

Project Title: GirlsRead! Zambia DREAMS Innovation

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Protocol Amendment 1

Protocol Amendment 2

Protocol Amendment 3

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Summary of Proposed Research

The overall goal of GirlsRead! Zambia is to enhance learning and increase progression to secondary school among adolescent girls in grade 7, the last year of primary school, in three districts located in two provinces in Zambia: Lusaka Province, and Ndola and Chingola in Copperbelt Province, which have been targeted by the DREAMS Innovation Challenge, a partnership supported by USAID to reduce HIV infections among adolescent girls in sub-Saharan Africa. One of the six “Challenge” focal areas for the DREAMS partnership, which is funding this project, is “Keeping Girls in Secondary School.”

GirlsRead! Zambia is a collaboration between the Population Council, the Forum for African Women Educationalists in Zambia (FAWEZA), a locally established organization that includes senior education professionals and is part of the indigenous FAWE network spanning 33 African countries, and Worldreader, an international NGO founded by a former Amazon executive to address the chronic shortage of books and improve literacy in developing countries. GirlsRead! will employ and assess an untested approach to bolstering literacy; the program combines safe space groups, digital technology — e-readers designed for rural Africa and community engagement in order to cultivate a culture of reading among girls. Fundamental to this project is the establishment of female-led girls’ groups that endeavor to foster non-familial social connections and the development of social assets. In settings such as Zambia where resource constraints limit availability of books both within and outside schools, GirlsRead! channels the potential capacity and innovation of the private sector to girls who suffer disproportionately from inadequate education and lack safe spaces in which to congregate. An impact evaluation will enable us to assess the effectiveness of the intervention in enhancing literacy skills, improving performance on the primary school leaving exam (Grade 7 Composite Exam), increasing the demand for girls’ education and encouraging progression to secondary school.

The evaluation will use a 3-arm randomized cluster trial design, with structured surveys administered before the intervention and approximately 5 months after its completion to adolescent girls in Grade 7, the last year of primary school. The study will have a sample size of approximately 1152 participants: 36 schools —12 per arm — and approximately 32 participants per school. Given repetition, girls will range from ages 12-17, although some girls may be below and above those ages. A short literacy and numeracy assessment will be conducted immediately after the end of the intervention. We will obtain Grade 7 Composite Exam scores from the Ministry of General Education (MoGE). Monitoring data will also be collected, including on group attendance, and e-reader usage, breakage, and theft. Contingent on obtaining funding, we will add two evaluation activities: in depth interviews with a subset of girls and a brief survey -- using a subset of baseline survey questions excluding all the ACASI questions -- and a literacy assessment for an additional group of girls.

Overall, this study offers the opportunity to contribute to several critical domains of interest for DREAMS and the wider HIV/AIDS and education research and programmatic communities. It will assess the effectiveness of a safe space program, both with and without the addition of e-readers, in improving the following outcomes for girls: literacy skills, progression to secondary school, gender attitudes, reproductive health knowledge, sexual behavior, and power in intimate relationships. Building the global evidence base on these issues is vital to both improved outcomes related to education and HIV prevention, as well as eliminating harmful gender norms, which are linked to a range of other outcomes of concern.

There are potential benefits to study participants if the intervention is successful in terms of improved education and reproductive health outcomes with very minimal risks, which are limited to discomfort answering sensitive survey questions. There is also a small possibility that other members of the community, peers or adults, may attempt to steal the e-readers and thus frighten study participants. Notably, Worldreader has introduced e-readers in a wide range of African settings and has not found theft to be a big issue.

Background

Evidence suggests that female education, particularly secondary school, may act as a ‘social vaccine’ to prevent the spread of HIV (Jukes et al. 2008). Two recent analyses of the effect of schooling on HIV status in sub-Saharan Africa took advantage of natural experiments to address the potential endogeneity between education and HIV risk. One study found a significant association between increased primary schooling and reduced HIV infection in adulthood in Malawi and Uganda (Behrman 2015); the second found a significant effect of an additional year of secondary schooling on reduced risk of HIV infection among men and women aged 18-32 in Botswana (DeNeve et al. 2015). However, a recent analysis, also addressing the potential endogeneity of schooling and STIs, found that primary school attendance among adolescent girls at ages 14-17 in Malawi — approximately 65% were attending — was not significantly associated with prevalence of HSV-2 or HIV prevalence 3 or 6 years later, suggesting that it may not be primary school attendance per se that matters for reduction of risk, at least in late adolescence; rather, it is most likely increased educational attainment that lowers risk in adulthood (Mensch et al. 2016).

According to the 2013-2014 Zambian Demographic and Health Survey (DHS) only 22% of females aged 20-24 have completed secondary school versus 31% of males (CSO, MOH and ICF 2014). The DHS data indicate that nearly one quarter of women 20-24 cannot read compared to 11% of men the same age (CSO, MOH and ICF 2014). Data from the Population Council’s Adolescent Girls’ Empowerment Program (AGEP) a social, health and economic asset building program for vulnerable adolescent girls aged 10-19 in 10 sites in four provinces in Zambia indicate a low level of literacy even among girls who have finished primary school; 17% of the AGEP sample that completed primary school could not read a full sentence in English in either the first or second round of data collection, one year later; 5%, who could read in Round 1, could not read in Round 2. Among those who completed fewer than 7 grades, 68% could not read a full sentence in Round 1 and Round 2, and an additional 4%, who could read in Round 1, could not read in Round 2. Data from a longitudinal study conducted by the Population Council in Malawi reveal that girls are significantly more likely than boys to lose literacy skills after school leaving (Soler-Hampejsek et al. 2016). One likely reason for the greater skill loss is

that the world of young women contracts after they leave school, as a result of a rapid transition to marriage and parenthood and attendant responsibilities, whereas for young men it does not. Among the 15 countries that make up the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), Zambian students in Grade 6 scored the lowest on reading, with over two-thirds of pupils reading below a minimally acceptable level. One key factor contributing to low literacy is that less than one-third of students have access to an English textbook. The low level of literacy is both a cause and a consequence of dropout, and may lead to a more rapid loss of skills after school leaving. The implications of the low level of educational attainment and high levels of illiteracy for the health and well-being of young women, who suffer disproportionately from HIV, are profound.

Context

A host of contextual factors increase adolescent girls' risk for premature school leaving and subsequent HIV infection in Zambia. Among women aged 20-24, almost a third were married by their 18th birthday (compared to 2% of males). In Lusaka, 24% of 15-19 year old girls—16% in Copperbelt—have begun childbearing. Despite high levels of HIV knowledge, among 15-19 year old girls 26% do not believe that a woman is justified in asking to use a condom if she knows her husband has an STI, 51% have never been tested for HIV, and, among those who had sex in the past year, only 37% used a condom at last sex. Almost half of 15-19 year old girls agree with at least one justification for a man to hit his wife and a third have experienced physical or sexual violence (DHS Zambia, 2015). In addition, adolescent girls lack safe spaces in which to congregate and develop the skills that will enable them to challenge existing gender norms, which also contributes to HIV risk and poor reproductive health.

