications included a degree/diploma in basic education or a degree in social science or a related field. Staff were also required to have taken part in at least 4 major data collection exercises. Enumerators and FGD facilitators were recruited from the region of the evaluation to ensure they speak the local language and are familiar with the culture and practices of local populations. Qualitative researchers had past experience in conducting FGDs. At midline ever effort was employed to recruit individuals who had performed well during the baseline evaluation. Both enumerators and qualitative researchers underwent a week-long training in Accra prior to data collection. The training included a gender-sensitivity and child protection module led by the Varkey Foundation. As part of the training, enumerators were trained on various child protection issues that could emerge during data collection and, depending on the nature of the issue, the reporting mechanisms. Reporting mechanisms included to the head teacher, district social welfare officer, police, JMK field coordinators and Varkey Foundation.

While corporal punishment has been restricted by the GES, according to JMK, most enumerators personally experienced corporal punishment themselves during their basic school days and therefore did not realize it fell within the reporting requirements. No issues of corporal punishment, as observed in classroom observations, was reported. SI, VF and the data collection team will need to discuss appropriate reporting mechanisms for endline as well as ensuring the consent process makes it clear that confidentiality does not apply should an enumerator witness an event that would constitute as child endangerment.

Finally, training on survey instruments and FGDs at midline was led by a combination of SI-HQ staff, SI's local Educational Specialist and JMK leadership. Varkey Foundation observed and contributed to the training as appropriate.

- **During Data Collection**

Midline data collection took place from 11 February – 8 March 2019. **Data collection took place in all 7 project districts simultaneously and employed all tools at the same time with FGDs taking place alongside quantitative data collection.** Enumerators were divided into two teams for efficiency and knowledge capture. Team A conducted learning assessments (EGRA/EGMA/SeGRA/SeGMA). This team worked

with teachers and school leaders to identify and track the baseline sample at midline and to identify appropriate replacements when needed. Supervisors from Team A conducted attendance spot checks as well as head teacher and teacher interviews. Team B, using tracking information supplied by Team A conducted the girl and household/caregiver surveys. Supervisors from Team B also took part in classroom observations. DEO surveys were conducted over the phone by regional coordinators.

All data collection tools and procedures underwent review and approval from both SI's Institutional Review Board and a local Ghanaian IRB (Radiological and Medical Sciences Research Institute – RAMSRI) to ensure the protection of study participants. Ethical Protocols included:

- Ensuring participant consent (in the case of adults) or assent (in the case of students). For each student who participated in the study an adult was required to first provide written consent. After written consent was provided the student was the asked for their verbal assent to participate.
- Providing opportunity to withdrawal from the study at any time. As part of the consent process respondents were told they could withdrawal or choose to skip any questions without penalty.
- Recording all data on a secure, password protected, tablet and transferring data to a secure server in encrypted format. Ensuring all paper copies of student learning assessments and FGDs were destroyed after being recorded in table. In addition FGDs did not record any identifying information in the way of names or contact information.
- Ensuring any data will identifying information is stored on a secure server accessible only to the EE.
- Ensuring staff were aware and educated on ethical protocols. Participant protections included enumerator training on Varkey Foundations Child Protection Policy. All research staff were required to sign a Child Protection and Data security policy.
- Ensuring staff safety. While Ghana is a low-risk country in terms of violence and general physical insecurity, the data collection firm and SI assess the safety of visiting certain communities and schools ahead of visits. If a community or school is deemed a safety risk for enumerators for any reason, data collection may be delayed or an entire community and school replaced or dropped from the sample. If in the course of data collection a study area becomes unsafe, enumerators are instructed to stop activities, remove themselves from the area, and later reassess if data collection will resume or continue after the fact.

No breaches in ethical protocols were noted at baseline or midline.

Study participants were re-contacted through their baseline schools. Survey staff first approached school teachers with a list of baseline participants and asked them to identify any students that were no longer enrolled. **While the cohort sample was powered for 17% attrition, students no longer enrolled were replaced.** For girls no longer enrolled they were dropped from the learning panel but still tracked, when feasible, to their household and administered the household survey to learn transition outcomes. Three attempts were made for all girls (panel, replaced and replacement) at the household level in order to administer the caregiver and girl survey. Learning tests were not administered for girls no longer enrolled. These girls were then replaced regardless of whether or not the household survey was administered. Replacements were identified according to the marginalization criteria established at baseline. In addition, the replacement student should be of the same

sex and grade[44] (assuming successful transition) of the baseline student they were replacing. Replacements were made on a 1:1 basis (for every cohort student no longer enrolled at their baseline school they were replaced) then administered the learning assessments and girls were tracked for the girl and household/caregiver surveys. As noted above, replacement were eventually excluded from midline analysis in order to focus on the panel data. However, their data has been retained.

Table 52: Replacements by Grade Level

	Girls			Boys		
Baseline Grade (of original student)	Targeted Midline Sample	Actual Midline Sample w/o replacement *	Sample w/ replacement	Targeted Midline Sample	Actual Midline Sample w/o replacement *	Sample w/ replacement
P3	321	291	321	143	129	143
P4	541	480	541	192	179	192
P5	619	562	619	263	242	263
P6	722	640	722	291	259	291
JHS1	521	449	521	75	66	75
missing	51	43	51			
	2775	2465	2775	964	875	964

*This is the sample used for midline analysis

For girls who were no longer enrolled in their baseline school (310) effort was made to learn their transition status. First, a caregiver survey was attempted and successful for 151 girls. For the remaining 159 girls the data collection firm sought insight from teacher's and community leaders as to their status.

Learning assessments were administered over two days at the participating schools. If a student was absent during the administration of learning tests they were re-approached once during clean-up activities to attempt to capture their learning outcomes. Girls and Households surveys included 3 in-person contact attempts before data from that survey was excluded in their analysis.

Sampling for non-cohort subjects was conducted as follows:

- School/Head Teacher Survey: The respondent targeted the head teacher, or principle. If the head teacher was not available at the time of the school visit they could delegate the responsibility to one of their colleagues.
- Teacher survey: 216 teachers, 72 from comparison and 144 from treatment were targeted with an even gender split. At treatment schools' teachers were divided into 44 facilitators and 100 teachers. In advance of vising schools the data collection firm requested a list of the teachers fitting the criteria and numbered them 1 through X, where X is the number of teachers available. They then randomly drew a number

[44] The grade level criteria were not always adhered to due to the availability of marginalized students in the appropriate grade. Approximately 13 students were replaced with students from a different grade than they would have progressed to.

from a bag with number pieces of paper and interviewed that teacher, if the teacher was not available at the time of interview a replacement was randomly drawn

- Classroom observations: 2 classrooms were targeted to be observed in each school. The data collection firm was to get a list of all classrooms, disaggregate by gender, and number them 1 through X, where X is the number of classrooms available. They were then supposed to randomly select a classroom, one for each gender, according to the same procedure as the teacher survey.
- Attendance Spotchecks: 5 and 7 spotchecks were targeted at comparison and treatment schools respectively. As above, the data collection firm was instructed to randomly select each classroom from a list disaggregated by grade.
- FGD: Participants for FGDs were identified by school teacher and/or community leaders. OOSGs were identified by the Varkey Foundation, when feasible, and by community leaders when not.

Data quality was assured through coded data quality checks, high frequency checks and in-field supervision by SI's Education Specialist. All surveys were coded with logic checks, constraints, and enumeration instruction to minimize enumerator error in the field. Once data was uploaded it was reviewed by SI staff for outliers, missing data and logic flows. Data like grade, age, and sex were crosschecked among available survey instruments and discrepancies were rectified by the field team.

The final sample sizes for each instrument are noted below.

Table 53: Tool details

Tool Associated Outcome	Beneficiary group	Sample size agreed in MEL framework (updated with BL numbers) for treatment and comparison group	Final Midline Sample	Remarks
EGRA/EGMA (Boys) Literacy/Numeracy	In school boys	T = 482 C = 482	T = 451 C = 424	
SeGRA/SeGMA (Boys) Literacy/Numeracy	In school boys	T = 482 C = 482	T = 449 C = 424	
EGRA/EGMA (Girls)* Literacy/Numeracy	In school girls	T = 1405 C = 1370	T = 1255 C = 1205	MEL Framework has this at: T = 1368 C = 1368. Oversampling at BL increased the targeted number of treatment girls.
SeGRA/SeGMA (Girls) Literacy/Numeracy	In school girls	T = 1405 C = 1370	T = 1253 C = 1201	
Girls Survey Transition/IO1/IO2/IO3/IO5	In school girls	T = 1405 C = 1370	T = 1244 C = 1197	
Caregiver survey Transition/IO1/IO3/IO4/IO5	Caregivers (in school girls)	T = 1405 C = 1370	T = 1233 C = 1192	
Caregiver survey Transition/IO3/IO4/IO5	Caregivers (out of school cohort girls)	n/a tracked as girls drop out of cohort	151	
Head Teacher/School IO4	Head Teacher	T = 72 C = 72	T = 72 C = 72	
Attendance IO1	Teacher	T = 504 C = 360	T = 508 C = 359	
Classroom IO2	Teacher	T = 144 C = 144	T = 146 C = 146	
FGD Secondary data for all outcomes	In school boys In school girls Mothers Fathers	4 4 4 4	4 4 4 4	

FGD OOSG Secondary data for all outcomes	Out of school girls	8	8	
Teacher IO2/IO4	Teacher	T = 144 C = 72	T = 145 C = 92	
DEO	DEO	35	30	

While Table 51 represents the total number of learning assessments and survey tools administered it should be noted that for key analysis on learning and transition outcomes it was important to ensure 1:1 tracking of outcomes overtime from the study cohort. For learning outcomes this meant limiting analysis to girls that had test scores at both baseline and midline for literacy and numeracy, arriving at a final sample of 2,412 girls tracked over time. For transition outcomes this meant limiting analysis to girls that had known transition status at both baseline and midline and whose age was captured at baseline. Transition results are disaggregated by baseline age in the project's outcome spread sheet and it is therefore included as an additional qualifier. The transition final sample included 2,416 girls tracked over time.

It is important to note that the learning and transitions samples do not perfectly overlap. In some cases a girl may have learning outcomes at both baseline and midline but is missing her baseline age or her transition status (particularly grade progression) was not clear and thus excluded from the transition analysis (n = 162). In other cases a girl may have dropped out at midline or was absent during the administration of learning assessments, is missing midline scores and thus excluded from learning analysis but has a known transition outcomes (n = 166).

- **Post data collection**

For quantitative data collection, the evaluation team screened through the raw dataset for any incongruities and errors, performing various checks to flag outliers for continuous variable and various logic checks for consistency of the data not only within the midline dataset but also from across baseline to midline dataset. These checks were communicated to the data collection firm and the data collection team addressed these by calling or revisiting the respondents to further verify. When performing these checks, the evaluation team often referenced the field notes during data collection to better understand the context. If there were changes to the responses after verification, the evaluation team fixed in the raw dataset. Once the dataset was cleaned in consensus with the data collection team, the evaluation team analysed the dataset to address the evaluation questions. For quantitative data, as mentioned in methodology, the evaluation team used regressions and DiD analyses to examine the dataset across baseline to midline.

For qualitative data, given that the IRB approval had not allowed for audio recordings at midline, enumerators received additional training on efficient and accurate note-taking skills during enumerator training before data collection. Notes were digitalized daily. In addition, the note-taker and facilitator completed an excel spreadsheet summarizing the findings for each FGD under different thematic areas relating to project outcomes including: learning, transition, sustainability, attendance, life skills, teacher quality, attitudes and school governance. Qualitative analysis was undertaken by the EE in which all FGD notes were reviewed and primary themes and finding summarized across FGDs. Qualitative analysis was primarily conducted post quantitative data analysis to help explore and contextualize trends observed in the quantitative findings.

4. **Challenges in midline data collection and limitations of the evaluation design**

The primary challenge at midline was tracking the cohort sample which realized attrition at 10% and 12% among treatment and comparison girls respectively and 6% and 12% among treatment and comparison boys

respectively. At baseline the sample include a buffer of 17.25% so attrition at midline is not a concern for the DID analyses at midline. However, as students are more likely to drop out as they progress through school and age having such high attrition rates at this stage presents a concern for the endline evaluation. To mitigate this, the ET recommends strengthening tracking procedures at endline. This will include tracking students to their households to administer the learning assessments.

Other data collection challenges centred largely around consistency of coding, particularity student IDs to track students across survey instruments and from Baseline to Midline. While this did not affect the end product errors in data entry created an extensive cross-referencing and cleaning process which delayed data analysis. Additional steps will be taken at endline for better case management including a focused session at enumerator training on the issue. Another issue was the identification of treatment and comparison schools at baseline in which 4 treatment and 4 comparison schools received the wrong assignment in the data. This was due to a high similarity in naming between the various schools. SI worked with the data collection firm, Educational Specialist, and the Varkey Foundation to verify the treatment status of all schools and clean the data. Baseline figures were updated with the correct treatment assignment.

5. Sample

Table 51 above shows how the sample matches the sample size agreed on in the MEL Framework. These figures are reported in condensed format in the table below.

Table 54: Midline Sample and Attrition

Cohort group	Targeted Midline Sample (Treatment)	Targeted Midline Sample (Comparison)	Midline Sample (Treatment)	Midline Sample (Comparison)	Cohort Attrition (Treatment)	Cohort Attrition (Comparison)
Girls	1405	1370	1259	1206	10%	12%
Boys	482	482	451	424	6%	12%
Head Teacher/School	72	72	72	72	0%	0%
Attendance*	504	360	508	359	n/a	
Classroom*	144	72	146	146		
FGD*	8	8	8	8		
FGD OOSG**	8		8			
Teacher**	144	72	145	92		
DEO**	35		30			

Table 55:Evaluation sample breakdown (by region)

	Intervention (recontacted)	Comparison (recontacted)
Sample breakdown (Girls)		

Greater Accra (% by region)	50.12%	61.44%
Oti	49.88%	38.56%
Girls (sample size)	1259	1206
Sample breakdown (Boys)		
Greater Accra	50.55%	61.08%
Oti	49.45%	38.92%
Boys (sample size)	451	424

Table 56: Evaluation sample breakdown (by baseline grade) of tracked cohort

	Intervention (recontacted)	Comparison (recontacted)
Girls (by baseline grade)		
Grade 3 (% by grade)	12.07%	11.53%
Grade 4	18.51%	20.48%
Grade 5	22.80%	22.80%
Grade 6	27.08%	24.79%
JHS 1	17.24%	19.24%
Missing	2.30%	1.16%
OOS girls (%)	n/a	n/a
Girls (sample size)	1259	1206
Boys (by baseline grade)		
Grade 3	15.52%	13.92%
Grade 4	23.06%	17.69%
Grade 5	28.82%	26.42%
Grade 6	30.16%	29.01%

JHS 2	2.44%	12.97%
OOS Boys (%)	n/a	n/a
Boys (sample size)	451	424

Table 57:Evaluation sample breakdown (by age)

	Intervention (recontacted)	Comparison (recontacted)
Sample breakdown (Girls)		
8 years	0.24	0.42
9 years	1.3	1.18
10 years	5.28	4.46
11 years	7.97	7.57
12 years	13.82	12.36
13 years	18.46	17.75
14 years	21.14	18.59
15 years	15.12	15.9
16 years	9.67	9.84
17 years	3.5	6.39
18 years	2.6	3.87
19 years	0.49	1.01
20 years	0	0.25
Girls (sample size)	1230	1189
Sample breakdown (Boys)		
8 years	0	0.23

9 years	0.66	0.7
10 years	6.64	3.98
11 years	9.29	7.26
12 years	16.81	9.13
13 years	19.25	18.27
14 years	18.81	17.33
15 years	12.61	13.82
16 years	7.08	8.67
17 years	3.32	7.96
18 years	3.54	8.9
19 years	1.11	1.87
20 years	0.44	1.87
Boys (sample size)	484	488
Aged 20+ (% aged 20 and over)		

GEC states that the population identified as having a disability should include all those with difficulty *in at least one domain* recorded at *a lot of difficulty* or *cannot do at all*. This applies to both the Washington Group questions administered during the caregiver survey to all caregivers regardless of the child's age and the Child Functioning questions administered during the girls survey to girls 12 and over.

Below we have reported disability by treatment group and evaluation point, first from caregivers and second from students themselves. We note some significant changes in reporting on cognitive and self-care impairment with the percentage of both caregivers and students identifying reductions in these impairments from baseline to midline. Cognitive impairment refers to a child's difficulty learning, concentrating or remembering when compared to children of the same age. Self-care impairment refers to difficulty in dressing or feeding oneself. It is feasible that these traits, unlike some physical disabilities, are not fixed over time and can improve as a girl ages which is likely what we are observing in this study. The other reason could be drop in reporting. Because of social stigma, it is highly likely that older girls will refrain from reporting their physical or cognitive impairment. One of the girls in FGD mentioned that she stopped wearing glasses to avoid question and embarrassment. Finally, though speculative, it is possible that girls with impairment are dropped out or moved out of the treatment schools and

transferred to impairment friendly schools. In one of the mother's FGDs, one mother mentioned her relative taking that action.

It is worth asking whether disability contributed to transition outcomes and therefore the sample make-up over time. The DID analysis for transition in Table 58 below indicate that cognitive impairment is significantly correlated with worse transition outcomes. It is therefore feasible that the drop in cognitive impairment observed in the sample overtime is due to these girls exiting the sample and thus an important place of investigation for the program team. However, this correlation appears to be correlated primarily with grade repetition, not dropouts, and thus does not fully explain the change in impairment between the baseline and midline samples.

Given the above considerations for the changes in impairment status the most likely conclusion is that as the sample ages and girl's mature they are less likely to be viewed as impaired or at a disadvantage even when compared to peers of their own age on cognitive, self-care or communication measurements. This does not have any direct implications for the evaluation since impairment status is comparisonled for within the EE analysis. It could have important programmatic implications if the reduction in impairment status was due to students dropping out of school, and thus the evaluation, but that does not seem to be the case.

Table 58: Evaluation sample breakdown (by disability) – Caregiver Response

Caregiver Response	Baseline		Midline		Difference in Comparison	Difference in Treatment
Variable	C	T	C	T	C	T
***Any* impairment**	6.28%	7.02%	3.11%	2.00%	-3.17%***	-5.02%***
Vision impairment	0.43%	1.09%	0.42%	0.41%	-0.01%	-0.68%*
Hearing impairment	0.34%	0.33%	0.43%	0.17%	0.08%	-0.16%
Mobility impairment	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cognitive impairment	5.25%	5.52%	2.32%	1.40%	-2.93%***	-4.12%***
Self-care impairment	0.85%	0.58%	0.00%	0.16%	-0.85%***	-0.42%*
Communication impairment	0.17%	1.09%	0.17%	0.08%	0.00%	-1.01%***

*** p<0.01, ** p<0.05, * p<0.1

Table 59: Evaluation sample breakdown (by disability) – Girl (over 12) Response

Girl (over 12) Response	Baseline		Midline		Difference in Comparison	Difference in Treatment
Variable	C	T	C	T	C	T
Any impairment	0.06	0.06	0.08	0.05	1.39%	-0.67%***
Vision impairment	0.01	0.01	0.02	0.02	0.91%	0.84%
Hearing impairment	0.01	0.00	0.01	0.01	0.86%	0.29%

Mobility impairment	0.01	0.00	0.01	0.00	0.20%	0.04%
Cognitive impairment	0.04	0.04	0.04	0.02	-0.24%	-1.08%***
Self-care impairment	0.01	0.01	0.00	0.00	-0.62%**	-0.47%**
Communication impairment	0.01	0.01	0.01	0.00	0.49%	-0.49%**

***** p<0.01, ** p<0.05, * p<0.1**

6. **Contamination and compliance**

The Project does not have evidence or knowledge of contamination in the comparison cohort or spill-over effects from any nationwide or regional programs that would strongly impact comparison girls learning and transition outcomes.

Treatment girls had a similar exposure to the learning programmes except for the Cash-transfer component which is given only to the P6 students transitioning to JHS1 students. The Project started delivering delivering Cash Transfers last year, therefore the current JHS2 treatment cohort did not benefit from it. Apart from the grade component, the Project distributed the Cash Transfer equally across all districts.

7. Learning and transition outcomes estimation: Regression Analysis

In this Section we discuss the parametric estimation of difference in difference to compare the relative change in literacy, numeracy and transition outcomes for treatment girls as compared to comparison girls from baseline to midline. We conducted parametric estimate of difference in difference measure to assess the program impact on these key outcomes. The program impact, treatment and time effects are provided in the main text in Table 8 for literacy, Table 13 for numeracy and Table 23 for Transition outcomes. We use a balanced panel of 2412 cohort girls for baseline and midline learning outcomes. By using a balanced panel of girls we lost around 13 percent (=363) from treatment and comparison groups as compared to baseline numbers. Although we replaced these girls at midline to cover for further attrition in endline, we opted for not using them in the DID in midline since the number of lost observation is less than our buffer (17.25 percent) created at baseline solely for this purpose. While the existing buffer mitigates the risk of insufficient analytical power it still does not confirm whether balanced panel is free from risk of attrition bias.

Attrition bias test: According to the literature on attrition bias, the impact of attrition on subsequent data should be assessed for variables that may be affected by attrition between baseline data that includes the whole sample and the baseline data that includes only those who responded to subsequent data collection.[45] During baseline we used coarsened exact matching using school level variables to identify comparison schools.[46] This can be done by using significance test such as t-test for continuous variables and chi-square tests for categorical

[45] Goodman, J. S., and T. C. Blum. 1996. Assessing the non-random sampling effects of subject attrition in longitudinal research. Journal of Management 22 (4): 627–53.
Frank, G. C., P. R. Nader, M. M. Zive, S. L. Broyles, and J. J. Brennan. 2003. Retaining school children and families in community research: Lessons from the Study of Children's Activity and Nutrition. Journal of School Health 73 (2): 51–58.
[46] See Baseline Report for detail description of CEM methodology used for identification of comparison schools.

variables.[47] If the differences are not significant, then it can be concluded that the item nonresponses are missing completely at random (MCAR) and do not require statistical adjustment in the analyses.[48] In our case, since no school is dropped out from the sample, the only possibility of attrition bias can come from student level indicators because dropout occurred at student level. The following Table 60 shows that there is no significant difference in characteristics of cohort girls from treatment and control groups when we compare between the original baseline and truncated sample used in midline analysis. This analysis suggests we can ignore the possibility of attrition bias in our analysis and no further adjustment is required.

Table 60: Attrition Bias Test

	Comparison group				Treatment group			
	Mean				Mean			
var	Truncated	Original	Diff1	p_value1	Truncated	Original	Diff1	p_value1
Poverty measured based on roof condition	0.134	0.134	-0.001	0.961	0.090	0.090	0.000	0.990
Gone to bed hungry many/most days or always at night	0.073	0.072	0.000	0.965	0.072	0.072	0.000	0.991
HH doesn't own land	0.477	0.477	0.000	0.996	0.456	0.456	0.000	0.997
Difficult to afford school	0.727	0.729	-0.001	0.950	0.721	0.720	0.000	0.980
married Girl	0.009	0.009	0.000	0.991	0.008	0.008	0.000	0.997
Became mother under 18	0.002	0.002	0.000	0.995	0.007	0.007	0.000	0.997
HH has no education	0.370	0.370	0.000	0.993	0.372	0.373	-0.001	0.975
The PCG has no education	0.038	0.038	0.000	0.981	0.024	0.024	0.000	0.995
Language spoken at school is different than spoken at home	0.040	0.040	0.000	0.980	0.041	0.041	0.000	0.993
Live in female headed household	0.363	0.363	0.001	0.972	0.388	0.388	0.000	0.993
Living without both parents	0.173	0.174	0.000	0.998	0.171	0.171	0.000	0.985
Both parents are dead	0.009	0.009	0.000	0.991	0.009	0.009	0.000	0.997

[47] Miller, R., and D. Wright. 1995. Detecting and correcting attrition bias in longitudinal family research. Journal of Marriage and the Family 57 (4): 921–46.

[48] Siddiqui, O., B. Flay, and F. Hu. 1996. Factors affecting attrition in a longitudinal smoking prevention study. Preventative Medicine 25:554–60.

One of the parents is dead	0.108	0.108	0.000	0.982	0.107	0.107	0.000	0.989
Parent member of the household (10g=mother)	1.218	1.217	0.001	0.973	1.196	1.196	0.000	0.984
Parent member of the household (12g=father)	1.378	1.377	0.001	0.975	1.386	1.385	0.001	0.960
impair of sight	0.100	0.094	0.006	0.601	0.063	0.060	0.004	0.703
impairment of cognitive ability	0.200	0.191	0.008	0.594	0.165	0.156	0.009	0.515
impairment of mobility	0.040	0.039	0.001	0.875	0.032	0.031	0.002	0.788
impairment of hearing	0.035	0.034	0.002	0.798	0.025	0.023	0.001	0.816

Model specification: While we use a regression model for two continuous dependent variables, aggregate score in literacy and numeracy, we use a logistic model for transition model to fit the binary nature of the variable. Unlike the other two regression models, this particular model estimates program effect (DID) in terms of relative change in likelihood of successful transition. A full analysis of the results, including the analysis of drivers are provided below.

We used eight types of models for each of the learning outcomes—literacy, numeracy and transition. This is done to test sensitivity of our DID results to model specification. To start with, we use an unconstrained model (model-0) without controlling for any girl, household, location or school level indicators. This model only controls for time and treatment status effect and similar to DID based on comparison of average changes between treatment and comparison group as reported in Tables Table 6, Table 11 and Table 22 of the main text for literacy, numeracy and transition outcomes. In model-1, we added location control represented by rural or urban location dummy. In model-2 we control for girl's personal and household level basic characteristics such as, girl lives in female headed household, living without both parents, or both parents are dead, one of the parents is dead, mother is member of the household or father is member of the household, belongs to a female headed household, household head or the PCG has no education, speak different language at home than in spoken at school. Model-3 includes girl's two other marginalization characteristics such as her marital status and her under-age motherhood below the age of 18. To test the sensitivity of our DID estimates in a more controlled environment we use girl's physical and cognitive impairment status in model 4 and poverty status in model 5. Model-4 includes categories of Impairments such physically impaired in terms of vison, hearing, mobility, communication etc. and cognitive ability.

While the indicators used in models 0 through 4 are expected to be time invariant and independent of the program, we added three more models (model 5 through 7) that include indicators which may be influenced by treatment. For example, model-5 includes girls household socio-economic condition, such as, girl experiences roof poverty, gone to bed hungry many/most days or always at night, her household do not own land, household finds it difficult to afford school. Similarly, model-6 uses additional indicators to control for girl's perception of teaching quality, and school environment (model 6). The indicators we control for in this model are as follows: the girl doesn't feel safe travelling to school or at school, boys and girls don' t play together, can't move around in school easily, don't use playground when at school. It also includes girls' personal opinion about teacher's performance such as – she agrees that teachers treat boys and girls differently in the classroom, agrees teachers often absent from class, disagrees teachers make them feel welcome. Finally, in model 7, we include two indicators such, as girl does not

use toilet in the school and drinking water facilities. This group also tells us about girl's health awareness. Note that indicators in model 5, 6 and 7 may not be independent of treatment influence since financial assistance, improvement of teaching quality and girl's awareness about their health are part of the intervention and may influence the treatment group and hence lead to biased outcomes. However, these changes can happen in comparison schools as well without the MGCUBED treatment. We used these three additional models to find out their relative influence on girl's performance since, as our survey data suggests that (i) other NGOS and government are also supporting students financially which may include comparison girls[49]; (ii) quality teaching may improve in comparison schools due to separate teacher's training outside MGCUBED; (iii) Comparison girl's health awareness can change (or not) over time due to influence of factors external to MGCUBED intervention; (iv) Similarly, girl's perception about safety at and to school. Although findings from all eight models are reported in Tables below separately for literacy, numeracy and transition to show sensitivity of the DID results to model specifications, we will consider the estimates from model 4 since it includes all indicators independent of treatment or intervention.

Sample: As noted in early DID analysis is limited to girls with learning outcomes at both baseline and midline (for numeracy and literacy) and with transition outcomes at both baseline and midline and a known baseline age (for transition).

Main findings: Estimated DID results in the following tables show that estimates are not sensitive to model specification. Some variation in co-efficient values is noticed when we go from model-0, a fully unconstrained model to model 4 where we controlled for maximum number of observed time invariant characteristics that best define marginalisation characteristics and barriers that are not expected to be dependent of intervention. Even other three models are not sensitive to specification in terms of level of significance of the DID estimates and other controlling factors albeit slight variations in co-efficient values.

The results from all DID models show that that there is a strongly significant program impact on aggregate literacy scores of the beneficiary girls although the relative DID is small. The DID estimation of literacy outcome shows no significant effect of treatment status indicating absence of bias due to selection. The table however shows strong time effect indicating that due to maturity over time the girls performed better in literacy test.

Similar to literacy, DID results of all models for numeracy show that the program does not have any significant impact on the numeracy score for beneficiary girls over comparison girls. Two important pieces of information to note here: first, the treatment status is significantly higher among beneficiary girls at baseline which may be because they took part in Phase I of MGCubed. This suggests a treatment status advantage for beneficiary girls at baseline. Second, the comparison girls experienced similar significant improvements in their score over time as the beneficiary girls did leading to no statistically significant relative advantage gained by treatment girls due to the program. It means that the change could have happened anyway due to factors outside the program, including the maturation effect of students over time. Putting them together, the relative gain in numeracy score by beneficiary girls remained marginal.

