

CARE: Keeping Girls At School Program Impact Evaluation

Endline Report

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ABOUT THE AUTHORS

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EXECUTIVE SUMMARY

The Keeping Girls At School (KGAS) program is an initiative of CARE Rwanda aimed at reducing the number of girls who drop out of secondary school and increasing the share of girls that transit from lower to upper secondary education. CARE Rwanda and its implementing partners worked in 30 schools, across three districts in the Southern Province. The KGAS initiative has three main channels through which it aims to reduce dropout rates among adolescent girls: i) Providing mentorship opportunities for girls within the context of Girls Clubs; ii) Engaging girls in voluntary savings and loans (VSL) and income-generating activities; and iii) Establishing a Community Score Card (CSC) system that allows girls to comment on and influence institutions affecting their education experience.

This report presents the findings of an impact evaluation of the KGAS program and provides insights into the program's implementation. Over a two-year period, Laterite Ltd. conducted a baseline and endline survey to assess the impact of KGAS on a number of key indicators. In addition to the principal variable of interest, the dropout rate, these indicators fell under three themes, self-confidence, economic empowerment and school environment, which aimed to measure changes related to the program's three key initiatives. A mixed methods approach was employed in collecting data. This study used both qualitative data from semi-structured interviews, quantitative data from student level survey questionnaires and supplementary school level data provided by CARE and School officials.

The KGAS impact evaluation was originally intended to be performed using a Regression Discontinuity Design (RDD). During the baseline study however it became apparent that the ranking metrics used to identify treatment and control schools were not sufficiently precise to employ this methodology. Instead propensity score matching between the control and treatment samples was used to assess the impact of the KGAS program and examine both the intention to treat effect and the treatment effect on the treated.

The process of evaluating the impact of KGAS had to contend with a number of challenges including high attrition rates in the study sample, non-adherence to treatment assignment, the implementation of other school-level programs during the period of the study, and low statistical power in the sample. In order to address these analytical challenges, three different evaluation models - each with pros and cons - were estimated to assess what impact the program had on dropout rates and the three other outcome area of interest. It remains difficult however to draw definitive conclusions from



these models given the limitations of the experimental set-up, low statistical power, and threats to the internal validity of the evaluation from other programmes operating in treatment and control schools.

Despite these challenges, the analysis presented here shows that the KGAS program appears to have had a positive effect, particularly on the economic empowerment indicators. Using the results of the most conservative of the 3 models, the analysis shows that girls who participated in KGAS had a 18% higher probability of spending on education and a 34% higher probability of saving (including having a savings goal) than girls who did not participate in the program. Statistically significant effects were also identified on the economic confidence and economic ability indices.

Further, the majority of other indicators show small positive changes across all three evaluation models. The fact that most indicators show positive effects suggests that the program: a) did not have a negative impact; and b) potentially had a positive effect on many of the intended outcome indicators. It is important to note that our inability to find a significant effect does not mean that there was no effect – statistical power in this evaluation was low, suggesting that in some cases we might not have been able to detect a significant effect, even if there was one.

When looking at the key indicator, the drop out rate, we see no statistically significant difference between treatment and control school. Further, due to high attrition, we are likely to have underestimated the actual drop out rate, especially in treatment schools. One possible explanation for this observation is that it may be the case that the evaluation period was too short to see a change in dropout rates. The KGAS program intends to affect dropout through its impact on self-confidence, economic empowerment and the school environment. Encouragingly we see a positive or neutral impact on these intermediary indicators. Because improved dropout rates are intended to be a secondary consequence of all the other potential benefits of the program, it may take a more than one year to register impact.

In addition to the results of impact evaluation, this report also presents insights on program implementation gained through the endline quantitative questionnaire and qualitative interviews. We found there to be high rates of participation among students but that the main reason students at treatment schools did not participate the program was lack of awareness about meetings. In terms of attendance, we found that sickness, domestic responsibilities and distance to the school were the primary obstacles to regular participation. Further, the timing of the program after classes had finished was cited at one of the primary challenges to effective implementation by mentors and students alike.

One of the primary objectives of the KGAS program was to foster strong relationships between peers and between students and their mentors. Ninety per cent of students reported making new friends in their mentor groups with whom they could discuss personal problems. Many mentors also reported developing a strong almost “parent-like” relationship with their mentees.

The qualitative interviews also provided evidence that mentorship was an effective way for students to overcome problems. Of the students who report approaching their mentor with a personal problem, 83 per cent report that the mentor was able to help them overcome it. The corresponding figure for problems at school was 91 per cent. Mentors report that one of the most important outcomes of mentorship was that it allowed students to see that their problems were not unique or insurmountable. Many of the students suffered common problems of poverty, problems with their families, or problems related to changes in adolescence but never had an appropriate forum in which they felt comfortable discussing these issues with their peers. Talking about these issues and seeing examples of other students who struggle with or who have overcome similar challenges gave girls confidence and hope.

Despite considerable challenges, which limited our ability to perform a rigorous impact evaluation, the findings of this study present an encouraging picture of the effect of the KGAS program. The results presented here indicate a strong, statistically significant association between improved scores on economic empowerment indicators and the KGAS program in addition to a small positive, albeit insignificant, association between the majority of other indicators and the KGAS program. The major exception being the insignificant association between the dropout rate and the KGAS program. These encouraging results are backed up by a wide range of positive accounts from the qualitative interviews with participating students and mentors.



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CHAPTER 1: INTRODUCTION

The Keeping Girls at School Program (KGAS) is an initiative of CARE Rwanda that aims to reduce the number of girls who drop out from secondary school and increase the share of girls that transition from lower to upper secondary education. CARE Rwanda and its three implementing partners (African Evangelistic Enterprise – AEE, Young Women’s Christian Association – YWA and Association Rwandaise des Conseillers en Traumatisme – ARCT RUHUKA) have worked in 30 schools, within three districts in the Southern Province, with the aim of reaching around 5,000 beneficiaries.

The KGAS project is funded by the UK Department of International Development (DFID), under the Innovation for Education Fund. Innovation for Education (IFE) is a partnership between the Government of Rwanda and the United Kingdom. As one of its components, IFE requires partners to undertake both an impact and a process evaluation. Laterite Ltd. was contracted by CARE in late 2013 to conduct an impact evaluation of the KGAS program. The findings from this two-year study are presented in this report.

The KGAS initiative has three main channels through which it aims to reduce dropout rates among adolescent girls:

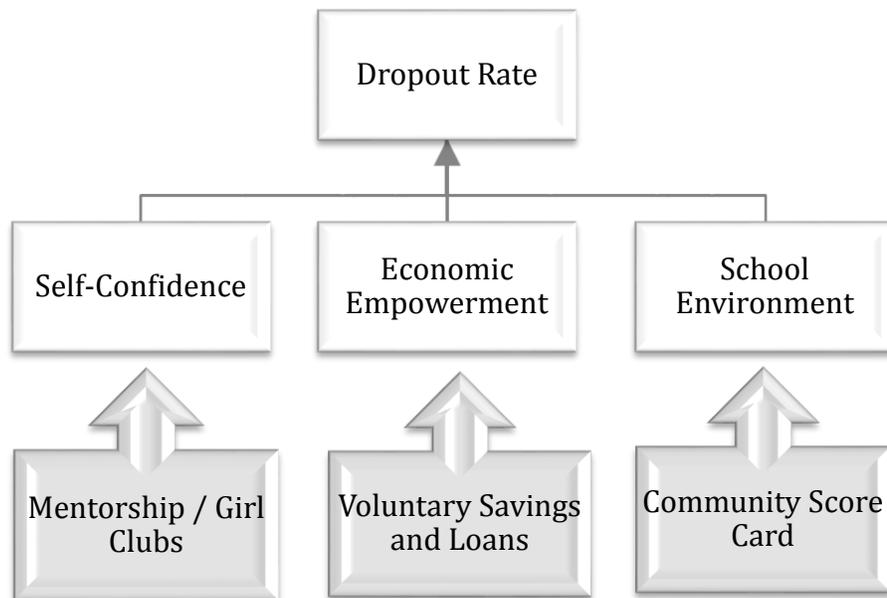
- (i) Mentorship – Through the creation of Girls Clubs that were facilitated by a trained mentor, KGAS provided girls with an opportunity to receive psychosocial support, exercise their voice, improve their social skills and increase their self-confidence;
- (ii) Voluntary Savings and Loans (VSL) – VSL activities provided girls with an opportunity to learn business skills, save money and engage in income-generating activities (IGA); and
- (iii) Community Score Card (CSC) – The CSC system allowed girls, parents and teachers to voice their concerns about the institutions affecting their educational experience and to work towards realizing tangible improvements in their school and community environment.

In 2013, KGAS groups were established at each of the 30 program schools. Students elected teachers whom they trusted and saw as natural leader to receive training in mentorship from CARE and its implementing partners. The trained mentors facilitated weekly meetings of groups of approximately 20-30 students where students discussed their challenges, and engaged in VSL and CSC activities. Mentors also followed up with students outside of class time and mentorship meetings in order to address specific problems the students were facing either with their studies or at home.



The goal of this research is to assess the impact of CARE’s Keeping Girls At School Program. This evaluation focuses not only on the key variable of interest – the dropout rate of adolescent girls – but evaluates the program’s effect on three secondary areas of interest: self-confidence, economic empowerment and the school environment. Figure 1 illustrates the three key components of KGAS and the areas of interest for this study.

FIGURE 1: KGAS PROGRAM COMPONENTS AND AREAS OF IMPACT



The KGAS impact evaluation was carried out in two stages: a baseline study carried out in November 2013 and an endline study carried out in February 2015. Interviews were conducted at 10 schools, 7 KGAS schools and 3 control schools in 3 districts across the Sothern Province of Rwanda.

Who participated in this study?

The typical participant in this study was 17 years old and in S2 at the time of the baseline survey. She was living in a household headed by her father with seven individuals and had three close friends. She believes her family income to be slightly below average in her community, ranking four on a scale of one to ten, and she believes her academic performance to be slightly above average, ranking six on a scale of one to ten relative to her classmates. This typical participant had no savings or income at the baseline but she was optimistic, reporting that she believed her life will be better in two years time.

**The 'typical' participant was generated using the mean of various descriptive variables of the students in both the control and treatment groups at the baseline study.*

This study will examine the impact of the KGAS program on the lives of students like this typical respondent described above. Using impact evaluation techniques including propensity score matching and lagged regression analysis we attempt, with a number of caveats, to estimate how the KGAS might have influenced secondary school drop out rates, individuals' self-confidence, level of economic empowerment and perceptions of the school environment. **Chapter Two** will discuss the methodology of this study describing in particular the challenges faced during data collection and potential threats to the validity of the results. **Chapter Three** will discuss the implementation of the KGAS program summarizing results from both the qualitative and quantitative surveys. This process evaluation will include recommendations for improving implementation if the program is scaled up. **Chapter Four** will discuss the findings of the study across each of the four categories of impact: dropout, self-confidence, economic empowerment and school environment. Finally, **Chapter Five** will summarize the study's conclusions and provide recommendations for program design and implementation going forward.



CHAPTER 2: METHODOLOGY

2.1 RESEARCH INSTRUMENTS

This study draws on three sources of data: (i) a quantitative survey questionnaire; (ii) semi-structured interviews; and (iii) externally collected school-level data. The purpose of the survey was to conduct a quantitative impact analysis of the KGAS program on selected outcome indicators. The semi-structured interviews were designed to provide contextual information to help explain and situate quantitative results and enable program participants, both students and mentors, to offer comments and share stories about their experiences with the KGAS program. External data from CARE and school officials provided supplementary school level information on enrolment, completion rates and passing rates at each school in the study.

TABLE 1: SUMMARY OF RESEARCH INSTRUMENTS

Research Instrument	Purpose
1. Quantitative questionnaire completed by 1038 students at the baseline and 798 students at the endline in 10 schools across the districts of Gisagara, Nyamagabe and Nyaruguru in the Southern Province.	 Collect data on individual characteristics as well as information feeding into the indicators chosen to measure impact in three areas (1) self-confidence, (2) economic empowerment, and (3) school environment. Also collected some data on program implementation.
2. Qualitative semi-structured interviews conducted with 10 mentors and 10 KGAS participants during the baseline and endline at 6 treatment schools in the districts of Gisagara, Nyamagabe and Nyaruguru.	 Supplement quantitative data with stories of personal experiences participating in the KGAS program. This complimentary information helps to situate and explain the results found in the quantitative data.
3. Quantitative school level data collected by CARE and implementing partners from school officials at the 10 schools where quantitative surveys were implemented.	 School level information provides a macro level picture of the impact of the KGAS program.

2.1.1 QUANTITATIVE QUESTIONNAIRE

The quantitative questionnaire was developed during the baseline survey to measure impact in three primary areas of focus: the self-confidence and economic empowerment of adolescent girls in Secondary 1 through to Secondary 3 and the school environment. A comprehensive set of indicators was developed to measure outcomes under each of these three impact areas. These indicators are discussed in detail in section 2.5 of the report. (For a description of the survey development please see the Baseline Report.) The quantitative questionnaire for the endline report was largely unchanged. A few descriptive questions were added to account for girls who had dropped out of school or changed schools. Additionally a new section of questions addressing girls' experiences with the KGAS program was added. This section collected information on girls' participation in the various components of the KGAS program – mentorship, voluntary savings and loans and the community scorecard – as well as on their experience and satisfaction with each component of the program. (Please see Annex 1 for a detailed description of changes to the quantitative survey questionnaire.)

2.1.2 QUALITATIVE QUESTIONNAIRE

The interview guides for the endline semi-structured interviews were also based-off those developed during the baseline study. The questions added to the interview guide for students and mentors focused on assessing their experience participating in KGAS. The questionnaire for mentors included specific questions to better understand program implementation – what aspects of the program worked well and what challenges the mentors faced. These questions were designed to facilitate a process evaluation as well as support the quantitative impact evaluation by providing valuable contextual information.

2.1.3 EXTERNAL DATA

CARE and its implementing partners collected information from school officials on school enrolment, completion rates, and passing rates by grade and by school for each of the ten schools in the survey. This school level data complements the data collected on enrolment in the sample by Laterite and provides an additional measure of the key dependent variable of interest – dropout – in this study.



2.2 QUANTITATIVE DATA COLLECTION

2.2.1 SAMPLING STRATEGY AND RESULTS

This study was conducted at 10 treatment and control schools in the districts of Gisagara, Nyamagabe and Nyaruguru in the Southern Province of Rwanda: 3 in Gisagara, 4 in Nyamagabe and 3 in Nyaruguru. These are the 3 districts in which the KGAS program was rolled-out.

FIGURE 2: DISTRICTS WHERE KGAS WAS IMPLEMENTED



The KGAS program targeted the ten worst performing schools in each of 3 districts. Schools in each district were ranked using a set of criteria on adolescent girl education, and only the 10 worst performing schools were selected into the program.

Initially the proposed evaluation strategy for this study was to conduct a regression discontinuity design (RDD) analysis, which compares the schools that just made the cut to participate in the program criteria (i.e. the 10th worst performing school in each district) to slightly better off schools that just did not make the cut (i.e. the 11th worst performing school in each district). The schools that were selected into the sample for this evaluation therefore included the 10th and 11th worst performing schools in each district. Moreover, as a comparator group, the worst performing school in each district was also selected into the sample. Please see the Baseline Report for a more detailed description of the sampling strategy and why ultimately the regression discontinuity design failed.

Within each school, random selection was used to identify students to participate in the baseline study. Each student was free to participate or not in the KGAS program. This means that there was “self-selection” into the program, with some girls participating regularly and others not.

The sampling strategy for the endline study was to reach all of the students who had participated in the baseline study in 2013. There were a number of challenges in the endline data collection process that made it extremely difficult to locate the same participants as at the baseline; these challenges are described below (see section 2.2.2). Ultimately, 798 of the original 1038 students were identified and interviewed during the endline study resulting in an attrition rate of 23 per cent. It should be noted however that we oversampled at the baseline survey. We had originally intended to interview 900

students. While at the endline we found only 77 per cent of the total number of student we interviewed at the baseline, we were able to interview 89 per cent of the intended sample size.