Study objective

The primary aim of this project is to determine through a randomized evaluation design whether an e-reader intervention embedded in a safe space platform with a community engagement component will bolster literacy skills among adolescent girls, enhance critical thinking skills, improve results on the Grade 7 Composite Exam, and increase progression to secondary school.

Intervention Description

GirlsRead! consists of three programmatic components: e-readers for girls, safe space groups, and community engagement, all of which potentially contribute to reducing HIV risk. First, by using e-readers to expand girls' access to books and increase their exposure to reading, GirlsRead! aims to enhance girls' literacy, thereby improving academic performance and promoting a desire, and the capacity, to remain in school. The second pathway, which will also use e-books, female mentors, and safe space groups, will directly engage girls in critical thinking about gender inequalities and discrimination, and aims to build the assets and confidence for adolescent girls to act on their own behalf and as progressive voices in their communities. This so-called empowerment pathway will also support girls' retention in school, as well as directly support prevention of HIV. Both these pathways operate at the girl-level. The third pathway aims to create an enabling environment for the former two through community engagement activities that promote support for girls' secondary schooling, for reading, and for gender equality.

Community engagement

Community engagement activities will involve adults who influence girls' opportunities and attitudes toward education to create a supportive environment for the safe space groups, and foster gender equality, literacy development, and secondary school attendance and completion. Community stakeholder engagement, which will start before the project begins and continue throughout, will occur via consultation with community leaders, PTAs, and Community Action Groups (CAGs). Community engagement will be led by FAWEZA and include ongoing interaction with the Ministry of General Education (MoGE). Some activities will be created by the girls themselves, such as painting a mural about respect and nonviolence in schools, or chronicling family oral histories to promote parental involvement and highlight the utility of writing and reading to parents and other community members.

Safe space groups

Each safe space group will include 15 to 20 girls and will meet weekly, outside of school hours. Groups will be led by female mentors who will facilitate using participatory, learner-centered pedagogies and cover such topics as the right to education, gender-based violence, financial literacy, sexual/reproductive health (SRH), HIV, and advocacy. The groups will provide girls an opportunity to build their social networks, including relationships with female role models, and to build their leadership skills and agency. In the groups with e-readers, additional time will be spent reading and discussing books together. To ensure equal exposure in terms of time, the girls in the safe-spaces-only group will have homework or other academic support for the same number of minutes. Mentors will be compensated for their time.

Project partners will collaborate on developing a curriculum for the safe space groups. This will include appealing literacy activities to accompany selected books, lessons on gender equality, rights and responsibilities, and empowerment-based sexuality and HIV education. We will utilize evidence-informed materials, such as *It's All One Curriculum*, and effective pedagogical approaches, such as participatory and skill-building techniques. The curriculum will also aim to foster girls' leadership and their role as change agents, including activities to engage parents, siblings, and the community; examples include transcribing their families' oral history, organizing an awareness day to stop violence against women, and making posters on the importance of HIV testing and treatment, etc.

E-readers

E-readers designed for sub-Saharan Africa will be layered onto this safe spaces model with each girl being given her own e-reader for the duration of the project. Worldreader will supply e-readers, e-books, and solar charging devices. They will provide training in e-reader use and repair, and technical back up. Books will be selected from the Worldreader library of approximately 37,000 titles, over 1,700 by African authors. Worldreader has agreements with publishers in sub-Saharan Africa and globally, and will supply books at reduced cost, thus building public-private partnerships and sustainability. Worldreader will also help digitize additional content identified by the Population Council. Worldreader has distributed 18,385 e-readers—and 3 million books—to 337 schools and community libraries in sub-Saharan African countries, including Zambia.

Content on e-readers will showcase alternative views of gender roles, such as women in political office, and will address issues, such as violence against women, that mentors can raise with their groups to foster discussion about the impact of discrimination and harassment on girls' and women's schooling and health, including protecting themselves from HIV. We will choose a variety of genres, styles, and reading levels that are high quality and offer rich content regarding gender and other social topics for critical and creative analysis with emphasis on content that makes reading fun. Drawing from the extensive Worldreader library, GirlsRead! partners, in consultation with girls from our target population, will select 100 books primarily in English (language of the Zambian Grade 7 Composite Exam) but also in local languages, to include on the e-readers. We will also digitize selected books that are not yet available as e-books. Providing 100 books to each girl will ensure that there are multiple books for all reading levels, including for girls who struggle with reading. In addition, each e-reader will have a dictionary, and fact sheets on girls' rights, HIV/AIDS, and navigating the secondary school application process. Even if permission is granted to digitize Grade 7 textbooks, very limited time will be devoted to the school curriculum as the goal of the e-reader component is to determine whether it is possible to encourage reading for fun, as opposed to reviewing school material.

The project will proceed in two phases:

Phase 1 (approximately 6-8 months):

- Arm A: community engagement activities, safe space groups and e-readers
- Arm B: community engagement activities and safe space groups.
- Arm C: no activities

Note that each safe space session is expected to last approximately 60-90 minutes. Arm A sessions will devote approximately 30-45 minutes to the safe space curriculum and 30-45 minutes to discussing content on the e-reader. Arm B sessions will devote approximately 30-45 minutes to the safe space curriculum and 30-45 minutes to group review of school material in order to determine if time devoted to reading material considered to be entertaining improves literacy skills and performance on the Grade 7 Composite Exam more than time devoted to academic review. Holding the “dosage” of the safe space groups constant will allow us to reject the alternative explanation that simply more time in safe space groups could explain improved outcomes.

Phase 2 (approximately 6 months):

- Arm A: community engagement activities, safe space groups and e-readers
- Arm B: community engagement activities, safe space groups and e-readers
- Arm C: community engagement activities, safe space groups and e-readers

Because of the difficulty of tracking girls from Phase 1 who have left primary school — whether because they continued to secondary school or because they dropped out — Phase 2 activities for Arms A and B will not continue with girls from Phase 1 unless the girl is repeating 7th grade; Phase 2 for these arms will involve a new cohort of Grade 7 students. Likewise Arm C will target girls currently in Grade 7 rather than girls in the Arm C communities who were enrolled in Grade 7 during Phase 1. The purpose of Phase 2 is to give back to communities that participate in the evaluation of GirlsRead! and to allow for a process of integrating the intervention – including e-readers – into the communities' education structures. Based on the Phase 1 experience several improvements will be made in the Phase 2 safe spaces implementation. In particular, we will modify the recruitment schedule for mentors, add several

activities to improve school administrator buy-in and, if the budget allows, assess whether provision of snacks improves girls' attendance at safe space sessions.