Among the factors we controlled for in different models, evidence suggests that across all model specifications– the girls have significant locational disadvantage if they belong to rural areas. Similarly, household head has no education, and language spoken at school is different than what is spoken at home, have strong or moderately

[49] see Section 6.5 on economic empowerment including Figure 21: Source of Cash Transfers for Girl's Education which shows that other organizations and government are also providing cash transfers to girls. Although results are reported here for treatment girls they can very well target the girls from comparison schools.

strong significant adverse effects on both numeracy and literacy although the effect of head's no education is stronger in the case of literacy than numeracy. Alternatively, the girls do significantly better if they belong to female headed households and their relative performance is better in literacy than in numeracy.

Among poverty indicators, landlessness of the household affects girl's literacy score significantly adversely while poverty measured by roof condition is strongly associated with their numeracy score. Among impairments, we find that cognitive impairment has significantly negative effect on literacy score while hearing impairment affect numeracy scores significantly adversely. Alternatively, among the factors that positively affect scores are if the household head is a female, and the feeling of safety at school.

While these factors have expected signs and significance in explaining girls' performance in literacy and numeracy, there are several other factors that did not affect the outcomes significantly but have the expected direction in relationship. The results are consistent across all model specifications. Some of them, for example, are girls' personal opinion about teacher's performance such as when teachers often absent from class, or the girls feel that teachers make them feel welcome and if boys and girls don' t play together. Among poverty indicators, one crucial finding that does not have significant adverse effects but the right direction is about hunger. If the girl goes to bed hungry more often it affects results adversely but not significantly. Similarly, if the girls' parents are dead or they live without parents, have sight, communication impairments etc. then girl's performance is adversely affected.

Model 7 includes two indicators -- the availability of drinking water and bathroom. They both show that the girls do better if they don't use it. While the results are strongly significant for drinking water, not using bathroom is significant only for literacy. It is possible that these sources are unhygienic and their use impacts health and furthermore performance, however this is speculative.

Qualitative information collected from the field support these influences as well. Regarding learning outcomes FGDs generally agree that girls and boys are equally capable in school. Many of the female groups even stated that "anything boys can do, girls can do better." This was recognized as a new generational shift among all groups but especially among parents, noting that community and media role models have greatly helped make this possible. People see women take on jobs as journalists, ministers, teachers, doctors, and nurses, and this inspires younger girls. However, parental engagement plays an important role in how schooling is seen in the home. A number of respondents who had deceased parents stated this as a key reason for dropping out of school. Even if both parents are present many groups said that girls who do not have strong parental care are less likely to go to school. One girl stated that since her parents don't go to PTA meetings, she is "punished" at school and does not want to attend.

Finances were the most prominent barrier to attending school. Financial hardship could be exacerbated by sickness of a family member which caused girls to stay home as caregivers or because households had less money to pay for schooling. Some girls had to sell items to support their families instead of going to school and a few mothers noted the preference to pulling girls from school for business more so than boys. In cases where the family did not have enough money to pay for all siblings to attend, a younger sibling or brother will go in her place. This point is interesting for how it may impact transition at higher levels when families choose to prioritize basic education for all rather than secondary or higher education for few. Beyond payment of school fees, a **few cited broken shoes** "spoilt sandals" as a barrier to attending school. From boys' FGD there was a consensus that there had been a growing emphasis on the need for school as far a "change" goes, but it is hard for this to translate to increased attendance when families face **financial hardship**. One focus group noted that in "modern Ghana" people need education to find jobs.

While the TOC hypothesizes the barriers faced by impairment of any kind is a major deterrent for learning, none of the FGD groups brought up disability before prompting. Barriers to attendance faced by those with disability was almost never brought up during FGDs unless prompted by survey staff. This may be because most FGD respondents don't see disability as something mainstream and neglect to consider these students when thinking about barriers at their community school. Most respondents noted "specialized schools" for disabled students and spoke about how finance played an important role in being able to enroll at those institutions rather than seriously considering how disability could be accommodated in their community.

After prompts 3 out of 4 OOSG focus groups agreed that disabled girls have a more difficult time in school. The fourth group said that a disability does not prevent a girl from learning, although it may be difficult to get to school. Many stated that girls with disabilities may have extra trouble reading because they could be blind or deaf. They are less likely to attend or participate in schools. Some mentioned a parent with a disability as a barrier to attending school (blind mother). These sentiments were largely consistent with reflections from other girls and boys FGDs. In addition, these groups noted that those with disabilities may be made fun of in class with one girl stating she had glasses but never wore them to school because of her friends' opinions.

The mothers provided the most specific examples of children with disabilities. One has a blind niece who is unable to attend school. There is a stigma surrounding repeating grades that deters girls from finishing school. One mother mentioned knowing of a family with two hearing impaired children. They could afford to send them to specialized schools because they had the financial means. The children are now doing very well in school. Another stated that the disabled child she knew could not attend school because he is mute.

Some additional barriers that were raised included distance from school, sickness of themselves or their family members creating absences and moving (relocating). Poor teacher quality was also noted as a reason for pulling girls out of school.

Table 61: Difference in difference Results of aggregate literacy for beneficiary girls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Model-0	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
DID:Program effect	0.878*	0.878*	1.091**	1.076**	1.161**	1.057**	1.056**	1.165**
	(0.472)	(0.472)	(0.499)	(0.499)	(0.510)	(0.512)	(0.517)	(0.519)
Corrected treatment status verified at ML	0.748	1.309	1.142	1.163	1.130	1.167	1.109	1.227
	(0.937)	(0.917)	(0.888)	(0.888)	(0.893)	(0.893)	(0.889)	(0.887)
Time effect	5.536***	5.536***	5.039***	5.067***	4.998***	5.053***	4.975***	4.919***
	(0.337)	(0.337)	(0.360)	(0.360)	(0.368)	(0.372)	(0.383)	(0.385)
Students belong to rural schools		-10.64***	-9.644***	-9.619***	-10.46***	-10.47***	-10.42***	-10.34***
		(0.972)	(0.943)	(0.943)	(0.969)	(0.969)	(0.963)	(0.960)
HH has no education			-2.122***	-2.116***	-1.914***	-1.883***	-1.900***	-1.990***
			(0.485)	(0.485)	(0.494)	(0.495)	(0.497)	(0.499)
The PCG has no education			-2.252*	-2.248*	-1.902	-1.858	-1.694	-1.757
			(1.173)	(1.174)	(1.212)	(1.213)	(1.222)	(1.225)
Language spoken at school is different than spoken at home			-2.927***	-2.945***	-2.977***	-2.950***	-3.013***	-3.102***
			(0.399)	(0.399)	(0.408)	(0.408)	(0.411)	(0.412)
Live in female headed household			1.351***	1.336***	1.252**	1.193**	1.245**	1.264**

			(0.483)	(0.483)	(0.494)	(0.495)	(0.498)	(0.499)
Living without both parents			-1.001	-1.014	-1.099	-1.034	-1.078	-1.105
			(1.212)	(1.211)	(1.242)	(1.244)	(1.252)	(1.254)
Both parents are dead			-2.720	-2.847	-3.103	-3.089	-3.084	-2.949
			(2.153)	(2.154)	(2.172)	(2.174)	(2.190)	(2.194)
One of the parents is dead			-0.209	-0.230	-0.188	-0.221	-0.236	-0.207
			(0.801)	(0.800)	(0.819)	(0.820)	(0.823)	(0.825)
Parent member of the household (10g=mother; 12g=father)			1.023	1.028	1.118	1.092	1.165	1.193
			(1.011)	(1.011)	(1.033)	(1.035)	(1.043)	(1.045)
Parent member of the household (10g=mother; 12g=father)			0.726	0.762	0.832	0.857	0.842	0.788
			(0.643)	(0.643)	(0.657)	(0.659)	(0.663)	(0.665)
The girl is married				3.135	3.042	2.986	3.158	3.095
				(2.363)	(2.427)	(2.429)	(2.453)	(2.458)
Mother below age 18				-3.996	-3.462	-3.364	-3.608	-3.434
				(2.503)	(2.603)	(2.608)	(2.629)	(2.634)
RECODE of wg_imp_3					-0.404	-0.308	-0.311	-0.434
					(2.351)	(2.354)	(2.370)	(2.375)
RECODE of wg_imp_6					-2.147	-2.152	-2.786	-2.991
					(3.320)	(3.324)	(3.355)	(3.362)
impair_cognitive					-2.409**	-2.327**	-2.291**	-2.276**
					(0.972)	(0.975)	(0.985)	(0.987)
impair_communication					-0.140	-0.192	-0.186	-0.359
					(2.923)	(2.929)	(2.950)	(2.956)
impair_mobility = o,					-	-	-	-
roof_poverty						0.671	0.773	0.755
						(0.676)	(0.682)	(0.684)
Gone to bed hungry many/most days or always at night						-0.801	-0.712	-0.750
						(0.645)	(0.652)	(0.653)
HH own land						-0.770**	-0.771**	-0.843**
						(0.381)	(0.385)	(0.386)
Difficult to afford school						-0.301	-0.286	-0.313
						(0.411)	(0.413)	(0.414)
Doesn't Feel safe tavelling to school							-0.346	-0.402
							(0.574)	(0.576)
Girl feel safe at school							2.323*	2.135*
							(1.270)	(1.273)
Agrees teachers treat boys and girls differently in the classroom							0.330	0.374
							(0.475)	(0.476)
Agrees teachers often absent from class							-0.198	-0.231
							(0.464)	(0.465)
Disagrees teachers make them feel welcome							-1.373	-1.319
							(0.875)	(0.878)
Boys and girls dont play together							-0.867*	-0.817
							(0.498)	(0.500)

Cant move around in school easliy							0.308	0.109
							(0.679)	(0.683)
Use playground when at school							-0.484	-0.599
							(0.905)	(0.908)
The girl does not use toilet in the school								1.165*
								(0.646)
Doesn't use drinking water facilities								1.154***
								(0.417)
Constant	45.19***	52.41***	52.30***	52.23***	53.04***	53.63***	51.55***	51.24***
	(0.669)	(0.929)	(1.691)	(1.691)	(1.723)	(1.769)	(2.202)	(2.205)
Observations	4,824	4,824	4,672	4,672	4,525	4,525	4,525	4,525
Number of anon_student_id	2,412	2,412	2,404	2,404	2,317	2,317	2,317	2,317
Standard errors in parentheses								
*** p<0.01, ** p<0.05, * p<0.1								

Table 62: Difference in difference Results of aggregate numeracy for beneficiary girls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Model-0	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
DID:Program effect	0.644	0.644	0.705	0.696	0.690	0.654	0.721	0.853*
	(0.479)	(0.479)	(0.499)	(0.499)	(0.507)	(0.509)	(0.514)	(0.516)
Corrected treatment status verified at ML	2.536***	2.770***	2.698***	2.714***	2.653***	2.704***	2.624***	2.751***
	(0.732)	(0.729)	(0.723)	(0.723)	(0.729)	(0.729)	(0.726)	(0.724)
Time effect	3.027***	3.027***	2.769***	2.798***	2.869***	2.945***	2.802***	2.742***
	(0.342)	(0.342)	(0.359)	(0.359)	(0.365)	(0.369)	(0.380)	(0.381)
Students belong to rural schools		-4.445***	-3.917***	-3.892***	-4.343***	-4.411***	-4.317***	-4.249***
		(0.755)	(0.753)	(0.753)	(0.777)	(0.778)	(0.772)	(0.768)
HH has no education			-1.084**	-1.081**	-0.806*	-0.837*	-0.866*	-0.971**
			(0.457)	(0.457)	(0.464)	(0.465)	(0.467)	(0.467)
The PCG has no education			-0.333	-0.311	-0.400	-0.369	-0.184	-0.243
			(1.146)	(1.146)	(1.174)	(1.176)	(1.182)	(1.184)
Language spoken at school is different than spoken at home			-1.820***	-1.841***	-1.832***	-1.849***	-1.905***	-1.987***
			(0.386)	(0.386)	(0.393)	(0.394)	(0.396)	(0.397)
Live in female headed household			0.816*	0.804*	0.937**	0.910*	0.930*	0.957**
			(0.466)	(0.466)	(0.475)	(0.476)	(0.478)	(0.478)
Living without both parents			0.118	0.105	0.160	0.0918	0.103	0.0714
			(1.170)	(1.169)	(1.195)	(1.197)	(1.202)	(1.204)
Both parents are dead			-2.928	-3.077	-3.380	-3.332	-3.212	-3.033
			(2.063)	(2.064)	(2.079)	(2.080)	(2.090)	(2.093)
One of the parents is dead			-0.320	-0.335	-0.475	-0.468	-0.481	-0.418
			(0.756)	(0.756)	(0.771)	(0.771)	(0.773)	(0.774)
Parent member of the household (10g=mother; 12g=father)			-0.236	-0.232	-0.165	-0.103	-0.161	-0.0999

			(0.976)	(0.975)	(0.994)	(0.996)	(1.001)	(1.002)
Parent member of the household (10g=mother; 12g=father)			0.183	0.219	0.186	0.253	0.230	0.135
			(0.617)	(0.617)	(0.628)	(0.630)	(0.633)	(0.634)
The girl is married				4.066*	4.269*	4.179*	4.452*	4.413*
				(2.313)	(2.367)	(2.369)	(2.388)	(2.392)
Mother below age 18				-3.323	-3.748	-3.941	-4.095	-3.920
				(2.442)	(2.514)	(2.518)	(2.534)	(2.538)
RECODE of wg_imp_3					1.878	1.886	1.861	1.765
					(2.279)	(2.281)	(2.293)	(2.297)
RECODE of wg_imp_6					-5.645*	-5.595*	-6.270*	-6.459**
					(3.216)	(3.219)	(3.243)	(3.247)
impair_cognitive					-1.269	-1.241	-1.275	-1.266
					(0.943)	(0.945)	(0.953)	(0.954)
impair_communication					-1.292	-1.170	-1.333	-1.580
					(2.850)	(2.855)	(2.871)	(2.876)
impair_mobility = o,					-	-	-	-
roof_poverty						1.071	1.051	0.992
						(0.653)	(0.658)	(0.659)
Gone to bed hungry many/most days or always at night						-0.0874	0.00145	-0.0429
						(0.625)	(0.631)	(0.632)
HH own land						0.212	0.207	0.135
						(0.368)	(0.370)	(0.371)
Difficult to afford school						0.0252	0.0171	-0.00940
						(0.397)	(0.399)	(0.400)
Doesn't Feel safe tavelling to school							0.145	0.103
							(0.552)	(0.553)
Girl feel safe at school							0.514	0.296
							(1.231)	(1.234)
Agrees teachers treat boys and girls differently in the classroom							0.205	0.262
							(0.461)	(0.462)
Agrees teachers often absent from class							0.0920	0.0804
							(0.450)	(0.451)
Disagrees teachers make them feel welcome							-0.420	-0.336
							(0.850)	(0.852)
Boys and girls dont play together							-1.896***	-1.819***
							(0.481)	(0.482)
Cant move around in school easliy							-0.214	-0.464
							(0.659)	(0.662)
Use playground when at school							-1.247	-1.355
							(0.878)	(0.881)
The girl does not use toilet in the school								0.709
								(0.620)
Doesn't use drinking water facilities								1.591***

								(0.399)
Constant	53.59***	56.61***	57.83***	57.75***	58.15***	57.81***	57.81***	57.41***
	(0.523)	(0.730)	(1.554)	(1.554)	(1.581)	(1.627)	(2.061)	(2.064)
Observations	4,824	4,824	4,672	4,672	4,525	4,525	4,525	4,525
Number of anon_student_id	2,412	2,412	2,404	2,404	2,317	2,317	2,317	2,317
Standard errors in parentheses								
*** p<0.01, ** p<0.05, * p<0.1								

Similar to the panel OLS regression for learning outcomes for literacy and numeracy, we used logistic panel regression approach to estimate the program effect on transition outcome (difference in difference). The reason for using logistic regression is the binary nature of the outcome variable which identifies successful transition as 1 and unsuccessful transition as 0. Unlike the panel regressions for learning outcomes, we estimate likelihood of transition of beneficiary girls as compared to the comparison girls. This likelihood is captured by odds ratio. Odds ratio 1 suggests equal likelihood, more than 1 implies more likelihood and less than 1 suggests less likelihood as compared to the comparison group. We control for student, school, household and teacher level indicators. As with the learning outcomes we use the same group of indicators for 8 different model specifications.

The DID result shows that there is a strongly significant program impact on the transition outcome of the beneficiary girls. Between baseline and midline, the likelihood of a beneficiary girl to transition successfully increased significantly as compared to the comparison girls across all 8 models. As the following table shows, this improvement in likelihood is strongly statistically significant. Among few marginalization characteristics that have significantly influenced the transition outcome are cognitive impairment of the students, whether girls and boys play together or not and language barrier (i.e., different language spoken at school). No other barrier or characteristics have played any significant role to adversely affect the outcome significantly though some appear in the expected direction. For example, having a mother as part of the household suggest a greater likelihood of transition. The family member not owning land, or going to bed hungry at night suggests lower rates of transition, though surprising, difficulty in affording school does not. Transition outcomes are explored further with qualitative data to support our findings from quantitative analysis.

Table 63: DID results for transition outcome (Panel logit)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Model-0	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
DID:Program effect	1.805***	1.805***	1.777***	1.779***	1.802***	1.790***	1.781***	1.774***
	(0.356)	(0.356)	(0.350)	(0.351)	(0.361)	(0.359)	(0.358)	(0.356)
Corrected treatment status verified at ML	0.800*	0.801*	0.818*	0.816*	0.806*	0.814*	0.814*	0.813*
	(0.0934)	(0.0937)	(0.0957)	(0.0956)	(0.0950)	(0.0961)	(0.0968)	(0.0969)
Time effect	1.810***	1.810***	1.741***	1.735***	1.712***	1.726***	1.713***	1.710***
	(0.245)	(0.245)	(0.237)	(0.236)	(0.236)	(0.239)	(0.241)	(0.240)
Students belong to rural schools		0.986	1.032	1.030	1.029	1.030	1.022	1.029
		(0.105)	(0.113)	(0.113)	(0.114)	(0.115)	(0.114)	(0.115)

HH has no education			0.968	0.966	0.967	0.971	0.966	0.967
			(0.0986)	(0.0985)	(0.0998)	(0.100)	(0.100)	(0.100)
The PCG has no education			0.921	0.918	0.919	0.902	0.903	0.893
			(0.274)	(0.274)	(0.275)	(0.270)	(0.272)	(0.268)
Language spoken at school is different than spoken at home			0.759**	0.760**	0.778**	0.774**	0.774**	0.771**
			(0.0815)	(0.0817)	(0.0844)	(0.0842)	(0.0844)	(0.0841)
Live in female headed household			1.075	1.077	1.067	1.065	1.059	1.055
			(0.131)	(0.132)	(0.131)	(0.131)	(0.131)	(0.130)
Living without both parents			0.695	0.696	0.743	0.745	0.753	0.746
			(0.242)	(0.242)	(0.260)	(0.261)	(0.264)	(0.262)
Both parents are dead			1.237	1.268	1.191	1.227	1.199	1.186
			(0.690)	(0.709)	(0.669)	(0.689)	(0.676)	(0.668)
One of the parents is dead			1.063	1.066	1.038	1.038	1.037	1.033
			(0.181)	(0.182)	(0.179)	(0.179)	(0.179)	(0.178)
Parent member of the household (10g=mother; 12g=father)			1.640	1.638	1.614	1.631	1.621	1.624
			(0.500)	(0.499)	(0.493)	(0.499)	(0.496)	(0.497)
Parent member of the household (10g=mother; 12g=father)			0.874	0.869	0.861	0.839	0.838	0.849
			(0.134)	(0.134)	(0.133)	(0.130)	(0.130)	(0.132)
The girl is married				0.565	0.526	0.538	0.548	0.552
				(0.304)	(0.286)	(0.292)	(0.300)	(0.301)
Mother below age 18				1.370	1.418	1.513	1.538	1.522
				(1.084)	(1.132)	(1.210)	(1.232)	(1.217)
RECODE of wg_imp_3					4.417	4.483	4.467	4.440
					(4.612)	(4.685)	(4.675)	(4.650)
RECODE of wg_imp_6					1.664	1.691	1.777	1.736
					(1.790)	(1.819)	(1.917)	(1.872)
impair_cognitive					0.508***	0.515***	0.506***	0.507***
					(0.105)	(0.106)	(0.105)	(0.105)
impair_communication					2.321	2.361	2.334	2.376
					(1.831)	(1.863)	(1.847)	(1.880)
impair_mobility = o,					-	-	-	-
roof_poverty						1.092	1.089	1.095
						(0.186)	(0.187)	(0.187)
Gone to bed hungry many/most days or always at night						0.812	0.822	0.825
						(0.135)	(0.137)	(0.138)
HH own land						0.873	0.877	0.874
						(0.0848)	(0.0855)	(0.0852)
Difficult to afford school						1.176	1.186	1.183
						(0.125)	(0.127)	(0.126)
Doesn't Feel safe tavelling to school							0.966	0.963
							(0.136)	(0.136)
Girl feel safe at school							0.893	0.904
							(0.288)	(0.291)
Agrees teachers treat boys and girls differently in the classroom							1.050	1.045

							(0.134)	(0.134)
Agrees teachers often absent from class							0.927	0.922
							(0.111)	(0.110)
Disagrees teachers make them feel welcome							0.968	0.963
							(0.231)	(0.230)
Boys and girls dont play together							1.291*	1.284*
							(0.172)	(0.171)
Cant move around in school easliy							0.845	0.841
							(0.144)	(0.143)
Use playground when at school							0.833	0.825
							(0.182)	(0.180)
The girl does not use toilet in the school								1.184
								(0.194)
Doesn't use drinking water facilities								0.910
								(0.0897)
/								
Constant	6.086***	6.144***	4.980***	5.049***	5.318***	5.204***	5.868***	5.835***
	(0.686)	(0.827)	(2.023)	(2.053)	(2.178)	(2.173)	(3.112)	(3.099)
Observations	4,572	4,572	4,562	4,562	4,503	4,503	4,503	4,503
Number of anon_student_id	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286

*** p<0.01, ** p<0.05, * p<0.1

Generally, FGDs note that girls love to learn and that in and of itself keeps them happy in school. They believe a girl's ability to succeed in school depends heavily on the effort they put in, more so than other potential barriers and that a girl's motivation plays a role in whether or not she will attend. They cited examples of girls who believe they are "too smart" for school and end up dropping out. Despite motivation being noted as a key factor, other barriers were also raised especially around household responsibilities. Chores, the need to bring in income, or family responsibilities such as children or caring for a relative were all noted as barriers to transition.

However, if one can transition successfully many see school as an opportunity to provide future benefits. School helps both boys and girls provide for families. For girls it appears to play a larger role in their future family decisions. Whereas boys are expected to finish school and become providers and "pillars" of the family before they are eligible for marriage, the same requirement doesn't apply to girls. However, some noted that while school delays marriage for them, it can assist in helping them find future husbands. In addition, while husbands may lead the family they noted the saying that "If you educate a man, you educate an individual. If you educate a women, you educate a nation." It was very clear that all participants felt age should not be a factor in continuing to attend school even as they noted family finances may require the family to make a decision about who to send and typically younger children and boys are prioritized.

Many, though not all, OOSG respondents feel that despite community sentiments it is easier for boys to go to school because they will not become pregnant. Menstruation and additional household chores are impediments faced by girls as they continue their education as compared to boys.

Additional barriers to transition mentioned by most groups included peers as both a draw and deterrent to going to school for both boys and girls. Some see friends stay home and want to follow suit. Another example included teacher quality with some not wanting to attend school for fear of answering questions incorrectly and being "disgraced" by teachers and other noting poor teacher quality as a reason some parents pull their children out of school.

Finances, including not having the proper supplies and wearing torn bags and shoes was also noted as a deterrent from going to school. Perhaps this is why one often sited attraction of attending school is gifts. Girls and boys mentioned that they enjoy receiving gifts from school. They are hesitant to skip school for fear of missing out of gifts or money from World Food Program (WFP). This example of gifts or financial support was most cited by out of school girls.

Annex 4: Characteristics and Barriers

Table 59 highlights several key characteristics on the cohort girls sample, including changes in both treatment and comparison girls overtime. When comparing how the sample changes overtime there are two key considerations to take into account:

1. The passage of time which including the aging of the cohort which could contribute to changes in family make-up (death of a family member, marriage or the birth of a child) as well as financial status
2. Changes in the sample make up due to the girls who dropped out of school (and thus the sample) being different than those tracked at midline

In general we find significant changes in the following:

- Reductions in the % of girls in which both parents have passed away (intervention only), and reductions in the % of girls where primary caregivers have no education. In these instances it is feasible that orphaned girls or girls whose caregivers had less than a primary education were more likely to exit the sample. Qualitative data from FGDs which emphasizes caregiver involvement would seem to suggest this though it is not strongly supported in the quantitative data on transition (Table 58).
- Other areas we see significant changes include a reduction in land ownership, a reduction in poverty (as measured by roof condition), and an increase in those going to bed hungry at night. It is interesting to note that these wealth measures do not always move in the same direction though feasible that they may interact with one another. For example, losing family land may require a household to rent and the home they rent from may be in better condition than one they owned themselves. In general it seems there may have been some financial challenges present at midline that were not present at baseline and may be due to nationwide economic challenges. We see that comparison girls are more likely to find it difficult to afford school at midline which may be due to a changing economic stability in the home or due to the rising cost of school as a girl ages. Encouragingly, treatment girls were less likely to report difficulty in paying for school, perhaps due to the cash grants provided by VF, though this was not statistically significant.
- Finally, there was a reported increase in the number of households where the language of instruction was different than the language spoken at home. This is surprising as the ET is not aware of any changes in policy as to the LOI. However, it is feasible that teachers at lower levels are more lenient and willing to provide instruction in the local language and that this changes as a girl ages and progresses through each grade.

Table 64: Girls' characteristics

	Intervention	Comparison	Difference between Baseline and Midline

Sample breakdown (Girls)	Baseline	Midline	Baseline	Midline	Intervention	Comparison
One Of The Parents Is Dead	10.5%	10.4%	10.3%	11.1%	-0.1%	0.8%
Both Parents Are Dead	0.7%	0.4%	0.8%	1.7%	-0.3%**	0.8%
Living Without Both Parents	16.5%	15.7%	16.8%	16.1%	-0.7%	-0.6%
Live In Female Headed Household	38.1%	36.2%	35.1%	33.1%	-2.0%	-2.0%
The Girl Is Married	0.8%	0.2%	0.8%	0.3%	-0.7%	-0.4%**
Mother Below Age 18	0.7%	0.5%	0.2%	0.5%	-0.3%	0.3%
Mother Below Age 16	0.6%	0.2%	0.2%	0.2%	-0.3%	0.0%
Difficult To Afford School	71.1%	65.4%	72.2%	73.9%	-5.7%	1.7%***
HH Own Land*	56.7%	48.3%	55.3%	50.3%	-8.4%***	-5.1%***
Poverty at ML measured from roof condition	8.3%	6.8%	12.3%	6.4%	-1.6%***	-5.8%*
Unable To Meet Basic Needs	13.0%	15.1%	14.3%	13.1%	2.1%	-1.2%*
Gone To Bed Hungry Many/Most Days Or Always At Night	7.2%	9.4%	7.1%	11.3%	2.2%***	4.2%**
Different Language of Instruction	91.2%	93.2%	91.0%	93.6%	2.0%**	2.5%**
The Pcg Has No Education	2.5%	0.8%	3.8%	1.7%	-1.7%***	-2.1%***
HH Has No Education	36.8%	35.9%	36.5%	34.2%	-1.0%	-2.3%

***** p<0.01, ** p<0.05, * p<0.1**

*HH Own Land category is calculated by adding all the instances where the HH had responded to either HH own the land alone, jointly, or alone and jointly.

At ML the ET observed significant changes with fewer students reporting that boys and girls **don't** play together, fewer students reporting challenges when moving around school and fewer students reporting using the playground at school. These changes can all be expected as a child ages and it is not surprising that we see significant decreases in both treatment and comparison. It is worth investigating in future evaluations whether the decrease in challenges moving around school are due to physical development as the cohort ages or due to children with limited mobility dropping out of school.

Encouragingly there were also reported reductions in teacher absenteeism and in agreement that teachers treat boys and girls differently in the classroom at both treatment and comparison schools. This could be contributed to nationwide policies that created change overtime or to the fact that the cohort is aging and teachers at higher levels may be less likely to be absent from school as well as have different perceptions on gender differences. Distance learning may also play a role, as suggested by some FGD, in decreasing teacher absenteeism and we do see a larger decrease among treatment schools.