Table 2 summarizes the final count of interviews conducted at each school at each stage of the project. It should be noted that the endline surveys were not necessarily conducted at the listed schools. Many of these girls had changed schools, or dropped out of school. The figures are reported by the school that they were enrolled in during the baseline study.

It is important to note that the attrition rates were not consistent between the control and treatment groups. We experienced less attrition in the control group with a rate of 16 per cent compared to a rate of 25 per cent in the treatment group.

TABLE 2: DATA COLLECTION BY BASELINE SCHOOL

District	School Name	Intended Surveys	Surveys Collected: Baseline	Surveys Collected: Endline	% of Baseline Sample Reached	Attrition (# of students)
Gisagara	ES Save (T)	100	123	90	73%	33
	GS Joma (T)	100	95	83	87%	12
	GS Cyamukuza (T)*	100	103	83	81%	20
Nyamagabe	GS Gikongoro (T)	100	123	97	79%	26
	GS Kibumbwe (T)	100	137	94	69%	43
	GS Buteteri (C)	100	59	48	81%	11
	GS Kibyagira (C)**	0	74	71	96%	3
Nyaruguru	GS Rwamiko (T)	100	105	82	78%	23
	GS Runyinya (T)	100	130	83	64%	47
	GS Muganza (C)	100	89	67	75%	22
TOTAL		900	1038	798	77%	240
Total Treatment		<i>700</i>	<i>816</i>	<i>612</i>	<i>75%</i>	<i>204</i>
Total Control		<i>200</i>	<i>222</i>	<i>186</i>	<i>84%</i>	<i>36</i>

* Cyamukuza was intended to be a control, but the KGAS program was implemented at the school after the baseline survey. The school has therefore been treated as a treatment school throughout the endline report.

** GS Kibyagira was originally not intended to be included in this study. It was added to the study because during baseline data collection there were too few students at Buteteri to meet the desired sample.



2.2.2 CHALLENGES WITH DATA COLLECTION

The original baseline survey was conducted in October and November 2013, at the end of the 2013 school year. The endline study was conducted just over one year later in early January and February 2015. The primary challenge with data collection at the endline stage of this study was that nearly 50 per cent of the students surveyed in the baseline study had changed schools, graduated or dropped out of school. Their surprisingly high mobility made it very difficult to locate baseline participants in the endline.

In addition, conducting interviews at the start of a new school year presented the further challenge that school enrolment rates remained fluid; some students enrolled in school late, others enrolled but had to leave school etc. This compounded the difficulties of identifying student locations and conducting interviews.

TABLE 3: MOBILITY AMONG SAMPLE

District	Baseline School	Per cent who stayed at the same school	Per cent who went to another high school	Per cent who went to college/ tech. training	Per cent who left school*
Gisagara	ES Save (T)	52%	31%	3%	13%
	GS Joma (T)	31%	28%	0%	41%
	GS Cyamukuza (T)*	45%	39%	0%	17%
Nyamagabe	GS Gikongoro (T)	43%	41%	1%	14%
	GS Kibumbwe (T)	51%	13%	0%	36%
	GS Buteteri (C)	33%	48%	0%	19%
	GS Kibyangira (C)*	62%	20%	3%	15%
Nyaruguru	GS Rwamiko (T)	57%	28%	0%	15%
	GS Runyinya (T)	49%	36%	0%	14%
	GS Muganza (C)	51%	30%	0%	19%

*This is slightly higher than the dropout rate. This includes individuals who either dropped out or left because they had finished high school (there are 9 who finished S6)

2.3 QUALITATIVE DATA COLLECTION

During the endline study 20 semi-structured interviews were conducted to provide contextual information and to help explain the findings from the quantitative results. Laterite Ltd. conducted

hour-long interviews with 10 students and 10 mentors the six treatment schools in the study: ES Save, GS Joma, GS Gikongoro, GS Kibumbwe, GS Rwamiko and GS Runyinya. The mentors we interviewed were chosen based on their availability at the time of the interview. The students interviewed were chosen randomly from the group of students who participated in the quantitative endline survey at each school. The qualitative interviews were carried out by a researcher who took notes, a translator and a moderator. The team conducted three to four SSIs, each lasting one-hour, per day.

TABLE 4: QUALITATIVE INTERVIEWS CONDUCTED AT TREATMENT SCHOOLS

	# of Mentor Interviews Conducted	# of Student Interviews Conducted
ES Save	2	2
GS Joma	1	2
GS Gikongoro	2	2
GS Kibumbwe	2	1
GS Rwamiko	1	1
GS Runyinya	2	2
Total	10	10

2.4 THREATS TO VALIDITY & STATISTICAL POWER

There are a number of challenges that came up during this study that compromise our ability to undertake meaningful impact analysis. While we present results from quantitative analysis in later chapters of this report, it is important to first understand the nature of the threats to the validity of this analysis and the limitations of statistical power in this study.

A threat to the internal validity is any issue that introduces bias into our results. Depending on the nature of the bias, these factors can cause us to over or underestimate the impact of the program. Each of the issues discussed below, attrition, non-compliance, other programs, intervention effects and selection, potentially introduce bias into our results.

Many of the challenges we faced with research design and data collection lower the statistical power of our sample. Unlike a threat to validity, low statistical power does not introduce bias into our results but rather makes it more difficult to determine if the results we see are statistically significant. We discuss factors that lower the statistical power of our sample here in order to better illustrate the challenges to determining statistically significant impact in this study.



2.4.1 ATTRITION

Due to the practical challenges associated with data collection that are described in Section 2.2, we experienced a very high attrition rate between the baseline and endline studies meaning that there were a large number of girls who participated in the baseline survey who were not interviewed at the endline. The overall attrition rate was 23 per cent, with 16 per cent in the control group and 25 per cent in the treatment group. Attrition has the potential to bias the results of this study if it is non-random. Here we define attrition as our inability to locate a survey participant at the endline.

In order to better understand the impact of attrition on our analysis it is important to determine if are there any statistically significant differences between the students who participated in both the baseline and endline surveys and those who participated only in the baseline. Table 5 shows the mean response on a number of descriptive variables in the two groups and shows that there are meaningful statistically significant differences between the two groups at baseline. While there is no apparent difference between the groups on many of the economic indicators, girls whom we did not interview at endline were on average in a higher class, had smaller households and have experienced gender-based violence with a higher frequency than girls who remained in the study. In addition, although they are not statistically significant, girls who were not located at the endline report a lower average perception of their family's income relative to their community and lower academic performance relative to their classmates.

TABLE 5: CHARACTERISTICS OF GIRLS NOT INTERVIEWED AT ENDLINE

	Girls Interviewed at Baseline and Endline	Girls Interviewed only at Baseline (attrition)	P-Value
Class	1.9	2.1	0.01***
Household Size	6.8	6.5	0.07*
Income (relative)	3.6	3.3	0.15
Grade (relative)	6.0	5.8	0.21
Have Savings	1.8	1.8	0.95
Have Loans	1.7	1.7	0.41
Have Income (Business revenue or wage)	0.1	0.1	0.69
Future Outlook	1.3	1.3	0.81
Experienced Gender-Based Violence	1.7	1.8	0.09*
Number of Friends	3.0	3.1	0.96

P-Values were calculated using cluster robust standard errors and a wildcluster bootstrapping method. The maximum p-value is reported, this is the highest threshold for statistical significance.

* Indicates significance at the 10% level

*** Indicates significance at the 1% level

Because there are significant differences between the two groups we cannot rule out that attrition introduces bias into our results. In order to correct for the impact of attrition we predict the probability of attrition based on descriptive characteristics. We then use this probability to re-weight the sample. While this allows us to balance the sample the correction is not perfect.

Another issues to consider is that the high rate of attrition means that we are likely underestimating the rate of drop out. This is because it was harder to locate student who were no longer in school. Because the attrition rate is higher in treatment schools than in control schools the true treatment dropout rate is likely higher than we have estimated in treatment schools than in control schools.

2.4.2 NON-COMPLIANCE

Our sample is divided into treatment schools where the KGAS program was implemented and control schools that did not receive KGAS. In an ideal scenario, all students at treatment schools would have participated and no students at control schools would have received the treatment. Because students self-selected into the program and were highly mobile, this was not the case.

To determine compliance we asked students during the endline survey whether they participated in the peer mentorship program. Among the treatment girls, we found that 92 per cent reported participating in KGAS. We narrowed this down further looking only at girls who both said they participated and who started that they attended at least every month. The compliance rate in the treatment group was 71 per cent.

Of the students at control schools, 94 students stated that they participated in the peer mentorship program. This result might appear puzzling but can be attributed to two things. First, the question was somewhat ambiguous and the students at control schools may have confused KGAS with another program. The second possibility is that these girls moved to a school where KGAS was implemented mid-way through the program. We found 19 such cases. To deal with this issue, we counted only girls who said that they participated, moved to a KGAS school and said that they attended at least every month. We determined that it was not possible for the other girls at control schools who said they participated to have received the treatment.

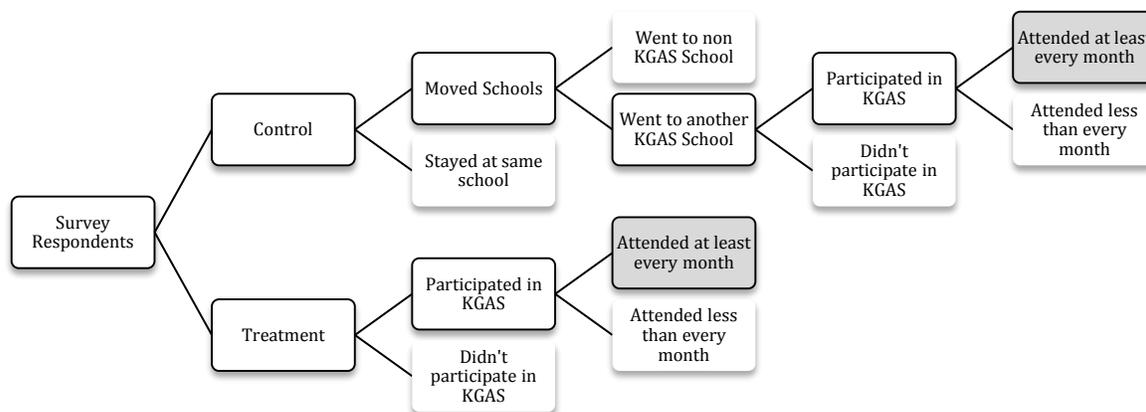
Using this methodology we find that 439 students, 55 per cent of the total sample, participated in KGAS. Further we find 71 per cent compliance in the treatment group (i.e. treatment students who got the treatment) and 98 per cent compliance in the control group (i.e. control students who did not get the treatment).



Because of non-compliance we have to distinguish between two effects: (i) the Intention-to-Treat Effect, which corresponds to the difference in performance between treatment and control schools, regardless of whether girls in either received the training; and (ii) the Treatment-Effect-on-the-Treated, which is the effect of the program on those who actually received the treatment.

Non-compliance affects this evaluation in two ways. First, if we are not able to correctly identify who got the treatment and who did not we may introduce bias into the results. For example, if a number of treatment girls received the treatment for only a short time before they switched schools, we may underestimate the results of the program. The second way non-compliance affects our study is that it leads to a loss of statistical power in two of our analytic models because it reduced our sample from the total number of students in treatment and control to only the girls in each group who complied.

FIGURE 3: DETERMINING KGAS PARTICIPANTS



An additional challenge to note is that in the midst of the study, the treatment was implemented at one of the schools intended to be a control. We had planned, as explained above in section 2.2.1, to have three control schools and six treatment schools, one control and two treatment schools in each district. During the baseline, we include one additional control school in Nyamagabe because there were too few students to meet our sampling threshold at the planned school alone. During the endline survey, it turned out that the treatment had been implemented at GS Cyamakuza, the planned control school for Gisagara. Throughout analysis we have treated this school as a treatment. This change significantly lowers the statistical power of our sample making it more difficult to detect statistically significant differences between the control and treatment groups. It also may introduce bias in that it affects the balance between treatment and control schools.

2.4.3 ISOLATING IMPACT – OTHER PROGRAMS

Another concern is the possible existence of other intervening factors that may be driving the results. At any point, schools and teachers are subject to change from introduction of new policies, changes in the economic welfare of the district, other external support provided by NGOs or the Government. A significant effort was made during the baseline study to collect detailed information on treatment and control schools, their composition and current support received from CARE Rwanda and other organizations to demonstrate that we can isolate the impact of the KGAS initiative from other intervening factors. Since the baseline study however, it is possible that other programs or policy changes were introduced. One notable example is the school lunch program that was rolled out nation wide in mid-2014. This program gave a daily meal to students for a fee ranging from 3000 RWF to 4000 RWF per month. Laterite asked each school about this program in order to try to control for it in analysis. Because the program was implemented at a different time and in a different way at each school, it is impossible to fully control for its effects. (Please see Annex 2 for data on the School Lunch Program) Our results are only valid if the lunch program and potentially other programs affected treatment and control schools in the same way. This is an assumption we cannot test. Despite our efforts to collect information, there may have been other programs or policy changes introduced have not or could not be accounted for in our analysis and could affect the results presented in this report.

2.4.4 INTERVENTION EFFECTS

As the KGAS program was launched in April 2013, discussions, meetings and trainings held with teachers and other stakeholders might have already impacted attitudes and behavior of teachers and schoolgirls at treatment schools before Laterite was contracted to conduct the baseline study in October 2013. CARE expects however, that this effect was limited. To provide further support for this assumption, we probed for the presence of such an impact in the initial baseline study by verifying that all the schools, from both treatment and control groups, were similar at the time of baseline.

2.4.5 SELECTION BIAS

There are two levels of possible selection bias: the first at the school level, the second at the individual level. Given the selection strategy we cannot exclude the possibility that these schools differ on “unobservable” variables or variables that we were unaware of at the time of the selection. School-level differences have the potential to affect the impact estimates obtained because the evaluation was carried in a limited number of schools.



At the individual level there may also be selection bias. During the baseline study, we developed targets for the number of interviews we would conduct at each school. In order to meet these targets at some of the schools we had to interview each girl who was there and therefore could not randomize. This issue was further complicated by the fact that interviews were conducted in some places on weekends. This could bias the results as girls that made themselves available at the day of data collection might differ from the other girls unable to attend the data collection session. Baseline data suggests that while there are small differences between schools or between individuals in the treatment and control groups, these differences can be overcome using matching techniques.

2.4.6 EXTERNAL VALIDITY

The sampling criteria for the intervention, the fact that KGAS is operating in the worst performing schools implies that there is ground to question the external validity of the evaluation results. It may be difficult to generalize the conclusions on the success of the program to all the schools.

2.5 RESEARCH DESIGN

This study was originally intended to use a regression discontinuity design (RDD). Because the program was implemented at the worst performing schools in each district, random selection of schools and consequently a randomized control trial was not possible. Using RDD, Laterite intended to compare the impact of the program on schools ranked 1st and 10th, with the school ranked 11th, a control that would be just above the cut off for receiving the treatment. RDD was ruled out as a methodology after completing the baseline study as it became clear that the schools ranked 1st, 10th and 11th did not differ sufficiently on a range of criteria.

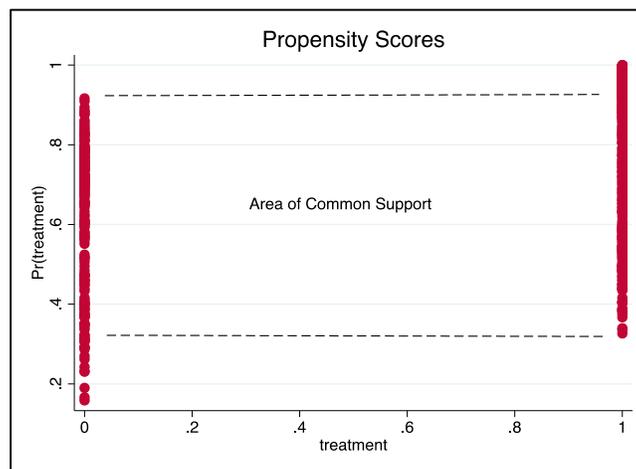
Instead, we propose using matching by weighting by the inverse of the propensity score as our primary method of analysis. The propensity score in program evaluation is the probability that an individual belongs to the treatment group, based on observable characteristics. This means that we are comparing students from the treatment and control groups who have similar characteristics. To calculate the propensity score, we use a logit regression, where the dependant variable is whether a girl belongs to the treatment group or not, and the controls – the characteristics we use to assess similarity - include: age, household size, income, grade, savings, number of friends and a dummy variable indicating whether the student has experienced gender-based violence. This enables us to predict the probability that a girl belongs to the treatment group, based on a set of observed characteristics. Weighting by the inverse of the propensity score – or to be more precise weighting

individuals in the treatment group by 1 over the propensity score, and individuals in the control group by 1 over 1 minus the propensity score – enables us to better balance or better match the treatment group to the control group.