Evaluation Design

In Phase 1 GirlsRead! will involve girls attending approximately 36 schools, in three districts: 15 schools in Lusaka, 12 in Ndola, and 9 in Chingola. Five schools will be randomly assigned to each of the three arms in Lusaka, four randomly assigned in Ndola and three randomly assigned in Chingola. Each intervention school (Arms A and B) will contain two safe space groups for a total of 48 groups, averaging approximately 16 girls per group. The schools included in the GirlsRead! sampling frame will be chosen in coordination with USAID; we will aim to minimize overlap with other DREAMS activities.

This program, and evaluation, will target girls in grade 7, the last year of primary school, when they are at high risk of leaving school. While our focus is on vulnerable girls (defined as being behind grade for age) to avoid stigmatizing girls and, we believe, increase retention in the program, all girls from selected schools in grade 7 will be invited to participate in the study. Based on the experience of the Council's Adolescent Girls Empowerment Program (AGEP), which found that about half of AGEP girls attending grade 7 were age 15+ due to a school starting age of 7 and considerable grade repetition, we anticipate that a majority of participants will be age 15 or older. In districts where the number of eligible schools in the sampling frame exceeds the required number of schools, we will rank the schools in the GirlsRead! sampling frame by proportion of girls in grade 7 who are 15+. We will then purposely select the schools with the highest proportions of overage girls and randomly assign those schools to the different arms. Thus, while our goal is to enroll primarily girls ages 15-19, we will likely also include girls younger than 15 depending on the age distribution of girls in the selected schools.

With a sample size of 1152 (36 schools —12 per arm — and approximately 32 participants per school), power of 0.80, an alpha of 0.05, and intra cluster correlation of 0.01 we will be able to detect an increase of 11 percentage points from 27% to 38% for literacy (based on the percentage of pupils in grade 6 that could read for meaning in the SACMEQ Zambia assessment), and 9 percentage points from 78% to 87% for progression to secondary school (based on percentage of grade 7 students in 2007 Zambia DHS who progressed to secondary school). Because of expected attrition between baseline and endline of 10% and expected absenteeism of 10%, we will randomly sample 38 participants per school in order to achieve an endline sample of 32 participants per school. In schools with fewer than 38 grade 7 girls, we will attempt to interview all girls in the grade.

The intention of Phase 2 when initially designed was to give back to communities that participated in Phase 1 and to integrate the intervention – including e-readers – into the communities' education structures. Due to a limited research budget, no evaluation activities were planned. However, contingent on obtaining funding we will add two activities to the evaluation:

1. In-depth interviews (N≈42) with a subset of Phase 1 Arm A and Arm B girls: This qualitative component would provide a sense of what girls liked about the e-readers and empowerment groups, what they found less enjoyable, what challenges they encountered, and what suggestions they have for improvement. This component will be conducted between January and March 2018. Respondents will be selected based on their baseline literacy score and attendance at safe

space meetings to explore variability in attitudes regarding GirlsRead activities by reading level and attendance at safe space sessions.

2. A brief survey and literacy assessment of Phase 2 girls in all 36 schools (n≈1100): This would be a paper and pencil self-administered questionnaire and assessment that would be conducted in school at Phase 2 baseline March-April 2018 and endline in the 3rd quarter of 2018. For girls who are no longer in school at endline, this would be conducted at home or another convenient private place in the community. To reduce costs, the Phase 1 control sample (N=421 girls), which was drawn from the 12 schools that were not included in the Phase 1 intervention, will serve as the control group for Phase 2.

Theory of change

- Community engagement activities will emphasize the important role of stakeholders and beneficiaries in establishing a culture of reading, supporting girls' schooling, and fostering gender equality, reinforcing effects of safe space groups and e-readers on girls' retention in school.
- The goal of the safe space groups is to build critical thinking skills, reinforce girls' commitment to staying in school, and strengthen support networks. Groups will provide an opportunity to build social networks, including relationships with female role models, and increase leadership skills and agency. The aim is to raise educational expectations and discuss and address perceived barriers to continued schooling. Participants will receive information about sexual and reproductive health, how to prevent HIV and address harmful gender norms.
- The rapid pace of technological change in sub-Saharan Africa indicates that innovations, including e-readers and mobile access to books, are potentially a more realistic and cost-effective long-term solution to the chronic shortage of reading materials than expanding access to paper books. As prices fall, e-readers or other digital devices can bridge the literacy and digital divides by inexpensively providing immediate access to thousands of informational resources. E-readers offer otherwise unavailable reading materials, with the goal of both increasing desire to read and improving literacy, as well as broadening understanding of important issues affecting their lives. If girls in the e-reader arm make use of e-readers, literacy will likely improve, they will remain in school longer and be more likely to progress to secondary school.

GirlsRead! will assess whether an intervention channeling the capacity and innovation of the private sector and the power of technology will reduce premature school leaving among girls by bolstering learning outcomes and tapping into the potential transformative effects of safe space groups. These female-only venues are designed to be free from physical or psychological threat, and to foster the development of social and cognitive assets. The combined effect of this program operates through three pathways, which are hypothesized to ultimately lower risk of HIV among women: 1) improved literacy and progression to secondary school, 2) increased agency and awareness of gender norms and HIV prevention approaches, and 3) an enabling environment. The evaluation will test this theory of change and will provide evidence on the feasibility of GirlsRead! activities. If the intervention is effective the results will inform adaptation, paving the way for scale-up.

Protocol: GirlsRead! Zambia

Table 1. Overview of research activities and methods

			Data Gathering Activities								
		Project Evaluation Activities						Mentor Assessment		Project Monitoring Activities	
Research Activity	1. Baseline survey	2. Midline Skills Assessment	3. Endline survey	4. Grade 7 Composite Examination score data extraction	5. Head teacher questionnaire and school facilities inventory	6. In-Depth Interviews	7. Phase 2 Skills Assessment	8. Baseline	9. Endline	10. Monitoring of e-reader use	11. Monitoring of safe space groups
Study population	Grade 7 girls (age 12-17) ¹ in schools selected for evaluation	Cohort of sampled girls enrolled in school at baseline and girls who have since joined the program	Cohort of sampled girls enrolled in school at baseline and girls who have since joined the program	Cohort of girls who responded to the baseline survey and took the Grade 7 Composite Exam	Head teachers at schools and schools	Subset of phase 1 Arm A and Arm B girls	Subset of Grade 7 girls (age 12-17) in schools participating in the program	Mentors (females age 18+)	Mentors (females age 18+)	E-readers used by Grade 7 girls participating in Arm A	Grade 7 girls participating in Arms A and B
Sample size	Approximately 1,152 (assuming 36 schools, approximately 32 participants per school) ²	1,299	1,299	1,299 ³	Approximately 36 schools	Approximately 42 girls	Approximately 1100	Approximately 48	Approximately 48	384 ⁴	768 ⁵
Location of activity	School	School and Household	Household	School official	School	School and Household	School	Community	Community	Population Council office	School or community center

¹ All grade 7 girls will be invited to participate except in schools with a large number of girls in Grade 7 where a random selection of girls will be invited. Based on data from AGEP Zambia — see discussion of baseline study population below — we anticipate a wide range of ages due to considerable grade repetition. We expect nearly all study participants to be between ages 12-17, although a few may be above and below those ages.