Table 65: Potential barriers to learning and transition at midline

	Intervention		Comparison		Difference between Baseline and Midline	
Sample breakdown (Girls)	Baseline	Midline	Baseline	Midline	Intervention	Comparison
Doesn't Feel Safe Traveling To School	10.5%	10.0%	16.7%	15.2%	0.5%	-1.5%
Boys And Girls Don't Play Together	17.5%	15.1%	20.0%	15.0%	-2.4%***	-4.9%*
Cant Move Around In School Easily	7.9%	4.7%	11.3%	5.7%	-3.2%***	-5.6%***
Use Playground When At School	5.5%	1.4%	6.7%	2.8%	-4.1%***	-3.8%***
The Girl Does Not Use Toilet In The School	8.7%	7.4%	12.8%	13.7%	-1.3%	0.9%
Doesn't Use Drinking Water Facilities	37.9%	32.6%	44.6%	46.1%	-5.3%	1.5%
Attends School Half The Time or More	98.2%	98.8%	98.9%	98.6%	0.6%	-0.2%
Attends School Less Than Half The Time	1.8%	1.2%	1.1%	1.4%	-0.6%	0.2%
Girl Feels Safe At School	97.8%	98.6%	96.5%	98.1%	0.8%**	1.5%
Agrees Teachers Treat Boys And Girls Differently In The Classroom	21.4%	15.1%	21.5%	11.6%	-6.3%***	-9.9%***
Agrees Teachers Often Absent From Class	27.4%	12.2%	24.5%	12.8%	-15.2%***	-11.8%***
Disagrees Teachers Make Them Feel Welcome	4.2%	4.0%	3.8%	4.3%	-0.2%	0.4%

*** p<0.01, ** p<0.05, * p<0.1

In general, the changes in the sample composition are not surprising and, as noted in the introduction to this section, may be a result of an aging cohort and grade progression. Since changes are largely consistent across treatment and comparison girls the ET does not anticipate that they will undermine key findings of the program though the evaluation will continue to track these changes overtime to ensure they are not a result of differential attrition.

Replacements

As noted previously in this report the EE replaced girls no longer at their baseline school. Replacement girls have been excluded from midline analysis but will be retained and tracked at endline to ensure sufficient sample size. Below the EE has provided the characteristics and barrier breakdown of replacements to ensure comparability to the panel sample and we note some key differences between the two groups. In general, replacement girls are likely to be better off that the panel sample at midline in that they are less likely to report difficulty in paying for school, inability to meet basic needs, going to bed hungry, learning in a different language than that spoken at home and their household heads or more educated though they are slightly more likely to be living without parents.

While replacements were selected on the same marginalized characteristics as the panel sample it is feasible that as the sample ages the number of extremely marginalized girls available for selection decreases and are therefore replaced by a sample which is better off.

In general, this does not impact our analysis as long as attrition, and thus replacements, are equal between our treatment and comparison schools. While comparison girls were slightly more likely to be replaced than treatment girls at midline this difference was not statistically significant. However, these changes over time are important to keep in mind and include in the endline narrative when looking at the samples progression over the course of the study.

Table 66: Characteristics of Replacements

	Treatment			Comparison		
	Panel	Replacements	Difference	Panel	Replacements	Difference
Sample breakdown (Girls)						
One Of The Parents Is Dead	11%	9%	-1.6%	11%	13%	1.7%
Both Parents Are Dead	1%	0%	-0.5%	2%	1%	-0.5%
Living Without Both Parents	16%	19%	3.1%	17%	21%	4.8%
Live In Female Headed Household	36%	37%	0.9%	33%	38%	4.6%
The Girl Is Married	1%	0%	-0.5%	1%	0%	-0.5%
Mother Below Age 18	0%	0%	-0.5%	0%	1%	0.1%
Mother Below Age 16	0%	0%	-0.2%	0%	0%	-0.2%
Difficult To Afford School	64%	55%	-8.6% **	71%	58%	##### ***
HH Own Land*	48%	56%	8.1% *	50%	49%	-1.0%
Poverty at ML measured from roof condition	7%	6%	-0.6%	6%	7%	1.0%
Unable To Meet Basic Needs	15%	8%	-6.8% **	13%	7%	-6.5% **
Gone To Bed Hungry Many/Most Days Or Always At Night	9%	3%	-6.3% ***	11%	9%	-2.3%
Different Language of Instruction	91%	83%	-7.9% ***	91%	82%	-9.8% ***
The Pcg Has No Education	1%	2%	1.2%	2%	1%	-1.0%
HH Has No Education	35%	30%	-5.1%	34%	26%	-8.2% **

When examining barriers the EE again finds some difference between the panel and replacement girls. Replacement girls were less likely to use the toilet or drinking facilities at school while at the same time more likely to use the playground and feel safe at school. The differences on use of toilet and drinking facilities is particularly notable since these barriers appear to contribute to learning and transition outcomes as noted elsewhere in this report. However, like girls' characteristics these differences are notable for how the sample is changing overtime but should be appropriately captured in the DID analysis as long as the change in the sample is comparable across treatment and comparison areas.

Table 67: Barriers faced by Replacements

	Treatment			Comparison		
	Panel	Replacements	Difference	Panel	Replacements	Difference
Sample breakdown (Girls)						
Doesn't Feel Safe Traveling To School	9%	10%	0.2%	14%	12%	-2.4%
Boys And Girls Don't Play Together	14%	14%	0.2%	14%	11%	-2.7%
Cant Move Around In School Easily	4%	2%	-2.4%	5%	7%	1.2%
Use Playground When At School	1%	1%	0.0%	3%	7%	3.9% ***
The Girl Does Not Use Toilet In The School	7%	12%	4.7% **	13%	19%	6.2% **
Doesn't Use Drinking Water Facilities	31%	36%	5.0%	43%	48%	4.4%
Attends School Half The Time or More	99%	99%	0.4%	98%	100%	1.6%
Attends School Less Than Half The Time	1%	1%	-0.4%	2%	0%	-1.6%
Girl Feels Safe At School	93%	95%	1.9%	92%	98%	5.6% ***
Agrees Teachers Treat Boys And Girls Differently In The Classroom	14%	15%	0.9%	11%	15%	4.6% *
Agrees Teachers Often Absent From Class	12%	17%	5.7% **	12%	10%	-2.5%
Disagrees Teachers Make Them Feel Welcome	4%	2%	-1.7%	4%	4%	0.2%

Given some of the differences in the characteristics and barriers between panel and replacement samples the EE also examined the transition and learning outcomes of both groups at midline. Replacement girls were more likely to reenrol, since all panel girls were enrolled at baseline, and less likely to have dropped out at midline, since a requirement of replacement was current school enrolment. When broken out by treatment and comparison girls difference in **successful transition rates** for replacements verse the panel sample is statistically insignificant.

Table 68: Replacement Transition Outcomes

	Treatment			Comparison		
	Panel	Replacements	Difference	Panel	Replacements	Difference
Grade Progression	93.5%	91.0%	-2.5%	91.0%	86.0%	-5.0% **
Re-enrollment	0.0%	1.5%	1.5% ***	0.0%	4.0%	4.0% ***
Repeat Grade	6.4%	7.5%	1.1%	9.0%	10.0%	1.0%
Drop-Out	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0% ***
Successful Transition	**93.5%**	**92.5%**	**-1.0%**	**91.0%**	**90.0%**	**-1.0%**

Replacement girls have slightly higher aggregate learning scores than the panel sample. This difference is not significant on math and only slightly significant on reading when the entire, treatment and comparison, sample is included.

Table 69: Replacement Learning Outcomes

	Treatment			Comparison		
	Panel	Replacements	Difference	Panel	Replacements	Difference
Math	59.55	63.38	-3.83 **	56.65	55.83	0.82
Reading	52.19	57.24	-5.05 **	50.73	51.13	-0.40

However, and when learning outcomes are explored separately for treatment and comparison girls we find the difference in scores is largely concentrated among treatment replacements. Treatment replacements score, on average, 5% points higher in reading and 3.8% points higher in math than treatment girls in the panel. Both of these figures are highly statistically significant ($p<.01$). Due to this caution should be taken when including replacements in the endline sample. At a minimum replacement status will be comparisonled for in the DID analysis.

Annex 5: Logframe

The log frame is attached separately.

Annex 6: Outcomes Spreadsheet

Attached in a different file.

Annex 7: Intermediate Outcomes disaggregation

Table 70: Teacher Quality - Gender at midline

	Teacher Quality Percentiles			
	Fair	Satisfactory	High Satisfactory	Outstanding
Female	17.79%	23.72%	33.05%	25.42%
Male	0.5%	25.28%	20.11%	24.13%

Table 71: Teacher Quality – Treatment at midline

	Fair	Satisfactory	Highly Satisfactory	Outstanding
	No.	No.	No.	No.
Comparison	26.02%	27.39%	26.71%	19.86%
Treatment	24.65%	21.91%	23.97%	29.45%

Table 72: School Management – raw scores at Midline

	Intervention (Baseline)	Intervention (Midline)	Comparison (Baseline)	Comparison (Midline)
P3	6.66	6.3	6.35	7.4
P4	6.40	6.83	6.43	6.57
P5	6.72	6.63	6.50	6.58
P6	6.49	6.74	6.54	6.51
JHS1	6.67	6.80	6.64	6.21
JHS2	6.16	6.95	7.5	6.62

Annex 8: Project design and intervention

Table 73: Project design and intervention

Intervention types	What is the intervention?	What output will the intervention contribute to?	What Intermediate Outcome will the intervention will contribute to and how?	How will the intervention contribute to achieving the learning, transition and sustainability outcomes?
Teaching inputs	This aspect of the intervention related to Output 1, the core content of the project in terms of volume of hours. Using the Varkey Foundation's interactive distance learning technology, during term time 72 schools receive two hours of Literacy and Numeracy per day. This takes place afterschool and involves all the GEC cohort. Some schools have opted in for additional by-grade lessons which take place during the school day. Two hours of Maths and English lessons are offered for grades P3-JHS 1 in 40 of the 72 schools every day. The content for these lessons are	This intervention will contribute to Ouput 1.	IO1 (Attendance): The experience of attending MGCubed lessons will, the project holds, provide an incentive for pupils to continue attending school. This is not to make light of the other significant factors that affect pupil attendance, however: the project recognises that providing engaging lessons that stimulate interest in young people is only part of the story. The other element of the relationship between O1 and IO1 is about the experience pupils have when they attend MGCubed lessons: the quality of the content and teaching instruction, combined with the effects of working with peers in a group, ensures that pupils are able to	**Learning**: Improved attendance and the associated quality experience of attending class (IO1, IO2) promotes quality learning. This is reflected in improved learning outcomes in Literacy and Numeracy. **Transition**: When young people are learning, and feel themselves to be developing, they are incentivised to stay at school. They are also – due to better academic performance – less likely to have to repeat grades (i.e. prevented from transitioning). In addition, when teacher staff are

	derived from the Master Teachers based in Accra, and delivered by the same. All lessons are fully aligned to the Ghanaian curriculum and the full Scope of Work (SoW) is shared with the Ghana Education Service (GES) for review each term.		progress towards lesson objectives and ultimately ensure each lesson is rewarding. IO2 (Teaching Quality): This relationship has two aspects. The first is that exposure to Master Teachers in the Accra studio has a profound effect on "facilitators" (designated teaching staff who facilitate MGCubed classes in school) who benefit from the modelling practised by Master Teachers. This reinforces much of the teacher training content in IO2. Secondly, teacher quality amongst Master Teachers improves as a result of the Varkey Foundation's ongoing quality assurance mechanisms. These are designed to ensure the quality of every class delivered, and to support each member of the instructional team in their professional development journey. As the quality of Master Teachers is both assured and developed, so is quality learning and the professional	role models it offers a clear aspirational pathway. The project predicts that more pupils will want to become teachers, and thus be incentivised to stay in school. **Sustainability:** This outcome is best served by IO2, whereby long-term changes are seen amongst core teaching staff. This has ripple effects for years to come as more and more pupils benefit from exposure to these teachers.

			development of in-school teaching staff.	
Teacher education	This aspect of the intervention related to Output 2. Using the Varkey Foundation's interactive distance learning technology, during term time 72 schools receive 2 hours of teacher training centred around student-centred learning per week. The content for the training is derived from the Train for Tomorrow (T4T) project; and adapted and delivered by the Master Teachers based in Accra, and delivered by the same. Further, School Leaders are offered an average of one hour of training per week specifically to develop School Leadership and Management skills. The sessions cover areas such as Child Protection, Monitoring, Gender Sensitive school	This intervention will contribute to Output 2.	IO1 (Attendance): Quality teaching – which occurs as a result of teacher education – is a critical factor in driving attendance and ensuring young people are incentivised to attend school. IO2 (Teaching Quality) and IO4 (School Governance) : The inputs in Output 2 are assumed to have a direct effect on teaching quality and the quality of school leadership. Training offered aims to transform classroom-based pedagogy, in order to promote student-centred gender-equitable classroom environments. This is supported by school leaders, who drive continuous school improvement which has quality teaching and teacher professional development at its heart. It also helps to ensure that student-centred, gender-equitable classrooms are located within	**Learning:** Without attending school and without quality teaching within well-managed schools pupils will struggle to learn. The project therefore relies heavily on these two IOs to guarantee the OI learning targets of 0.25 sd. **Transition**: Schools have a major role to play to promoting education, particularly for marginalised girls. A core part of the training content in Output 2 is designed to help teachers and school leaders develop ways to promote the continued education of girls, with a particular focus on transition to JHS from P6. **Sustainability**: This outcome is best served by IO2, whereby long-term changes are seen

	environments, and Continuous Professional Development Practice. All content is fully aligned to the teacher standards developed by the Ministry of Education, and the Scope of Work is shared with the Ghana Education Service (GES) for review each term.		student-centred, gender-equitable schools.	amongst core teaching staff. This has ripple effects for years to come as more and more pupils benefit from exposure to these teachers.
Safe spaces, female voice	This aspect of the intervention related to Output 3. Using the Varkey Foundation's interactive distance learning technology, during term time 72 schools receive four hours of Afterschool Clubs per week: Wonder Women Basic; Wonder Women Advanced; Mixed Club; and Boys Boys. The content of these sessions aims to develop lifeskills such as confidence, positive gender relations, respect for peers and community, responsible	This intervention will contribute to Output 3.	IO3 (Lifeskills): This set of inputs relate directly to an improvement in the lifeskills (e.g. empowerment, leadership, financial literacy, personal qualities that drive future success). The clubs provide an opportunity for girls and boys to participate in safe spaces for single-gender discussion and promote mixed engagement on issues ranging from sexual health, gender relations, and the world of work. Though arguably the most difficult IO to measure, this is also an area the project understands to	**Learning**: The project assumes that there may be a link between improved lifeskills and improved learning outcomes. It is definitely assumed that the associated improvement in attendance through improved lifeskills will impact on learning outcomes. **Transition**: The project assumes that there is a link between improved attitudes to education, empowerment (including aspirations and confidence), and

	citizenship, personal hygiene, and financial literacy. Overall the sessions is designed to promote empowerment of girls on the one hand, and the promotion of safe spaces for girls on the other. These take place afterschool and involves all the GEC cohort. The content for the sessions are derived from the Master Teachers based in Accra, and delivered by the same.		be the most transformative. IO1 (Attendance): Through improved Lifeskills (IO3) the project expects to see improved attendance.	girls continuing on their educational journeys. **Sustainability**: GECT cohort pupils will ultimately drive perceptions of education – and girls- education - for years to come and become ambassadors for quality teaching and learning.
Community Initiatives	This aspect of the intervention related to Output 4. Using the Varkey Foundation's interactive distance learning technology, during term time the community members in communities where the 72 MGCubed schools are located receive an average of one hour of training per week. The sessions aim to drive community-based attitudinal and behavioural change amongst community	This intervention will contribute to Output 4.	IO5 (Community Attitudes and Perceptions): Through targeted training designed to build awareness and understanding of the importance of education and ways in which parents can support their children to navigate their educational journeys, Output 4 has a direct impact on community attitudes and perceptions about education, addressing the multiple barriers these attitudes and perceptions pose to	Learning: Learning outcomes are potentially improved if pupils have the support of caregivers and the community, for instance they are encouraged to attend school, to study at home, and not to drop out of school. Transition: Transition is promoted if pupils have the support of caregivers and the community, by being encouraged not to drop out of

	members, who act as the gatekeepers to a girl's education. Areas covered as part of the training include Child Protection, Girls' Education, and Gender Equality. The content for the sessions are derived from the Master Teachers based in Accra, and delivered by the same.		young people. As a result of changed attitudes and perceptions the project assumes that community members will support pupils in their education.	school. If learning outcomes are improved, the project holds that so might the likelihood of transition. Sustainability:
Government capacity building	This aspect of the intervention related to Output 5. Using the Varkey Foundation's interactive distance learning technology, the Varkey Foundation offers leadership training to officials in the 7 district level GES offices where the project is operational. For an average of one hour per week, GES staff cover a number of areas including Child Protection, Monitoring, Gender Sensitive school environments, and Continuous Professional Development Practice. The content for these	This intervention will contribute to Output 5.	IO2 (Teaching Quality) and IO4 (School Governance) : The inputs in Output 5 are assumed to have a direct effect on teaching quality and school governance. Training offered aims to enable school leaders to create and sustain positive learning environments through well-managed schools providing teachers with the opportunity to teach to the best of their ability IO5 (Community Attitudes and Perceptions): The training provided to school leaders on Child Protection and School governance via Output 5 has a direct impact on community attitudes	**Transition**: The project assumes that there is a link between strong school governance and positive community perceptions and the likelihood of creating a positive school environment that fosters transition. **Sustainability**: The provision of training to School Leaders and Government officers at district level will equip them with the tools to facilitate school management and governance.

	lessons are derived from the Master Teachers based in Accra, and delivered by the same.		and perceptions about education, ensuring schools are safe spaces for children.	
Financial inputs	This aspect of the intervention related to Output 6. Using mobile provider Togo, a cash transfer of 291 GHS will be offered to households when a girl in that household transfers to JHS. The intention is that the amount goes towards the associated costs of transition, e.g. uniform.	This intervention will contribute to Output 6.	IO5 (Community Attitudes and Perceptions): The provision of a small cash transfer to subsidise the costs of girls transitioning to JHS is intended to mitigate some of the challenges girls face in making this transition. This is linked to the aims of Output 4, through which the project aims to transform community attitudes and perceptions of girls' education. A cash transfer will not do this alone, but based on the available evidence on the effects unconditional cash transfers can have on school attendance the project has added this aspect in order to test the efficacy of this approach in the Ghanaian context.	Learning: By potentially facilitating transition, this input promotes continued learning Transition: This input directly affects transition by engaging caregivers through a financial incentive. Sustainability: This aspect of the project is the least sustainable, i.e. it is unlikely to be adopted in a future scaled model led by the government. That said, it functions to potentially demonstrate the value of girls' education to their future, e.g. potential earnings, which promotes continued community support for education.

Annex 9: Key findings on Output Indicators

This annex should be completed by the project.

The Evaluator should hand over any output-related data to the project to enable the project to populate the following tables.

Fill in the table below with every Output Indicator, means of verification/sources, and the frequency of data collection. Please include output indicators for which data collection has not yet taken place and state when data collection for these will take place.

Table 74: Output indicators

Logframe Output Indicator	Means of verification/sources	Collection frequency
Output 1: Learners access educational content through high-quality remote instruction. 828 hours of unique educational content in English, maths (P3-JHS1), Literacy and Numeracy (Basic, Intermediate, Advanced) delivered to 212 classrooms in 72 schools each year, for 4 years per region. Total delivery will be reported per region.		
Output 1.1 Quantitative: Percentage of studio-based lessons that include bespoke digital curriculum content, and lesson objectives mapped to national curriculum student competency levels, are gender-sensitive, and encourage student-centred activity-based learning.	Education Lead Master Trainer observation	Quarterly. Data is up to date
Output 1.2: Quantitative: Percentage of sampled pupils who report that lessons are clear, engaging and conducted at an appropriate pace Qualitative: Interview and FGD data from boys and girls will explore particular issues with lesson delivery, and who they impact upon	Girls' Interview; [Girls Focus Group Discussion - qualitative information and triangulation]; Boys' Interview [Boys Focus Group Discussion - qualitative information and triangulation]	Quarterly. Data is up to date

Output 2: Teachers and school leaders are trained in classroom pedagogy and school leadership: Up to 95 hours training delivered via satellite to up to 800 teachers and school leaders in 72 schools per year, for 4 years		
Output 2.1: Quantitative: # Cumulative hours of studio-based teacher training sessions delivered to 72 schools	Studio Technicians' Log	Daily
Output 2.2 Quantitative: Percentage of school leaders who are able to describe a concrete change they have made, informed by the Varkey Foundation training Qualitative: Interview data will highlight mechanisms for making changes, barriers to implementing change, and levels of understanding of the training content	Headteacher/School leader Interview; triangulated with observation data as far as possible	Quarterly. Data is up to date
Output 2.3: Quantitative: Percentage of teachers (both male and female) who are able to describe a concrete change they have made in classroom practice, informed by the Varley Foundation training Qualitative: Interview data will highlight mechanisms for making changes, barriers to implementing change, and levels of understanding of the training content	Teacher Interview	Quarterly. Data is up to date
Output 3: Marginalised young people participate in interactive afterschool sessions designed to address wider barrier to learning and transition: 72 hours interactive Wonder Woman, Boys Boys, mixed club sessions per week in 72 schools per year, for 4 years		
Output 3.1: # cumulative hours of studio-based afterschool session content delivered to 72 schools (applies to both boys and girls)	Studio Technicians' Log	Daily
Output 3.2: Quantitative: Percentage of sampled afterschool sessions where all or most girls (>= 75%) are actively engaged and willing to discuss content and ask questions Qualitative: Interview data from girls and facilitators will provide a rich description of how the sessions are promoting participation	Mixed Session Observation; Wonder Women Session Observation; [Teacher Interview and Girl Interview - qualitative	Quarterly. Data is up to date

and engagement; Observation data will identify examples of engagement	information and triangulation]	
Output 3.3: Quantitative: Percentage of sampled afterschool sessions where there is evidence that boys are interacting positively with girls. Result calculated using a composite score from Mixed Club Observations which include the following sub-indicators:	Mixed Session Observation [Teacher Interview and Girl Interview - qualitative information and triangulation]	
Output 4: Community members participate in awareness-raising and skills development sessions: 24 hours life skills and child protection awareness training to 72 communities per year, for 4 years		
Output 4.1: Quantitative: # cumulative hours of studio-based training delivered to 72 communities	Studio Technicians' Log	Daily
Output 4.2: Quantitative: Percentage of community members (including caregivers, wider family relations, religious leaders, community representatives), both men and women, who are able to describe what they have learnt by attending the community training (This also acts as a proxy for attendance) Qualitative: Interview data will explore levels of understanding of issues covered in the training,; and barriers to applying acquired knowledge and skills in practice	Parent interviews	Quarterly. Data is up to date
Output 5: District Education Office: Up to 24 hours of training on School Leadership, including school management, teacher training, monitoring, and child protection to 7 DEOs per year, for 4 years		
Output 5.1: Quantitative: # cumulative hours of training delivered to 7 DEOs	Studio Technicians' Log	Daily
Output 5.2: Quantitative: Percentage of DEO staff interviewed who can describe how the learning from the DEO training has been applied in practice	DEO Focus Group Discussion / Interview [The deployment of this tool depends on	Quarterly. Data is up to date

(This also acts as a proxy for attendance)	circumstances at the DEO - often a FGD will be conducted if more than one staff member is present]	
Output 6: Safety Net Fund: Cash transfers delivered to families with girls transitioning to JHS		
Output 6.1: Quantitative: Households receiving cash transfer, as a percentage of cumulative households with girls transitioning to JHS between 2018-2021	Recipient records shared by mobile provider Tigo	Annually. Data is up to date

Report on the midline values/midline status of each Output Indicator in the table below. Reflect on the relevancy of the Output Indicator for your Intermediate Outcomes and Outcomes and the wider Theory of Change based on the data collected so far. Are the indicators measuring the right things? What do the midline values/midline status mean for the implementation of your activities?

Table 75: Midline status of output indicators

Log frame Output Indicator	Midline status/midline values Relevance of the indicator for the project ToC	Midline status/midline values
Number and Indicator wording	What is the contribution of this indicator for the project ToC, IOs, and Outcomes? What does the midline value/status mean for your activities? Is the indicator measuring the right things? Should a revision be considered? Provide short narrative.	What is the midline value/status of this indicator? Provide short narrative.
Output 1: Learners access educational content through high-quality remote instruction. 828 hours of unique educational content in English, maths (P3-JHS1), Literacy and Numeracy (Basic, Intermediate, Advanced) delivered to 212 classrooms in 72 schools each year, for 4 years per region. Total delivery will be reported per region.		
Output 1.1 Quantitative: Percentage of studio-based lessons that include bespoke digital curriculum content, and lesson objectives mapped to	The indicator incorporates two sets of data; both the Output hours and the quality of	Quantitative: The Project delivered 1,656 hours of MGCubed lessons.

national curriculum student competency levels, are gender-sensitive, and encourage student-centred activity-based learning.	studio-based lessons as measured through the Master Teachers Observation tool. This indicator is central to the project's Theory of Change, which holds that VF's provision of quality teaching and content to young learners is the first step towards both pupil and school level transformation. The indicator therefore reflects the VF's success in offering quality education delivery from the studio in Accra. Further it also quantifies the exposure in-school facilitators have of VF's studio teachers in Accra, which the Theory of Change argues is also a major factor in raising teaching standards in Ghanaian schools.	An amended set of MTTs standards was adopted in March 2018 to create a more demanding professional development environment. Over 2 academic terms, 72 observations of MTTs were conducted by the VF Education Team in which 90% met the standards. This is above the end-of year target of 80%. MTTs observations assessment revealed that 100% of lessons are interactive and seek to be student centred. Equally, MTTs showed mastery over the content knowledge and lessons revealed to seek student participation. In the MTT observations where standards were not met, the Project identified areas of improvement. Improvement can be made around the use of differentiation, the lesson structure and the use of inclusive methods. Specific recommendations were shared to tackle these areas such as: the incorporation of tasks with different level of difficulty; ensuring that the lesson structure has a clear path and lessons objectives can be achieved within the lesson

		time. It was also recommended to ensure that the font size is set at a minimum of 28 points and PPT slides do not present long paragraphs to ensure that students with visual challenges or who sit at the end of the class can follow the lesson. Further, it was recommended a higher use of the local language to ensure pupils' understanding.
Output 1.2: Quantitative: Percentage of sampled pupils who report that lessons are clear, engaging and conducted at an appropriate pace	This indicator provides an opportunity for pupils to feedback on their experience of MGCubed sessions and is therefore a way of measuring whether pupils are able to engage with the educational content; and if not, why. This is critical to ensuring the Project motivates pupils to attend school, so that learning gains can be realised through ongoing exposure to quality instruction. We measure against this through interviews and focus group discussions. The Project has carried out the following number of interviews during Year 2: Girls' Interview (146); Boys' Interview (50) Girls Focus Group Discussion (22); Boys Focus Group (17).	Quantitative: 95% of pupils interviewed in the last term confirmed that lessons were clear and delivered at the right pace (Boys 99% and Girls 92%). This means an increase of 6% from last year. This is above the end-of-year target of 60%. Qualitative: Qualitative data indicates that tech issues are the main problem affecting lessons.
Output 2: Teachers and school leaders are trained in classroom pedagogy and school leadership: Up to 95 hours training delivered via satellite to up to 800 teachers and school leaders in 72 schools per year, for 4 years		
Output 2.1: Quantitative: # Cumulative hours of studio-based	This indicator provides a measure of whether VF is delivering the quantity of training hours	Quantitative: The Project has delivered 194 hours

teacher training sessions delivered to 72 schools	it has committed to. In line with the Theory of Change, which holds that quality instruction combined with supportive leadership - which enables the conditions for quality instruction to thrive and develop - is the key to ensuring pupils achieve their educational potential. This indicator provides quantitative evidence of training delivery and is against a cumulative target of 190 hours. This is measured on an ongoing basis through our Studio Technicians' Log. This is recorded on a daily basis, with monthly data cleaning and quality assurance process also followed. evidence of training delivery.	since year 1 against a target of 190. Over 2 terms, 2, 22 MTT observations were conducted for Adult Training sessions. 100% of observed lessons representing 6 records of the adult training observed met the VF's MTTs standards.
Output 2.2 Quantitative: Percentage of school leaders who are able to describe a concrete change they have made, informed by the Varkey Foundation training	The Theory of Change holds that the behaviour of School Leaders will change due to their improved capacity as a result of the VF teacher training. The purpose of this indicator is to look beyond whether school leaders report changes on a termly basis, by seeking to obtain an evidenced example of how the training received over the course of the term has been put into practice. Initially, this indicator met some challenges. Headteachers reported changes despite also reporting that they had not attended training. VF's District Coordinators are now aware of this potential pitfall and a skip pattern has been implemented to ensure that Headteachers who have not attended training that term will not be questioned about the translation of learnings from the training to the school environment. This indicator is measured through Headteacher interviews every term.	Quantitative: 90% of interviewed headteachers have clear plans to improve the situation on their schools; among the main priorities are to ensure local teachers attend regular in-service training to improve their lesson delivery and to ensure that pupils' gain the required foundational literacy skills. This is above the end-of-year target of 50%. Qualitative: School leaders are able to describe some of the challenges that affect girls' education such as the lack of parental support and geographical relocation of the child during their education process. Respondents have highlighted a couple of solutions to this challenge. Among them, mentoring girls and