Plotting the propensity scores, as shown in Figure 4, we can see that there is an area of overlap between the treatment and control students in the probability of belonging to the treatment group. This area of overlap is called the area of common support in statistical analysis. We perform our subsequent regressions only on individuals who fall within the area of common support meaning we use a sample that is balanced between treatment and control and consists only of individuals in treatment and control that have corresponding likelihoods of belonging to the treatment group.

Alternative matching methods, such as coarse exact matching and propensity score matching at the individual level were ruled out due to the large imbalances in the sample size between our treatment and control groups. Because there was approximately only one control student for every three treatment students, limiting the sample by using exact matching would have further reduced our already low statistical power.

FIGURE 4: AREA OF COMMON SUPPORT



Using the reweighted sample we then used two types of regressions to probe for impact. We first determined that it was not appropriate to use a simple difference-in-difference estimator. A difference in difference calculation looks simply at the difference in the level of change in the control group over time and the change in the treatment group over time. It is not an appropriate estimation technique in this case because the baseline value of many of the indicators of interest is correlated with the endline outcome. This means that there is a relationship between the baseline value and the endline outcome. An example of such a relationship would be if starting with a low value



meant you experienced a higher rate of change than starting with a high value on some indicator. The key assumption required to use a difference in difference estimator is that of a “parallel trend” between the control group and the treatment group. In our case, because the baseline value of the indicators affects the level of observed change, it is clear that the observed change is not being driven exclusively by the treatment, but also by values at the baseline.

Instead of using a simple difference in difference estimator, we use three models to probe for impact. First, in Model 1, we perform analysis using a lagged outcome variable regression in order to examine the intention-to-treat effect (ITT). Using a lagged outcome variable enables us to control for baseline values, which as discussed are strongly predictive of change on the outcome variable over time, regardless of the treatment effect. ITT isolates the impact of having gone to a treatment school rather than a control, but does not consider compliance. The benefits of an ITT model are further discussed in Chapter 4 Section 1. In this model we use a sample that has been reweighted to account for attrition and propensity scores. We then use a lagged regression in order to control for the baseline value of each indicator as well as a number of other descriptive factors. In order to determine statistical significance we used a wildcluster bootstrapping method to generate standard errors. This takes into account that our data is clustered at the school level and that we have a small number of clusters (i.e. $n < 30$).

In Model 2 we attempt to measure the Average Treatment-Effect-on-the-Treated (ATET) using a two-staged least squares instrumental variable regression, where the treatment is the instrument and having actually participated in the KGAS programme or not is the instrumented variable. Using an instrumental variable approach basically enables us to provide an estimate of participating in the KGAS programme, as opposed to simply being in a treatment school. As in the case of model 1, we weight the sample to correct for attrition and use the inverse propensity score to balance the treatment and control groups. We use the same set of control variables as in Model 1, including a lagged dependent variable. However, the standard errors in this model do not take into account the fact that treatment assignment was clustered at school level, which leads to an over-estimation of the significance of effects (or artificially low standard errors).

Model 3 is essentially the same as Model 2, except that standard errors are calculated differently. Here we compute clustered robust standard errors in order to generate more precise test-statistics that take clustering into account. However, unlike in the second model, this model does not allow weighting which would balance the treatment and control groups in terms of attrition and the inverse propensity score.

In Models 2 and 3, it must be noted that our estimates of the ATET are only valid under the strong assumption that there were no spill-over effects between girls in the treatment group who received the treatment, and those who didn't.

TABLE 6: THREE ESTIMATION MODELS

	Methodology	Benefit	Drawback
Model 1	<ul style="list-style-type: none"> Looks at intention to treat effect using a lagged dependent variable regression Corrects for attrition using weights and uses propensity scores to balance treatment and control groups Wildcluster bootstrapping methodology to compute standard errors 	<ul style="list-style-type: none"> ITT provides an accurate estimate of the impact of the program as implemented (i.e. it accounts for the reality that there is rarely full compliance in program implementation) 	<ul style="list-style-type: none"> Might underestimate program effect because does not account for non-compliance
Model 2	<ul style="list-style-type: none"> Looks at average treatment effect on the treated using an IV regression Corrects for attrition using weights and uses propensity scores to balance treatment and control groups Standard errors are not clustered 	<ul style="list-style-type: none"> ATET calculates impact looking only at those who actually received the treatment 	<ul style="list-style-type: none"> Standard errors calculated are not accurate because they do not correct for clustered sample Only valid if no spill-over effects within treatment group
Model 3	<ul style="list-style-type: none"> Looks at average treatment effect on the treated using an IV regression Model does not use weighting to correct for attrition or to balance the sample This model uses cluster robust standard errors. 	<ul style="list-style-type: none"> ATET calculates impact looking only at those who actually received the treatment Calculated standard errors accounting for clustered sample. (Cannot account for small number of clusters) 	<ul style="list-style-type: none"> Sample is not weighted to correct for attrition and does not take into account propensity scores meaning estimated coefficients are possibly biased Only valid if no spill-over effects within treatment group

2.6 KEY INDICATORS

The KGAS program has three interventions through which it aims to affect secondary school drop-out rates for adolescent girls: (1) mentorship through girls clubs, (2) voluntary savings and loans activities, and (3) a community score card program. These various activities are intended to have a direct impact on the areas of self-confidence, economic empowerment and school environment. It is through these three channels that KGAS expects to influence dropout rates.



At the baseline study, a number of indicators were jointly chosen by CARE and Laterite to measure these three areas of impact. In each area of impact there are several desired outcomes with corresponding indicators for each. In all, there are three core indicators measuring self-confidence, seven measuring economic empowerment and seven measuring change in the school environment. These indicators are summarized below in Table 7. The findings for each are reported in Chapters four through seven. A detailed description of how each indicator is calculated is available in Annex 3.

TABLE 7: OUTCOME INDICATORS

OUTCOME	INDICATOR
Section 1: Drop Out	
Reduce drop out	D1 - Dropout rate between baseline & endline
Enrolment	D2 - School-level Enrolment
Improve completion rates	D3 - School-level Completion Rate
Increase pass rates	D4 - School-Level Pass Rate
Section 2: Self-Confidence	
Increase girls' resilience	C1 - Student Motivation and Engagement Index
Increase girls' self-confidence	C2 - Rosenberg Self-Esteem Scale
Improve girls' leadership skills	C3 - Young Leaders Index ¹
Section 3: Economic Empowerment	
Improved financial literacy and confidence in areas relating to economic activities	E1 - Economic Confidence Index
	E2 - Economic Ability Index
	E3 - Economic Decision Making Index
Improved economic situation	E4 - Spending on Education Index
	E5 - Possessions Index
Increased future orientation	E6 - Savings Index
	E7 - Future Outlook Index
Section 4: School Environment	
School environment judged positively by girls and seen as more supportive of girls' needs	S1 - School Facilities Index
	S2 - Female-Friendly Facilities Index
	S3 - Friendships Index
	S4 - Parent-Teacher Engagement Index
School seen as responding constructively to feedback from girls and other stakeholders	S5 - Student Voice Index
	S6 - School Official Engagement Index
	S7 - Implementation Index

¹ CARE USA (2014). Youth Leadership Index (YLI) Toolkit. CARE USA: Atlanta.

CHAPTER 3: PROGRAM IMPLEMENTATION

Before reporting results of the impact analysis, this chapter will summarize the data Laterite collected on program implementation. By looking at how students and mentors experienced the KGAS program we can better understand through what channels it may have influenced our outcome variables of interest. Here we discuss descriptive data collected in the endline survey as well as qualitative information collected from semi-structured interviews with both students and mentors. We focus exclusively on treatment schools in this section of the report.

3.1 PARTICIPATION IN KGAS

In treatment schools we observe very high levels of participation in the KGAS program with 564 students, or 92 per cent of students reporting that they participated. Of the students who did not participate, 52 per cent cite the primary reason was not knowing about the program. A further 19 per cent state that their school did not offer the program suggesting that they also may not have been aware of KGAS. This could be explained in part by mobility as half of the girls who stated they didn't know about the program or that their school didn't organize it changed schools between the baseline and endline surveys. These findings suggest that it may be advisable to advertise the program to students more frequently and carry out an intake of new students at the start of each term to account for students who may change schools.

TABLE 8: REASONS WHY TREATMENT STUDENTS DIDN'T PARTICIPATE IN KGAS

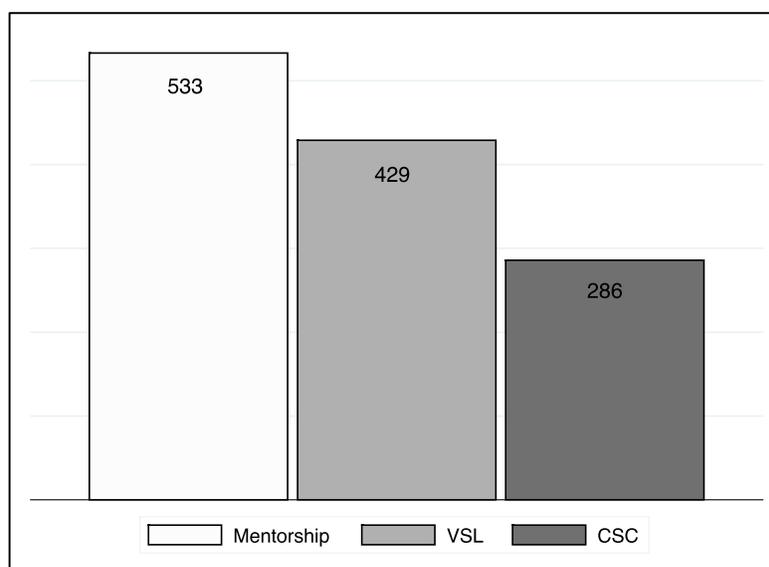
Why did you not participate in the mentor program?	Number	Per Cent
I didn't know about it	25	52
My school did not organize it	9	19
My teachers didn't let me	3	6
My parents didn't let me	1	2
I didn't have enough free time	5	10
It was too late in the day	3	6
I was not interested	1	2



Other	1	2
Total	48	100

While participation rates in the general KGAS program were reported to be quite high, participation in the various elements of the program were somewhat lower. Notably, only 286 of the 564 students who participated in KGAS (51 per cent) report participating in the community score card program. Further, of these students, only 123 report that their parents also participated in the community scorecard process.

FIGURE 5: NUMBER OF STUDENTS WHO PARTICIPATED IN EACH KGAS ACTIVITY



If we break these figures down by school, with the exception of GS Cyamukuza, low participation in the community scorecard program was consistent across the schools. Participation in voluntary savings and loans falls roughly between mentorship/girls clubs and the community scorecard activities. (Please see Annex 4 for a break down of participation by school.)

In order to better understand what might have prevented students from participating we asked the students who did not participate to list the primary reason that they decided not to partake in each component of the program they missed. As shown below, the main driver of non-participation was similar to the overall KGAS program - students did not know about the meetings or thought that the school did not organize them. This was followed in all instances by students reporting that they did not having enough free time to participate.

TABLE 9: REASONS FOR NOT PARTICIPATING IN KGAS ACTIVITIES

Why did you not participate in ...	Girls Clubs (%)	VSL (%)	CSC (%)
I didn't know about them	67	38	63
My school did not organize these meetings	3	12	8
My teachers did not let me	3	4	4
My parents didn't let me	0	5	2
I didn't have enough free time	10	17	11
They were too late in the day	6	4	4
I was not interested	0	0	1
Other	10	17	8

* These are shares of the students who did not participate, i.e. 31 students for Girls Clubs, 135 students for VSL and 278 student for CSC.

The qualitative interviews offer some additional insights into why participation in the VSL and CSC activities were reported to be so low. With regards to VSL, a number of mentors and students mentioned that students who were poor and had no access to money could not participate in the savings activities. Further, the mentors noticed that an inability to save affected girls' attendance of other KGAS activities. The mentors explained that some of these girls thought that because they could not save they could not participate in mentorship and as a result stopped attending the meetings all together. This may have been because they were self-conscious or felt uncomfortable being excluded from one activity on the basis of their relative poverty, or it may simply have been inconvenient to stay for meetings that they were not fully able to participate in. The mentors made efforts to encourage girls who could not save to participate in mentorship, but they report that an inability to attend VSL negatively affected attendance of the KGAS program in general.

“The girls who stopped attending did so when we started savings. A girl would exclude herself if she had nothing to save. For this reason, the mentor group only involved those who had the means to save. I told them that the group not only involves saving and we also do mentorship. I found that some managed to come back but for many saving caused them to exclude themselves.” – Mentor 6

With regards to the community scorecard activities, the qualitative interviews with both students and mentors revealed a low level of familiarity with and comprehension of the program. It appears to have been interpreted in different ways in different schools. In some schools, mentors understood the program well and described implementing it as intended by CARE. In other schools it appears that CSC was interpreted as a process for students to give feedback on teachers and school officials



performance, or as a process to identify students who had dropped out of school and to notify school officials. Further, in the vast majority of qualitative interviews with students, the students did not understand the translation of the term “community scorecard” that was provided to Laterite enumerators by CARE. When prompted further however, many revealed that together with their mentor groups they had discussed problems in the school environment and community infrastructure and had spoken to community officials about these issues. The low participation rates in the community scorecard activities therefore appear to be driven by both schools not implementing the CSC program as intended and potentially also by students not understanding the translation of the term “community scorecard”.

3.2 PROGRAM ATTENDANCE

While 92 per cent of the treatment population reported participating in the KGAS program, we must look at their rate of attendance in order to determine the intensity of their exposure to the treatment. For this reason, we asked students how often they attended meetings with their mentor group. Only 60 per cent of the students who participated in KGAS report attending meetings every week. An additional 17 per cent report attending meetings once a month. For the ATET analysis in the subsequent chapters of this report we do not consider students who participated less than every month as having received the treatment as we would not expect to see an impact from mentorship or the other activities if the students only attended a few times a year or less.

TABLE 10: KGAS ATTENDANCE RATE BY SCHOOL

	Attended Every Month or Every Week (%)	Attended Once Every Few Months or Less (%)
ES Save	76	24
GS Joma	88	12
GS Cyamukuza	81	19
GS Gikongoro	70	30
GS Kibumbwe	83	17
GS Rwamiko	73	27
GS Runyinya	69	31

Students who reported that they missed meetings regularly were asked to state all of the reasons why they were not able to attend and these results are displayed in Figure 6. The single biggest reason given for missing KGAS meetings was illness followed by domestic responsibilities, the

distance to home and too much school-work. In the “other” category, students reported that they missed meetings because they didn’t know about them, they would get home too late or they didn’t have money to save.

TABLE 11: REASONS FOR NOT REGULARLY ATTENDING KGAS MEETINGS

	Frequency
Got a Job	5
Domestic Responsibilities	48
Too Far From Home	28
Didn’t Enjoy Meetings	1
Too Much School Work	27
Sickness	64
Didn’t Get Along with Mentor	5
Didn’t Get Along with Others	3
Meetings not Organized	21
Other	27

The interviews with mentors revealed that one of the main challenges of the program, which likely had a large impact on attendance, was the timing of the meetings. In most schools, meetings were held in the afternoon, after classes had finished. A majority of mentors note that students were tired and hungry during meetings because they were held after the school day had completed. Further, the timing also made it hard to participate for students who had many domestic responsibilities or who had to travel far to get home from school. Over 50 per cent of the students at treatment schools who participated in KGAS took more than 45 minutes to get home from school, with 7 per cent of those students travelling over 2 hours to get home.