² All Grade 7 girls from intervention schools will be invited to participate in the evaluation except in schools with a large number of girls in Grade 7 where a random selection of girls will be invited; the final sample size may be higher and will depend on enrollment in the 2017 school year.

³ The endline sample size could potentially be the same as the baseline, but will likely be smaller due to loss to follow-up.

⁴ The number of participants may be larger depending on enrollment in Grade 7.

⁵ The number of participants may be larger depending on enrollment in Grade 7.

Protocol: GirlsRead! Zambia

Timing	Jan – Feb 2017	Sept.-Oct 2017	Jan – March 2018	Nov 2017 – Jan 2018	Jan-Feb 2017	Jan-March 2018	Jan-March 2018, July-Aug 2018	Jan – Feb 2017	Nov – Dec 2017	Oct 2017 – Jan 2018	March – Oct 2017
Method	Interviewer-administered questionnaire, literacy and numeracy assessment and ACASI	Interviewer-administered questionnaire, literacy and numeracy assessment	Interviewer - administered questionnaire, literacy and numeracy assessment and ACASI	Data extraction	Interviewer administered and school observation	Interviewer administered in-depth interview	Self-administered	Interviewer-administered questionnaire and literacy and numeracy assessment	Interviewer administered questionnaire and literacy and numeracy assessment	Inspection of e-readers	Program administered
Informed Consent document (Annex)	Teacher-Parent sensitization sheet (Annex A); Parent information sheet (Annex B); Adolescent assent (Annex C); and (for girls 18+) Adult consent (Annex D)	Parent information sheet (Annex B); Adolescent assent (Annex C); and (for girls 18+) Adult consent (Annex D)	Teacher-Parent sensitization sheet (Annex A); Parent information sheet (Annex B); Adolescent assent (Annex C); and (for girls 18+) Adult consent (Annex D)		Annex M	Parent information sheet (Annex O); Adolescent assent (Annex P); and (for girls 18+) Adult consent (Annex Q)	Parent information sheet (Annex S); Adolescent assent (Annex T; endline Annex V1); and (for girls 18+) Adult consent (Annex U; endline Annex V2)	Annex I	Annex I	Teacher-Parent sensitization sheet (Annex A); Parent information sheet (Annex B); Adolescent assent (Annex C); and (for girls 18+) Adult consent (Annex D)	
Study Instrument (Annex)	Adolescent survey (Annex E) Literacy and Numeracy Assessment (Annex J)	Midline Adolescent Survey (Annex E) Literacy and Numeracy Assessment (Annex J)	Adolescent survey (Annex N) Literacy and Numeracy Assessment (Annex J)	Exam score register	Head teacher questionnaire Annex K and School facilities inventory Annex L	In-depth interview guide (Annex R)	Phase 2 endline (Annex W)	Interviewer-administered mentor survey (Annex F) Literacy and Numeracy Assessment (Annex J)		E-reader usage register	Attendance records and form indicating topics covered in sessions

All investigators, study coordinators, and data analysts involved in the study will receive human subjects ethical training and certification provided by the National Institutes of Health or the equivalent prior to the start of fieldwork.

Protocol: GirlsRead! Zambia

We will also obtain approval of the research protocol from the ERES Converge IRB in Zambia. The federal wide assurance number for the IRB is 00011697.

Data Gathering Activity 1: Baseline Survey

a. Subject Population

GirlsRead! Program staff will invite all girls in Grade 7 in selected schools to participate except in schools with a large number of girls in Grade 7 where a random selection of girls will be invited. Program staff will make clear that participation is voluntary. We anticipate approximately 1152 participants, although the final sample size may be higher and will depend on enrollment in the 2017 school year. As noted above we will purposely select schools with the highest proportions of overage girls and randomly assign those schools to the different arms. While nearly all girls included in the baseline survey, which will be conducted at the beginning of the school year, will be ages 12-17 some may be below and some above those ages.

b. Research Protocol

At baseline, interviews will be conducted at the school, in a private location where others will not overhear the interview. We anticipate that baseline data collection will take place in January and February of 2017. See **Annex N** for questionnaire. Non-sensitive questions and skills assessments will be administered via a face-to-face interview (FTFI) with responses recorded on tablet computers. Sensitive questions will be administered via audio computer assisted self-interviewing (ACASI).

Key outcomes that will be assessed for girls at baseline include:

- Ability to read in English and local language
- Numeracy skills
- Gender attitudes
- Reproductive health knowledge
- Sexual behavior including sexual initiation, frequency of unprotected sex and partner characteristics
- Power in intimate relationships
- Domestic and school-related gender-based violence

For assessing literacy and numeracy we will be using tests developed in English for 6-16 year olds by the People's Action for Learning (PAL) Network for Anglophone African countries including Ghana, Kenya, and Tanzania. The PAL Network consists of 13 countries in Asia, Africa and Latin America that "collectively test more than one million children each year in basic reading and numeracy competencies." <http://palnetwork.org/what-we-do/> The literacy assessment is a simple diagnostic of individual progress in reading that tests letter recognition, reading simple words and comprehension. The math assessment also measures students' foundational skills including number identification, counting, word problem solving, addition, subtraction, multiplication and division. The training and administration of the PAL assessments has been deliberately designed to be very simple; indeed the assessments are referred to as "citizen-led" as those without expertise in testing reading and numeracy skills can easily conduct them. However, because the PAL assessments are pitched at a low level they may generate insufficient variability if the participants in GirlsRead are at a higher academic level than we anticipate. Thus we have added some literacy and numeracy questions from prior Grade 7 Composite examinations as well as some questions from the Grade 3 and 5 Mathematics and English textbooks.

The baseline questionnaire may be pretested with a small group of girls enrolled in Grade 7 at schools not included in the study sample. At that point we may modify or delete some of the behavioral and attitudinal questions and delete or add some literacy and numeracy questions.

c. Risk and Benefit

Generally, there are no more than minimal psychological and health risks for the subject participating in the study. Due to the longitudinal nature of this study, personal identifying information is collected and maintained from participants. There is a minor risk of breach of confidentiality.

There may be a small risk that girls will feel uncomfortable answering some questions on the study questionnaire. However, the topics included have been asked in large scale surveys in similar settings and among similar populations, including the DHS and the Guttmacher Institute's Protecting the Next Generation National Survey of Adolescents. Many of the questions used in this study also have been reviewed by the Population Council IRB for the Malawi School and Adolescent Survey (MSAS) and the Adolescent Girls Empowerment Program in Zambia and have been used in those studies with no significant adverse events reported by enumerators or supervisors. The girls are informed that they are free to refuse to answer any question during the course of the survey.