		caregivers on the importance of enrolling into JHS and encouraging girls to aspire to go beyond the Primary level in the educational ladder.
Output 2.3: Qualitative: Interview data will highlight mechanisms for making changes, barriers to implementing change, and levels of understanding of the training content	The Theory of Change holds that the behaviour of teachers will change due to their improved capacity as a result of the VF teacher training. The purpose of this indicator is to look beyond whether teachers report changes on a termly basis, by seeking to obtain an evidenced example of how the training received over the course of the term has been put into practice. Initially, this indicator met some challenges. Teachers reported changes despite also reporting that they had not attended training. VF's District Coordinators are now aware of this potential pitfall and a skip pattern has been implemented to ensure that teachers who have not attended training that term will not be questioned about the translation of learnings from the training to the school environment.	Quantitative: 70% of the teachers interviewed by the Project were able to describe ways in which they had changed their teaching practice as a result of the Teacher Training. This is well above the end-of-year target of 50%. Qualitative: Interviewed teachers reported they had been able to understand the content delivered and use the following strategies to improve their teaching practice: Groupwork and Starter Activities; Ways of Work, Stating Lesson Objectives and the use of peer learning. The average number of participants in the teacher training is 5. The most common challenges cited by teachers to attending the trainings are they having to attend other official duties at the same time and the teachers not being provided with snacks by

		the Project during teacher training.
Output 3: Marginalised young people participate in interactive afterschool sessions designed to address wider barrier to learning and transition: 72 hours interactive Wonder Woman, Boys Boys, mixed club sessions per week in 72 schools per year, for 4 years		
Output 3.1: # cumulative hours of studio-based afterschool session content delivered to 72 schools (applies to both boys and girls)	This indicator provides a measure of whether VF is delivering the quantity of Afterschool club content hours it has committed to. In line with the Theory of Change, which holds that pupils' non-cognitive abilities are an important determinant of both learning outcomes and transition to secondary schools, this indicator provides quantitative evidence of VF's efforts to support this aspect of pupil development. Further it also quantifies the exposure in-school facilitators have of VF's studio teachers in Accra, which the Theory of Change argues is also a major factor in raising teaching standards in Ghanaian schools. This is measured on an ongoing basis through our Studio Technicians' Log. This is recorded on a daily basis, with monthly data cleaning and quality assurance process also followed.	Quantitative: The Project delivered 162 hours since its inception. The Project met its yearly target of 72 hours of lesson delivery per academic year.
Output 3.2: Quantitative: Percentage of sampled After-school Club sessions where all or most girls (>= 75%) are actively engaged and willing to discuss content and ask questions. Qualitative: Interview data from girls and facilitators will provide a rich description of how the sessions are promoting participation and engagement; Observation data will identify examples of engagement.	The Afterschool Clubs provide marginalised girls the opportunity to interact in a safe space where they are encouraged and supported to – often for the first time – form and speak about their own opinions, feelings, and experiences; to take on leadership roles and challenge the status quo; and form their own identity as self-directed individuals. In order for girls to seize this opportunity, we would expect to girls actively participating in these sessions. If they are not participating, it would indicate that they are not able to make the	Quantitative: Project data points out that 96% of girls were actively engaged in Wonder Women sessions during Year 2. This is well above the end-of-year target of 40% and higher than Year 1 average (87.5%). Qualitative: Interview data from girls reveals that the After-school Club sessions have

	most of the opportunity the sessions afford them. This indicator reflects this, going beyond attendance in terms of numbers of girls in a classroom and instead considering how meaningfully they are engaging with the session content and other girls.	taught them how to "relate to boys" and "speak politely at home and at the schools". Barriers to full participation keep on being related to the overheating of some classrooms and hunger.
Output 3.3: Quantitative: Percentage of sampled After-school Club sessions where there is evidence that boys are interacting positively with girls. Result calculated using a composite score from Mixed Club Observations which include the following sub-indicators: 1) Boys and girls sitting together 2) Boys listening to girls 3) Girls leading discussions 4) Evidence of intimidation of girls In order to be considered as part of the target percentage, observed sessions must show evidence of 1-3 and not show any evidence of (4). Qualitative: Interview data from girls, boys, and facilitators will provide information on how sessions have promoted positive interaction, and the benefits this brings; Session observations will provide specific examples of positive interaction.	This evidence comes from Mixed Club observations. Over the course of the pilot phase we found that girls were showing overwhelming evidence of empowerment and self-direction in Wonder Women (girls only) sessions. However, we found that boys' attitudes towards girls required some work in order to reflect the changes occurring amongst the marginalised girls. The GEC-T Theory of Change has placed more of a focus on the need for boys to change their attitudes and behaviours, and for girls to become better equipped at dealing with interactions with boys. This indicator reflects this, and attempts to capture evidence of harmonious, equitable relations. Progress of this indicator is measured through termly observations (three times a year). During Q5-Q8, the Project completed the following observations: Mixed Session Observation (20); Wonder Women Session Observation (46); Boys Boys Observation (18)	Quantitative: During last term monitoring data, 80% of the girls were leading discussions (24), In 77% of observations, boys and girls were sitting together. In 87.5% of the observations, boys were listening to girls. And in 100% of the lessons, there was no evidence of intimidation of girls. Qualitative: Girls' focus group discussions revealed that girls enjoy mixed sessions because "the involvement of the boys and girls makes it more interesting" and "boys and girls share ideas". This reveals that these sessions are promoting positive gender relations between boys and girls; and this is enabling girls to build confidence to lead during the sessions.

Output 4: Community members participate in awareness-raising and skills development sessions: 24 hours life skills and child protection awareness training to 72 communities per year, for 4 years		
Output 4.1: Quantitative: # cumulative hours of studio-based training delivered to 72 communities	This indicator provides a measure of whether VF is delivering the quantity of training hours it has committed to. In line with the Theory of Change, which holds that community members (in particular, family members) enable the conditions for pupils to achieve their educational potential, this indicator provides quantitative evidence of VF's efforts to target this group of stakeholders. This is measured on an ongoing basis through our Studio Technicians' Log. This is recorded on a daily basis, with monthly data cleaning and quality assurance process also followed. The team also conducted 14 observations of lessons during the period.	Quantitative: The Project has delivered 49 hours of Community Training sessions between Term 1 (6) and Term 2 (12). The Project met its target of 24 hours of lesson delivery per academic year. Qualitative: Over 2 terms, 11 MTTs observations were conducted. 100% of observed lessons met the VF's MTTs standards.
Output 4.2: Quantitative: Percentage of community members (including caregivers, wider family relations, religious leaders, community representatives), both men and women, who are able to describe what they have learnt by attending the community training (This also acts as a proxy for attendance)	This indicator is designed to reflect general attendance at community training, and going further to identify concrete changes that have taken place as a result of learnings from the training. Initially, the Project was interviewing randomly selected parents who may have not attended the training. From Term 2 onwards, the Project set out purposively to interview parents who had attended the training. At first, this indicator was difficult due to the very low level of attendance at community training. This meant that in Term 1 no parents interviewed had attended training. This improved in Term 2, when all parents had attended. However, the selection of interview participants was also biased due to the need to find parents who had attended training. Moving forward, this indicator will not be	Quantitative: Year 2 Project data revealed that 53% of parents interviewed were able to clearly articulate what they have learnt in VF's community training and how this is translated into practice. This is well above the end-of-year target of 30%. Qualitative: One of the most common learnings had to do on how to be responsible parents: "I learn how to be responsible towards my girl's upbringing and most especially things she needs for school".

	used to consider attendance; this data will come from the Studio Logs. Further, District Coordinators have needed some orientation on how to collect specific examples and, where these are not forthcoming, how to probe in order to arrive at a meaningful answer which moves beyond a generic response. This is a major priority for Term 3.	Participation from the parents has been high especially on the topics of "Reproductive health education" and "Challenges that parents face in taking care of children'.
Output 5: District Education Office: Up to 24 hours of training on School Leadership, including school management, teacher training, monitoring, and child protection to 7 DEOs per year, for 4 years		
Output 5.1: Quantitative: # cumulative hours of training delivered to 7 DEOs	This indicator provides a measure of whether VF is delivering the quantity of training hours it has committed to. In line with the Theory of Change, which holds that quality instruction combined with supportive leadership which enables the conditions for quality instruction to thrive and develop is the key to ensuring pupils achieve their educational potential, this indicator provides quantitative evidence of VF's efforts to engage system-level leadership to support school leaders and drive sustainable change across all schools in their districts. This is measured on an ongoing basis through our Studio Technicians' Log. This is recorded on a daily basis, with monthly data cleaning and quality assurance processes also followed.	Quantitative: The Project delivered 49.5 hours of School Leadership sessions between Year 1 and Year 2. The Project met its yearly target of 24 hours of lesson delivery per academic year. Qualitative: Over 2 terms, 22 MTTs observations were conducted for Adult Training sessions of which 3 were on DEOs' leadership training. 100% of the observed lessons for adult training met the VF's MTTs standards.
Output 5.2: Quantitative: Percentage of DEO staff interviewed who can describe how the learning from the DEO training has been applied in practice	This indicator reflects the immediate efficacy of the output by considering whether – following VF training - DEO staff are able to translate learnings from training into practice. This considers behaviour change at an individual level, as a prelude to intermediate outcome level systematic change. This reflects	Quantitative: 96% of the interviewed DEOs (24) could describe how the training has improved their practice. Qualitative: DEOs cited the sessions on Inclusive

	the Theory of Change which holds that in order to achieve systemic change in the way girls are supported to pursue their educational journeys, the national education system needs to be capacitated to deliver support mechanisms and also to continue to deliver elements of the MGCubed project in a sustainable way. This indicator reflects the immediate efficacy of the output by considering whether – following VF training - DEO. This is measured through the District Education Office Staff interviews (7) which take place on a termly basis.	Education and M&E as being very helpful to support their duties: "(The topic on) Inclusive Education exposed us to three main types of learners and these helped as to look out for them and help teachers to plan their lessons by including them. "Monitoring and evaluation helped in our understanding and performance of our supervisory duties". The main obstacle to apply the knowledge were the lack of financial resources to carry out regular monitoring in the schools.
Output 6: Safety Net Fund: Cash transfers delivered to families with girls transitioning to JHS		
Output 6.1: Quantitative: Households receiving cash transfer, as a percentage of cumulative households with girls transitioning to JHS between 2018-2021	This indicator reflects the effectiveness of VF's internal tracking and targeting of households with girls in P6 preparing to transition to JHS. This is measured through pupil records (on salesforce) which are recorded on an annual basis.	Quantitative: In August 2018 VF provided cash for bursary items for 862 P6 girls transitioning into the JHS. This accounts to 94% of eligible beneficiaries. The remaining 6% still transitioned to JHS schools out of the Project's reach. All the 862 girls successfully transitioned to JHS. The follow ups with girls and households conducted thus far (62 engagements) indicate

		that the cash transfers are being used to support Transition. Households report that the process was largely easy, though there were some reports of long queues at Tigo. Beneficiaries mostly used the funds to purchase shoes (88%), uniforms (80%), school stationary items such as pen, pencils and mathematical sets (80%), followed by writing pads (64%), text books (60%). Only in 14% of the monitored cases, caregivers decided to save part of the funds to pay future PTA and Exam fees.

List all issues with the means of verification/sources or the frequency of data collection which require changes or additions.

Table 76: Output indicator issues

Log frame Output Indicator	Issues with the means of verification/sources and the collection frequency, or the indicator in general?	Changes/additions
Output 1: Learners access educational content through high-quality remote instruction. 828 hours of unique educational content in English, maths (P3-JHS1), Literacy and Numeracy (Basic, Intermediate, Advanced) delivered to 212 classrooms in 72 schools each year, for 4 years per region. Total delivery will be reported per region.		
Output 1.1 Quantitative: Percentage of studio-based lessons that include bespoke digital curriculum content, and lesson objectives mapped to national curriculum student competency levels, are gender-sensitive, and encourage student-centred activity-based learning.	No issue	

Output 1.2: Quantitative: Percentage of sampled pupils who report that lessons are clear, engaging and conducted at an appropriate pace	No issue	
Output 2: Teachers and school leaders are trained in classroom pedagogy and school leadership: Up to 95 hours training delivered via satellite to up to 800 teachers and school leaders in 72 schools per year, for 4 years		
Output 2.1: Quantitative: # Cumulative hours of studio-based teacher training sessions delivered to 72 schools	No issue	
Output 2.2 Quantitative: Percentage of school leaders who are able to describe a concrete change they have made, informed by the Varkey Foundation training	No issue	
Output 3: Marginalised young people participate in interactive afterschool sessions designed to address wider barrier to learning and transition: 72 hours interactive Wonder Woman, Boys Boys, mixed club sessions per week in 72 schools per year, for 4 years		
Output 3.1: # cumulative hours of studio-based afterschool session content delivered to 72 schools (applies to both boys and girls)	No issue	
Output 3.2: Quantitative: Percentage of sampled afterschool sessions where all or most girls (>= 75%) are actively engaged and willing to discuss content and ask questions	No issue	
Qualitative: Interview data from girls and facilitators will provide a rich description of how the sessions are promoting participation and engagement; Observation data will identify examples of engagement	No issue	
Output 4: Community members participate in awareness-raising and skills development sessions: 24 hours life skills and child protection awareness training to 72 communities per year, for 4 years		
Output 4.1: Quantitative: # cumulative hours of studio-based training delivered to 72 communities	No issue	
Output 4.2: Quantitative: Percentage of community members (including caregivers, wider family relations, religious leaders, community representatives), both men and women, who are able to describe what they have learnt by attending the community training (This also acts as a proxy for attendance) delivered to 72 communities	No issue	

Output 5: District Education Office: Up to 24 hours of training on School Leadership, including school management, teacher training, monitoring, and child protection to 7 DEOs per year, for 4 years		
Output 5.1: Quantitative: # cumulative hours of training delivered to 7 DEOs	No issue	
Output 5.2: Quantitative: Percentage of DEO staff interviewed who can describe how the learning from the DEO training has been applied in practice	No issue	
Output 6: Safety Net Fund: Cash transfers delivered to families with girls transitioning to JHS		
Output 6.1: Quantitative: Households receiving cash transfer, as a percentage of cumulative households with girls transitioning to JHS between 2018-2021	No issue	

Annex 10: Beneficiaries Tables

Describe the project's primary target groups in terms of age range, grades, country/region, characteristics, and expected exposure to interventions over the course of the project.

This annex should be completed by the project.

The project operates in 7 deprived districts in Ghana. Our evaluation data from MGCubed shows that these are very marginalised districts, with 61% of households falling below the poverty line. They face educational challenges such as limited teachers, poor quality teaching, teacher absenteeism (reported to average 27% nationally[50], and is much worse in deprived districts). Most teachers refuse postings to such areas because of their deprivation, and teachers who do accept postings to these areas spend very little time in schools as they have to commute from distant locations each day, which results in students losing significant instructional time each week. High levels of poverty also contribute to the marginalization of students in these districts. Parents are unable to provide for the basic educational needs of their children such as books, uniform and feeding.

These are characteristics that cut across all pupils in the project districts and put them at a great disadvantage compared to their counterparts in more endowed districts. The project will select pupils for after school sessions using a marginalization criteria beyond the basic level defined above, namely, i) pupils who are overage for their grade, ii) pupils who travel more than 30 minutes to school, iii) pupils who have absented themselves from school for more than 10 times in a term, and iv) pupils who have more than four siblings. A pupil has to meet one or more of these criteria to qualify for selection, which makes project beneficiaries pupils with multiple levels of marginalization. This criteria is also applied for boys who attend MGCubed lessons and activities.

Beyond the identified criteria, we have girls, who in addition to the above, suffer another level of disadvantage by virtue of their gender. Girls between seven and twenty-four years old spend more hours on household chores than boys, and labour demands at home, particularly at harvest time, disrupt girls' attendance more than boys'[51]. Primary completion rates are lower than for boys (Nationally in 2010: 89% vs. 94%). We also target out-of-school girls, who are mostly victims of the multiple levels of marginalization. Most of the out-of-school girls dropped out due to pregnancy, which can be attributed to the poor access to relevant information in areas such as reproductive health, self-confidence and life aspirations. Though the formal system makes provision for the return of these girls to school, in practice social norms and negative attitudes makes it difficult for them to return to school as they face discrimination and mockery from both students and teachers. All project beneficiaries are therefore marginalised however, poverty, gender, geographical location and social norms reinforce multiple levels of marginalisation especially for the girls.

[50] *What Works in Girls' Education in Ghana,* DFID Report prepared by Camfed Ghana, November 2011

[51] World Bank. 2009. *Ghana: Job Creation and Skills Development*. p 44. Accra: World Bank Report No. 40328-GH

Table 77: Direct Beneficiaries

Beneficiary type	Total project number	Total number of girls targeted for learning outcomes that the project has reached by Midline	Comments
Direct learning beneficiaries (girls) – girls in the intervention group who are specifically expected to achieve learning outcomes in line with targets. If relevant, please disaggregate girls with disabilities in this overall number.	**Target:** 14,400	**Reached by Midline:** 8,776 Of which: Remedial pupils: 5416 of which 28 have a physical disability. By-grade only pupils: 2026 BECE Remedial Pupils: 1334	Marginalised girls considered to be principal participants in the project and are contained in the VF contact database. Participation include attendance at: By-grade Maths and English lessons, Remedial Literacy and Numeracy, Afterschool clubs (Wonder Women; Mixed Club) and BECE and vacation lessons. Numbers have increased based on new P3 intakes and the delivery of additional activities such as BECE revision lessons for JHS3. Calculations: *5,416 remedial pupils have attended MGCubed lessons since the Project inception.* *2,026 (non-cohort) have attended only By-grade lessons. In addition, 1,334 JHS3 have received BECE revision lessons.* A validation exercise was carried out at the beginning of the academic term in September 2018. The field team collects attendance data every term for both regular and MGCubed lessons every term. The Project conducted a headcount to confirm Project's data on beneficiary data. Attendance data for Term 3 will be concluded by the end of July 2019.

Table 78: Other beneficiaries

Beneficiary type	Number	Comments
Learning beneficiaries (boys) – as above, but specifically counting boys who will get the same exposure and therefore be expected to also achieve learning gains, if applicable.	Total pupils reached: 7,644 Of which: Remedial pupils: 4,072 By-grade pupils: 2,450 BECE Remedial Pupils: 1122	Boys who are considered to be principal participants in the project due to participation in In-grade Maths and English lessons, Remedial Literacy and Numeracy, and Afterschool clubs (Boys Boys; Mixed Club), and BECE and vacation lessons. Numbers have increased based on new P3 intakes and the delivery of additional activities such as BECE revision lessons. A validation exercise was carried out at the beginning of the academic term in September 2018. The field team collects attendance data every term for both regular and MGCubed lessons every term. The Project conducted a headcount to confirm Project's data on beneficiary data. Attendance data for Term 3 will be concluded by the end of July 2019.
Broader student beneficiaries (boys) – boys who will benefit from the interventions in a less direct way, and therefore may benefit from aspects such as attitudinal change, etc. but not necessarily achieve improvements in learning outcomes.	Total: 3,614 KG 1: 815 KG2: 815 P1 2018/19: 818 P2 2018/19:829	All pupils who do not access MGCubed remedial classes in the MGCubed schools not receiving in-grade lessons plus KG (Estimation of 22 boys per community), P1, P2 and JHS girls in the schools who receive in-grade lessons. These are considered to form a wider group of beneficiaries who benefit from improved instruction and school leadership but do not access any MGCubed lessons or Afterschool Club. Calculation: School headcount for P1 and P2 and estimation for KGs.
Broader student beneficiaries (girls) – girls who will benefit from the interventions in a less direct way, and therefore may benefit from aspects such as attitudinal change, etc. but not necessarily achieve improvements in learning outcomes.	Total: 3,306 KG 1: 885 KG 2: 885 P1 2018/19: 735 P2 2018/19 :801	All pupils who do not access MGCubed remedial classes in the MGCubed schools not receiving in-grade lessons plus KG (Estimation of 22 girls per community or 12 students per KG level), P1, P2 and JHS girls in the schools who receive in-grade lessons. These are considered to form a wider group of beneficiaries who benefit from improved instruction and school leadership but do not access any MGCubed lessons or Afterschool Club. Calculation: School headcount for P1 and P2 and estimation for KGs.

Teacher beneficiaries – number of teachers who benefit from training or related interventions. If possible /applicable, please disaggregate by gender and type of training, with the comments box used to describe the type of training provided.	**TOTAL EDUCATORS: 1206 (GEC1: 504)** Men: 656 Women: 550 Facilitators total: 212 *GEC1 AND GECT* *54* *GECT ONLY* *158* Non-facilitators total: 994 *Teachers:* *771* *Headteachers:* *213* *Of which:* *Facilitator with disability:* *2* *Headteachers with disability:* *1*	Total number of teachers in the 72 target schools (of which 16 are separate JHS schools).
Broader community beneficiaries (adults) – adults who benefit from broader interventions, such as community messaging /dialogues, community advocacy, economic empowerment interventions, etc.	Total: **973** [1440] (GEC1: 360)	The project collects attendance to the community members attending training in the 72 MGCubed schools.. This number is based on actual numbers of community participants at community training. The projected indirect reach is presented in parentheses, assuming a wider reach of 20 community members per community.
District Education Office officials	101	Registered staff members, including Director, Deputy Director, Girl Child Coordinator, Circuit Supervisors.

- Tables 32-35 provide different ways of defining and identifying the project's target groups. They each refer to the same total number of girls, but use different definitions and categories. These are girls who can be counted and have regular involvement with project activities.
- The total number of girls in the last row of Tables 32-35 should be the same – these are just different ways of identifying and describing the girls included in the sample.

Table 79: Target groups - by school

School Age	**Project definition of target group** (Tick where appropriate)	**Number targeted through project interventions**	**Sample size of target group at Baseline (Girls)**

		(All groups and genders)	
Lower primary	✓	4,761	184
Upper primary	✓	4,129	896
Lower secondary	✓	3,192	256
Upper secondary		NA	0
Total:		12,082[52]	1336*
* 7 Other, 18 Don't know, and 3 No Response			

Table 80: Target groups - by age

Age Groups	Project definition of target group (Tick where appropriate)	Number targeted through project interventions	Sample size of target group at Baseline (percent)
Aged 6-8 (% aged 6-8)	The project is unable to confirm this data due to widespread inaccuracies in reporting age. The project is able to report this data by grade, with assumed ages appropriate to the pupil's grade.		22 (1.61)
Aged 9-11 (% aged 9-11)			320 (23.46)
Aged 12-13 (% aged 12-13)			499 (36.58)
Aged 14-15 (% aged 14-15)			333 (24.41)
Aged 16-17 (%aged 16-17)			125 (9.16)
Aged 18-19 (%aged 18-19)			24 (1.75)
Aged 20+ (% aged 20 and over)			0 (0)
Total:		**12,082[53]**	**1323***
* 14 (1.03) age and birth year unknown; 27 (1.98) no response			

[52] Includes Direct and wider girl beneficiaries.
[53] Includes Direct and wider girl beneficiaries.

Table 81: Target Group - by sub group

Social Groups	Project definition of target group (Tick where appropriate)	Number targeted through project interventions	Sample size of target group at Baseline
Disabled girls (please disaggregate by disability type)	✓	Total: 28 Visual disability: 5 Audio disability: 6 Physical disability: 5 Not specified: 17	100
Orphaned girls (double and single*)		Unknown	161*
Pastoralist girls		Unknown	Unknown
Child labourers		Unknown	Unknown
Poor girls[54]	✓	12,052 (GEC1:3574[55])	1136
Other (please describe)			
Total:		**12,082[56]**	**1236**

*The number of "double" orphans, who have lost both parents, is 10. The number of single orphans is 151.

Table 82: Target group - by school status

Educational sub-groups	Project definition of target group (Tick where appropriate)	Number targeted through project interventions	Sample size of target group at Baseline
Out-of-school girls: have never attended school	✓ The project is unable to confirm whether OOSG in the project have ever attended school.	90	0
Out-of-school girls: have attended school, but dropped out			

[54] Note to FM: The cohort spans different groups, i.e. disabled and poor. The total is therefore not valid due to double-counting.
[55] This only takes into account Remedial girls who are part of the GEC1 cohort and who were selected based on marginalisation criteria. Girls who attend By-grade or BECE revision classes are also likely to live in poverty, however the Project cannot confirm the number.
[56] Includes Direct and Wider girl beneficiaries.

Returned to school	✓	69	
Girls in-school	✓	11,921[57]	1364
Total:		**12,082[58]**	**1364**

[57] Includes Direct and Wider girl beneficiaries.

The ET has verified the data listed in the tables above with the baseline girls and school survey.

Table 83: Beneficiaries matrix

Outcomes	Direct beneficiaries			Indirect beneficiaries				
	In-school girls (6-10 grade)	OSG (6-9 years)	OSG (18-25)	In-school boys	HT/Teachers	Parents	SMC/PTA	Local government
Learning	✔			✔	✔	✔		
Transition	✔	✔	✔	✔	✔	✔	✔	
Sustainability	✔	✔	✔		✔	✔	✔	✔
IO 1: Attendance	✔			✔	✔	✔		
IO 2: Self-esteem and empowerment	✔	✔	✔	✔				
IO3: Parental engagement	✔	✔	✔	✔		✔	✔	✔
IO4: Quality of teaching	✔			✔	✔	✔	✔	✔
IO5: School management and governance	✔			✔	✔	✔	✔	✔

Annex 11: MEL Framework

Attached in a separate file.

Annex 12: External Evaluator's Inception Report (where applicable)

The MEL Framework (Annex 10) was used in lieu of the Inception Report at baseline.

Annex 13: Data collection tools used for Midline

Attached separately.

Annex 14: Datasets, codebooks and programs

Submit all the cleaned and labelled datasets, specifically the school girls' survey data, the household survey data, and learning test data. The datasets should be fully anonymised before submission. Ensure all datasets are clean and clearly labelled so individuals, and school/communities can be matched across datasets. Accepted formats are Excel, STATA, SPSS and R.

Provide all codebooks and STATA and R programs (where available). This will facilitate the replication of the key baseline learning and transition findings (e.g., outcomes spreadsheet). In the codebooks, clearly mark the following variables:

- IDs: individual HH/girl ID number, sex, region, district, school, community, group, age, grade.
- Raw learning scores (subtask scores, WPMs, and aggregate scores).
- Raw transition scores and transition successful/unsuccessful variable.
- Before you submit the datasets, codebooks and programs, please check you have completed points on the following checklist:
- Keep in mind that all variables need to be labelled very clearly and uniquely.
- Provide clear details on how many learning test subtasks were administered and how they were weighted.
- Ensure you have a variable that records the aggregate learning score for each girl and both literacy and numeracy, in addition to subtask and item scores.
- Ensure you have a successful variable in addition to transition variables for each possible pathway.
- Wherever possible, provide one merged dataset. Multiple datasets can delay reviews.
- Ensure that you have one, definitive and clearly marked unique ID variable.
- Ensure you have only one, definitive and clearly marked variable for class and for treatment status. Where there are different variables for one thing due to analysis reasons, e.g. class, it needs to be clear what variable is used for what.

Annex 15: Learning test pilot and calibration

The learning test pilot and calibration report is attached separately.

Annex 16: Sampling Framework

The sampling framework is attached separately.

Annex 17: External Evaluator Declaration

Name of Project:

Name of External Evaluator: Social Impact Inc.

Contact Information for External Evaluator:

Names of all members of the evaluation team:

_____ (Name) certify that the independent evaluation has been conducted in line with the Terms of Reference and other requirements received.

Specifically:

- All of the quantitative data was collected independently ((Initials: _____)
- All data analysis was conducted independently and provides a fair and consistent representation of progress (Initials: _____)
- Data quality assurance and verification mechanisms agreed in the terms of reference with the project have been soundly followed (Initials: _____)
- The recipient has not fundamentally altered or misrepresented the nature of the analysis originally provided by _____(Company) (Initials: _____)
- All child protection protocols and guidance have been followed ((initials: _____)
- Data has been anonymised, treated confidentially and stored safely, in line with the GEC data protection and ethics protocols (Initials: _____)
-
- _____
- (Name)
-
- _____
- (Company)
-
- _____
- (Date)

Annex 18: Project Management Response

The project welcomes the External Evaluators thoughtful recommendations and supports the active engagement with the project's implementation. There are a number of areas which the project has considered – and will continue to consider – as a result of the Midline findings. Overall, the project is supportive of the study's findings and associated recommendations. The first part of this response presents the Project's reflections on the relationships between outputs, intermediate outcomes, and outcomes and the significance of barriers for certain groups of children which the project would like to highlight and implications for its approach. It also shares some of the potential actions and modifications to the project design to address the gaps identified in the ML report. The second part of the response considers the stated recommendations (Table 80: VF response to the recommendations), presenting the Varkey Foundation's response to the recommendation and plans for taking it forward. The third part of the response suggests modifications to the logframe (Table 81: Project suggested changes to the Logframe) for the Endline evaluation point

VF's overall response to conclusions

The EE's conclusions regarding the literacy and numeracy results were supportive of the project's theory of change, with the grade progression clearly aligning with the project's arrangement of MGCubed classes into ability groups (Basic, Intermediate, and Advanced). The ML findings show progress of the actual cohort based on the EE's findings although this improvement did not meet the learning outcome targets set for the cohort. ML results show an increase in the average aggregate literacy and numeracy scores by grade in ML, suggesting a clear grade level progression and progress over time. While the EE noted that progress was made for both comparison and treatment, the treatment group outperformed the comparison group. Overall, the ML reveals an overall higher grade level achievement for both literacy and numeracy, although the improvement in literacy is more pronounced (and statistically significant) than the achievements in numeracy. Achieving better results for Literacy than for Numeracy was not a surprise for the Project if we look at pupils' performance in internal assessments and the national context[59] where performance in Mathematics is lower than in English. This was confirmed during the 2019 District Annual Review Meetings with teachers and pupils who revealed they find more difficulties in Numeracy related tasks than in Literacy. The Project thinks that readjusting the current scope of lessons to focus on specific skills is the best approach to address learning gaps as delivering additional lessons is not a possibility due to the lack of time availability within the current school terms.