“I used to attend once in a while. It’s a good program because they advise us on behavior and development. I would start but when it was too late, I had to go home because I travel a long distance.”
- Student 3



3.3 RELATIONSHIP BUILDING

One of the main objectives of the KGAS program was to facilitate the establishment of strong relationships between students and their mentors as well as among peers. We asked participants in KGAS a number of questions about how their experience in the program

affected these relationships. The vast majority of students report that more than 10 students regularly attended their mentor group. Ninety per cent of participants in KGAS stated that they have established new friendships in their mentor group, reporting making on average 4 new friends. In the qualitative interviews nearly all of the students reported making new friends in their mentor group with whom they could discuss problems. Roughly two-thirds of participants knew their mentor before starting the KGAS program while one-third got to know their mentor through the

“Yes, I made new friends. They are the friends who encourage me and help me whenever I have a problem and I don’t mind telling them my problems.” - Student 9

“When I tell my friends about my problems, I feel relieved.” - Student 3

program. Many mentors also reported developing a strong almost “parent-like” relationship with their mentees. They described the relationship they formed as one of mutual trust and described acting not only as an advisor but also an advocate for their mentees.

3.4 OVERCOMING CHALLENGES THROUGH MENTORSHIP

One mentor noted during the semi-structured interview that before the implementation of the KGAS program, there was no support system available for students. “...The teacher would just go into the room and teach. There was nothing to connect them to the

student.” (M5) As such, mentorship was a novel activity for many of the students and teachers involved. It provided a forum for students to discuss their problems openly and for mentors to provide advice. Mentors reported that students were able to discuss and overcome problems that they previously assumed were intractable thereby preventing probable dropouts.

“I think mentorship is important because when a child is able to be open and tell you about her problems and you discuss and you can help her find answers. Most of the time when they are able to talk about problems they are able to find solutions.” - Mentor 10

From our discussions with mentors, it appeared to be the case that it was not only the advice shared that helped students, but also the realization by students that their problems were not unique. Many of the students suffered common problems of poverty, problems with their families, or problems related to changes in adolescence but never had an appropriate forum in which they felt comfortable discussing these issues with their peers. Talking about these challenges and seeing examples of other students who struggle with or who have overcome similar challenges gave girls confidence and hope.

The vast majority of mentors discussed having been approached by or approaching a student to was suffering from a personal problem during the semi-structured interviews. During the student interviews however the majority stated that they had not approached a mentor with an issue but rather that a mentor had approached them if they appeared down or upset. Similarly in the quantitative survey, relatively few students stated that they would approach their mentor if they experienced a problem at home, but nearly twice as many said that they would approach a mentor if

“Mostly you find the girls are weak because of different problems, poverty, body structure. After KGAS they realized that some of the problems are common among them. In the group they heard testimonies of girls who overcame these problems which gave them confidence.” – Mentor 5

they were facing a problem at school as shown in Table 12. Of the students that did approach their mentor with a personal problem, 83 per cent reported that the mentor was able to help them overcome it. Of those who approached their mentor with a problem at school, 91 per cent of those who spoke to their mentor said that their mentor was able to help them overcome it.

TABLE 12: WHO WOULD YOU SPEAK TO IF YOU EXPERIENCED A PROBLEM?

List the people you would speak to ifyou were experiencing a problem at home	...you were experiencing a problem at school
I wouldn't speak to anyone	7	9
Teacher	70	227
Headmaster	48	179
Parent	446	123
Friend	184	209
Mentor	81	169
Community Leader	29	10
Other	17	5



Some examples of the types of personal problems that mentors mentioned having discussed with students up include:

- Students' parents refusing to pay for school
- Students' parents unwilling to let them continue going to school / wanting them to assist with work at home
- Psychological problems / mental disability (either the student or her family)
- Issues surrounding menstruation (lack of money for sanitary pads, un expected periods etc.)
- Students not having or knowing one or both of their parents
- Unwanted pregnancy
- Gender-based violence in the home
- Lack of money to pay for school fees and/or materials
- Lack of money pay for materials for personal hygiene (sanitary pads, Vaseline, soap, underwear etc.)

Some examples of the types of academic problems that were addressed in mentorship include:

- Stress from personal problems affecting academic performances
- Lack of money for school fees or resources
- Fear of failing exams
- Lack of time to study due to home chores

In addition to helping students individually overcome their problems, mentors reported that they saw a benefit to mentorship more broadly in the classroom. They noted that if a student was suffering a problem at home it was hard for her to concentrate and study. Previously, teachers found it difficult to teach such children because they didn't understand what the girls were dealing with at home. Speaking openly about these problems helped the mentors teach and be sensitive to the needs of girls with problems at home in the classroom.

Some mentors also believed that the program helped to change parents' attitudes about education. Many of the mentors made an effort to follow up directly with families over the phone or by visiting their homes to help them understand the importance of their daughters education and to help resolve the challenges that were preventing the student from continuing their education. This direct contact helped to increase acceptance of the importance of education of adolescent girls.

3.5 INCREASING ECONOMIC EMPOWERMENT THROUGH VSL

The voluntary savings and loans program was seen by mentors to be highly effective. But while the program was important for those who could participate, as noted above, there were some who were excluded because they lacked funds to save. Mentors reported that many students used their savings to purchase

“There may be a time I would need something like a pen or a book and my parents may have no money so in order to solve the problem I get money from my savings.” – Student 4

chickens, rabbits or other livestock, or bought things to resell in their communities. In this way they invested their funds in productive activities increasing the value of their savings. Many of the girls interviewed stated that they used their savings to help them deal with problems that came up at school for example purchasing school materials, or personal hygiene products. They also spoke about being able to help their friends or ask for support from their friends when emergencies came up.

“The good things about when you are saving is that you can ask your friends when you need money when you have a problem, for example money for pads.” – Student 3

Many mentors were not able to give detailed insight into how the savings groups functioned. The reason that mentors gave was that they were not trained in the VSL program. Many identified this as a challenge because they were not able to assist the students with this activity.

3.6 IMPROVING THE SCHOOL ENVIRONMENT THROUGH CSC

The semi-structured interviews indicate that many students and mentors did not understand the CSC program well. In some schools where it appears to have been understood and implemented as it was intended by CARE, some mentors report that it was able to bring about change in the school environment citing new water tanks, electricity and improved sanitation

“Another thing [CSC] helped was the attitude with which children approached problems. They needed things that were beyond their potential. But they came together to use the small potential they had.” – Mentor 2

facilities. In other schools it appears that CSC was interpreted as a process for students to give feedback on teachers and school officials performance, or as a process to identify students who had



dropped out of school and to notify school officials. These differing interpretations of the program may compromise our ability to see impact in the school environment indicators. That said it does appear to have been well received in the paces where it was implemented as planned.

3.7 MENTORS' EXPERIENCE WITH KGAS

3.7.1 MENTORS' REASONS FOR PARTICIPATING AND EXPECTATIONS

The majority of mentors reported wanting to join the program and mentor students because they felt naturally suited to the role. They are individuals who like take pleasure in helping others and who see mentorship as a special talent or gift. Others suggested their primary motivation for agreeing to participate was that they were elected by their students.

"I love children. And another thing, I feel pity for the girls. I want to eradicate the mentality where they think that they are not capable of anything. I want to show them the types of lives they should lead and that they should share their problems." – Mentor 6

A minority reported that they thought participating in KGAS was their obligation or that they were required to participate. These teachers reported that they would have liked additional information in order to better understand the program before agreeing to participate. In general, mentors reported that the program lived up to expectations. They note however that they were often limited in their ability to help students overcome problems that required monetary support and this limitation was a source of frustration for many. That said, nearly all reported that they would like to continue working as mentors despite the sacrifices required of them.

3.7.2 MENTOR TRAINING

"I joined when I didn't know what it was about. I joined because I thought it was my responsibility but I grew to like it because of the type of training and learning how you can help a person in a difficult situation in life. I came to realize it's the kind of gift I need to use because I also lived such a life." – Mentor 2

Mentors were generally positive about the training that they received from the KGAS program. They discussed learning

how to approach students, how to give advice and how to listen. They also discussed learning about how to help traumatized people and how to deal with the challenges that adolescent girls face. One of

the side benefits of the training that was noted by mentors was that through training, they formed relationships with other mentors at different schools in the district. This helped them professionally as they could share the different types of challenges they were facing and strategies to overcome them.

Building on the experiences they had, the mentors we spoke with had a number of suggestions for improving training including:

- The training should be held more often during the year. This would help them to retain information but would also provide the opportunity to train new mentors if teachers changed schools during the year.
- The mentors should be given a booklet with the lessons for training so that they can refer to it throughout the year.
- The timing of the training interferes with the Mentors regular work.
- Transportation and accommodation should be provided for mentors who live far from training sites.
- The mentor program should be better explained to potential mentors before the full training so teachers have a better idea of what they are signing up for.
- The trainings should have a practical component in addition to the theoretical work.
- There should be new trainings on a wider variety of subjects.

3.7.3 CHALLENGES

“When people hear about a project the kids ask if they will get money or books. How do you handle this? It was war. It was tough to convince the children. We used all the techniques given during training in order to get the children to like the project and participate.” – Mentor 1

While mentors were overwhelmingly supportive of the program, they pointed out a number of challenges they experienced while participating in it. The most commonly cited challenge was a lack of financial resources to solve problems that required material support. They were able to work with

students to identify problems and speak about ways to overcome them, but at the end of the day, certain problems required financial assistance to overcome. A mentor could guide the student and speak to their families but many girls simply lacked the means to purchase certain things that they required in order to continue with their education. Many mentors expressed frustration with this limitation in their ability to help their students.



Another challenge that multiple mentors noted was expectation of material support on the part of the students and their families. From their past interactions with other NGOs they expected to receive material support be it food, school materials etc., for participating in the program. The mentors worked to slowly convince students of the merits of mentorship and found that eventually, once they better understood the benefits of mentorship they were supportive of the program.

Other challenges that were mentioned by mentors include the following:

- The timing of the program, generally implemented after school, meant that students were tired and hungry during meetings. The timing also made it hard to participate for students who had many domestic responsibilities or who had to travel far to get home from school.
- The program required many sacrifices from mentors – time and monetary. The mentors had to give up time from school for training, they also had to prepare for and run weekly meetings, as well as follow up with students outside of class time. In addition to demands on their time, mentors had to cover the cost of transportation and communication of they had to go to a students home to speak with the parents to help a student resolve her problems and return to school.
- While many mentors were willing to continue with KGAS and believed in the mission, some cited providing motivation, or some sort of financial support for the mentors would help make the significant sacrifice of their time more feasible.
- Some mentors cited the need for additional training, particularly when mentors changed schools and untrained mentors had to take over for those who left.
- In some schools mentors lacked a room where they could hold KGAS meetings.

3.7.4 SUGGESTIONS FOR IMPROVEMENT

Stemming from the discussion of challenges they encountered while implementing the KGAS program, the mentors had a number of suggestions for the program going forward. The most cited recommendation was to provide some sort of material support that mentors could use to help students who had exhausted all other means of continuing with their education. The primary observation behind this recommendation was that mentorship can help a student in many cases, but there are certain instances where in the short term, monetary support is simply required in order for the student to be able to stay at school.

The second most common recommendation stemmed from the personal sacrifices made by mentors in time and money to participate in KGAS. Many mentors requested financial assistance in order to communicate with or travel to students' homes to speak with their families. At the moment, they sacrifice and make do, sometimes walking long distances to reach students' homes. They also noted

the significant sacrifice of their time. The extra work required by the KGAS program cut into the time they used to prepare their lessons and their personal time. Some mentors requested “motivation” or remuneration for this work.

Other suggestions made by mentors include the following:

- Host additional training sessions.
- Ensure that there is a room available to hold KGAS meetings.
- Fully explain the KGAS program to potential mentors before they start training so that they know what they are agreeing to and have an opportunity to decline.
- Do mentorship during the regular school day so that students aren't tired/hungry and don't need to skip meetings in order to go home.
- Host more competitions between mentor groups at schools as these were well received by mentors and students.
- Improve dialogue between the schools and local officials.
- Focus the program on both girls and boys.
- Include further outreach to parents to explain to them the benefits of girls' education.



CHAPTER 4: FINDINGS

In this chapter we present the results of our analysis in four areas of interest: dropout, self-confidence, economic empowerment and the school environment. We first present the overall results using three estimation techniques that were introduced in Chapter 2 Section 5. Analysis of the differences in average outcomes for control and treatment girls took into account the various challenges faced in program implementation including: attrition, sample imbalance across treatment status and non-compliance to treatment assignment. However, it is critical to note that despite accounting for these challenges our estimates may still misrepresent the true impact of the KGAS program. The attrition rate and the imbalance in the sample size between the treatment groups were both extremely high. There are also external factors which cannot be controlled for in the analysis here including policy changes and the effect of alternative programs that may significantly impact program outcomes.

While we believe that the Models presented here provide the best possible estimates given the challenges, it is important to be cautious when drawing policy conclusions from the results presented here. In this chapter we will discuss the methodology of each model, present our findings and discuss the results in each outcome area: dropout, self-confidence, economic empowerment and school environment.

Before presenting the three models to estimate the association between outcome areas and the KGAS program we report the summary statistics of each key indicator in Table 13 below. While we cannot attribute the changes in the mean values of each indicator presented below to the KGAS program or interpret these changes as statistically significant, they provide a useful overview of the value of each indicator by group and over time. We can see for example, that the dropout rate between the baseline and endline survey was 18 per cent in control schools and 20 per cent in treatment schools. While there are a number of factors that influence this figure, and we can not say that the difference between the two groups is statistically significant, it is noteworthy that dropout was not lower at treatment schools. In fact, as mentioned in Chapter Two, because of attrition we likely underestimate the rate of drop out because it was harder to locate students who were no longer in school to be interviewed at the endline. Because the attrition rate was higher in treatment than control schools, it is probable that we underestimate the drop out rate to a greater degree in treatment schools than we do in control schools.

TABLE 13: MEAN VALUES OF EACH INDICATOR ACROSS TIME & GROUP

Indicator	Scale / Interpretation of Indicator	Baseline Mean		Endline Mean	
		C.	T.	C.	T.
D1 - Dropout rate between baseline & endline	% of students who dropped out between BL & EL a higher number shows a higher dropout rate.	n/a	n/a	0.18	0.20
C1 - Student Motivation and Engagement	This indicator shows the mean of standardized scores on the variables in the SMES. A higher score indicates better motivation/engagement.	99.82	98.80	97.95	98.03
C2 - Rosenberg Self-Esteem Scale	Reported as a score between 10 and 40. A high score indicates higher self-esteem.	23.25	23.13	21.95	22.31
C3 - Young Leaders Index	Reported as a score between 21 and 84. A higher score indicates stronger leadership skills.	54.71	53.76	53.46	53.72
E1 - Economic Confidence	Reported as a score between 1 and 4. A higher score indicates higher levels of economic confidence.	3.24	3.21	3.02	3.09
E2 - Economic Ability	Reported as a score between 1 and 5. A higher score indicates higher levels of economic ability.	2.93	3.01	2.80	3.09
E3 - Economic Decision Making	Reported as a score between 1 and 9. The score indicates the number of key decisions the student is involved in. The higher the score, the more involved the student is in economic decision-making.	6.30	5.71	6.01	6.23
E4 - Spending on Education	Reported as a score between 0 and 1. Interpret as the share of girls who have some assets (from loans, saving or wages) and who spend some of those assets on education.	0.31	0.33	0.24	0.32
E5 - Possessions	Reported as a score between 0 and 1. Interpret as the share of girls who have access to possessions that might impact their ability to attend school.	0.17	0.30	0.26	0.39
E6 - Savings	Reported as a score between 0 and 1. Interpret as the share of girls who save and have a savings goal.	0.16	0.17	0.24	0.54
E7 - Future Outlook	Reported as a score between 1 and 3 with a <u>lower</u> score indicating a more positive future outlook.	1.26	1.29	1.42	1.38
S1 - School Facilities	Reported as a value between 0 and 5, with a higher score indicating better-perceived school facilities.	3.57	3.69	4.00	3.97
S2 - Female-Friendly Facilities	Reported as a value between 0 and 4, with a higher score indicating better perceived female-friendly facilities.	2.11	2.84	1.84	2.27
S3 - Friendships	Reported as a value between 1 and 4. A higher value demonstrates stronger friendships and a more supportive social network.	2.35	2.28	2.27	2.31



S4 - P-T Engagement	Reported as a score between 1 and 5 with a higher score indicating better parent-teacher engagement.	2.86	2.49	2.49	2.39
S5 - Student Voice	Reported as a score between 1 and 4. A higher score indicates a stronger perception that students' ideas are respected by school officials.	3.09	3.28	3.09	3.15
S6 - School Official Engagement	Reported as a score between 1 and 5. A higher score shows higher perceived engagement between school officials and various stakeholders.	3.50	3.75	3.54	3.68
S7 - Implementation	Reported as a score between 1 and 5. A higher value indicates a stronger sense that changes proposed by various stakeholders will be implemented.	2.83	2.92	2.73	2.78

4.1 THREE MODELS OF IMPACT ANALYSIS

4.1.1 MODEL 1 - INTENTION TO TREAT REGRESSION MODEL

In Model 1, we look at a lagged dependent variable regression to examine the difference between the treatment and control groups. We call this the “intention to treat” (ITT) effect because we do not look at compliance within the treatment and control groups. This model uses assignment to the treatment group as a proxy for actual treatment and ignores whether there was complete compliance within both the treatment and control groups. It is called the ITT effect because the intention of the program was to treat all girls in Treatment schools and none of the girls in Control schools.