Baseline survey participants will directly benefit from the availability of referrals for those who have experienced violence. Such information has the potential for helping participants to seek the services they need to prevent or address future violence.

Overall both the risks and benefits involved in the baseline data collection are minor.

d. Confidentiality

All interviews will be conducted in private. Interviews will take place in a physical space in which other study participants cannot hear the questions or participant responses. The ACASI component provides maximal privacy, since only the respondent can hear the questions being asked and know the responses given. The FTFI and ACASI data will be linked via participant ID code.

All back up files will be encrypted and stored on secure media; the Study Participant Identification Register, any participant photos and participant information will be backed up on separate media.

e. Compensation

Respondents will also receive a small token of appreciation for participating in the survey. The amount of compensation (approximately 30 Kwacha or approximately US\$3) is based on the amount recommended by the Zambian Biomedical Research Ethics Committee in previous studies. Although relatively limited in monetary value, given the setting such remunerations are often meaningful to participants. To assuage any sense that such payment is conditional on participation; selected girls will be compensated whether or not they ultimately choose to participate in the study. For those not giving consent, the compensation will be given immediately after the informed consent process, for those giving consent, the compensation will be given after completion of the interview.

f. Informed consent process

The involvement of adolescent females under the age of consent is a crucial component of this study. For all research activities involving minors, the consent of the parent/legal guardian will first be sought via an opt out information sheet that potential study participants will take home (see **Annex B**), followed by the written agreement (assent) of the youth. Research activities involving all study adolescents will be informed by *Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources* (Schenk and Williamson 2005).

We are requesting a waiver of written parental permission as 1) the research does not entail more than minimal risk, and 2) we are providing parents with a written statement about the research and the ability to opt out. This is in line with US Department of Health and Human Services' regulations which stipulate that requirements for written consent can be waived if "...the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context." (See §46.117 Documentation of informed consent, section (c): <http://www.hhs.gov/ohrp/regulations-and-policy/regulations/45-cfr-46/index.html#46.117>.)

Girls will be told during the informed consent process that they can choose not to participate in the study and do not have to answer questions they do not want to answer. They will also be told that they can refuse to participate in the survey even if their parents or guardians provide consent.

For girls age 18 and older, adult consent forms will be administered.

Following established informed consent protocols, each participant will be provided a thorough explanation of the purpose of the study, the privacy and confidentiality of their responses, and the process and extent of participation. They will also be told that they can withdraw from the study at any time without retribution. Consent from participants will be documented with a signature and date.

Informed consent to contact girls in the future will be obtained as part of the baseline survey, as well as contact mobile numbers hand-drawn maps showing the route from each respondent's school to her home to facilitate follow-up data collection.

See **Annex C and D** for informed consent forms.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the behavioral information collected during the study.

Data Gathering Activity 2: Midline Skills Assessment

a. Subject Population

The midline will be conducted with the cohort of girls who were enrolled in school at baseline and girls who have since joined the program. Given a baseline sample of 1,299 and 5% attrition between baseline and midline, we expect to interview and assess approximately 1,234.

b. Research Protocol

At midline, interviews will be conducted via a very short structured instrument with questions about current school attendance and reading practices (**Annex E**). The instrument will also include the same literacy and numeracy assessment conducted at baseline (**Annex J**). The midline interviews will be administered at the girl's school or, for those no longer attending school, at home. Regardless of location, interviews will be conducted in private where others will not overhear the interview. We anticipate that midline data collection will take place between September and October 2017.

Due to the timing of the Grade 7 Composite exam, the GirlsRead safe space groups will end by September 30, 2017, leading to a 3-6 month interval between the end of the intervention and endline data collection. This midline assessment will provide a clearer picture of whether e-readers boost literacy skills in the short term, that is, immediately after the intervention, and whether continuous exposure to books is needed to retain the boost provided –i.e. do girls' skills regress in the 3-6 month interval between the midline and the endline during which girls will no longer have access to e-readers.

Key outcomes assessed for girls at midline are reading practices, literacy, and numeracy

c. Risks and Benefits to Subjects

Generally, there are no more than minimal psychological and health risks for the subject participating in the study. Due to the longitudinal nature of this study, personal identifying information is collected and maintained from participants. There is a minor risk of breach of confidentiality.

There may be a small risk that girls will feel embarrassed if they are unable to answer some of the literacy and numeracy questions. The girls will be informed that they are free to refuse to answer any question during the survey.

There are no direct benefits to the girls although the data collected will help the investigators determine if the e-reader intervention has an immediate benefit to the girls in terms of improved literacy and numeracy skills.

Overall both the risks and benefits of the midline assessment are minor.

d. Confidentiality

All interviews will be conducted in private. FTFI will take place in a private physical space in or near respondents' schools or households, in which other students, family or community members cannot hear the questions or participant responses.

All back-up files will be encrypted and stored on secure media; participant information will be backed up in separate files.

e. Compensation

Respondents will also receive a small token of appreciation for participating in the assessment. The amount of compensation (approximately 30 Kwacha or approximately US\$3) is based on the amount recommended by the Zambian Biomedical Research Ethics Committee in previous studies. Although relatively limited in monetary value, given the setting, such remuneration is often meaningful to participants. For those giving consent, the compensation will be given after completion of the interview; if they end the interview before completing the assessment, they will still be compensated.

f. Informed Consent Process

The involvement of adolescent females under the age of consent is a crucial component of this study. For all research activities involving minors, the consent of the parent/legal guardian will first be sought via an opt out information sheet that potential study participants will take home (see **Annex B**), followed by the written agreement (assent) of the youth. Research activities involving all study adolescents will be informed by *Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources* (Schenk and Williamson 2005).

As noted above, we are requesting a waiver of written parental permission in accordance with US Department of Health and Human Services' regulations §46.117 (Documentation of informed consent, section (c)) as 1) the research does not entail more than minimal risk, and 2) we are providing parents with a written statement about the research and the ability to opt out. For girls attending school, parent information sheets will be given out at school to girls to take home to their parents. For girls not attending school, parent information sheets will be given to girls or parents directly at their homes by either program staff or research staff.

For girls age 18 and older, adult consent forms will be administered.

Girls will be told during the informed consent process that they can choose not to participate in the assessment and do not have to answer questions they do not want to answer. They will also be told that they can refuse to participate even if their parents or guardians provide consent.

Following established informed consent protocols, each participant will be provided a thorough explanation of the purpose of the assessment, the privacy and confidentiality of their responses, and the process and extent of participation. They will also be told that they can withdraw at any time without retribution. Consent from participants will be documented with a signature and date.

See **Annex C**, **Annex D** for informed consent forms.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the behavioral information collected during the study.