At ML, the basic marginalised characteristics identified at BL continue to have a role in affecting learning outcomes. In terms of the Project ToC's understanding of the barriers that affect learning and transition, the EE found no significant change in barriers or marginalisation characteristics between BL and ML, suggesting that the theory of change is still relevant at ML but needs further focus on some subtypes of girls. Barriers such as coming from a household without education, not speaking the language of instruction, having a cognitive impairment or not feeling safe at school are linked to negative learning outcomes. The educational level and language skills of the caregivers are clear factors affecting learning outcomes but the current programme design does not directly target this. The Project considers that working with already existing government institutions such as the Non Formal Education Division (NFED) to increase caregivers' language skills as a sustainable option to improve results for Endline.

[59] Ghana 2016 National Education Assessment: Report of Findings

In this regard, the EE found that sampled cohort students still face similar and multiple marginalisation characteristics such as the school location, marital status, being a young mother, poverty and infrastructure (use of toilet and drinking facilities) continue to have a smaller but consistent role in explaining learning outcomes. One of the highlights from ML is the increasing effect that impairment on learning outcomes. The EE noted that girls with sight and hearing impairments are likely to go to specialised schools rather than remain in project. Looking at the context of the remote communities where the Project works, it is a surprising finding to see that caregivers have the resources and access to specialised institutions. The Project's own records of students with physical disability does not support this. The Project has reemphasized inclusive lesson delivery in its Remedial lessons and delivered modules in Inclusion and SEND and SPLD in the adult training courses. The Project understands the promotion of inclusive lesson delivery in mainstream settings as the best way to build capacity in the schools as Districts lack the capacity and resources to provide targeted support to students with disability. Impairment has a greater effect on girls' outcomes and it will require the Project to increase the weight of inclusion modules in the training for adults as a way to address some of the the barriers associated with it.. The EE notes also that girls with disabilities largely experience the same barriers as their peers with some notable differences including them being statistically more likely to have challenges to move around the school, less likely to drink less water and to feel less safer at school. This will be addressed with continuous sensitisation through the community training. The Project will also assess how District Special Education Officers can be supported to address these circumstances through VF field staff.

Further, the ML (like the BL) shows that when boys and girls don't play together, when the household head has no education, when a different language is spoken at school, when the girl has a cognitive impairment, or when the girl belongs to rural schools, the aggregate learning scores are severely adversely affected by these factors. This confirms the "demand-side" and "supply-side" barriers described in the Project's ToC which act to prevent girls from accessing and completing a quality education. Of particular note is that for literacy outcomes, "the average difference in difference in boys is almost 3 times higher than that of girls". This is a very striking difference based on the fact that the pupils receive the same lessons and facilitators apply gender responsive pedagogy and can only be understood when looking at the context in which the lessons take place. Girls are bearers of most of the household chores at home from an early stage and this has implications on the available time that they have to learn at home in comparison to boys. This points out the intervention's effectiveness for both boys and girls and the prevalence of barriers and marginalisation factors that affect girls' performance which provides justification for the Project. This evidence supports the project's theory of change in relation to the need to support girls through activities directly targeting them and their environment and it may show the need to expand the Project's interaction with the girls' household. The additional demands that girls face from the household keeps on increasing as the students age and reach JHS impacting their learning outcomes as shown by the available data where treatment boys in JHS1 performedbetter than the girls in Literacy and Numeracy. The Project believes that this can only be addressed by continuing with the sensitisation of caregivers to ensure girls attend lessons and a close follow up on their attendance to regular lessons as well as remedial lessons.

Ethnic precedence also draws differences in regard of learning outcomes. While most students improved from BL to ML, only Ga and Ewe pupil performed significantly better in reading ($p<.01$ and $p<.10$ respectively) and the Dangme group preformed significantly better in both subjects ($p<.01$). On the other side the Guan preformed significantly worse in math ($p<.05$) and the Likpakpa and other groups in both maths and reading ($p<.01$). The Akan, on average, were no difference when compared to their peers as a whole. As explained in section 3.8, MGCubed lessons are broadcasted at a regional base where more than one local dialect is employed, explaining the difference in learning outcomes. In the Greater Accra region, lessons are delivered by MTTs who use English and the local language Dangme or Akan for the following ethnic groups: Akan (Twi speaking), Ga and Dangme.

Most schools from Greater Accra can speak Dangme and in schools where Dangme is not employed, facilitators can translate from English to Twi or Ga to explain key concepts to the pupils as they are common languages.

In the Oti Region where schools are largely multi-dialectal, lessons are delivered by MTTs mainly in English and Ewe. Nonetheless, there are communities where segments of the pupils speak minority languages such as Likpakpa or Guan. In these cases, pupils may struggle to follow the lesson if the facilitators do not master all local dialects. MTTs, who do not speak some of the languages, insist that facilitators translate and re-enforce learnings to the pupils and a slot is given within every lesson called 'facilitators teaching time' to address such gaps but it depends greatly on the facilitators' language skills. The ML results show the need to work further with facilitators to ensure this language barrier is properly addressed to improve learning outcomes. The Project will work to identify which the communities with more predominant Guan and Likpapa student population and check if the facilitators master these minority languages. In cases where this is not the case, the Project will assess the feasibility of supporting the facilitators with community members who speak these languages. In addition, the MTTs will monitor these classrooms on a more regular basis to ensure that pupils are able to follow the lesson.

The ML FGDs with girls revealed that sometimes it is difficult to follow the lesson due to the MTT's use of words. In this case, the Project plans to give more time to the facilitators to lead during the lesson and address students' concerns. The Project is also aware that in some few instances there have been signal issues that have affected the delivery of the lessons. To address this, the Project deploys one field engineer in each region who is reachable at any point by facilitators. Nonetheless, weather conditions may pose a challenge for the effective delivery of the signal. When the issue is not tech related, facilitators have the role to ensure pupils understand the MTTs questions and instructions. This has been reinforced during the last facilitator training as facilitators are expected to have an active role during the lesson.

In regard of the possibility to ask questions, MGCubed pupils have always the possibility to ask questions and interact with the studio teachers. Nonetheless, there are instances where not all schools can have the opportunity to answer or ask questions through the microphone. The Project will make sure that during lessons, the MTTs encourage actively pupils to ask questions or interact and that all classrooms have opportunities to participate with the microphone.

In terms of the course contents for Year 3, the Project will seek to fill in the skill gaps identified at Literacy and Numeracy and ensure that lessons do not leave behind specific type of beneficiaries such as those with impairments or young mothers that may learn at a lower pace. The grade level analysis shows that there are a considerable number of students who are several grades behind their current grade. The Project will need to work with Facilitators to identify these students and provide personalised support before or after the Remedial lessons.

In regard to Transition, the results were considerably much better for the Project. With a ML transition rate of 93.5%, the treatment group had a transition rate 5.54% points above the comparison group, achieving 111% of the target. ML data shows that girls with almost all of the identified marginalised characteristics had significantly higher transition outcomes in midline than baseline, and in many cases higher improvements than all girls which confirms the Project's ToC in regard of transition. In addition to the ML's overall key conclusions regarding learning outcomes, the Project identifies the following findings as important:

Literacy and Numeracy

The learning assessment results from BL revealed specific low performance areas that have informed the structure and content of our numeracy and literacy courses for Year 2. Since then, literacy learning content has been revised and the curriculum scope and sequence focused more on core skills of reading and comprehension using analytical and inferential questions (based on a given text centred on each unit theme). For numeracy, the courses focus more on key skills such as word problems and application of mathematics to everyday settings. For both numeracy and literacy, greater focus was given to depth of understanding over breadth of content to ensure that the content is being processed properly by the pupil. The courses include lots of opportunity to practice key skills and develops girls' assessment skills (e.g. more focus on reading comprehension, including structured activities around analytical and inferential questions based on a given text). In addition, the Project reduced the numbers of numeracy topics to ensure girls have enough time to develop core skills such as problem-solving skills. This has translated in overall improvement. In Literacy, the Project made a strongly significant impact on literacy outcomes of beneficiary girls. Nonetheless, the improvement in foundational literacy skills of beneficiary girls has not been uniform. A factor hindering more progress for pupils' Literacy skills may be the lack of access to reading materials at the household or at the schools where the Project operates, meaning that their reading skills are only developed through the regular GES lessons and the MGCubed lessons. Stakeholders have also shared the lack of TLMs in regular GES lesson as an additional obstacle.

When reviewing subtasks, very few EGRA subtasks show improvement of beneficiary girls to proficient level between BL and ML. The only subtask that shows improvement to proficient learner's category (a score of 81-100%) with subsequent decline in all the other categories is the familiar words task (8.8 pp). Other EGRA subtasks that show achievement of higher foundational skills are comprehension (proficient 3.1 pp and established 3.3 pp), letter sound identification (proficient 1.5 pp but established 6.3 pp). Of concern to the Project is the reduction of students being proficient in the Oral Reading Fluency task (-13.2%). These results show that while pupils have improved in their capacity to identify familiar words and comprehension skills, further focus is needed on developing the pupils' phonological and speaking skills for the 2019/20 academic year. This is of special importance in a context where over 90% of girls' language of instruction is different from their mother tongue and English is barely practiced at home as indicated in section 2 (page 31) of this report. In addition to this, the Project considers it necessary to tackle these gaps at both the school and household level. The Project will work with the schools to develop these skills through extra-curricular activities for student and capacity building for teachers. The Project's feedback from the schools through monitoring supports the fact that these are areas that require capacity building. Additionally, the project will liaise with caregivers to promote the use of English language with their wards. The Project provides phonics training for teachers annually, our feedback however shows that not all teachers have gained mastery. The project will intensify training in this area through the annual face to face and termly online training for teachers.

While a reduction of non-learners from BL to ML is commonly observed, letter sound identification and oral reading fluency show around 1.6 and 0.4 percentage point decline from emergent learners to non-learner category. This is surprising given that we would assume all girls progress or at least stay at the same level. SeGRA subtasks 1 and 2 show some improvement from BL to ML. For subtask 1, there is a 13.8 percentage point reduction in non-learner category and 6.6 percentage point reduction in emergent learner category leading to a 15.7 percentage point improvement in established learner category and 4.6 percentage point improvement in proficient learner category. For SeGRA subtask 2, there is a 48.4 percent reduction in non-learners being distributed to 15.9, 28.8 and 3.7 percentage point improvements in emergent, established and proficient learner categories, respectively.

In terms of grading analysis, the proportion of beneficiary girls at "no grade" level, P1, P2 and P3 declined by 10.33, 0.16, 10.16, and 3.34 percentage points respectively from BL to ML, leading to an equivalent increase in P4 and P6. Despite improvements, this still means that around 40% of girls are at the level of "no grade" in literacy, i.e. they are not proficient in any of the EGRA subtasks. The highest proportion of these girls are – unsurprisingly – in P3 and P4. While the Project is aware that current P3 and P4 girls will have the lowest exposure to the program intervention, during these two remaining years, the Project will seek to ensure that the percentage of girls with 'no grade' reduces. As indicated in Table 1, the Project will strengthen the role of facilitators in terms of applying differentiation for lower level learners' engagement (e.g. use of lower order questions to check for understanding during formative assessment tasks) – centred around foundational skills in numeracy and will work with the school community to identify ways to further support these learners.

In numeracy, most beneficiary girls are either established or proficient learners in EGMA at ML. The Project can see that numeracy improvements in lower grades are greater than in higher grades which may be explained by the fact that students at lower grades have higher attendance rates to the remedial lessons and also do not have the learning gaps of those pupils who started with the Project at higher grades. While no girls are found to be proficient in SeGMA subtasks 1 and 2, there has been a reduction in the percentage of pupils in the non-learner categories towards the emergent and established learner. There is a clear gap in SEGMA tasks with no girls being proficient in subtask 1 (advanced multiplication, division,) and subtask 2 (algebra). The Project believes that this is linked to the learning results for Addition and Subtraction where less than a 40% of pupils are found proficient as advanced operations such as advanced multiplication and division will involve mastering these skills. The Project seeks to emphasize these 4 tasks where pupils have had low performance. The Project's lesson on algebra was delivered in the 3rd Term of school, sometime after ML data had been collected . We will continue to support students to improve their understanding and performance in this area. In relation to subtask 1 (advanced multiplication and division, proportions, space and shape, and measurements) the Project covered these tasks during Term 1 and Term 2 and while there was a 7.5% decrease in the 'non-learner' category towards the emergent category (6.1%) and the established category (1.4%), the Project recognises that the students probably needed additional time to master these skills and it will analyse how to adapt the current scope to include more time for activities.

The ML revealed percentage point gains in the 'proficient learner' category for all EGRA subtasks. For quantity discrimination, missing numbers, addition 1 and 2 and subtraction 1 gains in proficient learner and established learner groups are made directly from non-learner and emergent learner groups. The evaluators conclude that: "Therefore, it is safe to say that in EGMA tests, there is a clear upward shift in proficiency level among beneficiary girls from BL to ML." As with literacy, the same groups of certain marginalised girls were disproportionately affected by the intervention, but the impact was less pronounced than in literacy. The Project is surprised to see a small increase in the non-learner category in number identification, subtraction and word problems, especially with number identification as the Project would expect learners to keep their skill level as a minimum after a year receiving remedial lessons.

Grade level progression is less pronounced in numeracy than with literacy. There is an overall pattern to the data showing a movement from the lower grade levels to the higher-grade levels, with a smaller proportion of P3 pupils being in "no grade" than for literacy. However, over half of P5 girls are at P1 numeracy level (higher than those in P4). No girls are operating at JSH 1 or P5 level, while encouragingly a handful (1.54%) reached P6 level.

While the proportion of girls with "No Grade" status overall has reduced, the Project acknowledges the need to focus more on developing foundational mathematics skills among those students with no-grade as it constitutes 42.6% of the sample. The results will be used to inform the Education Team's lesson content review and teaching strategies. Some of the changes will include a greater focus on some specific topics (number identification, quantity discrimination missing number, addition and subtraction), as well as the use of lesson starters to address learning gaps and some changes in the sequencing of some topics. This will help the pupils to attain better grades by Endline.

Performance vs marginalised characteristics

The ML findings show that girls with most of the identified marginalisation characteristics performed better in ML than BL except for married girls, girls from ethnic group Likpakpa and mothers under 18. In ML, we found that that girls with most types of impairments (e.g., seeing, hearing, cognitive, self-care and communication impairments) improved more than 5 percentage points in literacy although specific sub-groups did not improve as much as the aggregate score and it will require the Project to work alongside the schools to provide more differentiated treatment and additional support to ensure they can catch up. Their scores in numeracy also improved but with lower margins, in line with numeracy results overall. Girls living with a husband or living in female headed households or girls from poor households improved more than 6 percentage points in literacy as compared to around 3 to 4 percentage points in numeracy. Girls with serious illnesses improved in ML albeit only around 1 percentage point in both numeracy and literacy.

When focusing on students with impairment, it is seen that girls with most types of impairments (e.g., seeing, hearing, cognitive, self-care and communication impairments) improved more than 5 percentage points in literacy. The only sub-type whose progress has been minimum was those with mobility impairment that did not obtain better results in both Literacy and Numeracy. Qualitative data from FGDs shows that mobility issues and attendance are linked leading to low performance. The Project will pay special focus on girls with mobility impairment and will work with school authorities to ensure proper support and access is provided.

The negative effects of these characteristics are not surprising to the project, and are part of the rationale for the Project. While variables such as household poverty are being targeted through cash transfers (Output 6), the Project acknowledges that further actions need to be taken to ensure the household is a supportive environment for girls who are mothers, speak a different language to the language of instruction or have an impairment. This involves complementary activities to the ones carried out under Output 4 (Community training). The Project has responded to the recommendations given by the EE in Table 1.

Transition

The EE was able to observe a noticeable improvement in the rate of transition. Specifically, the current cohort had a transition rate of 93.5%, (5.54% over the comparison group transition rate), with grade repetition being the major reason for non-transition. Further, the ML points to a strong treatment effect between BL and ML, with the likelihood of a beneficiary girl to transition successfully increasing by 85 percent as compared to the comparison girls. With a transition target set at 5% over the comparison group, the MGCubed girls met the transition target. Successful transition decreases as a girl progresses through school with girls at higher grade levels at BL more likely to have repeated or dropped out of school at ML than girls in lower grades. The high rate of repetition for unsuccessful transition is understandable when looking at the grade level analysis results for learning assessments where a significant number of

pupils (42.6% for Numeracy and 42.76% for Literacy) received "no-grade". Further the Midline data on attendance to regular GES lessons (below 90% average) and remedial lessons (below 80%) probably contributed to this repetition rate.

The Project pays special attention to section 4.1 that notes that where girls whose caregiver had no education were much less likely to successfully transition (70% compared to 90% for all girls). In addition, certain marginalisation characteristics significantly influence the transition outcome such as cognitive impairment of the students and language barrier (i.e. speaking a different language at home from that which is spoken at school). Poverty-related factors such as being a mother under 16, having mobility impairments were the subgroups that also did not register positive improvements in transition and will require further follow ups from the field team and facilitators to ensure their learning needs are addressed. The Project believes that young mothers are especially vulnerable to not transitioning as they are prone to miss a large part of the lessons during the year for taking part in income generating activities. For students with walking difficulties, the Project will need to engage with the local District Assemblies to find out community solutions to ensure access to schools.do we mean drop out?

Positively, no clear drops from P6 to JHS I are noticeable in the data. In fact, as per the EE team reports, 243 girls or 97% of those receiving a cash transfer transitioned successfully in the past year compared to 89% of those without cash transfer. This supports the rationale for the transfers, as since Project inception, financial barriers were noted as one of the key barriers to transition to JHS. Nonetheless, there is a drop in the average transition rate and an increase in repetition from JHS I to JHS II which may be due to the household pressures on girls to dedicate less time to their studies in order to support in household chores and upkeep . Few marginalisation characteristics have significantly influenced the transition outcome: cognitive impairment of the students and language barrier (i.e., different language spoken at school). While the Project already tackles the financial barrier through cash transfers to JHS1, further efforts will be invested in to support those students for whom transition is hindered as a result their marginalisation through language and cognitive Impairment. At the moment, the Project is already collecting data on the number of schools with written transition plans with emphasis on these sub-groups so that DCs can provide targeted support to MGCubed schools in this regard.

Sustainability

Community Level

The ML shows that 19.4% of girls noted being absent from school at least once in a school year for family related issues, although at BL girls were asked for the reason of the last absence which may have reduced family related reasons. In this regard, the Project feels that at Endline both questions should be done to establish a proper comparison on progression.

This finding explains why the project continues to sensitise the school community on the importance of girls education. The Project's internal data however reveals that caregivers are supportive of girls' going to school and have favourable attitudes towards gender equality:

• Two-thirds of those interviewed expressed a specific aim for their daughters, for instance to become a lawyer or nurse, which requires the completion of secondary school and beyond.

• Nearly all respondents – agreed that their community valued girls' education.

• A little over a quarter thought that boys did better than girls at school, a lower figure than expected.

However, feedback (anecdotal, focus group discussions and interviews) from school leaders reveals that some caregivers may take decisions which are contrary to this belief, in situations where extra help is needed such as during harvesting times. As such, the Project needs to keep on investing time and effort in provoking a complete attitudinal change among caregivers concerning the long-term gains that education can have on their girls. During Year 2, the Project delivered a unit on the 'Importance of Education'; in this session, caregivers had to explain the role of the family in their children's educational success, illustrate a vision for girls' education and plan how to contribute to their girls' educational success. The objective was to remind parents the fundamental role they play in their girls' education, and the central importance of attending school and learning at home. The Project will continue to focus on the importance of attendance in community training sessions through additional units in Year 2. It will also engage with PTA/SMCs to identify strategies to reduce absenteeism. During Year 2, the Project worked jointly with PTA/SMCs and the facilitators on an ad hoc basis on drop-out prevention, by identifying pupils at risk of drop out through the MGCubed attendance registers and by engaging caregivers to ensure the pupils' attendance. During Year 3, the Project will seek to support PTA/SMCs in monitoring attendance more regularly and carry out sensitisation campaigns to increase general attendance.

In addition, 93.94% of caregivers (against a target of 85%) stated no reason to prevent their child from attending school next year. This has been encouraging and affirms the current sensitisation efforts of the Project. Nonetheless, respondents may have felt obliged to answer no to this question due to societal views. The Project will propose an alternative indicator for endline in order to ensure the validity of this indicator.

School Level

54.17% of MGCubed schools at ML had an established process and/or approach to supporting girls' transition to secondary school. While it is an improvement from baseline values (39.71), it did not meet the target. The increment reveals the active engagement of the schools but also shows the need to provide more personalised support to those schools where an established approach has not been developed.

The ML results showed an average score of 6.08 (out of a total of 8) on the student-centred, gender-equal index. Treatment schools scored high on equal access to materials, positive feedback from teachers to both genders, calling on students equally and allowing students equal time to respond to questions. This shows the positive results of the Project's effort to build teaching quality and promote a conducive learning environment through the teacher training course. Nonetheless, there are areas for improvement relating to the application of student-centred techniques when delivering lessons; this will be a focus of the next training sessions for teachers and school leaders. In addition to this, the Project will place emphasis on increasing regular GES teachers' attendance at the training sessions as internal data shows that an average of 5 teachers per school have been attending training regularly, which is approximately 50% of the expected rate. The Project will use the next stakeholder meetings to agree with headteachers how to improve attendance rates of low performing teachers.

Teachers and facilitators were asked if they felt they could solve the following technology issues on their own: computer problems, charger problems, project problems and other hardware issues. It was found that 64.14% of teachers and facilitators in treatment schools were confident that they could solve at least one of the potential issues, but only 17.93% were confident to resolve all potential issues. Only 20% had solved all the technical issues they faced in the past year, with 26% noting they were unable to solve any of the issues that arose. Internal data from the Project revealed that the school community is aware of their role and responsibilities relating to the management of the technology set up. The PTA/SMCs are aware of the responsibilities of the community in providing safety and security measures to protect the equipment. 61% of PTA/SMCs indicated in FGDs that they frequently do checks on the technology packages (assets) in the 72 schools. The unannounced visits include observations of lessons and checks on the various components of the technology. Another strategy carried out by the PTAs is to check that the security personnel for both day and night are providing the necessary protection of the equipment. This links well with ML findings where 25% of head teachers report PTA or school management committee members as taking responsibility for managing technology (comparted to 16% at BL).

The ML reveals that the proportion of Headteachers who think that MGCubed is responsible to fix tech issues has increasing from 84% at BL to 94% at ML; while the percentage of those feeling confident to resolve tech issues has reduced from 86% to 79%. It is however worth noting that, factors such as teachers and school heads transfer to non-project schools sometimes means that the project has to continuously conduct tech trainings for the schools. The Project has trained headteachers (during GEC-1), facilitators and GES officers (during the face-to-face refresher training) on troubleshooting technology issues and on the management of technology packages. During Years 3 and 4, the Project will extend this training to community leaders including headteachers. PTA/SMCs will nominate at least 3 community members to participate in a face-to-face training on the use, management and benefits of the technology. The training will be structured according to a trainers-of-trainer model (ToT), where participants will cascade the training to other members of the communities.

System Level:

One positive development has been the increase of DEOs visits to MGCubed schools. The frequent training and engagement activities conducted by the Project team has resulted in high levels of engagement of GES. The Project will keep on investing in this area as it gets closer to the end of the implementation to ensure positive monitoring habits are established amongst DEOs. Nonetheless, among all schools, 66.4% received some type of feedback after a visit, a figure almost unchanged from the 66.2% at baseline which means that DEOs have not improved in the use of their monitoring information to support in improvin capacity at the school level. The Project will share this finding and set the use of monitoring data for capacity building as one of its priorities for the upcoming year.

During the last year, VF supported the MoE through the provision of support in 12 different initiatives, policies and plans. This reveals the great level of influence and recognition that VF and the Project is obtaining nationally as it is being engaged in multiple initiatives. Nonetheless, the Project was not able to meet the target of 15 which was a bit ambitious looking at the timescale of one year. The Project will explore more engagement opportunities to be able to meet the target of 20 by the Endline period.

The Project recognition has also increased among DEOs as indicator 3.3 reveals. From BL to ML, 80.82% of headteachers were able to say very positive things when asked about the Project and 58.91% of would ask for the extension of the Project. This increase from BL reveals that DEOs at district level are increasingly acknowledging the impact of the program which is essential to sustain some of its component after Project exit. The Project also notices

that there is around a 40% of headteachers that would not ask for an extension and believes this answer must be due to the unavailability of the schools alone to sustain the intervention on its own without national support as confirmed during Project interactions with the headteachers.

Attendance

Overall attendance results are positive as, at ML, but show room for improvement. In terms of recorded attendance over the last five days, comparison schools had better results than MGCubed schools which shows the need to work with the schools on keeping accurate and updated attendance records. While it is not an indicative of attendance per se, having accurate attendance will help schools and teachers to identify students who need support or who face challenges to attend school from the household level.

In terms of students marked as present, all grades show a positive treatment change for MGCubed schools except for the P6 grade. The EE found as well that while comparison schools had recorded decreases in attendance from BL to ML, treatment school experienced an increase which is encouraging. The largest increase in recorded attendance rates by teachers from BL was seen in MGCubed basic class for treatment groups and in JHSI level for comparison groups.

Recorded attendance by teachers suggests that attendance at MGCubed remedial class has improved for both boys and girls at basic level. JHS 1 girls 1 (advanced MGCubed pupils) have the lowest attendance rates at nearly 71.8% (up 3% from BL). Further, it is noted that boys attendance at intermediate and advanced decreases unlike for girls. When exploring the reasons in FGDs, boys revealed that the snack provided was a reason to miss remedial lessons more often. The Project takes note of this and will assess what strategies are available to address this without increasing costs on snack provision, 1 Overall, attendance rates for MGCubed Remedials are lower than regular school lessons which shows the need to sensitise parents and schools to ensure pupils remain at schools during remedial time rather than coming back to the household.

When the enumerators compared the student headcounts against the school enrolment, the Project met its target of attendance with 85% of girls enrolled at school appearing in the school headcount. The enumerators' headcounts were higher than the official enrolment numbers and headcounts of the comparison schools were higher than treatment although this was not statistically significant. This means that in the treatment schools there seemed to be more students present in class during lessons than the official number of students expected based on the class registers. The Project will be conducting further checks to understand the reason behind this. The project will sample a few schools to monitor closely to find out where the extra students could be coming from and why they are not officially on the registers but attending lessons

Overall, attendance to both regular classes and MGCubed remedial classes is integral to enable the students to achieve positive learning outcomes and transition in the long term as indicated by the EE in the attendance section. In this regard, while the ML shows the results of the Project's effort on raising awareness on the importance of attendance among key stakeholders, it also shows also the need to keep on investing efforts on this front, especially for advanced and intermediate students' caregivers. In addition, stronger efforts will be invested to promote accurate registers at the

schools. The Project will raise this issue among PTA/SMCs, school leaders and caregivers during future engagements to ensure this trend improves for advanced and intermediate students.

The second indicator on attendance showed the motivation of girls to attend schools as a result of MGCubed lessons. This is a good proxy to sense if the student centred learning techniques applied during the remedial lessons are helping to promote general attendance to school and changing pupils' perception of school. Providing an environment where learning is fun and engaging will make the pupil more prone to attend and/or not miss school. The Project is aware that there are other factors that play a role in determining attendance to normal school but believes that pupils' motivation also has a key role in supporting learning and other cognitive skills. This indicator revealed that 83% of students were motivated to attend school, which is a large increase from BL value (33.5%). While this is a positive note, the Project will propose a slight amendment to this indicator for EL to identify pupils' feelings towards attending the remedial lessons and how this contribute to general attendance to regular school.

Teaching Quality

ML findings for Teaching Quality were positive; showing some improvement from BL. At ML, the Project met the target for IO 2.1 while it did not for IO 2.2. and IO 2.3. For IO 2.1, at ML, the ET found a large improvement when comparing Teaching Quality at BL results and to comparison schools during ML (although this is not statistically significant). This is very positive as high teacher quality is significantly associated with higher learning outcomes at both treatment and comparison schools as the EE notes. With a target of 35% of teachers obtaining a "Highly satisfactory" or "Outstanding" level during regular classroom observations, MGCubed schools obtained a 55.1%, overpassing the target for ML. This was an encouraging performance from BL to ML (39.9% to 55.1%) and on how MGCubed schools obtained better results than comparison schools (44.5%).