The ITT estimates were derived by regressing the various outcome variables on a dummy variable treatment (where treatment=1 for girls assigned to treatment group and treatment=0 for girls assigned to control group). A number of control variables are added to the regression in order to better isolate the true effect of treatment on the outcome variables of interest.² We also control for the lagged variable of each outcome indicator to minimize the effect that baseline values might have on endline values. As noted in Chapter 2 Section 5, the change observed overtime in our indicators of interest is highly correlated with their baseline value. For this reason it is important to control for the starting point level of each indicator in our analysis.

The sample used in the ITT regressions was reweighted to correct for attrition. We also weighted the sample using the inverse propensity score of each individual to rebalance the sample to account for

² Our control variables are: age, household size, income, grade, exposure to abuse, time to get to school, exposure to shocks, district, class and lagged values of each outcome indicator.

the large difference in size between the control and treatment groups. The regressions were performed only on the portion of the sample that fell within the area of common support³. Additionally, since treatment allocation was clustered at the school level and only 10 schools (clusters) were included in the study, it was necessary to use the wild cluster bootstrap method to generate accurate standard errors, thereby improving the reliability of the estimates⁴.

The key advantage of ITT analysis is that it provides a more accurate reflection of the a real-world scenario because it admits noncompliance and protocol deviations, which in turn helps to preserve sample size since noncompliant girls are not dropped from the analysis. The drawback of ITT analysis is that the estimates do not indicate the true impact of the program as designed, especially if non-compliant girls form a relatively large proportion of the sample⁵. This is because ITT analysis confers treatment status according to the groups girls were originally assigned to, regardless of their adherence to the assignment criteria. It thus ignores noncompliance, study protocol deviations, withdrawal, and other countervailing factors that may occur after treatment assignment.⁶ Girls that were originally assigned to participate in *KGAS* but did not actually participate are included as participants in the ITT analysis, which implies that estimates will be an under-estimation of the potential treatment effect of *KGAS*.

4.1.2 MODEL 2 - WEIGHTED IV REGRESSION MODEL

Model 2 takes into account the fact that compliance with treatment assignment was incomplete i.e. some girls who were assigned to the treatment group did not attend *KGAS* while some of those assigned to the control group did attend *KGAS*. In this model, we use an instrumental variables (IV) approach and this time the key explanatory variable is not assignment to treatment group (treatment), but rather, actual participation in the programme. The estimates from this model are known as *Average Treatment-Effects-on-the-Treated* (ATET). As in Model 1, here use weighting to balance the treatment and control groups by correcting for differential attrition and propensity score between the two groups. However, the standard errors in this model do not take into account the fact that treatment assignment was clustered at school level, which leads to an over-estimation of the significance of effects (or artificially low standard errors).

³ Where propensity scores for treatment and control group individuals overlap.

⁴ Clustering causes problems for inference, especially when there are independent variables that are constant within groups/clusters. As the resulting intra cluster correlation tends to bias standard errors downwards, the wild cluster bootstrap method is useful in generating accurate standard errors, particularly in cases with few clusters.

⁵ Non-compliance to treatment assignment is approximately 23% in this study

⁶ Fisher *et al.* (1990)



4.1.3 MODEL 3 - UNWEIGHTED IV REGRESSION MODEL

The third and final regression model we used to estimate impact estimates differs from Models 1 and 2 in a number of ways. It differs from the first model in that it considers as treated only those who actually participated in the programme, as opposed to those assigned to receive treatment (ATET not ITT). It is different from the second model because it computes clustered bootstrap standard errors in order to generate unbiased impact estimates. However, unlike in the second model, this model does not allow weighting which would balance the treatment and control groups in terms of attrition and propensity score.

When interpreting the results presented in the following section, it is important to consider that the ITT analysis presented in Model 1 and the ATET analysis in Models 2 and 3 measure two different concepts. ITT considers only the differences between treatment and control schools, where as ATET accounts for non-compliance and looks at those who actually received the treatment in comparison to those who didn't. ITT is useful when compliance in the treatment and control groups are very high. The key assumption for ATET, which is a strong and untestable assumption to make, is that there are no spill-over effects of program benefits between girls who received the program and girls who did not within schools. There are a number of challenges to this assumption including for example that friends who are in the program may influence friends who are not or that girls whose attendance did not meet the threshold for participation (they attended at least every month) saw no impact from the few meetings that they attended. For these reasons ITT analysis may provide a more accurate estimate of the effects of the program given low non-compliance in control and relatively low-compliance in treatment, when you don't take the attendance rate into account.

4.2 REGRESSION RESULTS

Table 14 below presents the results of the three models described above. We do not find any treatment effect of the KGAS program on the key variable of interest, the drop-out rate, using any of the three models. It is in the economic empowerment indicators where we see the most significant impact of the KGAS program. Both the spending on education index and the savings index are statistically significant across all three models. In addition the economic confidence index, the economic ability index and the possessions index each show significance in some of the models. In the school environment section KGAS appears to have had some effect on improving female-friendly facilities with that index appearing significant in models 2 and 3 and on the friendships index and the school officials engagement index which are both significant in one model.

While many of the results are not statistically significant, it is important to note that almost all coefficients on the vast majority of indicators – 4 indicators aside – are positive (albeit small). This suggests that: a) the program is unlikely to have had a negative effect; and b) that KGAS potentially had a positive treatment effect in general. The fact that we cannot detect a significant result, might also be the result of low statistical power, as opposed to the absence of a result.

TABLE 14: REGRESSION RESULTS

Category	Indicator	Model 1 Coefficient	Model 2 Coefficient	Model 3 Coefficient
Dropout Indicator	D1 - Dropout	0.03	0.01	0.01
Self Confidence Indicators	C1 - Student Motivation and Engagement Index	-0.32	-0.18	-0.12
	C2 - Rosenberg Self-Esteem Scale	0.76**	0.56	0.32
	C3 - Young Leaders Index	1.20	0.33	1.63
Economic Empowerment Indicators	E1 - Economic Confidence	0.10**	0.05	0.10
	E2 - Economic Ability	0.38	0.26***	0.36
	E3 - Economic Decision Making	0.96	0.39	0.15
	E4 - Spending on Education	0.18**	0.12**	0.12***
	E5 - Possessions	0.10	0.22***	0.14
	E6 - Savings	0.34**	0.40***	0.42***
	E7 - Future Outlook	-0.10	-0.08	-0.07
School Environment Indicators	S1 - School Facilities	-0.15	-0.11	-0.05
	S2 - Female-Friendly Facilities	0.21	0.74***	0.57**
	S3 - Friendships	0.05**	0.02	0.05
	S4 - Parent-Teacher Engagement	-0.06	-0.01	0.12
	S5 - Student Voice	0.09	0.08	0.11
	S6 - School Official Engagement	0.09	0.21**	0.25
	S7 - Implementation	0.05	0.06	0.13

**Estimate is statistically significant at the 5% level

***Estimate is statistically significant at the 1% level



4.2.1 DROPOUT RATE

As noted above, the results in each of the three regression models reported in Table 14, show that the KGAS program did not have a statistically significant impact on dropout rates in the time period between the baseline and endline study. This means that there is no discernable difference in dropout rates between girls who participated in the program and those who didn't. Further, it is likely that because of the high rate of attrition we are likely underestimating the dropout rate for both treatment and control schools but to a greater degree in treatment schools because the attrition rate was higher in this group. This means that there is likely and even higher dropout rate in treatment schools than in control schools than the data shows.

While the quantitative analysis suggests little association between being in KGAS and dropout within the timeframe studied, the semi-structured interviews provided examples of how the program successfully persuaded some students not to drop out. Many mentors reported convincing students who were planning to drop out to stay in school, either by speaking with their parents and convincing them of the importance of education, by changing the students' attitudes about the value of education or by helping them overcome specific challenges like unwanted pregnancies.

*"When the program of mentorship started it changed something. There were girls that used to drop out but we started encouraging girls to study. We removed some of the reasons they drop out."
Mentor 9*

"Mentorship is very important because among the girls who had dropped out for those who received mentorship they came back to school. For those who had unwanted pregnancies we mentored them and they came back. There were three last year in this situation." Mentor 8

Another consideration when interpreting these results is that it may be the case that the impact of KGAS on dropout takes longer to manifest than the one year that passed between the baseline and endline study. The theory of change behind the KGAS program suggests that dropout will be impacted through improved self-confidence, increased economic empowerment and a better school environment. For that reason we may expect to see a result on the intermediary indicators first before seeing impact at the level of dropout.

“There is a girl who had an unwanted pregnancy. She kept it to herself. After (mentorship) she came and told me her problem I told the school. The school went to her parents. She sat for her national exams with the others. There is another student who had the same problem. She gave birth and is now back at school. Before mentorship was started when a child would meet such a problem she would abandon herself and dropout.” – Mentor 4

In addition to looking at the impact of KGAS on dropout, it may be of interest to examine the differences between students who decided to stay in school and those that dropped out. Table 15 presents the mean value of a number of descriptive indicators at the baseline survey. You can see that there are a number of statistically significant differences between the girls who remained in school and those who dropped out. This data may give some indication of the types of students at high risk of dropping out.

TABLE 15: CHARACTERISTICS OF GIRLS IN SCHOOL VS GIRLS WHO DROPTUT AT BASELINE

Characteristic (mean value)	Girls who Stayed in School	Girls who Dropped out of School	P - Value
Class	1.9	2.0	0.26
Household Size	6.9	6.5	0.01**
Income (relative)	3.4	3.5	0.85
Grade (relative)	6.1	5.6	0.07*
Have Savings	1.8	1.8	0.94
Have Loans	1.7	1.7	0.03**
Have Income (Business revenue or wage)	0.1	0.1	0.07*
Future Outlook	1.3	1.4	0.35
Experienced Gender-Based Violence	1.7	1.9	0.09*
Number of Friends	3.4	3.1	0.51

In addition to examining the impact of KGAS on dropout at the individual level, we can look at school level data provided by CARE and school officials. Figure 7 shows the average share of girls who completed lower secondary school each year at the seven treatment and three control schools. These figures were calculated from school data shared with Laterite by CARE staff. We look at the number of students who started S1 in year 1 and compare that to the number of students who complete S3 in year 3. These figures do not account for students who change schools during the three-year period.



While we can not discuss a statistically significant difference between the treatment and control groups as we are looking only at 10 observations, it is interesting to note that they follow a similar trend with treatment schools slightly higher than control schools throughout the period (both before and after KGAS was implemented). In 2014, the year KGAS was implemented completion rates dropped in both control and treatment schools. This observation adds further weight to the hypothesis that there is some other factor such as a policy change impacting the results that we find for dropout rates.

FIGURE 6: PERCENTAGE OF GIRLS WHO SUCCESSFULLY COMPLETE LOWER SECONDARY

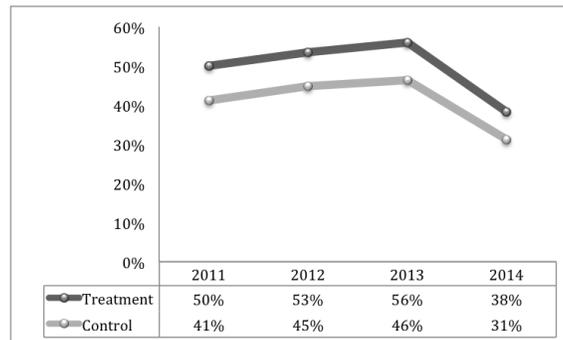
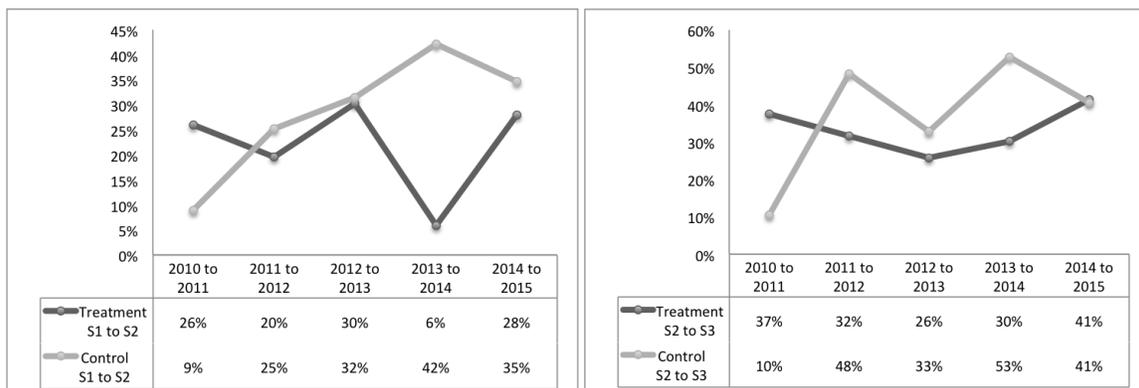


Figure 8 shows the change in enrollment for the treatment and control schools in this study over time. The first panel shows the percentage decrease in the number of girls enrolled in S1 to S2 in the transition from the 2010 to the 2011 school years and so on for every year until the 2014-2015 transition. The second panel shows the same from the transition from S2 to S3. A higher figure means a higher dropout rate between years. There are a number of challenges interpreting this data because it does not take into account movement of students between schools. The large decline in dropout in treatment schools between S1 and S2 in 2013-2014 is driven for instance by a large increase in the number of students enrolled in GS Joma in 2014. The data states that there were 23 students enrolled in S1 at Joma in 2013 and 43 students enrolled in S2 in 2014.

FIGURE 7: PERCENTAGE CHANGE IN ENROLLMENT BETWEEN S1 & S2 AND S2 & S3



4.2.2 SELF-CONFIDENCE INDICATORS

Looking at estimates for the outcome indicators associated with self-confidence, we do not find any statistically significant differences between girls assigned to the treatment group and those assigned to the control group across all 3 models. We see significance at the 5% level in the Rosenberg Self-Esteem Scale in the Intention to Treat Analysis, but this result is not robust across the other two models. Similar to the dropout indicators, improvements in self-confidence may be slow to appear. Because it is a behavioural change, the program's impact on self-confidence may take longer to manifest than the one year between the baseline and endline study. Further, self-confidence is an incredibly difficult characteristic to measure. The indices used may not have been optimal in the Rwandan context. These results should therefore be treated with caution. In the future, more rigorous testing of indices should be undertaken to ensure their suitability for the Rwandan context. Additionally, simpler, less objective question might be explored. For leadership for example, it might have been preferable to ask easily measurable questions about for example whether the students are class monitor, or have completed for other leadership positions.