Data Gathering Activity 3: Endline Survey

a. Subject Population

The endline survey will be conducted with the cohort of girls who were enrolled in school at baseline and girls who have since joined the program. Given a baseline sample of 1,299 and 10% attrition between baseline and endline, we expect to interview approximately 1169 girls at endline.

b. Research Protocol

At endline, interviews will be conducted via a structured questionnaire based on the girls baseline questionnaire in Annex N either at the girl's home or, for the few still attending the same school as baseline (i.e. those repeating grade 7), at the primary school. Regardless of location, interviews will be conducted in private where others will not overhear the interview. We anticipate that endline data collection will take place between January and March of 2018, allowing for more time than the baseline fieldwork because most interviews will be conducted in respondents' homes and not at a centralized location.

Key outcomes assessed for girls at endline are the same as those asked at baseline with the addition of questions on progression to secondary school and attitudes about the intervention for those in Arms A and B.

c. Risks and Benefits to Subjects

Generally, there are no more than minimal psychological and health risks for the subject participating in the study. Due to the longitudinal nature of this study, personal identifying information is collected and maintained from participants. There is a minor risk of breach of confidentiality.

There may be a small risk that girls will feel uncomfortable answering some questions on the endline questionnaire. However, the topics included have been asked in large scale surveys in similar settings and among similar populations, including the DHS and the Guttmacher Institute's Protecting the Next Generation National Survey of Adolescents. Many of the questions used in this study also have been reviewed by the Population Council IRB for the Malawi School and Adolescent Survey (MSAS) and the Adolescent Girls Empowerment Program in Zambia and have been used in those studies with no significant adverse events reported by enumerators or supervisors. The girls will be informed that they are free to refuse to answer any question during the course of the survey.

Participants will directly benefit from the availability of referrals for those who have experienced violence. Such information has the potential for helping participants to seek the services they need to prevent or address future violence.

Overall both the risks and benefits of the endline survey are minor.

d. Confidentiality

All interviews will be conducted in private. FTFI will take place in a private physical space in or near respondents' households, in which family or community members cannot hear the questions or participant responses. The computerized interviews (ACASI) provide maximal privacy, since only the

respondent can hear the questions being asked and know the responses given. The FTFI and ACASI data will be linked via participant ID code.

All back up files will be encrypted and stored on secure media; the Study Participant Identification Register, any participant photos and participant information will be backed up on separate media.

e. Compensation

Respondents will also receive a small token of appreciation for participating in the survey. The amount of compensation (approximately 30 Kwacha or approximately US\$3) is based on the amount recommended by the Zambian Biomedical Research Ethics Committee in previous studies. Although relatively limited in monetary value, given the setting, such remuneration is often meaningful to participants. For those giving consent, the compensation will be given after completion of the interview; if they end the interview before completing the assessment, they will still be compensated.

f. Informed Consent Process

The involvement of adolescent females under the age of consent is a crucial component of this study. For all research activities involving minors, the consent of the parent/legal guardian will first be sought via an opt out information sheet that potential study participants will take home (see **Annex B**), followed by the written agreement (assent) of the youth. Research activities involving all study adolescents will be informed by *Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources* (Schenk and Williamson 2005).

As noted above, we are requesting a waiver of written parental permission in accordance with US Department of Health and Human Services' regulations §46.117 (Documentation of informed consent, section (c)) as 1) the research does not entail more than minimal risk, and 2) we are providing parents with a written statement about the research and the ability to opt out. For girls attending school, parent information sheets will be given out at school to girls to take home to their parents. For girls not attending school, parent information sheets will be given to girls or parents directly at their homes by either program staff or research staff.

For girls age 18 and older, adult consent forms will be administered.

Girls will be told during the informed consent process that they can choose not to participate in the study and do not have to answer questions they do not want to answer. They will also be told that they can refuse to participate in the survey even if their parents or guardians provide consent.

Following established informed consent protocols, each participant will be provided a thorough explanation of the purpose of the study, the privacy and confidentiality of their responses, and the process and extent of participation. They will also be told that they can withdraw from the study at any time without retribution. Consent from participants will be documented with a signature and date.

See **Annex C and D** for informed consent forms.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the behavioral information collected during the study.

Data Gathering Activity 4: Exam Score Data Extraction

a. Subject Population

We will collect Grade 7 Composite Exam data for all girls who were interviewed at baseline. While ideally we will obtain exam scores for all (approximately 1152) baseline participants, it will likely be less as not all girls will take the exam.

b. Research Protocol

With authorization from the MoGE we will collect exam score data from education officials.

c. Risks and Benefits to Subjects

The study population includes participants under the age of 18. According to NIH guidelines, as children, these participants are vulnerable and unable to make decisions about study participation without the consent of a parent or guardian. Generally, there are no more than minimal psychological and health risks for the subject allowing access to their exam scores, which are also shared with schools and teachers. There is a minor risk of breach of confidentiality, and participants may feel uncomfortable about their exam scores being shared with others. There is no additional benefit to participants of sharing their exam scores with the study.

d. Confidentiality

Grade 7 Composite Exam scores will be collected from the MoGE and added to each student's data file. All back up files will be encrypted and stored on secure media; the Study Participant Identification Register, any participant photos and participant information will be backed up on separate media.

e. Compensation

There is no direct compensation for allowing us to access their exam scores. As noted in the survey sections, compensation is related to participation in the surveys and not related to whether participants agree to allow access to their exam scores.

f. Informed Consent Process

As noted above, the consent of the parent/legal guardian will first be sought via an opt out information sheet that potential study participants will take home (see **Annex B**), followed by the written agreement (assent) of the youth. We are requesting a waiver of written parental permission in accordance with US

Department of Health and Human Services' regulations §46.117 (Documentation of informed consent, section (c)) as 1) the research does not entail more than minimal risk, and 2) we are providing parents with a written statement about the research and the ability to opt out.

Consent to obtain Grade 7 Composite Examination scores will be requested of the girls at the time of their baseline interview as an option to opt out on the baseline survey assent form (for those under age 18) or consent form (for those 18 and older). See **Annex C and Annex D** for informed assent and consent forms.

Data Gathering Activity 5: Head teacher questionnaire and school facilities inventory

In order to assess whether school quality explains any of the variability in girls' outcomes, data will be collected from the head teacher regarding his/her own background and attitudes, the number and qualification of teachers at their school, the number of students enrolled, the performance in the prior year by students at the school on the Grade 7 Composite Examination, and the health and nutrition programs available at the school. In addition the interviewer will conduct a brief inventory of the school facilities and infrastructure including water and toilet facilities, blackboard, and text book availability in Grade 7 classrooms.

a. Subject Population

Head teachers at the 36 schools will be interviewed. School facilities data will be collected from all 36 schools.

b. Research Protocol

Each head teacher will be assigned a study ID that includes the school ID number. Each school facilities inventory will be assigned the school ID number

c. Risks and benefits to subjects

The risks associated with this data collection activity are minimal. The information to be collected is not sensitive, though it could be that a head teacher may be uncomfortable answering some of the gender attitude questions and questions about student sexual activity.