Since BL, there has been a reduction of teachers being assessed with the two lowest ratings (16%) whilst ratings for the two highest levels (highly satisfactory or Outstanding) have increased . Nonetheless, there is still room for improvement in the schools, as there are still about 40% of teachers that require improvement. One reason for this percentage of teachers needing improvement, is the teacher turnover at the schools, as most of the originally trained teachers have left with new teachers taking over. In addition, the project recorded low attendance to the online teacher training in the past as a result of unsuitable timing for the training. Over Year 2, the Project has noticed an improvement in the general attendance to teacher training since the changes were made to the training schedule in consultation with the schools. , Year 2 registered an average of five teachers in each school attending the training, The Project plans to focus on building the capacity of regular GES teachers who do not facilitate MGCubed lessons. This is observed in figure 15 in section 6.3, where over half of non-facilitators were rated "Fair" and "Satisfactory" .Overall, the Project has observed a considerable improvement since BL and will keep on working with the school authorities and DEOs to ensure attendance to the Teacher Training course continues to improve. Treatment teachers were better at managing classroom behaviour and promoting equitable learning. However, lesson preparation and confidence and clarity in delivery were areas that MGCubed teachers performed better in, though we still expect further improvement but have room for improvement. Teachers in treatment schools utilise certain specific MGCubed teaching techniques in non-MGCubed classes, particularly "Ways of Work" and plenaries. Positively, there is a clear gap between comparison and treatment schools for use of "Ways of Work" with half of treatment classes using it "All the time" or "Sometimes" compared to less than 20% of comparison classes, while the use of mini-plenaries is also higher in MGCubed schools (about 50%) compared to comparison schools (30%). Nonetheless, the ML findings do not find a major difference in

Teaching Quality when comparing facilitator (24.78%) vs non facilitators (24.02%). This is not a positive result as the Project would expect facilitators to be leading in this sense in the Project Schools. The Project believes that further monitoring and focus by the Project and school leaders should be placed in the regular GES lessons to ensure facilitators are bringing back to the classroom the learning from the MGCubed Remedial lessons.

ML data for IO 2.2. reveal that the Project did not meet its target. The Project understands from this that facilitators are not bringing back to the regular GES class the strategies employed during MGCubed lessons., Facilitators and non-facilitators did not perform differently with regard to the use of specific MGCubed approaches and techniques. In the 22 observations of non-facilitators, 13 (59%) used MGCubed techniques. In the observations conducted by EE, 55.8% of facilitators applied MGCubed techniques "sometimes" or "all the time" during regular school lessons against a target of 73%. The Project feels that facilitators may feel less inclined to use student centred learning techniques during regular lessons due to previous habits and lack of school monitoring. This reveals that there is still 44.2% of facilitators who don't use MGCubed techniques to their regular classroom and it is due to several reasons. A factor explaining this may be that the lessons may have not given enough time to facilitators to put into practice the strategies. The Project will be including more facilitator led activities during MGCubed lessons to ensure they get more accustomed to their application in regular GES lessons. As well, the Project believes that further monitoring from school leaders and DEOs in the application of MGCubed techniques in regular GES lessons will reinforce the CPD of facilitators. In this sense, further collaboration between the Project, headteachers and DEOs during Year 3 will be instrumental. Additionally, the introduction of the new curriculum will certainly support this objective as it promotes the application of student centred learning strategies. Similarly, in indicator 2.3., the Project feel shortly from meeting its target (65%) with 64.14% of facilitator and non-facilitators being able to cite and apply at least 2 techniques learned from MGCubed during regular lessons against a target of 65%. This is a bit surprising for the Project as it was expected a larger display during normal lessons but it leaves hope for meeting the target at endline. Internal observations undertaken by Varkey Foundation District Coordinators indicated a high rate of uptake of student-centred learning strategies during regular GES lessons. 84% of MGCubed facilitators and GES teachers used student-centred techniques learned during regular lessons. Further focus will be given in promoting the use of MGCubed techniques during regular lessons by partnering with the school authorities in the monitoring of these.

As observed by the project, of the facilitators who demonstrated student centred learning techniques, only 5% were identified as "inadequate" or requiring improvement. This difference may result from the degree of interaction with MGCubed techniques; while facilitators have the opportunity to learn through different venues (face-to-face training, teacher training and the facilitation of MGCubed lessons), the main opportunity for GES teachers to learn about the MGCubed approaches and techniques is during the teacher training sessions organised at the beginning of each term. The Project is aware of the correlation between teacher attendance and their continuous professional development; therefore, it will focus on increasing general attendance rates among MGCubed schools to ensure teaching quality increases further.

Overall, there is room for improvement to ensure that MGCubed as an intervention contributes to improve teaching quality at the school level and not only at the facilitator level to achieve systemic impact and learning outcome improvement. In this regard, the Project will focus on promoting the use of student-centred learning techniques and its monitoring through school authorities. For the former element, the Project thinks that it is fundamental to ensure regular attendance to the Teacher Training course is epicentral for the CPD of teachers. In addition, in order to promote the use of these strategies, the Teacher Training course for Year 3 includes specific modules on best teaching practices, coaching, lesson observation, assessment and feedback provision that expect to fill the gaps identified at ML.

This learning will be monitored by both the Project, DEOs and Headteachers. In February 2019, GES staff participated in VF-led training that included modules on Monitoring tools and GES standards. As part of this training, participants were encouraged to review the Varkey Foundation's tools. GES staff had also the opportunity to apply their learning on the Project monitoring tools with the district monitoring teams in Greater Accra and Oti region during Term 2 monitoring. The Project expect to keep on working with GES staff and headteachers to monitor the use of MGCubed strategies in regular GES lesson and support the CPD of teachers at the schools.

Lifeskills

The EE found that there was some progress in development of life skills amongst treatment girls, with a composite score of 22.22 at ML against a score of 21.88 at BL. The Project met its target (20%) in this category with 51% of treatment girls improving their non-cognitive skills although the increase was small. For comparison girls, their scores decreased slightly from 22.14 at BL to 22.07 at ML. In both cases the largest declines were found around self-esteem (Figure 3). This is reflective of BL results, repeated at ML which showed that self-esteem, unlike agency and self-efficacy does not greatly improve as a girl ages. Impaired girls have also slightly lower self-efficacy scores than their non-impaired counterparts. The Project plans to select more practical topics such as career guidance for the clubs and employ more interactive activities such as debates and role plays to boost the self-esteem and agency based on the feedback received from the Annual Review Stakeholder meetings with caregivers, pupils and teachers. This will also be complemented with outdoor activities as recommended by pupils and stakeholders.

Impairment still features as a strong feature affecting agency, self-esteem and self-efficacy. The Project applied changes to the content, as well as started raising awareness on inclusion across all Project activities last year so that staff and Project stakeholders have a deeper understanding of what inclusion is in practice. Since BL, the Project promoted inclusive lesson delivery practices such as the use of kinaesthetic activities, interactive discussions, and differentiated questioning. The Project has also refined the way the information is processed by pupils, considering how to improve PowerPoints and content delivery, for example by providing oral instruction alongside written, through the use of visual stimuli, the use of colour and accessible fonts. There is also a greater emphasis placed on contextually relevant themes and the use of local language to support a range of learners. Furthermore, there is significant emphasis placed on assessment for learning activities such as 'temperature checks'. In terms of addressing the needs of learners with cognitive disabilities, the after-school clubs have added the topic of inclusion by including role models with disabilities and celebrating Disability Awareness Day. The Project has also focused on raising awareness about inclusion at both the classroom and the studio level (modules on Inclusion have been added to the refined teacher training curriculum under the umbrella of differentiation).

In addition, the Project delivered capacity building on Inclusion to the MTTs and facilitators through partnering with the expert organisation MultiKids Academy. Facilitators raised their understanding of inclusion relating to the learning needs of students with physical and cognitive disabilities. The face-to-face facilitator training focused on strategies for teaching children with different needs in an inclusive learning environment and it included 3 modules (Module 1 – 'UnderstandingStudents with SEND'; Module 2 – 'Inclusion: How to Cater for all Needs'; Module 3 – 'Practical Strategies in the Classroom'). These training sessions aimed to equip MTTs and facilitators with the tools to understand Inclusion and the key characteristics of particular cognitive needs, and then account for these in mainstream lessons. The Project will continue this focus during next year's courses and strategies what actions can be taken to improve their self-esteem to the students with impairments. In addition, the Project will plan activities outside the clubs to improve the feeling of

belonging of students with disability such as the celebration of the International Disability Day at the District level and outdoor activities such as excursions.

The clubs also help to increase the girls' knowledge on SRH issues and financial literacy which is captured under indicator 3.2. The Project met its target on SRH issues (83%) but not in financial literacy (77%). At ML, 71.8% of treatment girls "strongly agreed" or "agreed" in response to questions on financial literacy and 90.5% did so on questions regarding sexual. The EE also found out that there is wide variation in girls' knowledge around earning money, with just one in every two girls knowing how to earn money without it disrupting their school time. This points out the need for the after-school clubs to include sessions that show positive examples of how to increase income generation without affecting participation in schooling. Concerning sexual reproductive health (SRH) issues, the EE found that girls were aware of the changes that occur during puberty. 90% of girls agreed or strongly agreed with the statement "change to my body is a natural process of growing up" and "if I have a question about my body, I know who to talk to". This increase was similar for both comparison and treatment, but comparison girls were almost twice as likely to provide a 'don't know' response when asked about changes to their body than treatment girls (20% compared to 12%) as well as with impaired girls (26% compared to 16%). This points out a clear positive difference in favour of the Project and shows that the after-school clubs are helping girls to feel more confident to speak about SRH issues.

For indicator 3.3., 70.26% caregivers were asked to cite one or more ways in which MGCubed had helped to shape the girls' attitude and behaviours (against a target of 60%). This reveals the support that the Project is yielding among caregivers, which is fundamental to promote transition as the EE states. The Project expects this indicator increases continues increasing as it will be a good proxy of caregivers' recognition of the MGCubed activities.

Community Attitudes

Caregivers' support for MGCubed activities is essential to ensure the challenges that girls have at the household are overcome. Positively, 84% of caregivers could list one or more ways they have changed their behaviour in the past year to positively promote girls' education, surpassing the 60% target. Caregivers of girls attending treatment schools were more likely to say that in the past year they have met with their child's teacher to discuss learning progress, that they encourage the child to share what they were learning with their siblings and that they have been more involved in SMC/PTA meetings. This is another statistically significant finding.

Positively, comparison caregivers were more likely to cite reasons of why girls would not go to school the following year than treatment although this represented a small part of the respondents. Financial barriers were the most commonly cited as reason for not allowing girls to attend the following year of school for both comparison and treatment groups.

When caregivers were asked to cite examples of afterschool club contents, 45.8% of treatment caregivers were able to do so against a target of 50%. This may mean that further attempts are required from the Project field staff and the schools to raise awareness about the value and content of the clubs as this will facilitate higher attendance for instance. Nonetheless, the Project is aware that many of the caregivers struggle to attend the community training sessions due to the nature of their income generating activities and their knowledge about the MGCubed is reduced to the Remedial courses in Numeracy and Literacy. In this regard, VF field staff will liaise with facilitators and headteachers to raise awareness among caregivers about the value of the lessons learnt in the clubs through the PTA meetings.

School Governance and Management

The first indicator on school governance reveals a great improvement of MGCubed schools, but shows areas to focus on during the next year. When asking to caregivers about the management of their schools, a total of 54.2% of treatment schools were considered as "highly satisfactory" or "outstanding" for their caregivers, exceeding the target of 20%. When comparing the results between MGCubed and comparison schools, there were similar answers when rating the school teacher (52% vs 48%) or the school management in general (52% vs 48%). Further focus on school management and engagement with caregivers is required from these results. This is not entirely surprising for the Project, as DEOs and headmasters have also requested for training on school management practices during feedback engagements during Year 2. Surprisingly, the EE found a small but significant *negative* correlation between school management and learning outcomes which is significant for MGCubed schools (0.01). Girls who attend MGCubed schools with higher management scores are less likely to perform worse in math and reading. The Project would subscribe to the EE's argument stating that in MGCubed schools students with more learning gaps would be retained at school and further supported and (following the Project's approach on differentiation) rather than dropping out for lack of support.

The second indicator on School Governance looks at the use of corporal punishment which the Project's TOC identifies it as an obstacle for the pupils' learning and own rights. From BL, the instances of physical punishment observed decreased by more than half, with the largest decrease coming from comparison schools where instances decreased by 18.7 percentage points. From BL, reflective of the trend seen in observations, there was a decrease in girls being punished physically (in 6.9% of treatment schools and 5.6% of comparison schools). While the Project exceeded its target (a maximum of 10.63%), it is of interest to see that comparison schools performed better in this regard despite not receiving as much training or sensitisation. As well, the qualitative data shared by the EE on caregivers' perception reveals that there is still a strong acceptance at the household and community level of the value of physical punishment to impose discipline. The Project will research over the next academic year the perceptions of both school and caregivers,

When broken out by impairment status, impaired girls were 23% more likely to report being punished at least once in the past week than non-impaired girls ($p < 0.10$). Nonetheless, as the EE states, this difference comes entirely from the comparison schools with 80% of impaired girls at comparison schools reporting being punished compared to 52% of non-impaired girls Alternatively, at treatment schools, non-impaired girls reported a higher level of punishment at 53% compared to non-impaired girls at 40% though the difference was not statistically significant. This is a very interesting piece of data that reveals the effectiveness of the Project's effort to raise awareness on Inclusion with all stakeholder throughout all courses, in addition to the CP training. Child protection (CP) related modules have been featured throughout all training courses and it is an area that requires constant sensitisation. The Project incorporates units on CP in all courses every year and will continue investing in changing attitudes of adult stakeholders on this front. The prevalence of corporal punishment during some of the regular lessons does not surprise the Project as it is a common feature in GES schools. The Project is continuously working with the school communities, PTA/SMCs, caregivers and GES to sensitise on the negative effects that corporal punishment has on the pupils. For instance, facilitators are inducted on CP and GES regulation relating to this every year. MGCubed lessons ban any sort of corporal or psychological punishment during any lessons, and instead MTTs model how to manage a classroom through different strategies such as enforcing "Ways of Working" at the beginning of a session, using rhythmic clap to manage the classroom, asking for feedback on schools that display disruptive behaviour and using positive framing to correct disruptive behaviour. The Project closely monitors if there are canes present during regular classes. During the 2018/19 academic year, VF GES classroom observations revealed that in 8% of 133 observations there was a cane present; this is an improvement against Year 1's data (11%) which confirms the positive effects of modelling classroom management strategies via

MGCubed lessons, as well as the sensitisation efforts of the Project through the adult training sessions. The Project will keep on working to raise awareness about child protection and safeguarding among adults, as well as by demonstrating positive examples of teaching that do not require corporal punishment. As such, the Project will model effective ways of managing behaviour for GES teachers to learn from.

The last indicator on School Governance looked at the activity of PTA/SMCs as they are the key for sustaining good practices. The EE finds that there is greater community involvement in school management. MGCubed schools have more active PTAs than comparison schools (97% vs 84.6%) but comparison schools meet slightly more often (4.38 vs 4.77 days a year). At the SMC level, MGCubed schools slightly got better results than comparison schools in terms of active SMCs (79.4% vs 78.6%) and number of meetings a year (4.06 vs 3.89). In terms of the number of meetings a year, the Project think the real number for MGCubed would be higher when counting the Community Training where caregivers and PTA/SMCs at MGCubed schools assemble 2 to 4 times every term. Despite these are not official meetings, they contribute to the capacity building and agenda setting of these bodies, which do not take place in comparison schools.

The EE observed an increase in the number of times PTA/SMCs meet at ML. The Project is not surprised at this development as during Year 2, the Project increased its focus on building the capacity of the PTA/SMCs following findings from the BL which showed a strong relationship between PTAs and pupil performance. The field team first mapped out functioning and non-functioning PTAs and SMCs as part of wider work to support their establishment and effectiveness. The Project is now aware of the different stages each school is at with regards to the establishment of PTA/SMCs and dedicates additional support to those that are less functional. This has made the mobilisation and resourcing plan for this work more accurate. More treatment schools had active PTAs than comparison schools (97% compared to 84.6%), which is consistent with BL finding, although comparison schools' PTAs meet more frequently (4.77 times per year compared to 4.38 times). The frequency of PTA meetings also increased from BL across treatment and comparison schools with treatment schools increasing by 0.34 more times and comparison schools 0.17 more times since BL. Similarly, more treatment schools have SMCs and they meet slightly more times per year than in comparison schools, which was reverse at BL. In this regard, the Project started last year to work with PTA/SMCs to identify ways to build capacity and stimulate community participation. The Project will continue targeting PTA/SMCs beyond community training sessions to increase sustainability.

Table 84: Project Management Response

Recommendation	Evidence	VF Response
Carry out a study to identify children with cognitive disabilities in treatment catchment areas, and/or inclusion in mainstream settings including awareness raising classes/lessons. Consider targeting these children specifically with specialized lessons.	This recommendation was made in BL based on our evidence that cognitive impairment was both the largest type of impairment found in the sample and the most insidious: it was one of the only factors in regression analysis that significantly negatively affects both learning and transition. Our ML analysis also finds that cognitive impairment has had significantly high adverse effects on numeracy score and transition. As the transition DID regression suggests, these girls are 42 percent less likely to transition successfully.	As indicated in our management response for the BL, the identification of cognitive disabilities requires specialised knowledge, as this is absent in the team, it means seeking external support and finding extra funds as this was not originally budgeted. During RAM 2, the FM indicated that extra funds could not be made available for this outside Project budgeted funds. Additionally, consultations with facilitators and schools pointed out that the social dimension of diagnosing children with cognitive impairment has to be managed tactically to avoid stigmatisation. From BL to ML, the Project carried out the following actions to support pupils who may have cognitive disability: 1. Delivery of a training unit on Inclusion in mainstream settings, including refined differentiation methods, in the Teacher Training delivered to MGCubed schools. 2. Delivery of face to face training sessions on the understanding of Inclusion with emphasis on special education needs and disabilities (SEND) and specific learning disabilities (SpLD), for MTTs and MGCubed Schools with the expert organisation, MultiKids Academy. 3. Sensitisation training for caregivers and classroom teachers on the importance of normalising this discussion under the umbrella of differentiation, in order to reduce stigmatisation and develop awareness of inclusion as everyday teaching and learning practice. The ML results show that, as with other all pupils, pupils with cognitive disabilities encounter difficulties in performing numeracy tasks and in transition. Nonetheless, as reported, identifying pupils with cognitive disabilities poses the following risks: a. Identifying pupils with SEND and SpLD, and providing separate lessons for them, could lead to their stigmatisation at the school and community level which would exacerbate issues of marginalisation. b. Misdiagnosis of SEND and SpLD at the project, school and/or community level could have negative social consequences and cause social and psychological harm to pupils and communities.

		Therefore, the Project will carry out the following actions: 1. Capacity building amongst project staff and key stakeholders relating to Inclusion: The Project will keep the focus on general inclusive teaching and learning practices that cater for SEND and SpLD in mainstream settings. The Project will work with the Special Education Division from the MoE to work on capacity building of project stakeholders. This will be cascaded to all adult learner sessions to ensure the sustainability of this action. 2. Identification of students who need extra support through the GES Special Education Officers and the school community. The Project recognises the need to identify those students who need extra support. The Project will work with the GES District Special Education Officers, headteachers and facilitators to develop an action plan to identify students who are not performing in each grade. The Project will work with the MGCubed school and GES to use existing GES criteria to identify low performing pupils and to develop an action plan to support them jointly with GES District officers, headteachers and MGCubed facilitators. The Project will liaise with the Special Education Officers and the School Community to decide on the kind of support to be provided. The Project will supervise the implementation of this support. 3. Continuation of sensitisation: The Project will continue the sensitisation of adult stakeholders on the topic of inclusion in mainstream settings.
Program should focus more on developing foundational mathematics skills.	Evidence from ML report suggests that most of the improvement in numeracy over time is due to maturity effect. Or in other words, students performed better as they moved to higher class. This is corroborated by the fact that the	The Project adapted the numeracy course following the findings from the BL. The numeracy course now focuses more on key skills such as word problems and application of mathematics to everyday settings. Furthermore, there is greater emphasis on depth of understanding over breadth of content to ensure that content is being processed by pupils. These changes have led to an overall improvement in internal assessment scores. In the Term 1 2018/19 academic assessment, MGCubed pupils showed signs of improving some foundational skills. These include: missing sounds, missing words, ordinal numbers, identifying shapes, (more than 70% of the pupils correctly answered

	comparison school girls also improved over time with almost same pace. The program should focus more on developing foundational skills so that the girls have a strong base when they transition to higher grades.	questions in these areas during Term 3 of Year 1). ML evidence shows that on average, the treatment girls scored 3.7 percentage points higher in ML than in their BL score. This is confirmed via the aggregate scores in EGMA assessment and subtask score bands where most beneficiary girls are either established or proficient learners at ML. ML findings show that girls and boys across treatment status score higher in numeracy tests than their comparison counterparts in each grade. Nonetheless, the ML is not able to establish the Project as the main contributor of this significant impact on the numeracy score for beneficiary girls over comparison girls. The ML found that in numeracy, most beneficiary girls are either established or proficient learners in EGMA at ML. While no girls are found to be proficient in SeGMA subtasks 1 and 2, there has been a reduction in the % of pupils in the non-learner categories towards the emergent and established learner. The ML revealed percentage point gains in the 'proficient learner' category for all EGRA subtasks. For quantity discrimination, missing numbers, addition 1 and 2 and subtraction 1 gains in proficient learner and established learner groups are made directly from non-learner and emergent learner groups. Grade level progression is less pronounced in numeracy than with liter There is an overall pattern to the data showing a movement from lower grade levels to the higher-grade levels, with a smaller proportic P3 pupils being in "no grade" than for literacy. However, over half o girls are at P1 numeracy level (higher than those in P4). No girls operating at JSH 1 or P5 level, while encouragingly a handful (1.5 reached P6 level. The Project expects the registered improvement to be enhanced by the new approach adopted by the GES curriculum. The new GES curriculum places greater emphasis on processing content (as opposed to overloading pupils with greater quantities of content). This aligns to MGCubed's approach and is a welcome change which we hope will support improvements in learning outcomes of pupils. Examples of this include a greater focus on using the Bloom's Taxonomy framework for processing knowledge, a greater emphasis on formative assessment (including assessment as learning, assessment for learning, and assessment of learning), and greater emphasis on comprehension of word problems, and relating learning

		to real life scenarios and the personal experiences of pupils. Consequently, MGCubed teachers on the ground will be able to apply their learning from MGCubed more effectively to non MGCubed lessons, using the new GES curriculum. In addition to this, the Project aims to carry out the following activities to address the gap in numeracy: • Refinement of numeracy schemes of work: The Education Team will align the refined scope and sequence to the new GES curricula (for both remedial and grade level teaching) – so that courses cover the learning needs identified in the ML. The Project will use the teacher training and the face-to-face training to familiarise GES teachers with the synergies between the new curriculum and the MGCubed remedial classes. This will support GES teachers' lesson planning, and consequently reinforce MGCubed effectiveness. • Supporting lower level learners: The Project will strengthen the role of facilitators in applying differentiation for lower level learners' (e.g. use of lower order questions to check for understanding during formative assessment tasks) – centred around building foundational skills in numeracy. • Increased focus on the current P6 and JHS 1 for SeGMA tasks: The ML found that no girls are proficient in SeGMA subtasks. Post-BL, the Project increased the number of advanced hours for numeracy from 1 to 2 hours per week to support higher grade students to gain foundational skills. Despite this, the additional time may be not enough. The Project will assess the possibility of providing additional remedial hours in numeracy to P6 and JHS pupils before the beginning of the MGCubed term. • Emphasis on specific areas: The Project will place additional focus on supporting those students with no-grade to master the foundational skills that keep them in the No-grade category. For instance, half of the P5 girls are at P1 numeracy level (higher than those in P4) and No girls are operating at JSH 1 or P5 level, while encouragingly a handful (1.54%) reached P6 level.
Include curriculum on spoken languages to make marginalized girls more well versed with the language spoken at school.	For a vast majority of girls, the language spoken at home is different than the language spoken at school. While they	The BL findings revealed that low levels of support provided at the household level to a pupil's reading, and not speaking English in the home, negatively affected learning outcomes and transition. These findings have been corroborated by the ML, showing that students

	perform better even when the language of instruction is different, ML results show that this group of girls perform significantly worse in both learning outcomes as well as in transition outcome.	with language barriers still perform worse in learning outcomes and transition as compared to those without this key barrier. Nonetheless, as with the rest of the subgroups, the ML has been able to acknowledge an improvement after a year of the intervention. Since BBL, the Project carried out the following actions: • Adaptations to the literacy Course: Literacy learning content was revised and the curriculum scope and sequence focuses more on core skills of reading and comprehension, using analytical and inferential questions based on a given text centred on each unit theme. • Capacity building to improve literacy skills: The Project delivered face-to-face training for facilitators on specific strategies such as teaching phonics, creating strategies for teaching unfamiliar words and teaching comprehension effectively to improve literacy skills for pupils. • Sensitisation at the household level: The Project used the community trainings to promote a conducive environment for learning at home. The Project has delivered modules on the 'Importance of Education' and 'The Role of the Household' to guide caregivers on how they can support girls' learning. The Project also delivered a literacy session for parents during community training with the aim of sensitising parents on the importance of the English language and key strategies to develop their wards' literacy skills. Nonetheless, the Project acknowledges that further action needs to be taken to ensure the household is a supportive environment for girls. The two key actions to address this recommendation are: • Provision of literacy lessons to caregivers: The national office of the Non-Formal Education Division (NFED) was contacted to provide literacy lessons for adults in the MGCubed communities. The ML noted that not mastering the language of instruction is a key barrier for achieving positive learning outcomes and transition. The project collected BL data on level of proficiency and fluency in English language of caregivers and is working with NFED to pilot an intervention to increase literacy levels among caregivers. The Project believes if caregivers' mastery of the language of instruction improves, pupils will be able to

		improve theirs as well; leading to better learning outcomes and better transition outcomes. • The community training will introduce more modules on how caregivers could improve the literacy of their wards at home. • The Project team will assess how to adapt the literacy courses for the next year to address the gaps. The Project will also deliver specific sessions on suitable strategies during the face to face training for facilitators. • The Project will try to foster school-based activities that support literacy such as quizzes or debates.
Include curriculum in community trainings on gender equitable roles and responsibilities of boys and girls, particularly around household duties.	At BL, 19.4 percent of marginalized girls reported that they missed schools because of burden of chores at home and the ET hypothesizes that it may be a major reason for dropping out of school for many girls. In ML, the percentage is more or less similar -19.8 percent- which underscores that the recommendation is still valid in order to improve attendance and other outcomes.	As expressed at BL, this recommendation fits well with the context of the Project but is already addressed through the after-school clubs and adult training. In terms of the ML findings, most of girls reported not having been absent from school. The most reported reason for absence was sickness, followed by family reasons. This is supported by project monitoring data, where sickness rather than family reasons constituted the main reported reason for absence, accounting for 88% of the reasons given by girls for not attending school. In terms of content delivery, gender equity aspects are included in every adult learner session, and in every after-school session delivered by VF. They have been refined this academic year, to accommodate key findings from BL. The Project has delivered several units through the community training sessions to sensitise on girls' barrier to education which is helping to overcome some traditional views that reinforce the existing challenges. The trainings are open to all caregivers, with special focus to MGCubed caregivers. During Year 2 of the Project's implementation, the general attendance has improved due to the change of the session timing and the continuous sensitisation through the school community. Year 2 internal data revealed that 86% of parents interviewed were able to clearly articulate what they have learnt in VF's community training and how this is translated into practice and it is a notable increment from Year 1 results (64%). Sessions with specific focus on gender equity in community training include:

		'Importance of Education' unit • Explaining the role of home in their children's educational success. • Illustrating a vision for girls' education. • Planning a vision for girls' educational success. 'Gender Equity' unit • Distinguishing between sex and gender roles. • Identifying unhelpful gender stereotypes. • Discussing how to overcome unhelpful gender stereotypes. * *this covers gender equitable household chores* 'Reproductive Health Education' unit • Explaining reproductive health in their given communities. • Discussing the importance of reproductive health education from parents/guardians and community members. • Developing strategies for reproductive health education in their communities. 'The Household' unit • Identifying ways in which the household can contribute to educational success. • Exemplifying ways in which the household can contribute to educational success. • Planning strategies to support education in the household. After-school sessions ('Wonder Woman Basic', 'Wonder Woman Advanced', 'Boys Boys' and 'Mixed') on: • Girl Child Awareness Day. • Gender Stereotypes sessions – including defining stereotypes; identifying and analysing gender stereotypes in terms of different expectations for boys and girls; discussing how to overcome unhelpful gender stereotypes; identifying norms and values which girls practice in school, at home, and in the community; and explaining norms and values which are important to practice. GES leadership sessions on:

		• Understanding institutional barriers for girls' educational success. • Discussing ways in which to overcome institutional barriers for girls' educational success. GES headteachers sessions on: • Distinguishing between gender bias and gender equity. • Understanding the importance of practicing gender equity. • Examining key barriers for gender equity • Explaining successes experiences with gender equity. • Explaining key challenges experienced with gender equity. • Examining strategies to overcome key challenges with gender equity. The Project feels these are important areas and will continue to be included, as planned, into the Project's curricula for the next academic year.
Ensure that teachers are not only knowledgeable about MGCubed teaching strategies but feel comfortable deploying those strategies in the classroom.	While treatment teachers largely met targets regarding their knowledge (ability to cite the use) of various MGCubed strategies, classroom observations found that only MGCubed strategies were deployed only 55.8% of the time against a target of 73%. Furthermore, while treatment teachers were more likely than comparison teachers to deploy Ways of Work and Plenary strategies other teaching techniques (e.g. use	The ML results show that 55.8% of facilitators were bringing to the classroom their learning from MGCubed. Nonetheless, there is still a 44.2% of facilitators don't use MGCubed techniques to their regular classroom and it is due to several reasons. A factor explaining this may be that the lessons may have not given enough time to facilitators to put into practice the strategies. The Project will be including more facilitator led activities during MGCubed lessons to ensure they get more accustomed to their application in regular GES lessons. As well, the Project believes that further monitoring from school leaders and DEOs in the application of MGCubed techniques in regular GES lessons will reinforce the CPD of facilitators. In this sense, further collaboration between the Project, headteachers and DEOs during Year 3 will be instrumental. Additionally, the introduction of the new curriculum will certainly support this objective as it promotes the application of student centred learning strategies.

	of lesson plans) was equal among treatment and control schools. It is feasible that while teachers at treatment schools are familiar with MGCubed teaching strategies they could use additional, practical examples of how to deploy them on a daily basis.	
Conduct additional exploration as to the barriers facing girls who are married or who are mothers and consider targeted, remedial classes for girls who are married or mothers as appropriate.	While mothers did not constitute a major part of the sample, qualitative data suggests that pregnancy and the resulting dropout from school is a major problem in communities. A comparison of BL and ML quantitative results show that aggregate score for married and early age mothers dropped alarmingly (to the range of 8-19 percentage points) in learning outcomes, more particularly in numeracy.	The Project is not aware of any married girl beneficiaries but does support OOSGs who came back to school after becoming young mothers. The Project has not collected data on girls who are married or mothers. In order to decide on the best course of action, the Project will do the following: • Collect data on which students are mothers or married. • Assess their numeracy and literacy skills and identify the support required jointly with the school. • Provide a plan for extra lessons such as revision/booster sessions in numeracy/literacy before the MGCubed term starts for this sub-group.
Follow up to ensure that at least 80% schools have a Transition plan.	The ET believes it is feasible. To that extent, ambitious targets for ML and endline were set at BL for this indicator. To receive an	The ML revealed that there was a significant improvement in the number of schools with a written transition plan from BL to ML (36% increase), although the target was not met by 6%. This increase is due to the work of the field team via the DCs and the introduction of changes to the adult training sessions. The GES

	increase in the sustainability score at ML or endline, the project must cross these thresholds and also have any increase in the proportion of PTA/SMC or parents that are involved in developing, executing, and supporting the plan. While the latter was realized the project fell short of the 60% target for schools with written transition plans, realizing 54.17% ML. This is still strong progress with an increase of 36% over BL outcomes and the ET believes the target of 80% of MGCubed schools having a transition plan by endline to still be feasible.	headteacher and leadership training now includes sessions on gender equity which think about: • **Transition plan** for girls (including liaising with parents of girls who are at risk of not transitioning; targeted academic support; early warning system; celebrating girls' success via assemblies; display of work, etc.). • **School Checklists**: What aspects headteachers should monitor in their schools to ensure transition is promoted. • Monitoring and evaluation of **girls' re-entry policy** (from drop-out and/or pregnancy) (GES leadership). Further, the Project is already collecting data on the number of schools with written transition plans so that DCs can provide targeted support to the MGCubed schools. The Project will carry out the following actions to ensure the target is achieved: • The Project will critically examine and develop strategies for the team in the field to monitor and evaluate the actions set by MGCubed schools in their transition plans and how the learning generated in community training supports these plans (including how PTAs are being mobilised for this). • Targeted support from DCs to MGCubed schools. DCs will provide assistance to PTA/SMCs in designing their own transition plan and will follow up on its implementation. The support will also include sharing good practice with other PTA/SMCs.
Involve local community actors (PTA/SMC, parents, GES) in management of the technology packages.	In general head teachers believe they are largely responsible for the management of the technology now (ML) and in the future. However, at the same time they placed a large level of responsibility for the upkeep of technology on the	Internal data from the Project revealed that the school community is aware of their role and responsibilities relating to the management of the technology set up. The PTA/SMCs are aware of the responsibilities of the community in providing safety and security measures to protect the equipment. 61% of PTA/SMCs indicated in FGDs that they frequently do checks on the technology packages (assets) in the 72 schools. The unannounced visits include observations of lessons and checks on the various components of the technology. Another strategy carried out by the PTAs is to check that the security personnel for both day and

	Varkey Foundation with 89% noting that Varkey pays for the upkeep of the technology and 93% noting Varkey is responsible for fixing the technology and had done so in the past year. Keeping sustainability in mind, including local community actors in management will help transfer technology successfully and address FGD concerns regarding breaks in the technology which was frequently cited as disruptive to studies.	night are providing the necessary protection of the equipment. This links well with ML findings where 25% of head teachers report PTA or school management committee members as taking responsibility for managing technology (comparted to 16% at BL). The Project has trained headteachers (during GEC-1), facilitators and GES officers (during the face-to-face refresher training) on troubleshooting technology issues and on the management of technology packages. As a result, at ML, over 74% of head teachers have received training on the technology and feel they can properly manage it in the future. During Years 3 and 4, the Project will extend this training to community leaders. PTA/SMCs will nominate at least 3 community members to participate in a face-to-face training on the use, management and benefits of the technology. The training will be structured according to a trainers-of-trainer model (ToT), where participants will cascade the training to other members of the communities.
Ensure students feel empowered to engage with distance learning, including the freedom to ask questions or request clarification.	FGDs noted that several girls found it hard to understand the instructor when using distance learning or that it was difficult to ask questions. These drawbacks may limit the potential impact of the technology even if technology management is addressed. The program may need to work with both instructors and students to ensure the same student-centred approach	The Project is aware that in some few instances there have been signal issues that have affected the delivery of the lessons. To address this, the Project has deployed one field engineer in each region and is reachable at any point by facilitators. Nonetheless, weather conditions may pose a challenge for the effective delivery of the signal. When the issue is not tech related, facilitators have the role to ensure pupils understand the MTTs questions and instructions. This has been reinforced during the last facilitator training as facilitators are expected to have an active role during the lesson. In regard of the possibility to ask questions, MGCubed pupils have always the possibility to ask questions and interact with the studio teachers. Nonetheless, there are instances where not all schools can have the opportunity to answer or ask questions through the microphone. The Project will make sure that during lessons, the MTTs encourage actively pupils to ask questions or interact and that all classrooms have opportunities to participate with the microphone.

	applied in regular classrooms can be utilized in distance learning when feasible.	
Encourage parents to join PTAs and support PTAs with resources as necessary. At PTA meetings, push the idea of dedicated reading time at home between parents and their children.	Although, there is a sign of progress since the frequency of PTA meetings increased from BL to ML across treatment (and comparison) schools with treatment schools increasing by 0.34 more times, it is an area where constant push is needed in order to keep or encourage most/all parents engaged. In addition, equipping PTAs to address performance challenges such as following up on absenteeism may strengthen the identity and role of PTAs in the community. FGDs highlighted the role of parental engagement as a key factor in school performance and helping girls transition with one girl noting increased challenges at school due to her parents not being involved.	The Project's internal monitoring of school management and governance reveals that at ML, 100% of schools had a PTA in place; though two of these were deemed not to be functional. VF data therefore generally aligns with that of the EE's: 97.2% of schools were found to have established PTAs. This comes as a result of the community sensitisation activities during community wide face-to-face meetings. 70% of schools were deemed to have well-functioning PTAs and SMCs. This means that the Project exceeded its target (55%) for the proportion of schools with functional PTA and SMCs by 15%. Further, 89% of the PTA/SMC reported having regular PTA meetings in school with parents, and 33% of parents of beneficiaries occupy leadership roles within the PTA in the schools. Between BL and ML, the Project delivered community training sessions on the role of PTAs with the objective of creating awareness of the importance of PTAs. At the end of the session, parents were able to identify reasons why they need to attend PTA meetings and they also drew a plan for how they will run their PTA meetings for them to achieve their purpose. The PTA session covered the following: • Knowing key attributes of PTAs. • Understanding the importance of PTAs. • Planning a PTA meeting (including time, place, attendance), and setting the agenda (with attention to supporting children's educational progress at home and supporting transition). Further, there was a dedicated unit in the community training sessions called the 'The Household' which explains the role of caregivers to promote literacy. The 'Household' unit focussed on the idea of dedicated reading time at home between parents and children. There was also a session dedicated to parents' literacy, where expected learning outcomes included:

		• Understanding the importance of their own English language literacy. • Know key aspects of English language literacy. • Plan strategies to develop English language literacy in the community. The idea of the literacy unit is to foster a culture of learning literacy outside of school, and to create positive education centred role models for girls at home. Furthermore, parents' own development of literacy will enable them to more effectively engage with girls and their progress with literacy at home and in school. The VF district teams have been supporting PTAs during their meetings to raise the level of awareness of the need for caregivers to provide space and time for learning for pupils at home. The Project will continue its current efforts in the field to strengthen school management structures, improve resource mobilisation and monitoring of school finances and to improve access and participation of marginalised girls. For the upcoming year, the Project will keep on working with PTAs on best practices to ensure children attend school regularly and to monitor schools performance.
Scale up WW/BB clubs to include as many marginalized girls in the community/school catchment area. Encourage students themselves to create their own offshoots of the clubs with dedicated teacher mentors.	At BL, regression findings show statistically significant positive associations between higher levels of self-esteem and self-efficacy and learning scores. WW/BB clubs provide students with an outlet where they can discuss their issues, learn about their rights, and be exposed to important life	As reported during BL, the Project's after-school sessions do not have space to accommodate extra students, and therefore the project would like to see schools leading their own after-school clubs. During Phase 1, the Project saw a number of schools forming their own independent clubs separate to, and not affiliated to, the 'Wonder Women' and 'Boys Boys' clubs in MGCubed schools. The Project will assess how to support MGCubed schools to promote the setup of an additional club where there is none. This fits well with some of the feedback received by Project stakeholders on the importance of girls' clubs in raising awareness of issues such as hygiene, reduction of teenage pregnancy, and girls' confidence levels at school.

	lessons and mentors. In addition, girls of community members who were more aware of MGCubed content (able to cite examples of content) had better transition outcomes, showing a need for community ownership of these programs. While participation in WW/BB and higher levels of non-cognitive ability has not changed much in ML, a particular focus on this area will help improve overall performance of the group.	
Ensure that MGCubed activities are welcoming and engaging for both boys and girls.	The ET noted that while attendance was increasing for in MGCubed classes for girls the change for boys at the intermediate level was minimal and negative at the advanced level. Some boys during FGDs expressed dissatisfaction in the program noting that certain incentives, such as food distribution, were primarily targeted at girls. To ensure the program does not	At the moment the Project provides the same kind of incentives for both boys and girls in terms of snacks for basic and intermediate level (twice per week). Advanced lessons target especially girls, and snacks are provided for them to ensure they attend lessons instead of taking part of other activities, as JHS girls are more prone to drop school. The Project takes into consideration that increasing snack provision may lead to issues of financial sustainability after the project fades out. The only incentive exclusive for girls are the Cash Transfers that aim to support girls' enrolment into JHS. The Project has worked to sensitise parents and school stakeholders on the gender rationale of this activity. During Year 1 of the Project, VF carried out engagement activities with the main stakeholders of each school to ensure the success of the Cash Transfer Scheme in each of the 72 communities. The Project held meetings with the PTA/SMCs, and the caregivers to explain the rationale of the Cash Transfer Scheme. These meetings showed the importance of girls' access to education and the value of Transition.

	create hostility between boys and girls it is worth further investigating boys perceptions of the program.	Boys are also sensitised through the afterschool clubs on the gender unbalances existing in the communities. The Project knows that these are sticky views and further sensitisation efforts will be required to address boys' perceptions. The Project will consider what activities can be carried out to address this within the current program design.
Investigate and work to address barriers unique to girls with impairments including challenges with mobility and perceptions on safety in the school environment.	Several barriers, including difficulty moving around the school and a decreased feeling of safety in the school environment, were higher among impaired girls than their peers. In additional, FGDs noted that girls with physical impairments would be better off attending specialised schools where they could receive assistance for their disabilities and not be subject to teasing by peers. These finding reflect a lack of inclusion at the school and community members for disabled students which is worth further exploration by the project.	The Project currently collects data on students with physical impairment and monitors their attendance and progress at school. An area that will be explored is the potential mobility challenges they may experience as a result of their disability. The Project will work with the schools to identify how access can be improved. In terms of safety, the Project is tackling this by promoting safe learning environments by training stakeholders on Child Protection and Safeguarding (CPSP) and by raising awareness on Inclusion among school teachers. In terms of CPSP, the Project facilitators receive annual training in CP and Safeguarding (CPSP) during the face to face facilitator training. The training seeks to clearly define facilitators safeguarding roles and their responsibility to report abuse to relevant state institutions for professional management and resolution. Teachers and school leaders also receive training on CPSP every year to recognise, prevent and report abuse and ensure classrooms are conducive learning environments. In addition, the Teacher Training has included specific modules on inclusion, classroom and behaviour management that aim to reinforce the use of positive discipline. For Community members, every year, the Project carries out training in the communities on CPSP. The training focused on reporting procedures and timelines. Caregivers, PTA and SMCs are given the contact numbers and emails of Project staff for identifying and reporting abuse cases. Another important aspect to increase the feeling of safety for students with disabilities is to raise awareness on Inclusion and normalising it at the community level. As mentioned above, the Project has delivered training units on Inclusion in mainstream settings, including refined differentiation methods, in the Teacher Training delivered to MGCubed schools. Facilitators have also received face to face training sessions on the understanding of Inclusion with emphasis on special education needs and disabilities (SEND) and specific learning disabilities (SpLD), for MTTs and MGCubed Schools with the expert organisation, MultiKids Academy. And caregivers and classroom teachers have received sensitisation

		training on the importance of normalising this discussion under the umbrella of differentiation, in order to reduce stigmatisation and develop awareness of inclusion as everyday teaching and learning practice.
Refocus tracking efforts at endline on the tracked cohort.	After careful consideration the ET has refocused the ML report exclusively on the tracked cohort in order to provide a consistent narrative on key and intermediate outcomes. Given attrition rates of ~10% at ML against a 17% buffer the ET recommends an increased focus on tracking of cohort girls at EL. EL will not include any addition replacements to the sample. Instead, girls no longer enrolled in their baseline school will be tracked, to the extent feasible, to their home and learning and transition outcomes will be collected for analysis.	The Project will discuss this proposal with the FM during the planning for EL. While it makes sense to keep the focus on the current cohort, it may be interesting to keep replacements to offset cohort girls leaving the communities over the next two years.
Revisions to Community Level Sustainability, Indicator 2	This measure was not collected at BL and was proven to have little variation at ML with most caregivers agreeing	The Project agrees that this indicator could be changed to explore further differences in treatment and comparison intervention.

	their child would attend school next year. In order to achieve greater variation and potentially explore differences in treatment and comparison communities the ET recommends considering another indicator community engagement including PTA involvement or caregivers perception of school management (i.e. if the caregiver knows the name of the head teacher).	
Staggering Qualitative Data Collection	If budget and timeline permit it is advised that qualitative data collection take place after preliminary quantitative data analysis at EL. Doing so will allow the team to structure qualitative questionnaires to explore nuances or unexpected findings from quantitative research.	This is a good recommendation that is subject to budgetary implications. The Project will study it.

Logframe changes

The Project would like to propose the change of the following indicators from the Logframe:

Table 85: Project suggested changes to the Logframe

Level	Initial Indicator	Suggested replacement	Rationale
Outcome 3: Community Level	Indicator 1: Percentage of girls that report having been forced to stay home from school for any one day in the past school term due to a family-related issue	Percentage of girls that report having been forced to stay home from school for at least one day in the past school term due to a family-related issue.	Changes to the tool and the indicator were made in October 2018 to ensure the question was capturing all the reasons a girl was absent over the course of a school year and its percentage. The Project proposes adding back the original question about the last absenteeism at EL so that the questionnaire as (1) the reason for the last absence and (2) the reasons for all absences in the past term. This will help to discern if there is minimal progress in the community.
Outcome 3: Community Level	Indicator 2: Percentage of caregivers reporting that they will allow their children to continue in school next year	Percentage of caregivers that can cite fours actions taken to ensure their child transition to the next grade the following academic year.	Despite surpassing the target (93.94% VS 85% target), the Project feels that this indicator may not reflect the weight of sensitisation among community members. The indicator proposed to ask parents For a more complex answer that gives account of the learnings obtained from the Community Training sessions.
Outcome 3.2: School Level	Indicator 3: Percentage of Facilitators who report that they are able to solve technical issues that the technical training prepares them to solve.	Percentage of Facilitators that have solved and can cite 3 technical issues that the technical training prepares them to solve.	While facilitators and headteachers feel confidence on solving technical issues only 20% had solved all the technical issues they faced in the past year. This new indicator will give emphasis to solved issues rather than asking on self-reported capabilities.
Outcome 3: System Level	Indicator 1: Percentage of DEOs that have attended VF trainings who use monitoring tools, as a result of the training	Indicator 1: Percentage of DEOs that have attended VF trainings who use monitoring tools,	This change aims to take a step forward and assess how DEOs use their new monitoring skills to build capacity at the school level by providing feedback. At ML, each school was visited an average of 10.60 times per year but

		as a result of the training to build the capacity of teachers and schools through structured feedback.	only 66.4% received some type of feedback after a visit which is essential to build capacity.
Outcome 3: System Level	Indicator 3: Government officials formerly recognise the GEC project and its contribution to promoting girls' education in Ghana	Headteachers recognise the value of the MGCubed Project to improve learning outcomes and transition and can cite which activities should be extended after programme exit.	This indicator was very similar to indicator 2. The Project proposes to adapt this indicator to capture the headmasters' desire on the continuation of the project at Endline as it will be a good proxy of sustainability. Being able to cite which specific activities would also show the degree of interest for the intervention continuation.
IO 1: Attendance	Indicator 2: Marginalised girls report being motivated to attend school as a result of the project (including OOSG who intend to return to school)	Percentage of marginalised girls who enjoy going to school as a result of the way they are taught.	The actual value for ML (83%) exceeded the target (38.5%). This new indicator will look at how MGCubed has contributed to change teaching practices during regular lessons and how that has made girls more motivated to attend school.
IO 4: School Governance	Indicator 3: Percentage of schools with functioning PTAs/SMCs • "Functioning" has been defined using the GES SMC/PTA Guidance document, and covers a wide range of indicators based on the following areas: 1) Set up and Formation; 2) Management;	Percentage of schools with both functioning PTA and SMCs that meeting twice per term.	This new indicator will come to check if the schools have been able to get both bodies active.

	3) Access and Participation; 4) Improving the quality of teaching and learning. Scores are calculated based on a range of checklist questions, from which a status is provided: • 75-100%: Well functioning • 51%-74%: Functional • 26-50%: Established 0-25%: Not established		

Annex 19: Note from Focus Group Discussions

The following is an example of the notes taken at two FGDs during Midline.

Focus Group Field Note Transcript 1

Participant Category: In-School Girls at a Comparison School

Number of Participants: 12

Participant Age Range: 10 years old - 18 years old

Participant Grade Range: 4th grade – 8th grade

Focus Group Date: February 2019

Focus Group Duration: 1 hour 40 minutes

Moderator: i) Do you think it's important for students to go to school?

- **PARTICIPANT 1**: Yes. Because when you go to school, you can become someone in [the] future.
  PARTICIPANT 6: Yes.
  PARTICIPANT 2: Yes, it is important to go to school.
  PARTICIPANT 10: Yes.

ii) What about for girls specifically? Why or why not?

PARTICIPANT 6: Yes, it is important for girls to go to school because if a girl is educated and gets married, her husband cannot boast on her.
PARTICIPANT 2: It is important for girls to go to school because the thing[s] that a boy can do, a girl can do better.
PARTICIPANT 1: When a girl goes to school and she grows up, she will be able to care for her own needs.
PARTICIPANT 4: Yes, it is important for girls to go to school.
PARTICIPANT 7: It is important for girls to go to school and get a good job in [the] future.

iii) And for boys? Why or why not?

PARTICIPANT 4: Yes, to get a better job.
PARTICIPANT 8: It is important for boys to go to school to get their job and work.
PARTICIPANT 6: It is important for boys to go to school so that they can become responsible husbands in [the] future.
PARTICIPANT 1: Yes, so that we can all come together to develop the nation.
PARTICIPANT 12: It is important for boys to go to school because they are the future.

iv) What about as girls and boys get older?

PARTICIPANT 1: Yes, because everything you do, it involves schooling, so you have to go to school when [yo]u are growing.
PARTICIPANT 3: Yes. It is important so that when I grow up, I can get a better job.
PARTICIPANT 9: It is important so that they can take care of their family and siblings.

Moderator: i) What do your parents think about girls going to school?

PARTICIPANT 11: They think we should go to school to do better things in [the] future.
PARTICIPANT 7: My parents think I have to go to school to help them in [the] future.
PARTICIPANT 1: They think school […] is important; so they try to invest in our future.

PARTICIPANT 6: Our parents think it is important to educate us because they think education is the key to success.

PARTICIPANT 8: They educate us to become better people.

PARTICIPANT 10: Our parents want us to get better jobs in the future.

PARTICIPANT 2: Our parents think we can be a "big person" so that when we [grow] we can take care of them.

ii) What do people in your community think about girls going to school? iii) Why do they feel this way?

PARTICIPANT 1: They think it is important.

PARTICIPANT 11: They think we have to be important in the family, so they educate us.

PARTICIPANT 12: People in my community think we will become better in [the] future when they educate us.

PARTICIPANT 6: People in my community think it is important […] for girls to go to school because "If you educate a man, you educate an[…] individual, but if you educate a woman, you educate a nation".

PARTICIPANT 12: They think [that] if you educate a girl child, she can provide her own needs.

PARTICIPANT 6: They do not want girls to depend on their husbands for their needs, so they try to educate them also.

PARTICIPANT 10: They want us to help them in the community when we grow up.

iv) What about as girls and boys get older?

PARTICIPANT 4: They think is it important for both boys and girls to continue going to school as they grow up.

PARTICIPANT 6: Yes, they think it is important to continue schooling.

PARTICIPANT 1: They think it is important.

PARTICIPANT 2: They think it is important so we can become a "big person".

PARTICIPANT 5: They want us to become nurses and doctors in [the] future so they want [u]s to continue.

PARTICIPANT 4: My community people want us to continue so that we can become better than them.

PARTICIPANT 6: They think we should continue so that we can be in a higher position in [the] future.

PARTICIPANT 7: My people think [that] when boys and girls continue school, they will become better community leaders.

Moderator: i) Why are some girls in your community not able to attend school regularly or at all (DEFINE: "Attending" as being in school for a full day most days of the term) [PROMPT: girls with disabilities, boys before girls, etc.]

PARTICIPANT 9: Because their parents do not have money to bring them to school.

PARTICIPANT 7: Some girls need help to go to school.

PARTICIPANT 11: Because there is no one to take care of them.

PARTICIPANT 6: Some girls in my community have interrupted education because of teenage pregnancy.

PARTICIPANT 1: Some of them do not know the importance of education.

PARTICIPANT 9: Some parents are unable to provide the child's needs. So, the children "pass another way" (some of them can go to boys so they can get money) to get their needs and this usually brings them trouble, so they discontinue school.

PARTICIPANT 8: Some of the girls' parents do not provide their needs, so they drop out.

PARTICIPANT 6. Some girls believe that no matter how much they go to school, their work is in the kitchen, so they drop out.

PARTICIPANT 5: Because some of the girls, their mother[s] don't have money.

PARTICIPANT 4: Some girls do not have other relatives to help them continue when their parents die.

PARTICIPANT 3: Some of them when their parents are sick, they stay home to take care of them.

(PROMPT)

PARTICIPANT 6: Some people are crippled and are […] unable to walk to school and their parents are not rich enough to take them to special schools.

PARTICIPANT 4: Some girls are blind so they cannot go to school.

PARTICIPANT 9: Some of them cannot hear with their ears so they stay home.

PARTICIPANT 9: Some parents think [that] because their child is deaf, they cannot hear so they leave them out of school.

PARTICIPANT 12: Some students cannot talk, so their parents keep them out of school

PARTICIPANT 1: Some people do not want to move with disabled persons, so they ignore them.

PARTICIPANT 6: Some disabled persons feel they will be discriminated against, so they do not come to school.

ii) What about boys? iii) Do you think this has changed in the past year? Why or why not?

PARTICIPANT 6: In the olden days, people thought that girls are not to be educated so they take the boys to school and leave the girls out. Same is happening now

PARTICIPANT 10: Some parents do not have enough to send both boys and girls to school, so they choose the boys and leave the girls.

PARTICIPANT 1: Many people also think boys are the head of the family, so they educate them more.

PARTICIPANT 11: It is not good to send only boys to school. Both boys and girls have to go to school so they will all be happy.

PARTICIPANT 6: Some people reason that girls will not bear the family name forever. They will change their names after marriage, so they do not see the need to educate them.

Moderator: Are there some girls who do much worse in school (for example on math and learning tests) than their peers? What prevents them from doing well in school? [PROMPT: girls with disabilities, for example?]

PARTICIPANT 8: Yes, there are some girls who are not as good as others, for example, in reading.

PARTICIPANT 1: Yes, some are not good in almost all the subjects. Some are also good in math but bad in science.

PARTICIPANT 9: There are some girls who are not active like others. They can't solve math problems or can't read.

PARTICIPANT 7: Some of the girls are not able to answer questions in class.

PARTICIPANT 11: Because some of the girls do not like learning.

PARTICIPANT 1: Some of them do not pay attention in class.

PARTICIPANT 5: Some people do not take their books seriously.

PARTICIPANT 10: When their teachers are teaching, they do not listen.

PARTICIPANT 6: Some of the girls are indolent.

PARTICIPANT 4: Some of the girls do not want to learn.

(PROMPT)

PARTICIPANT 6: For example, I know a girl in our vicinity who has day blindness. […] She is not able to see in class. She even has to collect people's notes in class to copy, and even that one is a problem. She cannot write as fast.

PARTICIPANT 1: Those who are deaf cannot hear so they perform poorly.

Moderator: i) What makes you feel discouraged to come to school, and to work hard?

PARTICIPANT 6: For me, sickness discourages me from coming to school.

(PROMPT)

PARTICIPANT 8: Sometimes, I don't like coming [to] school because we do not have a computer library.

PARTICIPANT 12: I am discouraged because we do not have enough learning materials.

PARTICIPANT 3: When my parents do not have money to give to me, I am not encouraged.

PARTICIPANT 4: Sometimes when I do not have money for stud[y] fees, my teacher disgraced me in from of the class.

PARTICIPANT 1: Some of my teachers disgrace me in front of the class so I feel shy to come to school.

PARTICIPANT 7: One of my teachers, I stayed home one day and on the next day, he disgraced me in front of my friends, and they were laughing at me. So, I was out of school for three weeks. When I returned, he did the same to me again. So now, I don't like sitting in his class.

PARTICIPANT 11: I am discouraged from coming to school because I do not have friends.

PARTICIPANT 8: Some teachers do not explain things I don't understand in class.

ii) What makes you feel encouraged? (PROMPT: teacher making you feel welcome; school facilities)

PARTICIPANT 6: Yes, because of how my teachers are welcoming to me.

PARTICIPANT 8: Sometimes, if my teacher is teaching and I do not understand, she explains better, so I am happy to come to school.

PARTICIPANT 1: I am encouraged to come to school because of what I want to be in [the] future.

PARTICIPANT 2: My school has drinking water, so that helps me even if I don't have money for water.

PARTICIPANT 12: My teachers advi[se] me in class.

PARTICIPANT 11: Playing with my friends encourages me to come to school.

PARTICIPANT 6: Whatever I do today predicts my future, so I am encouraged to come to school.

Moderator: i) Are you ever absent from school? How often?

PARTICIPANT 10: Yes, about 3 times.

PARTICIPANT 6: Yes, about 4 times.

PARTICIPANT 12: Yes, twice.

PARTICIPANT 1: Yes, 4 times.

PARTICIPANT 8: Yes, twice.

ii) What makes you have to stay home, and what could help you go to school more often?

PARTICIPANT 1: Money problems make me stay at home. I will be happy if someone can give me money for school every day.

PARTICIPANT 4: When my parents don't have money or when I am sick, I am absent. When my parents give me enough money.

PARTICIPANT 11: Too much work in the house prevents me from coming to school. When I get money, I come to school, and when I don't, I don't come.