While there is no significant association between the treatment and the three self-confidence indicators that is robust across all three models, we do see some treatment effect when we look at the individual variables that make up the indices. In the Student Motivation and Engagement Survey the response to the question "when exams and assignments are coming up, I worry a lot" was statistically significant in all three models. Girls in treatment schools are less likely to agree with this statement than girls in control schools. Under the Rosenberg Self-Esteem Scale there are three questions that are significant in all three models. Students who participated in KGAS are more likely to agree with the statements "I feel that I'm a person of worth, at least on an equal plane with others" and "I take a positive attitude towards myself" than students who did not participate in the KGAS program. Finally in the Young Leaders Index there is one question that appears statistically significant across the three models. Students who participated in KGAS are more likely to agree with the statement "I am willing to work hard to achieve my dreams" than students who did not. The results of the regression analysis on the variables making up the self-confidence indicators are presented in Annex 5.

While the quantitative results show little statistically significant change in the indicators associated with self-confidence, the qualitative interviews revealed that the mentors we spoke with perceived some improvement in students' willingness to participate in the classroom and in leadership activities. The majority of mentors mentioned that they noticed a change in girls who participated in the KGAS program noting that they were less inhibited by perceptions about how they should



“Before we had mentor group I wasn’t able to talk to many people but it helped me to develop self-confidence it helped me to speak and give advice with out being shy.” - Student 4

behave. For example they were less quiet around boys and acted with more self-confidence in class. Further, the majority of mentors said that girls were now taking on more leadership roles like acting as class monitor or head girl. Other mentors discussed girls increased willingness to participate in other public roles like performing in

school theatre. The students we spoke with also reported feeling more comfortable participating in leadership roles. They noted feeling more comfortable speaking up, sharing the challenges they face

“I see a change in terms of leadership. You could find there are girls who were afraid to join this committee representing the students. Now 8 of 11 of the students on the committee are girls.” Mentor 7

with friends and giving advice.

4.2.3 ECONOMIC EMPOWERMENT INDICATORS

Turning to economic empowerment, we find significant estimates for a number of outcome indicators including, Economic Confidence, Economic Ability, Spending on Education and Savings. The largest apparent treatment effects are seen in the Economic Ability indicator where girls assigned to the treatment group have, on average, a 18% higher likelihood of spending on education than those assigned to the control group, and in the Savings indicator where girls assigned to treatment group are 34% more likely to have savings and a savings goal than those in the control group (these are results from the most conservative of the three models).

The results from the second model differ slightly from the first one. There are two likely reasons for this. First, the ATET is generally higher than the ITT because it focuses exclusively on girls who participated in the program. Secondly, Model 2 is likely to overestimate the statistical significance of the associations we see because the standard errors in this model do not take into account the clustering of the sample. We see additional outcome variables showing statistically significant estimates such as the Possessions indicator which was previously insignificant but now has significant results at the 1% level. The reverse is true for the estimate of the Economic Confidence indicator which was previously significant but is now insignificant. However, the fact that standard

errors are not correctly computed in this model explains the higher incidence of outcome variables with statistically significant impact estimates.

From Table 13, we see that the third model is the most stringent in terms of the number of outcome indicators that show statistically significant results. We still find significant estimates for Spending on Education and Savings indicators, although those for Economic Ability and Possessions are now insignificant. Unlike dropout, or confidence, it would be expected that the VSL component of the KGAS program would have an immediate impact on economic indicators which is apparent in the significant results in this section.

4.2.4 SCHOOL ENVIRONMENT INDICATORS

In the first model, none of the school environment indicators show a significant treatment effect and in fact, the *School Facilities* and *Parent-Teacher Engagement* indicators have a negative coefficient. Estimates for the Female Friendly Facilities and School Official Engagement indicators that showed no difference between treatment and control girls in the first model are significant in the second, moreover at the 1% level. This turnaround may still be owed solely to the fact that standard errors are incorrectly computed in the second model.

In the third model, the Female Friendly Facilities indicator still shows significant results, though of a lower magnitude and only at the 5% level. The School Official Engagement indicator is also no longer significant.

While we see few statistically significant associations between the treatment and the school indicators, it is interesting to look at whether or not there is a link between the school environment and a girl's decision to change schools. As discussed earlier, mobility among the adolescent girls in this study was quite high. We tested the difference in average values on various descriptive characteristics between girls that stayed at the same school and girls that moved during the study. We also looked at the difference in baseline values of the school environment indicators between these two groups. While we can not draw conclusions of a causal impact from this analysis it does give some insights into characteristics of girls that changed schools. As shown in Table 16, girls who changed schools were in a higher-grade level. They also had fewer friends and did not have outstanding loans. These differences are all statistically significant.



TABLE 16: CHARACTERISTICS AT BASELINE BETWEEN GIRLS WHO STAY AND MOVE

Characteristic (mean value)	Girls who Moved Schools	Girls who Stayed at the Same School	P - Value
Class	2.3	1.5	0.01***
Household Size	6.8	6.8	0.12
Income (relative)	3.4	3.5	0.39
Grade (relative)	6.0	6.1	0.51
Have Savings	1.8	1.8	0.53
Have Loans	1.7	1.8	0.03**
Have Income (Business revenue or wage)	0.1	0.1	0.80
Future Outlook	1.3	1.3	0.94
Experienced Gender-Based Violence	1.7	1.7	0.98
Number of Friends	2.9	3.8	0.00***

In Table 17 we can see that many of the indicators relating to engagement and implementation are significant. Girls that moved schools report lower levels of parent teacher engagement and school official engagement at the baseline survey than girls who did not change schools. Girls that moved also report that it is less likely that suggested changes will be implemented at their baseline school than girls who stayed at the same school. While we can not say from this information what caused students to changes schools it is interesting that there appears to be a strong correlation between the decision to move an the level of engagement at the school. We do not see the same relationship with the indices that measure quality of facilities. There is little variation however between schools on these indicators.

TABLE 17: DIFFERENCES IN SCHOOL ENVIRONMENT INDICATOR VALUES AT BASELINE

Category	Indicator	Girls who Moved Schools	Girls who Stayed at the Same School	P - Value
School Environment Indicators	S1 - School Facilities	3.7	3.7	0.43
	S2 - Female-Friendly Facilities	2.5	2.6	0.28
	S3 - Friendships	2.3	2.3	0.95
	S4 - Parent-Teacher Engagement	2.5	2.8	0.02**
	S5 - Student Voice	3.1	3.3	0.25
	S6 - School Official Engagement	3.5	3.7	0.00***
	S7 - Implementation	2.8	3.0	0.02**



CHAPTER 5: CONCLUSIONS

The Keeping Girls at School Program (KGAS) initiative appears to have had a positive influence on the girls who participated in it – this seems to be confirmed both quantitatively and qualitatively. Many girls who were interviewed during the qualitative surveys were unequivocal in expressing how much the program benefited them, including by expanding their social circles, providing much needed mentorship, teaching financial skills and so on. In particular, by providing a forum for girls to freely express themselves and share their problems, it helped give students confidence in their abilities and a desire to continue with their studies.

CHALLENGES

A number of factors impeded both the implementation of the programme and our ability to measure its impact on participating girls. Some of the programmatic and evaluation challenges included:

- Imperfect implementation in some schools due to lack of information or training, resulting in different schools implementing the program differently (particularly with regards to CSC activities);
- Lack of awareness among girls about meetings leading to girls not participating in all program components;
- Impediments to girls attending like timing of the program, long distances travelled to attend, domestic responsibilities and so on;
- Peer effects whereby girls who couldn't afford to participate in savings decided to stay away from the program altogether;
- Non-adherence to program design resulting in one control school receiving treatment, which ultimately compromised the study sample;
- Poor timing of endline data collection contributing to a high attrition rate.
- Low statistical power, resulting from the fact that: (i) the data was clustered at the school level and the study was only carried out in 10 schools; (ii) attrition was high; and (iii) there was non-compliance.

- A failed experimental set-up at the baseline, because the originally intended regression discontinuity design for this evaluation did not work out, leaving us with a problem of selection bias, a large imbalance between treatment and control schools and too few control schools.
- A threat to the internal validity of the evaluation from alternative programs operating in both treatment and control schools, which makes attribution to the KGAS program problematic.

FINDINGS

Despite the aforementioned challenges, our quantitative analysis was able to identify significant association between the KGAS program and economic empowerment indicators. These are the set of indicators where the estimated treatment effects seem to have been the largest. Using the results of the most conservative of the 3 models, the analysis shows that girls who participated in KGAS had a 18% higher probability of spending on education and a 34% higher probability of saving (including having a savings goal) than girls who did not participate in the program. Statistically significant effects were also identified on the economic confidence and economic ability indices.

While not always significant, the vast majority of indicators show positive coefficients (albeit small) on all 3 models. Out of the 18 indicators in total (17 + the drop-out rate), the only exceptions – where some negative coefficients were registered - were: (i) future outlook; (ii) the student motivation and engagement index; (iii) school facilities; and (iv) parent/teacher engagement. The fact that most indicators show positive effects points suggests that the program: a) did not have a negative impact; and b) potentially had a positive effect on many of the intended outcome indicators. It is important to note that our inability not to find a significant effect does not mean that there was no effect – statistical power in this evaluation was low, suggesting that in some cases we might not have been able to detect a significant effect, even if there was one.

Drop-out, self-confidence and changes in school environment are the areas where we find no aggregate effects. In fact, due to high attrition, we are likely to have even underestimated the actual drop out rate, especially in treatment schools. While we see no treatment effect in this study, it may be the case that the evaluation period was too short to see a change in these variables. The KGAS program intends to affect dropout through its impact on self-confidence, economic empowerment and the school environment. Because dropout is the consequence of all the other potential benefits of the program, it may take a more than one year to influence. Similarly, because self-confidence is a deeply rooted personal characteristic, it may be slow to change.

While the data does seem to point towards a positive effect of the program in general, it is however difficult to draw definitive conclusions from these results given the limitation of the experimental set-up, low statistical power, and threats to the internal validity of the evaluation from other



programmes operating in treatment and control schools. This evaluation provides many insights into how the KGAS program was implemented and received and a general overview of potential treatment effects, but it does not enable us to give a definite answer as to the impact of the KGAS program.

RECOMMENDATIONS

There are a number of lessons to be learned both about the process of conducting an evaluation and about program implementation that should be considered if this program, or similar programs are to be scaled in the future. The recommendations presented here stem from Laterite's experience conducting the evaluation of the Keeping Girls at School program and from the findings of the qualitative and quantitative data collected in this study.

PROGRAM EVALUATION

i) *Build program evaluation into program design* – It is much easier to design a rigorous program evaluation while designing an intervention rather than after the fact. This allows for a better research design which better links program implementation to the needs of the research. It also allows for better planning in terms of timing of the study (i.e. when to conduct surveys – in this case before the end of the school year) and collecting all the necessary baseline data.

ii) *If using Regression Discontinuity Design make sure the rankings are rigorous* – Regression Discontinuity Design can be an appropriate methodology to use when implementing a program that targets the most vulnerable. RDD however only works under certain conditions. In this case, to use RDD, the schools just above and below the cut-off to receive the KGAS program needed to be comparable (meaning the characteristics of girls at each school were similar). This turned out not to be the case. Rigorous ranking methods are required to ensure that this condition is met.

iii) *Matching is also a valid methodology in this type of scenario but requires a are large enough control group combined with a valid selection strategy for the control group* - When evaluating a program that specifically targets the most vulnerable, using a matching methodology is also a valid research design. In this case however it is important to have as large a control group as possible and a valid selection strategy for the control group to maximize the area of common support. Including as many “clusters” (in this case schools) in the sample as possible would improve the statistical power of the sample and improve your ability to observe statistically significant results.

iv) *Improve monitoring of the sample* – A significant challenge in this study was identifying where the students in the baseline survey had moved to after a year and a half. A greater focus should be placed on monitoring the individuals who will participate in the baseline and endline surveys of the impact evaluation. This would facilitate the process of locating students at the endline, but could also provide valuable data on attendance, level of saving etc. for these individuals, that could be incorporated into the program evaluation. Better communication throughout the study, during the baseline, while the program is implemented and at the endline, would help facilitate the process of impact evaluation. This would allow those working on evaluation to troubleshoot potential issues early on and have a better understanding of program implementation.

MENTORSHIP/GIRLS CLUBS

i) *Conduct meetings during the school day* – In the majority of schools, meetings were held after school when students were tired and hungry. Further, it was a challenge for some girls to attend meetings afterschool because they had long distances to travel to get home or had many domestic responsibilities to attend to at home. Changing the timing of the program may help to improve attendance.

ii) *Provide mentors with means to contact families* – Many mentors note that they tried to reach out to students who had left school at their homes, or went to students home to speak directly with their families about problems that the students were facing. This direct contact appears to have been highly effective but mentors note that it required personal sacrifice in time and funds, as they needed to find means to call or visit families.

iii) *Increase awareness about the program at schools* – Of the students that did not participate in KGAS many cite that KGAS was not offered at their school or that they did not know about it. Because of the high mobility of students between schools, it may be beneficial to publicize KGAS activities and allow new students to join at multiple points throughout the school year. Relatedly, it may be of benefit to better explain the program to mentors before they engage in training. Some mentors report not fully understanding KGAS before committing to participate.

VOLUNTARY SAVINGS AND LOANS

i) *Facilitate participation for girls who are not able to save* – It was found that girls who lacked financial resources to save could not participate in the VSL activities. Further, this compromised their ability or willingness to participate in other components of the KGAS program. Finding a way to allow all girls to participate in VSL, regardless of access to funds to save, would widen the benefits of this program. One possible solution would be to give each girl or each club a small start of money to initiate the savings activity.

ii) *Train mentors on VSL activities* – Mentors report little specific knowledge of how the VSL activities functioned because they did not receive specific training on this activity. It may be useful to provide more training so that the mentors can monitor this activity and provide advice to students.

COMMUNITY SCORE CARD PROGRAM

i) *Better explain the purpose and process of the Community Score Card System* – There appeared to be significant confusion regarding the intended nature of the CSC program. A better initial explanation and increased monitoring to ensure that it is properly understood would be advisable.

ANNEXES

ANNEX 1 – CHANGES TO SURVEY INSTRUMENT

The quantitative survey instrument used was developed during the baseline phase of this study. For a detailed discussion of its development please refer to the Baseline report. The minor changes made to the baseline survey are summarized here.

The final quantitative questionnaire contained the same main sections as the baseline study: (1) Household and Background Characteristics, (2) Economic Empowerment and Financial Management, (3) Coping Related Indicators, and (4) School Environment. It also had a fifth section dedicated to understanding the student's experience with the KGAS program.

The revisions made to the baseline questionnaire can be summarized as following:

1. Minor edits (spelling, numbering, translation errors etc.) We corrected minor typos that were found in the baseline questionnaire.
2. New questions added to capture additional background characteristics. These questions were added to provide additional relevant personal information that will assist in analysis.
 - *Are you currently enrolled in school, college or technical training?*
 - *How long does it take you to get to school?*
 - *During the last 12 months has your household been affected by a serious shock — an event that caused your household duties (i.e. chores, looking after siblings etc.) to increase significantly or resulted in a reduction in personal income / consumption?*
 - *Did this event cause you to miss school?*
3. New questions added to account for students who have dropped out of school since the baseline survey.
 - *What is the highest level of school you have achieved?*
 - *What year did you leave school? What month did you leave school?*
 - *What is the main reason that you left school?*
 - *Do you see this as a temporary absence from school?*
4. New questions added about the KGAS program to assess levels of participation and opinions about the KGAS program.
 - *Did you participate in the peer mentor program? (If not, why not?)*



- *Which of the following activities did you participate in: Mentorship, CSC, VSL*
- *How often did you attend meetings with your mentor group? (If you missed meetings, what were the reasons?)*
- *How many girls regularly attended your mentor group?*
- *Did you make any new friends in your mentor group?*
- *How many new friends did you make in your mentor group?*
- *Did your parents attend Community Score Card meetings?*
- *Was your mentor male or female?*
- *Was your mentor someone whom you knew before the mentorship program began?*
- *If you were experiencing a problem at home who would you speak to about it:*
- *Was your mentor able to help you over come this problem?*
- *On a scale of 1 to 10 (1 low, 10 high) how satisfied were you with the Girls Club activities?*
- *On a scale of 1 to 10 (1 low, 10 high) how satisfied were you with the Voluntary Savings and Loans activities?*
- *On a scale of 1 to 10 (1 low, 10 high) how satisfied were you with the Community Score Card activities?*

ANNEX 2 – SCHOOL LUNCH PROGRAM DATA

SCHOOL NAME: RUNYINYA

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): February 2015

Cost (per student, per month): 2,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

“If the student doesn’t pay the school feeding they can not eat with the others.”