Gathering and analyzing the data may potentially benefit the school and the Ministry of General Education as we learn more details about teacher qualifications and school facilities and their links to student outcomes.

d. Confidentiality

All interviews will be conducted in a private place in or near the school so that other teachers, students and community members cannot hear the questions or participant responses. No head teacher data will carry names, only head teacher ID numbers.

e. Compensation

Head teachers will not receive compensation for this data gathering activity.

f. Informed Consent Process

Head teachers will be told during the informed consent process that they can choose not to participate in the interview even though the Ministry of General Education has granted permission for girls from the school to be included in the GirlsRead! program. They also will be told that they do not have to respond to questions they do not want to answer.

Following established informed consent protocols, each head teacher will be provided a thorough explanation of the purpose of the study, the privacy and confidentiality of their responses, and the process and extent of participation. Consent from head teachers will be documented with a signature and date.

See **Annex M** for the head teacher informed consent form.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the information collected during the study.

Data Gathering Activity 6: In-depth interviews (contingent on obtaining funding)

a. Subject Population

The in-depth interviews (IDIs) will be conducted after the Phase 1 endline interview with a subset of approximately 42 Phase 1 Arm A and Arm B girls. Respondents will be selected based on their baseline reading level (high, low) and attendance (high, low) at safe space sessions; within each group, participants will be randomly selected. A few additional respondents may be selected as interesting case studies (e.g. girls who are reported to do well in school but have performed poorly on our assessments). Approximately 24 IDIs will be conducted in Arm A (10 in Lusaka, 8 in Ndola and 6 in Chingola) proportionate to the distribution in the baseline sample, and approximately 18 IDIs will be conducted in Arm B (7 in Lusaka, 6 in Ndola and 5 in Chingola), again proportionate to the distribution at baseline.

b. Research Protocol

The IDI will be conducted after the endline interview either at the girl's home or at school. Regardless of location, interviews will be conducted in private where others will not overhear the interview. Questions will be asked about which aspects of the e-reader and safe spaces girls found enjoyable, what challenges they encountered and what suggestions they have for improvement.

c. Risks and Benefits to Subjects

Generally, there are no more than minimal psychological and health risks for the subject participating in the IDI. There may be a small risk that girls will feel uncomfortable answering some questions critical of the intervention. The girls will be informed that they are free to refuse to answer any question during the interview.

There are no direct benefits to the girls although the information collected in the IDIs will help the investigators improve the intervention for future participants including girls in Phase 2.

d. Confidentiality

All interviews will be conducted in a private physical space in or near respondents' households – or school if that is what the respondent prefers -- in which family or community members cannot hear the questions or participant responses. Interviews will be recorded and stored on secure media.

e. Compensation

Respondents will also receive a small token of appreciation for participating in the IDI. The amount of compensation (approximately 30 Kwacha or approximately US\$3) is based on the amount recommended by the Zambian Biomedical Research Ethics Committee in previous studies. Although relatively limited in monetary value, given the setting, such remuneration is often meaningful to participants. For those giving consent, the compensation will be given after completion of the interview; if they end the interview before completing the assessment, they will still be compensated.

f. Informed Consent Process

The involvement of adolescent females under the age of consent is a crucial component of this study. For all research activities involving minors, the consent of the parent/legal guardian will first be sought via an opt out information sheet that potential study participants will take home (see **Annex O**), followed by the written agreement (assent) of the youth. Research activities involving all study adolescents will be informed by *Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources* (Schenk and Williamson 2005).

As noted above, we are requesting a waiver of written parental permission in accordance with US Department of Health and Human Services' regulations §46.117 (Documentation of informed consent, section (c)) as 1) the research does not entail more than minimal risk, and 2) we are providing parents with a written statement about the research and the ability to opt out. For girls attending school, parent information sheets will be given out at school to girls to take home to their parents. For girls not attending school, parent information sheets will be given to girls or parents directly at their homes by either program staff or research staff.

For girls age 18 and older, adult consent forms will be administered.

Girls will be told during the informed consent process that they can choose not to participate in the interview and do not have to answer questions they do not want to answer. They will also be told that they can refuse to participate in the interview even if their parents or guardians provide consent.

Consent from participants will be documented with a signature and date.

See **Annex P and Q** for informed consent forms.

Data Gathering Activity 7: Phase 2 Assessment at baseline and endline (contingent on obtaining funding)

a. Subject Population

The Phase 2 assessment will be conducted with girls enrolled in Phase 2 of GirlsRead, approximately 15 girls per school ($n \approx 1100$). This will be a paper and pencil self-administered questionnaire and literacy assessment that would be conducted in school at Phase 2 baseline March-April 2018 and endline July-August 2018. For girls who are no longer in school at endline, this would be conducted at home or another convenient private place in the community.

b. Research Protocol

To reduce costs, the literacy assessment component will consist of the multiple-choice section of the literacy assessment conducted in Phase 1. Survey questions will also be kept short and in multiple choice format. The assessment will be administered at the girl's school or, for those no longer attending school, at home. For girls who are at school, they will take the paper and pencil survey/assessment in a separate space – classroom or outside – where each will have their own desk or clipboard, and where they will be free from interruption. For girls taking the survey/assessment at home, they will be conducted in private.

c. Risks and Benefits to Subjects

There may be a small risk that girls will feel embarrassed if they are unable to answer some of the literacy questions. The girls will be informed that they are free to refuse to answer any question during the survey.

There are no direct benefits to the girls although the data collected will help the investigators determine if the e-reader intervention has an immediate benefit to the girls in terms of improved literacy skills.

Overall both the risks and benefits of the assessment are minor.

d. Confidentiality

Girls who are in school will take their tests in a group – e.g., in a classroom or outside space – but will have separate desks and/or be seated far enough away from each other so that they cannot see each other's answers. The classroom or outside space will be separate and/or closed off enough so that other students or community members will not be able to see the questions or participants' responses. Surveys/assessments for girls who are not in school will be conducted in a private physical space in or near respondents' schools or households, in which other students, family or community members cannot see the questions or participant responses.

All back-up files will be encrypted and stored on secure media; participant information will be backed up in separate files.

e. Compensation

Respondents will also receive a small token of appreciation for participating in the assessment. The amount of compensation (approximately 30 Kwacha or approximately US\$3) is based on the amount recommended by the Zambian Biomedical Research Ethics Committee in previous studies. Although relatively limited in monetary value, given the setting, such remuneration is often meaningful to participants. For those giving consent, the compensation will be given after completion of the interview; if they end the interview before completing the assessment, they will still be compensated.

f. Informed Consent Process

The involvement of adolescent females under the age of consent is a crucial component of this study. For all research activities involving minors, the consent of the parent/legal guardian will first be sought via an opt out information sheet that potential study participants will take home (see **Annex S**), followed by the written agreement (assent) of the youth. Research activities involving all study adolescents will be informed by *Ethical Approaches to Gathering Information from Children and Adolescents in International Settings: Guidelines and Resources* (Schenk and Williamson 2005).