PARTICIPANT 1: Sometimes, I have eye problems that prevent me from coming to school, and sometimes, even when my eyes are ok, I don't come even when my parents tell me to come. When my parents buy me spectacles, I feel shy to wear them, so I pass through the Bush and when I get to school, I take them off (all respondents laugh).

PARTICIPANT 2: When my uniform is torn or worn out, I am absent from school, but if I get someone to sew for me, I come to school.

PARTICIPANT 9: Sometimes, my parents tell me they don't have money, so I stay home till they do.

iii) Has this changed in the past year? If yes, are you more or less absent and why?

PARTICIPANT 6: Yes, at first, I absent myself from school often, but now, it is reduced because my dad provides my needs often and on time.
PARTICIPANT 1: No, it has not changed. I still have money issues.
PARTICIPANT 4: Now my parents give me money every time.

Moderator: i) Is it easier for boys or girls to go to school? Why is that?

PARTICIPANT 6: Yes, it is easier for boys to come to school because they work on their own, and so even […] if their parents do not have money, they still have some.
PARTICIPANT 7: It is more difficult for girls to come to school because if their parents do not have money, they do not have other sources.
PARTICIPANT 10: It is easier for boys because they easily get jobs to take care of themselves.
PARTICIPANT 4: It is easier for boys to go to school because when they grow up, they take care of the family.
PARTICIPANT 1: It is easier [f]or boys because they do not take money from their parents all the time.

ii) **What about as girls and boys get older?**

PARTICIPANT 6: It is easier for boys to continue as they grow older. Girls usually get pregnant and give birth, so they are unable to continue school.
PARTICIPANT 2: It is not easy for girls to continue school because their parents stop taking care of them.

Moderator: i) What are some reasons why girls in your community dropped out of school, or did not continue to the next grade (DEFINE: "Drop out" as a student who was attending school, but then did not come to school for at least one entire term)?

PARTICIPANT 9: Because of teenage pregnancy.
PARTICIPANT 6: Lack of parental care.
PARTICIPANT 1: Influence from the media or our friends.
PARTICIPANT 12: Because of prostitution (respondents laugh).
PARTICIPANT 9: Because of poverty.
PARTICIPANT 8: Some drop out because of early parenthood.
PARTICIPANT 1: It is difficult for them to come to school because their parents do not love and care for them, so they drop out.

ii) And boys?

PARTICIPANT 11: Boys drop out because of armed robbery.
PARTICIPANT 2: The boys drop out because they join their boys in smoking.
PARTICIPANT 6: So[m]e drop out because of ignorance.
PARTICIPANT 6: Some boys also drop out because of joining bad association[s].
PARTICIPANT 7: Some drop out because they work for people.
PARTICIPANT 3: Some drop out because they drink alcohol.
PARTICIPANT 6: Some boys drop out because they want quick money.
PARTICIPANT 7: Some feel they are too old to continue.

Moderator: i) What do you like about going to school?

PARTICIPANT 4: School will make me better.
PARTICIPANT 2: I like school because when I pass my exams, I can go further.

PARTICIPANT 11: I will be able to do my own work when I go to school.
PARTICIPANT 6: Going to school helps reduce the number of illiterates in the country.
PARTICIPANT 11: I like school because it will help me in [the] future.
PARTICIPANT 1: School helps me achieve m[y] goals.
PARTICIPANT 6: It helps me to be more productive.

ii) What don't you like about going to school?

PARTICIPANT 6: What I do not like about coming to school is that my school does not have playing grounds so there is not sporting activity.
PARTICIPANT 7: I do not like coming to school, especially on Wednesday, because we do not have proper classrooms for worship.
PARTICIPANT 4: I do not like coming to school on Friday because even though we only play and not learn, my madam still collects study fee.
PARTICIPANT 11: What I do not like about going to school is that our toilet smells badly.

Moderator: i) How do your teachers make you feel when you're in the classroom? [PROMPT: Happy? Sad? Safe? Welcome? Encouraged or discouraged?]

PARTICIPANT 11: My teachers make me happy.
PARTICIPANT 1: They make me feel good. At times when we are learning, they introduce multinational speeches.
PARTICIPANT 6: They make me feel comfortable to learn.
PARTICIPANT 5: They help me focus on my books.
PARTICIPANT 12: They make me feel welcomed.
PARTICIPANT 2: They make me laugh a lot.

ii) **What do they do that makes you feel that way?**

PARTICIPANT 6: At times when they are teaching crack jokes.
PARTICIPANT 7: Sometimes, they do some acting when teaching.
PARTICIPANT 1: Some of them also introduce songs when teaching.

Moderator: How do your teachers treat girls compared to boys in the classroom? [PROMPT: call on boys more; ask boys easier questions, etc.]

PARTICIPANT 1: They treat both equally.
PARTICIPANT 6: They treat all of us equally, but sometimes, they like to talk about the girls more.
PARTICIPANT 9: They treat both girls and boys equally.
PARTICIPANT 8: They asked both boys and girls the same questions.
PARTICIPANT 12: They ask them [the] same questions.
PARTICIPANT 4: They ask boys more difficult questions.

Moderator: i) Do boys or girls sometimes get punished in class? [PROMPT: using the cane, spanking, etc.]

PARTICIPANT 1: Yes
PARTICIPANT 4: Yes
(PROMPT)
PARTICIPANT 4: Sometimes they use canes.
PARTICIPANT 8: Sometimes they use cane and sometimes they make [yo]u kneel.
PARTICIPANT 9: They make us "push the wall" sometimes.
PARTICIPANT 5: They also make us sleep on the floor.
PARTICIPANT 12: They make us sit on the floor sometimes.
PARTICIPANT 6: We squat sometimes.

ii) Why do they get punished?

PARTICIPANT 5: If you do bad things.
PARTICIPANT 2: They punish us when we break the class rules.
PARTICIPANT 4: When we disturb in class.
PARTICIPANT 1: We get punished when we misbehave.
PARTICIPANT 6: When the class is rowdy.
PARTICIPANT 8: When we disrespect our seniors.
PARTICIPANT 11: They cane us when we do not [d]o our homework.

iii) Has it always been like this, or has it changed in the last few years?

PARTICIPANT 4: It has not yet changed.
PARTICIPANT 2: It has changed.
PARTICIPANT 1: It has changed because now, they do not normally cane us.
PARTICIPANT 11: It has changed, but when you do something bad, they will punish you.
PARTICIPANT 6: As for the caning, it has reduced, but other forms of punishment are still [in] use.
PARTICIPANT 8: It has changed.

iv) What do you think about physical punishment in class?

PARTICIPANT 1: I think physical punishment has to change.
PARTICIPANT 11: I do not like it.
PARTICIPANT 4: I do not like it.
PARTICIPANT 7: Sometimes I like it, but sometimes I don't like it.
PARTICIPANT 7: I do not like it because of the pain.

Moderator: Right now, who makes decisions about your future? [PROMPT: like to go to school, or drop out of school, or to work at home, or to get married?]

PARTICIPANT 12: Myself.
PARTICIPANT 6: My father.
PARTICIPANT 2: My teacher.
PARTICIPANT 9: My parents.
(PROMPT)
PARTICIPANT 3: My parents.
PARTICIPANT 7: Myself.
PARTICIPANT 4: My parents.
PARTICIPANT 8: Myself.

Moderator: Are girls as smart as boys? Why or why not?

PARTICIPANT 7: Yes, some are smarter than boys and even answer more questions.
PARTICIPANT 4: Yes, what boys know is the same as what girls know.
PARTICIPANT 11: All of us, we are smart.
PARTICIPANT 6: Yes, for example, we have female ministers in Ghana.

Moderator: i) What age do you think is a good age to get married?

PARTICIPANT 4: 25 years.
PARTICIPANT 2: 25 years.
PARTICIPANT 11: 29 years.
PARTICIPANT 8: 27 years.
PARTICIPANT 5: 36 years (all respondents laughed).
PARTICIPANT 3: 21 years.

ii) What age do you think is a good age to start a family?

PARTICIPANT 6: 26 years.

PARTICIPANT 1: 28 years.
PARTICIPANT 9: 29 years.
PARTICIPANT 7: 25 years.
PARTICIPANT 11: 30 years.

iii) What role does school play in your decision to get married or start a family?

PARTICIPANT 1: Schooling helps to know the right age to get married.
PARTICIPANT 6: Schooling helps know when menopause sets in, so it helps to decide when to marry and give birth.
PARTICIPANT 2: Schooling does not delay my marriage.
PARTICIPANT 6: Going to school sometimes delays marriage. For instance, I want to get married at 25 years, but I am now 18 years and still in JHS 1. How can I marry in JHS 1?

End of Focus Group Discussion

Focus Group Field Note Transcript 2

Participant Category: Fathers of Comparison School Students

Number of Participants: 10

Participant Age Range: 25 years – 55 years

Participants' Children's Grade Range: 3rd grade – 7th grade

Participants' Children (Enrolled in School)'s Gender: five have only female enrolled children, two have only male enrolled children, three have **both male and female enrolled children**.

Focus Group Date: March 2019

Focus Group Duration: Two hours and ten minutes

Moderator: i) What changes have you noticed with regard to education and schools in your community in the last year?

PARTICIPANT 4: My elderly son has completed school, but I have realized the academic performance here was better last year as compared to this year. My son even stayed home for one year, but he is still doing well in the secondary school to the extent that he has been given a scholarship without me paying anything.

PARTICIPANT 5: I have not seen any changes.

PARTICIPANT 3: I have also realized that the academic performance has moved up.

PARTICIPANT 6: Previously, we had challenges with infrastructure, like toilet facilities and library, but I've realized from sometime now I have seen an improvised library and the toilet had been expanded.

PARTICIPANT 1: I have realized from the past 4 years they have introduced [a] school feeding program by the government and I think it's really helping the children.

PARTICIPANT 2: I have seen that we currently use Polytank instead of the bore hole.

PARTICIPANT 7: Previously, the students are asked to pay a ransom or a fee as a punishment for speaking Twi, but that has stopped so the children no longer speak fluent English.

ii) Please describe the most significant changes.

PARTICIPANT 3: Now the teachers no longer use the cane, but to me, I think this is not good because the cane helps children by correcting them.

PARTICIPANT 2: I think the main change is the caning that has been stopped. I learnt the government has instructed schools to abolish the use of canes, but I think if it is re-introduced, it will help them because our children are logging heads with us now.

PARTICIPANT 3: Currently, we have realized that students don't respect. They are stubborn, especially the JHS students.

iii) What specific projects, if any, have been introduced in your community in the last few years? Who owns these projects?

PARTICIPANT 4: The introduction of the Polytank by PTA through [company name] last year.

PARTICIPANT 2: The library was also provided by the PTA for almost a year now, or some months.

PARTICIPANT 3: Some people brought some pencils and books and other stationeries during [the] last 2 years.

PARTICIPANT 5: The toilet was provided by [Municipal Assembly name].

Moderator: i) In this community, what do parents and community members think about girls' education?

PARTICIPANT 3: For some of the parents, we feel the girls will be pregnant when they go to school. So, no need for them to go to school, but for me, I wish my child will further when she completes.

PARTICIPANT 5: Most community members think girls need to be educated.

PARTICIPANT 1: We all feel there is a need for the girls to go to school, but because of financial constraints, we are not able to support them, so we need help.

PARTICIPANT 4: Some people think regardless of how the girl are educated, they will end up in a man's home. So, it is a waste of time to educate a girl child.

PARTICIPANT 9: Previously, the Islam girls marry early, but now, they have realized education is very important, so they are going to school.

PARTICIPANT 7: Most of us believe the girls must be educated. So they go all out to sell their belongings, because now, when you are not educated and you even go to the bank, you will delay because you don't know how to fill the form and no one is ready to help you.

PARTICIPANT 1: Some members think because of financial constraints the children shouldn't go to school.

ii) How is it different from boys' education?

PARTICIPANT 6: They think it is different from boys because the boys can go to school at any time. Hence, we enable them to support themselves, but when they don't have money, the girl would have to learn a trade. I had wanted to sell certain things that I have to support my child to school but people advised me, so I stopped, and the child is home now.

PARTICIPANT 4: Most community members feel, for boys, they can go to school often.

PARTICIPANT 1: Some people wish the children will go to school, but most of the problems come[…] from us, the parents. We mostly don't support them.

iii) Have you seen a change in this in the past year and why?

PARTICIPANT 4: These thoughts have changed because most of them have been educated, hence have become nurses and the Islam ladies are working in the hospitals, unlike the previous where they would be married off to an old man.

PARTICIPANT 2: There ha[ve] been changes because now the females are going to school. Most don't remain home.

PARTICIPANT 7: Now for the girls, they ought to go to school because now "what the boys can do, the girls also can do". So the boys are playing football and the girls are also playing football. I made my girl child go to learn seamstress because money, but for the other siblings, I am very strict on their education.

PARTICIPANT 8: Now girls are being educated because they have realized education is important. When I look at the black Queens ladies, I feel happy for them and due to this, I think the girls can also do better with the needed support.

Moderator: i) Have parents' or community members' involvement in girls' education changed in the last few years? ii) If yes, how has it changed?

PARTICIPANT 1: The parents are now involved in the activities of the school because they see most of the parents bringing their wards to school, so [they] also have the urge to let their children attend the school.

PARTICIPANT 3: The leaders are also involved in the activities of the school because recently there was an issue in the school involving child enrollment, and the chief […] came to intervene for me.

PARTICIPANT 7: Now they are involving themselves. You could get to a place where some parents are arguing with their children about the need to go [to] school. Even you could see someone taking somebody who is not even his son to enroll him [or] her i[n] the school.

PARTICIPANT 9: Currently, they are doing well because they advise us on education and entreat all of us to send our children to school. They even told us some time ago that they can let police arrest us if our children sit at home without going to school because of the free education.

Moderator: i) Why are some girls in the community not able to attend school regularly or at all (DEFINE: Attending" as being in school for a full day most days of the term)? [PROMPT: girls with disabilities, boys before girls, etc.]

PARTICIPANT 5: Sometimes the financial difficulties prevent them from coming to school.

PARTICIPANT 4: Maybe others are sick, so they don't come to school.

PARTICIPANT 3: Financial problems.

PARTICIPANT 1: Some children go to market to sell before coming to school. My child even said there is a student who leaves with her grandmother who is deceased now. So, she has to struggle to sell and make some money before coming to school.

PARTICIPANT 2: Some refuse to come to school because of peer pressure.

PARTICIPANT 7: Some of the students are stubborn. With some, the parents will give them money, yet they refuse to come to the school. They follow after bad friends, so they won't go to school. They go to stay at places and come home when the school close[s], but if you should follow up, you will find out that he [or] she didn't come to school. "Because of friends play, the crab lost its head".

PARTICIPANT 4: Some due to laziness, they give excuses that the teachers wouldn't teach because the teachers would be having meetings.

[PROMPT]

PARTICIPANT 2: Some disabled don't go to school because of shyness and think they will be laughed at.

PARTICIPANT 4: Some parents don't even know the disabled can go to school. There is a girl I know who is very intelligent but deaf. The girl can read your lips and write your name. Some send their disabled children to the village because of ignorance.

- **PARTICIPANT 5**: Some disabled can't walk to school and due to the fact […] that the mother can't afford the TNT to school, she doesn't come to school.

ii) In the last few years, how has the situation changed (if at all) for these girls in terms of attending school?

PARTICIPANT 7: There ha[ve] been changes because the disabled are even going to school and are even becoming prominent. Once they like the school, they are going. Hence, the parents [are] forcing for them to go. Just like the Talented Kids program where a participant who is blind did very well, so we have to treat them equally like our children.

PARTICIPANT 1: There was one disabled who completed recently, so now it has changed.

iii) What made it change?

PARTICIPANT 7: Now we have seen that in Ghana, we have seen that the disabled are working hard. They are even playing football and have entered into a vocation, so [we] have realized they are also important.

PARTICIPANT 3: They have realized without school you can't get any good job, and even if you are working, someone can use the pen to cheat you.

PARTICIPANT 5: Now we all value education, so they are all attending school.

Moderator: i) In this community, if there are school-aged children in a household (aged 5-18), how many are typically enrolled in school: all of them, some but not others, or none of them?

PARTICIPANT 4: I know of a family whom all the children have stopped school. They started well, but all of the them have stopped the school even though the parents are alive.

PARTICIPANT 2: Some are in my area, there are instances where some go and some don't. The one at age 16 [or] 17 hasn't been to school before.

PARTICIPANT 3: There are some who are 5 years [old] but not attending school because of the distance to the school.

PARTICIPANT 6: There are some who [are] attending from age 5 [to] 9. They do start, but due to financial problems, they stop.

ii) For those enrolled, do they attend school regularly (DEFINE: "Attending" as being in school for a full day most days of the term)?

Participant 6: Some attend regularly, but during moments when there is no money, they don't attend school.

PARTICIPANT 2: Yes, they do.

PARTICIPANT 7: Yes, especially those that are serious with the education.

PARTICIPANT 1: Some don't go regularly because they ha[ve] to work hard to get money to support themselves. Some of these jobs they do are done during school hours.

PARTICIPANT 5: Financial difficulties makes them stay at home.

iii) How are decisions made in the household about who gets to attend school and who does not? [PROMPT: Are boys chosen over girls? Does age matter?]

Participant 2: Mothers.

Participant 7: Both parents.

[PROMPT]

PARTICIPANT 7: For me, I have a child at age 7 at Kumasi. The mother disturbs me with schooling, so my wife had to bring her home. So we educate them so we don't choose some over some.

PARTICIPANT 2: They both have to go to school because you don't have to put your hope in one person alone.

PARTICIPANT 1: We enroll all of them, but we pay much attention to the boys more because they can be stubborn.

PARTICIPANT 5: We feel it is important [f]or all of them to go to school.

PARTICIPANT 6: We ought to enroll all of them at the same time, but without money, I made the girl stop.

PARTICIPANT 1: We let all of them go to school. Without money, all of them have to sit home. I don't favour anyone. We don't consider age in this modern Ghana.

PARTICIPANT 8: Age is not any matter with regards to the education because of what they see people do, especially at the bank.

Moderator: i) What are some reasons why girls in your community dropped out of school, or did not continue to the next grade (DEFINE: "Drop out" as a student who was attending school, but then did not come to school for at least one entire term)?

PARTICIPANT 1: There are some who are who are intelligent, and I know someone who is not intelligent and is always last in class, but through hard work, she has passed out to be a teacher now. So some problems come from us the parents.

PARTICIPANT 7: Some, because they are not intelligent. We make them stop the school and let them go to sell, but we should change from this.

PARTICIPANT 2: One woman I know use[d] to send her daughter to go for money from her boyfriend, and through that, the girl is spoilt and has stopped the school.

PARTICIPANT 4: There are some you don't even know why. There are some who do roam and have been smoking.

PARTICIPANT 3: They stop due to financial difficulties. We are, at times we are unable to provide their needs.

PARTICIPANT 7: There are some who are orphans and because they don't get support, they stop the school.

ii) And boys?

Participant 2: Due to the influence of money and food they get from the bars. They feel when they go to school other children will take their jobs, so they rather stop the school and concentrate on the bar job.

PARTICIPANT 1: Some parents don't have compassion for their children. They don't counsel or give them advice. They leave the children to decide for themselves.

PARTICIPANT 4: Peer influence.

iii) Do you think the reasons have changed recently (in the past year or 2) and, if so, why?

Participant 1: This has changed because now everybody is serious. For me, when my son was in JHS 3, I was worried, but due to the free education, most of the[m] are attending school.

PARTICIPANT 2: It is better than the previous. Now they don't loiter or roam about as compared to the previous.

PARTICIPANT 2: Some children even come to the school because of the school feeding program. My children don't even mind if I don't give them money. They go always without money because they know they will get food to eat in the school.

PARTICIPANT 10: There are some who have gotten some support from people, so they are attending now.

PARTICIPANT 6: Some haven't changed, especially those staying with other people, e.g. the orphans.

Moderator: i) How are community leaders (civic, religious, etc.) involved in decisions at the household and school?

Participant 1: The assemblymen helped to construct a gutter for the school because the school expressed a displeasure in a gutter which had become a trap and one student even fell into it.

PARTICIPANT 4: Sometimes the leaders of the school financially.

PARTICIPANT 2: In case there is something and you inform them, they do intervene.

PARTICIPANT 5: Some help but the help doesn't come often.

PARTICIPANT 9: The school and the PTA do fund their activities, but for the leaders, they don't.

ii) What do they influence when it comes to education?

Participant 7: I, for instance, don't see their influence.

PARTICIPANT 3: The leaders talk to us on how to provide for the children so they go to school well.

PARTICIPANT 8: They counsel and advi[se] us on placing value on the children's education, especially when they realize the children in the community are not sleeping early, thus they roam in town late in the night.

iii) Has their role changed in the past year, and if so, why do you think that is?

Participant 7: The leaders have realized the importance [of] education. That's why they advise us to talk to them about school and to show them examples of well-educated people.

Moderator: i) After your girl completes primary education, what would you like her to do next?

Participant 1: I will let her further her education.

PARTICIPANT 7: She will definitely further to the JHS.

PARTICIPANT 9: For the primary it is not anything, so my child has to continue the education, even to the university.

PARTICIPANT 6: My child will further.

PARTICIPANT 3: She will further at all cost.

PARTICIPANT 4: She will have to continue because with the primary, they wouldn't be given any certificate.

[**Notetaker Perspective:** All respondents agreed that girls must continue school after completing primary.]

ii) After she completes secondary education? iii) Why would you choose this path for your girl?

Participant 1: I will let her continue because the university will confer on her the degree which will help her gain an employment.

PARTICIPANT 7: At times, some children don't do well so we will let him [or] her learn well. And also, if there is money, they will continue, but without money, they will be home. It is either you marry or learn a trade.

PARTICIPANT 5: I will let my child continue because SHS is nothing, so after tertiary, you can do something better.

PARTICIPANT 6: I think some should learn a trade because there are some, even though they don't do well, [who] force themselves to further and even [then] don't do well. Later after the SHS, they decide to learn a trade which is a waste of time.

PARTICIPANT 4: They will further when there is money, but without money, they would have to learn a trade.

iv) How does this differ from boys?

All respondents: It is the same as girls.

Moderator: Can you describe the ways in which parents and the community participate in school management and decision-making? (PROBE: Are there formal parent committees? Do individual community members play a role?)

PARTICIPANT 7: The school is on our laps as PTA, so in case there is a fundraising, painting of the school, we are the same people who provide the support.

All respondents: There are formal committees.

PARTICIPANT 6: The[y] call for PTA meetings so we deliberate on issues affecting the school in terms of discipline [and] infrastructural developments among others.

PARTICIPANT 5: When we realize the students are coming to school late, we come together to talk for the parent to help their children to come to school early.

PARTICIPANT 1: When there is a need in the school, we do provide the support. For example, providing desks.

PARTICIPANT 4: We do buy stationaries and toiletries to support the school.

PARTICIPANT 3: We pay PTA levies which [are] used to support the payment of utility bills and others.

PARTICIPANT 2: They involve us when they realize the students are being stubborn. Some even use for girls "juju" or "black magic". So, they allow us talk to them.

PARTICIPANT 8: We even talk to the teachers to be using the cane, but according to them, government said they shouldn't use the cane.

[**Notetaker Perspective:** The individual community members don't volunteer.]

Moderator: i) What do you think about the use of the cane or other physical punishment in school? ii) Is it justified? When and why?

PARTICIPANT 4: I think the use of cane is justified because the cane breeds fear, so it makes the student come to school early. But because they are not caned, they are indiscipline[d]. Even the JHS students do struggle with the teachers when they want to cane them, so the use of the cane or physical punishment is good.

PARTICIPANT 8: The caning is justified when they use them at the right way, because the student wouldn't be caned without doing anything wrong.

PARTICIPANT 7: The cane or punishment - previously when used on you, the next morning, you will see the mark and you will regret doing what you did, especially [the] math teacher will cane you when you fail. But now, government says we should abolish the use of [the] cane. People fear to cane the children. At a PTA meeting, we deliberated on this issue, but some agreed and others disagreed. Some make the children kneel down if the reason is justified, if the wrong doing is that much. Some even take videos. The bible even says we should cane the children.

PARTICIPANT 2: The cane is good because when you cane the child, the next time he will come to school early. Some are punished to bring stones, but because they fail to bring the stones, they go scot-free because they go and hide, but for the caning, it will serve as a deterrent.

PARTICIPANT 3: Once the child is wrong, he has to be punished, but reasonably. Some even cane the head of the child mercilessly, which is wrong.

PARTICIPANT 1: The children fear the cane, so when you raise the cane, they become vigilant. But now, people video you when you are caning your child then it looks like you the parent doing that is evil.

PARTICIPANT 5: The caning is good, so it has to be used so that the children will learn.

Moderator: What are the most important factors that will allow girls to continue to attend and do well in school in the coming years?

PARTICIPANT 5: If I am able to provide her needs, then she will do well., for example, books and money. Because there are some who feel shy when they don't have what their peers have.

PARTICIPANT 7: We have to provide the girls with what they need as girls, because as a girl child, their needs are many. Failure to do so will make them go after boys. For example, money for buying pads, panties among others.

PARTICIPANT 6: The girls will go when we support them. We have to do everything possible to let them go.

PARTICIPANT 10: If they don't choose bad or negative friends who would influence them negatively.

PARTICIPANT 2: We shouldn't offend them but counsel them even when they do something wrong. Some feel ashamed when you criticize them in front of their peers.

PARTICIPANT 1: By providing them with story books, money, and counseling.

Moderator: i) Thinking about students in this community who recently completed their education, what have they done after completing their studies?

PARTICIPANT 7: Those who have money have their children attend the school, but those who don't have money are learning trade.

PARTICIPANT 2: Some are learning trade to get enough money to support their parents to help them further their schooling.

PARTICIPANT 5: Most of them are going to school and those who are home are waiting for next year.

PARTICIPANT 1: Some are just roaming, and others have given birth.

PARTICIPANT 3: Some are learning trade.

ii) Why do you think they have gone on to do these things?

PARTICIPANT 4: Someone told her daughter that after SHS she wouldn't get a job after the free education. Because she wouldn't get a job after SHS, it is better she find[…] a trade to do.

PARTICIPANT 2: Some are home because of financial difficulties, and some decided not to further.

PARTICIPANT 3: Some are not smart, so they fail to further.

PARTICIPANT 1: Someone said he just went to the SHS to learn how to write or read, so he has entered into fashion design without furthering.
PARTICIPANT 6: Some are furthering because there is support.
PARTICIPANT 8: Some of them are working.
PARTICIPANT 9: Most of them have been employed and others are home.

Moderator: i) What types of activities or jobs would you like your children to do when they get older? For girls?
PARTICIPANT 5: Doctor
PARTICIPANT 6: I have no idea.
PARTICIPANT 7: For me, my girl wants to become a soldier after school, but that doesn't befit her, so for me, I want her to be a nurse, but she will do what she likes.
PARTICIPANT 2: Nurse or a teacher.
PARTICIPANT 4: For me, I want her to be a bank manager, but she wants to be a doctor.
PARTICIPANT 3: I cannot say anything. It depends on what she will say.
ii) For boys?
PARTICIPANT 1: A doctor.
PARTICIPANT 2: Bank manager.
PARTICIPANT 3: Soldier.
PARTICIPANT 4: Police.
PARTICIPANT 9: Teacher.
PARTICIPANT 7: It will depend on what he says.
PARTICIPANT 10: Doctor.

Moderator: What role does school play in the future activities/jobs of a girl or boy?
PARTICIPANT 5: The teachers know the children's talent and know the subject that they do well in. So, they guide them in choosing good careers.
PARTICIPANT 7: Some time ago, the students said the school made them do a career day where they all dressed like the professions they want to be and I think that alone guides them.
PARTICIPANT 4: They introduce them to groups and train them.
PARTICIPANT 1: They advise the students on how to take good care of themselves. For example, the use of pads.
PARTICIPANT 2: They teach them how to have a good personal hygiene.
PARTICIPANT 8: They teach them stages to start a relationship and to turn down people's proposals because they are not of age.
PARTICIPANT 10: As for the school, it is there to widen your mind. So they are the basis or foundation of whatever they want to do; so, they are really helping them shape their lives.

Moderator: i) Do you think girls will be able to continue to attend and do well in school in the coming years? Why or why not?
XI. Yes, because of the programs they are introducing. I think the girls will do well because of these intervention programs.
PARTICIPANT 3: I feel if we help the girls, they will go to school and do well. All they need is our support.
PARTICIPANT 5: The girls can do well because "What the boys can do, the girls can do better".
PARTICIPANT 7: If the girls start the school, then we need not […] allow them to their own fate. So, I think they can do well with good guidance and counseling.
PARTICIPANT 6: Yes, because now in Ghana, now everyone has realized the importance of education. Now the men even want to marry educated women.

ii) How does this differ from boys?

PARTICIPANT 4: For the boys, even if he gets older, he can go to school no matter the age.

PARTICIPANT 2: The boys are smart so they will all do well. Hence for them, they will always go.

PARTICIPANT 5: The boys can support themselves at any level.

PARTICIPANT 6: The boys can go and do well because for them, even after giving birth, they can still further.

PARTICIPANT 1: For the boys, they can do well because they have the courage to work hard.

PARTICIPANT 10: The boys can do well and go to school because for them there is no pregnancy to disturb. They may impregnate the girls but still go to school.

End of Focus Group Discussion