Other Comments: None

SCHOOL NAME: BUTETERI

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): June 2014

Cost (per student, per month): 2,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

“By reducing the cost for now we don’t meet many cases like this. This may only happen to 2 or 3 students so we let them eat with the others and when they get money they bring it (the cost is supposed to be 4,000, but for now they pay 2,000).”

Other Comments:

“We started this program by having students pay 4,000 RWF per month last year in June and after we realized that some of them are incapable to pay such amount. We organized a meeting with their parents where we decided to reduce the cost. So for now they pay 100 per day which is equivalent to 2000 per month. Each one must bring the amount of the week which is equivalent to 500 RWF and that amount must be given at the beginning of the week.”

SCHOOL NAME: RWAMIKO/MATA

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): July 2014

Cost (per student, per month): 4,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?



" We started school feeding at 4,000/month in July. We saw that many couldn't pay so in Jan this year we stopped the school feeding and started giving porridge. Now they pay 50 per day (1000/month). They also changed the hours of school from 8:00 am - 2:20 pm instead of 8:00 am - 5:00 pm. Even girls who cant pay get porridge."

Other Comments: None

SCHOOL NAME: MUGANZA

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): February 2014

Cost (per student, per month): 2,500 RWF

Were students ever sent home because of the lunch program? Yes

"They sent home around 50 students for 1 day."

What happens if students cannot pay?

"If the student cannot pay we give a letter to her parents in which we ask the parents to come to school to tell us when they will obtain money. They must give us a date that they will pay."

Other Comments:

" We will change from 2,500 per month to 1000 per month on March 16 of this year. We will switch to the porridge program."

SCHOOL NAME: KIBYAGIRA

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): June 2014

Cost (per student, per month): 4,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

"If the student can't pay they can't go to eat with the others until they pay the school feeding fee."

Other Comments: None

SCHOOL NAME: JOMA

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): September 2014

Cost (per student, per month): 3,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

"If the students cannot pay we write a letter to their parents to come to school to justify why they cannot pay. The student can not eat with the others until he/she pays."

Other Comments:

"The cost of 3,000/month was a decision made by parents and staff."

SCHOOL NAME: GIKONGORO

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): July 2014

Cost (per student, per month): 4,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

"A student can't eat with the others until he/she pays."

Other Comments:

"We try to convince their parents to pay the money for the program. The students pay weekly."

SCHOOL NAME: KIBUMBWE

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): August 2014

Cost (per student, per month): 4,000 RWF

Were students ever sent home because of the lunch program? Yes

We did a meeting with the parents and we plan that program and the students who didn't pay that money were around 50 and they are sent back home and they had to come back with money the same day or the day after that depended on when they got it.

What happens if students cannot pay?

If he/she didn't pay he/she didn't come to eat with the others until they pay.

Other Comments:

Used to have free WFP feeding.

SCHOOL NAME: SAVE



Implemented Lunch Program: No

Date Implemented (or to be implemented): March 2015

Cost (per student, per month): 12,500 RWF initially, then 4,000 RWF per month.

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

What we plan is that the students who cannot pay will not eat until they can pay.

Other Comments:

Currently have porridge. The cost is 12,500 because it is the start of the program and they have to pay for cooking materials, after they first time they will pay 4,000 per month

SCHOOL NAME: CYAMUKUZA

Implemented Lunch Program: Yes

Date Implemented (or to be implemented): June 2014

Cost (per student, per month): 3,000 RWF

Were students ever sent home because of the lunch program? No

What happens if students cannot pay?

"What we do for them is we try to convince their parents to pay or to come to school and do some activities that are equivalent to the money. They are asked or bring some food like beans or sweet potatoes that is equivalent to the asked money."

Other Comments: None

ANNEX 3 – CALCULATION OF INDICATORS

OUTCOME	INDICATOR
Section 1: Drop Out	
Reduce drop out	D1 - Dropout rate between baseline & endline
Enrolment	D2 - School-level Enrolment
Improve completion rates	D3 - School-level Completion Rate
Increase pass rates	D4 - School-Level Pass Rate
Section 2: Self-Confidence	
Increase girls' resilience	C1 - Student Motivation and Engagement Index
Increase girls' self-confidence	C2 - Rosenberg Self-Esteem Scale
Improve girls' leadership skills	C3 - Young Leaders Index
Section 3: Economic Empowerment	
Improved financial literacy and confidence in areas relating to economic activities	E1 - Economic Confidence
	E2 - Economic Ability
	E3 - Economic Decision Making
Improved economic situation	E4 - Spending on Education
	E5 - Possessions
Increased future orientation	E6 - Savings
	E7 - Future Outlook
Section 4: School Environment	
School environment judged positively by girls and seen as more supportive of girls' needs	S1 - School Facilities
	S2 - Female-Friendly Facilities
	S3 - Friendships
	S4 - Parent-Teacher Engagement
School seen as responding constructively to feedback from girls and other stakeholders	S5 - Student Voice
	S6 - School Official Engagement
	S7 - Implementation



SECTION 1: DROP OUT

D1: DROPOUT RATE BETWEEN BASELINE & END LINE

Description: All of the students we interviewed during the baseline survey were enrolled in school. With this indicator we count the number of students who have dropped out of school between the baseline and end line survey.

Calculations: A dummy variable is created that is equal to 1 if the student answers that she is not enrolled in school college or technical training *and* that she has completed less than S6. All girls for whom the variable dropout is equal it 1 are not in the education system and have not yet graduated from S6.

Interpretation: This indicator take a value between 0 to 1 and can be read as the percentage of girls who dropped out of school between the baseline and end line survey.

Variable	Question
enroll	Are you currently enrolled in school, college or technical training?
levelsch	What is the highest level of school you have achieved?

D2: SCHOOL-LEVEL ENROLMENT

Description: Here we report the number of students enrolled at each school by year. Because we have only 10 data points (one for each school) we can not perform statistical tests on the change over time at control and treatment schools.

Interpretation: This is the number of girls enrolled at each school by year.

Questions: Data from CARE & School Officials

D3: SCHOOL-LEVEL COMPLETION RATE

Description: The lower secondary school completion rate is the share of students who enrolled in S1 in year 1 who completed S3 in year 3. (i.e. for 2013, we look at the number of girls who completed S3 in 2013 as a share of the number of girls enrolled in S1 in 2011). Because we have only 10 data points (one for each school) we can not perform statistical tests on the change over time at control and treatment schools.

Interpretation: This can be interpreted as the share of girls who finished three years of lower secondary education.

Questions: Data from CARE & School Officials

D4: SCHOOL-LEVEL PASS RATE

Description: This variable is a school level indicator from data provided by CARE which shows the share of enrolled student who pass their year end exams for a given year.

Interpretation: This can be interpreted as the share of enrolled students who pass year-end exams that year.

Questions: Data from CARE & School Officials

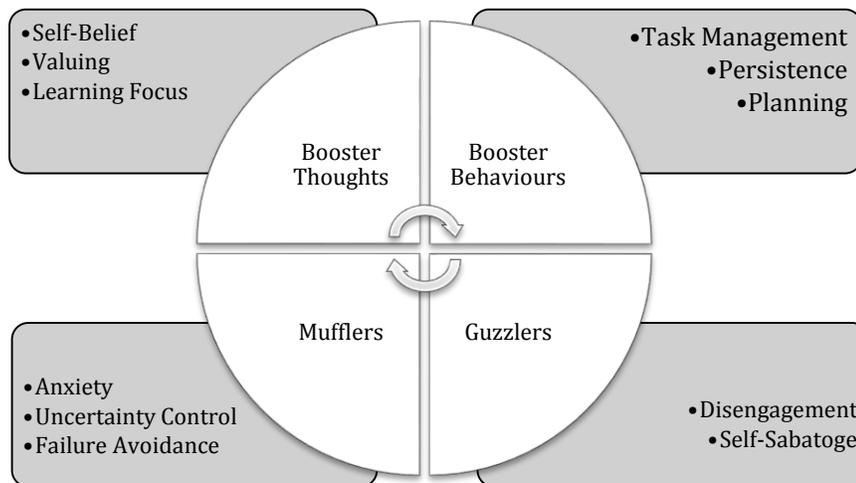
SECTION 2: SELF-CONFIDENCE

C1: STUDENT MOTIVATION AND ENGAGEMENT INDEX

Description:

The Student Motivation and Engagement Scale (SMES) was developed by Prof. Andrew Martin, a specialist in education based at the University of Sydney. The questions included in our questionnaire are based on the 2003 version of the SMES. The questions that form the SMES can be divided into four quadrants with sub-indicators in each quadrant as shown in the diagram below.

Student Motivation and Engagement Index



The advantage of the SMES compared to other indicators is that it allows for abilities and disabilities to be broken down into sections that can inform curricula, while scores can also be aggregated to form global measurements that indicate more broadly what behavior and ways of thinking students adopt when dealing with difficult situations at school.

Calculations:

The SMES pulls from 20 questions in the quantitative questionnaire. Each variable is standardized with a mean of 100 and a standard deviation of 15. The value of the indicator is then calculated by taking the mean of all the standardized variables. Each sub-indicator is calculated by taking the mean of the associated standardized variables. The sub-indicators and the associated questions are listed below.

Questions:

Quadrant	Sub-Indicator	Variable	Question
Please rate how much you think that the following statements apply to you on a scale from 1 to 7:			
Booster Thoughts	Self-Belief	tough	I believe I'm mentally tough when it comes to exams.
		contstrs	I don't let study stress get on top of me.
		bcbk	I'm good at bouncing back from a poor mark in my schoolwork.
		schwkpres	I think I'm good at dealing with school work pressures.
		ntaffcnf	I don't let a bad mark affect my confidence.
		stbk	I'm good at dealing with setbacks at school.
	tryhard	If I try hard, I believe I can do my schoolwork well.	
	Valuing	schimp	Learning at school is important to me.

		cntstd	I'd like to continue studying or be in training in a subject I learn at school (English, Kinyarwanda, history, maths, geography, ICT...) after I complete school.
	Learning Focus	plsdund	I feel very pleased with myself when I really understand what I'm taught at school.
Booster Behaviors	Planning	planah	Before I start an assignment I plan out how I am going to do it.
	Task Management	plcon	When I study, I usually study in places where I can concentrate.
	Persistence	kpgoin	If I can't understand my schoolwork at first, I keep going until I understand it.
Mufflers	Failure Avoidance	ntdsap	Often the main reason I work at school is because I don't want to disappoint my parents/family.
	Anxiety	wrryl	When exams and assignments are coming up, I worry a lot.
	Uncertainty Control	unsrav	I'm often unsure how I can avoid doing poorly at school.
Guzzlers	Self-Sabotage	dntstdy	I sometimes don't study very hard before exams so I have an excuse if I don't do as well as I hoped.
	Disengagement	enjst	I enjoy being a student.
		getinv	I get involved in things we do in class.
		gtwill	I get along well with my teachers.

C2: ROSENBERG SELF-ESTEEM SCALE

Description:

The Rosenberg Self-Esteem Scale (RSES) is a psychometric tool testing for self-esteem and self-confidence. The scale was developed by Dr. Morris Rosenberg, a Harvard psychologist in the 1960s and has since then been refined and successfully tested in different languages, geographical and cultural contexts. It is a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. All items are answered using a 4-point Likert scale format ranging from strongly agree (4) to strongly disagree (1). Five of the questions in the scale are reverse scored (i.e. they are phrased negatively) so must be reverse before the index value is calculated.

Calculations:

The RSES is calculated by taking the sum of the responses to every question. This means that each individual can achieve a minimum score of 10 and a maximum score of 40. All respondents who missed answering one or more question in the set are excluded from analysis.



Interpretation:

This indicator is reported as a score between 10 and 40. A high score indicates higher self-esteem.

Questions:

Variable	Question
<i>Please rate to what extent the following statements apply to you: (1-Strongly Disagree to 4-Strongly Agree)</i>	
nogd	At times I think I am no good at all.
qual	I feel that I have a number of good qualities.
able	I am able to do things as well as most other people.
ntprd	I feel I do not have much to be proud of.
useless	I certainly feel useless at times.
worth	I feel that I'm a person of worth, at least on an equal plane with others.
resp	I wish I could have more respect for myself.
fail	All in all, I am inclined to feel that I am a failure.
posatt	I take a positive attitude towards myself.
satis	On the whole, I am satisfied with myself.

C3: YOUNG LEADERS INDEX

Description:

The YLI is a survey tool designed by CARE International used to collect quantitative information on youth attitudes and behaviour. The YLI consists of a number of questions where individual can select from four response options: "Rarely", which gives a score of one, "sometimes", "often" and "almost always" which gives a score of four.

Calculations:

The Leadership score is calculated by summing the scores across the sub-items of the index. The higher the score, the more leadership skills a respondent possesses. The formula requires that respondents answer all questions so that the index is not skewed by a missing value.

Interpretation:

This indicator is reported as a score between 21 and 84. A higher score indicates stronger leadership skills.

Questions:

Variable	Question
<hr/> Please rate to what extent the following statements apply to you: (1-Strongly Disagree to 4-Strongly Agree)	
Act	I like to try new activities that I may not know how to do.
Advice	My friends ask me for advice.
Skills	I recognize when people have different skills to contribute to a task.
Comfteach	I am comfortable when my teacher calls on me to answer a question.
Idea	I contribute ideas to discussions at home even if they are different from others' ideas.
Quest	I ask questions at school when I don't understand something.
Deschts	I can describe my thoughts to others.
Setexp	The things I do set a good example for my peers.
Consoutc	I consider possible outcomes of my decisions before making them.
Choices	I recognize when choices I make today can impact my life in the future.
Shwact	I can show what is important to me with my actions.
Commht	If someone does not understand me, I try to find a different way of saying what is on my mind.
Encomm	I encourage others to join together to help my community.
Coophm	I cooperate with others to get things done at home.
Comfadt	If someone treats me unfairly at school, I am comfortable telling an adult.
Achdreams	I am willing to work hard to achieve my dreams.
Btrplan	I am better able to finish a task when I plan ahead.
Intlead	I am interested being a leader at my school.
Csprob	I try to understand the cause of a problem before trying to solve it.
Act	I like to try new activities that I may not know how to do.

SECTION 3: ECONOMIC EMPOWERMENT

E1: ECONOMIC CONFIDENCE

Description:



The economic confidence indicator aggregates the scores on a series of questions that assess a respondents' assuredness in her economic situation. These questions have been adapted from a World Bank questionnaire on economic empowerment that was developed as part of the Adolescent Girl Initiative. Laterite adapted these questions to fit the current research purpose.

Calculations:

Several of the questions are negatively phrased. The scoring is therefore reversed before other calculations are performed. The indicator value is calculated by taking the mean of the responses for each variable.

Interpretation:

This indicator is reported as a score between 1 and 4. A higher score indicates higher levels of economic confidence.

Questions:

Variable	Question
-----------------	-----------------

Please rate how much you think that the following statements are true or false for yourself.

(1: Strongly Disagree – 4: Strongly Agree)

impinc	I feel able to improve my economic situation.
nbinc	I do not believe that my economic situation will change for the better.
knwsupp	I know what to do to earn enough money to support myself.
dntknwsupp	I do not know how I will earn money to support myself.
knwmormon	I know what to do to earn more money than I currently do.
payexp	I hope to find someone who will pay for my expenses.
ecind	I can become economically independent.

E2: ECONOMIC ABILITY

Description:

The Economic Ability indicator endeavours to measure a respondents' basic financial acumen. The indicator draws from a number of questions that ask a respondent about her ability to perform a range of simple economic and financial tasks. These questions have been adapted from a World Bank questionnaire on economic empowerment that was developed as part of the Adolescent Girl Initiative. Laterite adapted these questions to fit the current research purpose.

Calculations

The indicator value is calculated by taking the mean of the responses for each variable.

Interpretation:

This indicator is reported as a score between 1 and 5. A higher score indicates higher levels of economic ability.

Questions:

Variable	Question
<hr/> <i>How do you rank your ability to: (1: No idea how to do this – 5 Very Well)</i>	
fnjob	Find information about job opportunities in your community
applyjob	Apply and interview for a job
runbus	Run your own business
wrktm	Work in a team with 3-4 other people to accomplish a task
busopp	Identify business opportunities to start up a new business
obtcrd	Obtain credit from a bank, microfinance institution, or NGO to start up a new business or expand existing business
svbusopp	Save in order to invest in future business opportunities
mngfnacc	Manage financial accounts
bargbuy	Bargain to obtain cheap prices when you are buying anything for business (inputs)
bargsell	Bargain to obtain high prices when you are selling anything for business (outputs)
collowe	Collect the money someone owes you
tax	File my personal and business income taxes

E3: ECONOMIC DECISION MAKING

Description:

The questionnaire included a number of questions about decision-making within the household. This indicator aggregates the information from these questions to measure the extent to which girls make or are involved in making significant decisions about their economic future.

Calculations:



For each type of decision, a dummy variable is created that is equal to one if the respondent makes the decision herself or of is involved in making the decision. We then calculate a sum of the number of types of decisions the girl is involved in making.

Interpretation:

This indicator is reported as a score between 1 and 9. The score indicates the number of key decisions the student is involved in. The higher the number, the more involved the student is in economic decision-making.

Questions:

Variable	Question
<i>Who mostly makes decisions in your household about: (Self/Mother/Father/Brother/Sister/Spouse/In-laws/Employer/Other):</i>	
Decsm	How to spend money
Decsv	How much money to save
decwrk	Whether or not you work for pay
Decps	Whether or not you go to primary school
Decss	Whether or not you go to secondary school
dectu	Whether or not you go to tertiary school or university
decmrg	When you would get married
decchld	When to have children
dechsw	Whether you should do household work
<i>Do you take part in the decision-making? (1-Yes, 2-No)</i>	
Decsmp	Do you take part in the decision-making?
Decsvp	Do you take part in the decision-making?
decwrkp	Do you take part in the decision-making?
Decpsp	Do you take part in the decision-making?
Decssp	Do you take part in the decision-making?
dectup	Do you take part in the decision-making?
decmrp	Do you take part in the decision-making?
decchldp	Do you take part in the decision-making?
dechswp	Do you take part in the decision-making?

E4: SPENDING ON EDUCATION

Description:

This indicator looks at whether or not girls spend money on education. It looks at how they spend their savings, loans and wages/business revenue.

Calculations:

A dummy variable is created that is equal to 1 if the respondent answers yes to any of the below questions.

Interpretation:

This indicator is reported as a score between 0 and 1. It can be interpreted as the share of girls who have some assets (from loans, saving or wages) and who spend some of those assets on education.

Questions:

Variable	Question
<hr/> <i>Why do you save money? (Yes/No Dummy variables)</i>	
Savy_3_yes	Own schooling or education (incl. school fees, materials and uniform)
Savy_4_yes	Other's schooling or education (incl. school fees, materials and uniform)
Savy_5_yes	Travelling to and from school or training
<i>What did/do you use the money you borrowed for? (Yes/No Dummy variables)</i>	
Loany_1_yes	Own schooling or education (incl. school fees, materials and uniform)
Loany_2_yes	Other's schooling or education (incl. school fees, materials and uniform)
Loan_3_yes	Travelling to and from school or training
<i>What did you spend your earnings or revenue on? (Yes/No Dummy variables)</i>	
Spend_1_yes	Own schooling or education (incl. school fees, materials and uniform)
Spend_2_yes	Other's schooling or education (incl. school fees, materials and uniform)
Spend_3_yes	Travelling to and from school or training
<hr/>	



E5: POSSESSIONS

Description:

This indicator measures access to assets that might impact school attendance. Access here means that in addition to being able to buy, or having someone buy the asset for her, the student is able to replace the asset once it depreciates.

Calculations:

A dummy variable is created and set equal to 1 if a girl answers 1, 2 or 3 (she can buy/someone buys for her) for each asset and she answers that yes, she can replace each asset.

Interpretation:

This indicator is reported as a score between 0 and 1. It can be interpreted as the share of girls who have access to possessions that might impact their ability to attend school.

Questions:

Variable	Question
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Do you personally possess the following items? (1: Yes, I personally possess and bought this item with my own money. 2: Yes, someone in my household/family buys this for me. 3: Yes, someone else (not part of household) buys this for me. 4: No, I do not possess this item.)

posspad	Fresh Sanitary Pads or Tampons (each month)
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possundie	Two or More Sets of Clean Underwear
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possshoe	Shoes in your size
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posswrite	Writing materials for school.
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posshyg	Soap or Other Hygiene Products
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If one of these products runs out, becomes too small or broken - are you able or will someone be able to buy (a) new one(s) for you? (1: yes, 2: no)

posspadb	Fresh Sanitary Pads or Tampons (each month)
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possundieb	Two or More Sets of Clean Underwear
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Possshoeb	Shoes in your size
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Posswriteb	Writing materials for school.
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posshygb	Soap or Other Hygiene Products
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E6: SAVINGS

Description:

This indicator measures whether or not girls save and have a saving goal.

Calculations:

A dummy variable is created if the respondent says yes they save and yes they have a goal.

Interpretation:

This indicator is reported as a score between 0 and 1. It can be interpreted as the share of girls who save and have a savings goal.

Questions:

Variable	Question
<hr/> <i>Please rate how much you think that the following statements are true or false for yourself.</i>	
<i>(1:Strongly Disagree – 4: Strongly Agree)</i>	
savnm	Do you personally save money?
savng	Do you have a savings goal?

E7: FUTURE OUTLOOK

Description:

This indicator simple captures the respondent's answer to the question "In the next two years, do you expect your life to get better, remain the same, or get worse?"

Calculations:

N/A

Interpretation:

This indicator takes a value between 1 and 3 with a lower score indicating a more positive future outlook.

Questions:

Variable	Question
lifetwo	In the next two years, do you expect your life to get better, remain the same, or get worse?



(1:Better, 2: Same, 3:Worse)

SECTION 4: SCHOOL ENVIRONMENT

S1: SCHOOL FACILITIES

Description:

This indicator provides an overview of students' reporting on the quality of school facilities. These questions measure the students' perceptions about the facilities and materials available to them at their school.

Calculations:

We create a dummy variable that is equal to one for each item that a student reports she has available at her school. We then sum the total number of items/facilities available to her. We exclude any observations that have missing values.

Interpretation:

This indicator is reported as a value between 0 and 5, with a higher score indicating better perceived school facilities.

Questions:

Variable	Question
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Answer yes, no or don't know:

wall	My class room has a roof and four walls.
elec	My class room has electricity.
dsk	My class room has enough desks and chairs for all students.
blkb	My class room has a blackboard and chalk to write on it.
mat	There are enough learning materials (books, pens, paper etc.) in my classroom for everyone.

S2: FEMALE-FRIENDLY FACILITIES

Description:

This indicator provides an overview of students' reporting on their access to female-friendly facilities at school. These questions measure the students' perceptions about the facilities and materials available to them at their school.

Calculations:

We create a dummy variable that is equal to one for each item that a student reports she has available at her school. We then sum the total number of items/facilities available to her. We exclude any observations that have missing values.

Interpretation:

This indicator is reported as a value between 0 and 4, with a higher score indicating better perceived female-friendly facilities.

Questions:

Variable	Question
<hr/> <i>Answer yes, no or don't know:</i>	
lat	My school has a latrine that only girls can use.
latop	The girls only latrine is open during the day.
sanb	The girls latrines have sanitary bins installed in them.
pad	I have access to free sanitary pads/tampons at school.

S3: FRIENDSHIPS

Description:

This indicator describes a students' social network at school. It includes four questions that aim to measure not only if a student has friends, but if she has friends that she can confide in and who understand and support her.

Calculations:

First because some of these questions are negatively phrased, the scores are reversed. The indicator value is then calculated by taking the mean of the responses for each variable.

Interpretation:

This indicator is reported as a value between 1 and 4. A higher value demonstrates stronger friendships and a more supportive social network.

Questions:



Variable	Question
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Please indicate to what degree the following statements apply to you. (1:Strongly Disagree – 4:Strongly Agree)

Probfr	If I have a problem I have friends at school I can go and talk to.
noschfr	I do not have any school mates I can go and talk to if I have a problem.
noschun	I have the feeling that none of my school mates would understand my problems.
schsuf	My school mates are supportive, and try to understand my needs and problems.

S4: PARENT-TEACHER ENGAGEMENT

Description:

This indicator seeks to measure the extent to which parents and teachers engage to address behavioural or academic issues facing students. It measures both the frequency with which parents reach out to teachers regarding situations at home and the frequency with which teachers reach out to parents to inform them of issues at school.

Calculations:

The indicator value is calculated by taking the mean of the responses for each variable.

Interpretation:

This indicator is reported as a score between 1 and 5 with a higher score indicating better parent-teacher engagement.

Questions:

Variable	Question
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Please rate how often the following applies: (1-Never to 5-Always)

Probt	If there is a problem at home my parents talk to my teachers about it.
probp	If there is a problem at school my teachers talk to my parents about it.
probcomm	If there is a problem in my community my parents or guardians will tell my teachers about it.
nwlth	If I am doing well at school my teachers will tell my parents or guardians.
wlth	If I am feeling unwell, sad or ill my teachers will tell my parents or guardians.
sdth	If I am feeling unwell, sad or ill my parents or guardians will tell my teachers.
hurtp	If someone hurt me my parents or guardians will talk to my teachers.

hurtch	If someone hurt me my teachers will tell my parents or guardians.
mnp	If someone is often being mean to me my parents or guardians will tell my teachers.
mntch	If someone is often being mean to me my teachers will tell my parents or guardians.
probt	If there is a problem at home my parents talk to my teachers about it.

S5: STUDENT VOICE

Description:

This indicator pulls from questions that aim to understand the extent to which students' feel that their ideas are listened to by school officials.

Calculations:

The indicator value is calculated by taking the mean of the responses for each variable.

Interpretation:

This indicator is reported as a score between 1 and 4. A higher score indicates a stronger perception that students' ideas are respected by school officials.

Questions:

Variable	Question
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Please rate how much you think that the following statements are true for your school. (1: Strongly Disagree - 4: Strongly Agree)

stdidea	If a student has an idea about how to improve my school, the school officials will listen to that idea.
grlidea	If a girl asks for changes to be made to make girls feel more comfortable at school, school officials will listen to her and genuinely consider implementing her suggestions.

S6: SCHOOL OFFICIAL ENGAGEMENT

Description:

This indicator attempts to measure the extent to which school officials are perceived as willing to engage in dialogue with various stakeholders, specifically, parents, teachers and students.

Calculations:

The indicator value is calculated by taking the mean of the responses for each variable.



Interpretation:

This indicator is reported as a score between 1 and 5. A higher score shows higher perceived engagement between school officials and various stakeholders.

Questions:

Variable	Question
<i>Please rate how often the following applies: (1-Never to 5-Always)</i>	
mtst	School officials meet with students to discuss problems.
mtp	School officials meet with parents to discuss problems.
mttch	School officials meet with teachers to discuss problems.

S7: IMPLEMENTATION

Description:

This indicator measures students' perceptions about the frequency with which changes suggested by different stakeholders are implemented.

Calculations:

The indicator value is calculated by taking the mean of the responses for each variable.

Interpretation:

This indicator is reported as a score between 1 and 5. A higher value indicates a stronger sense that changes proposed by various stakeholders will be implemented.

Questions:

Variable	Question
<i>Please rate how often the following applies: (1-Never to 5-Always)</i>	
chst	Changes that students proposed are implemented.
chtch	Changes that teachers proposed are implemented.
chnp	Changes that parents proposed are implemented.
chnpth	Changes that third parties (communities, NGOs, religious organizations, government institutions...) proposed are implemented.

ANNEX 4 – PROGRAM DATA BY SCHOOL

Did you participate in the peer mentor program?

	Yes	No
ES Save	82	8
GS Joma	80	3
GS Cyamukuza	78	5
GS Gikongoro	90	7
GS Kibumbwe	89	5
GS Rwamiko/Mata	75	7
Total	564	48

Why did you not participate in the peer mentor program?

	I didn't know about it	My school did not organize it	My teachers didn't let me	My parents didn't let me	I didn't have enough free time	It was too late in the day	I was not interested	Other
Save	4	2	1	1	0	0	0	0
Joma	1	0	0	0	1	0	0	1
Cyamukuza	1	3	0	0	0	1	0	0
Gikongoro	4	1	1	0	1	0	0	0
Kibumbwe	3	0	0	0	1	0	1	0
Rwamiko	5	1	0	0	0	1	0	0
Total	25	9	3	1	5	3	1	1



What KGAS activities did you participate in?

	Girls Club	VSL	CSC
ES Save	77	57	46
GS Joma	77	62	36
GS Cyamukuza	76	67	55
GS Gikongoro	86	64	44
GS Kibumbwe	82	71	42
GS Rwamiko/Mata	72	55	32
Total	533	429	286

How often did you attend meetings with your mentor group?

	Never	Once a year	Once every few months	Every month	Every Week
ES Save	2	7	11	11	51
GS Joma	1	3	6	21	49
GS Cyamukuza	1	6	8	15	48
GS Gikongoro	4	5	18	10	53
GS Kibumbwe	2	3	10	15	59
GS Rwamiko/Mata	1	5	14	12	43
Total	12	34	83	96	339

ANNEX 5 – SELF CONFIDENCE REGRESSION RESULTS

	Variable	Model 1 Coefficient	Model 2 Coefficient	Model 3 Coefficient
Student Motivation and Engagement Scale	tough	0.13	0.30	0.34
	contstrs	0.05	0.24	0.43
	bcbk	-0.03	0.16	0.16
	schwypress	-0.03	0.07	0.15
	ntaffcnf	0.10	-0.01	0.29
	stbk	-0.09	0.13	0.02
	tryhard	0.17	0.17	0.16
	plsdund	0.02	-0.03	0.00
	schimp	0.01	0.02	0.06
	planah	-0.01	0.09	0.16
	plccon	0.04	-0.20	-0.01
	kpgoing	0.00	-0.02	0.05
	wrryl	-0.84**	-0.62**	-0.56***
	unsrav	0.42	0.47	0.19
	ntdsap	-0.15	0.09	-0.09
	dntstdy	-0.01	-0.24	-0.55
	enjst	-0.04	0.10	0.10
getinv	0.08	-0.06	0.11	
cntstd	0.11	-0.05	0.02	
gtwill	-0.03	0.00	0.18	
Rosenberg Self Esteem Scale	satis	0.12	0.26	0.26
	nogd	-0.07	-0.13***	-0.17
	able	0.26**	0.19	0.13
	useless	-0.08	-0.09	-0.12***



	worth	0.32**	0.40***	0.30***
	qual	0.19**	0.06	0.05
	ntprd	-0.05	-0.01	-0.02
	resp	-0.10	-0.12***	-0.14**
	fail	-0.11***	-0.16***	-0.16**
	posatt	0.17***	0.20***	0.17***
Young Leaders Index	act	0.18	0.19	0.23
	advice	0.11	0.03	0.05
	skills	0.04	0.01	0.09
	comfteach	0.05	0.02	0.03
	idea	0.22	0.03	0.12
	quest	0.03	-0.11	0.02
	deschts	0.01	-0.10	0.04
	setexp	0.20	0.03	0.07
	consoutc	0.02	-0.14	0.04
	choices	0.00	0.02	0.15
	shwact	0.19	0.19	0.23
	commbt	-0.07	-0.05	0.05
	enccomm	0.13	-0.02	0.05
	coopm	0.06	0.06	-0.02
	comfadt	-0.12	-0.06	-0.01
	achdreams	0.22**	0.20**	0.20***
	btrplan	0.11	0.06	0.20
	intlead	-0.05	-0.12	-0.17
	csprob	0.06	-0.04	0.00