As noted above, we are requesting a waiver of written parental permission in accordance with US Department of Health and Human Services' regulations §46.117 (Documentation of informed consent, section (c)) as 1) the research does not entail more than minimal risk, and 2) we are providing parents with a written statement about the research and the ability to opt out. For girls attending school, parent information sheets will be given out at school to girls to take home to their parents. For girls not attending school, parent information sheets will be given to girls or parents directly at their homes by either program staff or research staff.

For girls age 18 and older, adult consent forms will be administered.

Girls will be told during the informed consent process that they can choose not to participate in the assessment and do not have to answer questions they do not want to answer. They will also be told that they can refuse to participate even if their parents or guardians provide consent.

Following established informed consent protocols, each participant will be told that she can withdraw at any time without retribution. Consent from participants will be documented with a signature and date.

All program girls who received parental permission at baseline will be re-consented at endline. We will not re-send the passive parental permission forms home at endline, as the initial parental permission form covered the endline assessment. We will only interview girls whose parent gave permission for them to participate in the study. To ensure that no girls are interviewed whose parents declined, we will only print cover sheets for those girls whose parents consented to their participation in the study and make clear that girls who do not have a cover sheet will not be given the self-administered assessment.

See **Annex T and U** for baseline informed consent forms and **Annex V1 and V2** for endline informed consent forms.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the assessment.

Data Gathering Activity 8: Baseline Mentor Assessment

Given the significant role that mentors will play in implementing GirlsRead!, and their influence on program participants, information will be collected to assess the skills and attitudes that mentors bring to the program, as well as observe how they facilitate the sessions. These data will be primarily used for program monitoring purposes (to provide supportive supervision to the mentors). However, we may also use these data for research purposes (to assess whether mentor quality affected the program outcomes and whether there are any ancillary benefits that accrue to the program mentors).

The following data will be collected: baseline skills and attitudes, endline skills and attitudes, and structured observation of safe space sessions. These are elaborated below:

a. Subject Population

Mentors (females age 18 and over) will be recruited and hired by our implementing partner, FAWEZA to facilitate the GirlsRead! safe space groups. Inclusion criteria include that they have completed at least some secondary school, though secondary school graduates are preferred. A requirement of their job will be to take a baseline and endline assessment, and to be observed periodically facilitating the safe space groups. Approximately 48 mentors will be hired during phase 1. An additional 24 mentors will be hired for phase 2 but we are not currently planning to conduct any assessments during phase 2.

b. Research Protocol

After they have been hired by FAWEZA each mentor will receive a mentor ID number. Each mentor will complete a self-administered questionnaire (based on the mentor baseline questionnaire in Annex N) that asks their ID number, but not their name, basic sociodemographic information (such as age, schooling attainment, marital status), gender attitudes, and assesses their literacy and numeracy skills. For assessing literacy and numeracy we will be using the same assessments described earlier for the adolescents,

The assessment will be administered before they start their GirlsRead! training.

c. Risks and Benefits to Subjects

The risks associated with this data collection activity are minimal. The information to be collected is not sensitive, though it could be that a mentor may be embarrassed by her poor literacy or numeracy skills.

Benefits to the mentors include participating in the program, in which they will receive training that will build their teaching skills, learn how to use e-readers, and build their job experience. Gathering and analyzing the data will benefit society as we learn about the feasibility and effects of safe spaces and e-readers on schooling outcomes.

d. Confidentiality

No mentor data will carry mentor's names. Only their mentor ID number.

Mentor assessment data will only be included in publications, presentations, and reports in an aggregated manner such that the information cannot be traced back to individuals.

e. Compensation

Mentors will not receive compensation for this data gathering activity.

f. Informed Consent Process

Consent forms will be administered for all mentors for the endline assessment. Mentors will be told during the informed consent process that they can choose not to respond to questions they do not want to answer.

Following established informed consent protocols, each participant will be provided a thorough explanation of the purpose of the study, the privacy and confidentiality of their responses, and the process and extent of participation. Consent from mentors will be documented with a signature and date.

See **Annex I** for the informed consent form.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the information collected during the study.

Data Gathering Activity 9: Endline Mentor Assessment

a. Subject Population

Mentors (females age 18 and over) will be recruited and hired by our implementing partner, FAWEZA to facilitate the GirlsRead! safe space groups. Inclusion criteria include that they have completed at least some secondary school, though secondary school graduates are preferred. A requirement of their job will be to take a baseline and endline assessment, and to be observed periodically facilitating the safe space groups. Approximately 48 mentors will be hired during phase 1. An additional 24 mentors will be hired for phase 2 but we are not currently planning to conduct any assessments during phase 2.

b. Research Protocol

After they have been hired by FAWEZA each mentor will receive a mentor ID number. Each mentor will complete a self-administered questionnaire based on the mentor baseline questionnaire in Annex N that asks their ID number, but not their name, basic sociodemographic information (such as age, schooling attainment, marital status), gender attitudes, and assesses their literacy and numeracy skills.

The endline assessment will be administered at the mentors' final group meeting.

c. Risks and Benefits to Subjects

The risks associated with this data collection activity are minimal. The information to be collected is not sensitive, though it could be that a mentor may be embarrassed by her poor literacy or numeracy skills.

Benefits to the mentors include participating in the program, in which they will receive training that will build their teaching skills, learn how to use e-readers, and build their job experience. The data gathering will benefit society as we learn about the feasibility and effects of safe spaces and e-readers on schooling outcomes.

d. Confidentiality

No mentor data will carry mentor's names. Only their mentor ID number.

Mentor assessment data will only be included in publications, presentations, and reports in an aggregated manner such that the information cannot be traced back to individuals.

e. Compensation

Mentors will not be paid any additional fees for this data gathering activity.

f. Informed Consent Process

Consent forms will be administered for all mentors for the endline assessment. Mentors will be told during the informed consent process that they can choose not to respond to questions they do not want to answer.

Following established informed consent protocols, each participant will be provided a thorough explanation of the purpose of the study, the privacy and confidentiality of their responses, and the process and extent of participation. Consent from mentors will be documented with a signature and date.

See **Annex I** for the informed consent form.

The consent forms, along with identification information, will be kept separately from questionnaires so that names cannot be linked to the information collected during the study.

Data Gathering Activity 10: Monitoring of e-reader use

Monitoring data on a number of outputs that will contribute to achieving impact will be collected throughout the duration of the project. This will include routine project monitoring of outputs, such as numbers of e-readers and solar units distributed, and numbers of e-readers broken, fixed, lost or stolen.

In addition, at the end of the study, we will also examine the e-readers to see how many books were read. The specifics of this data gathering activity are outlined below.

a. Subject Population

All girls interviewed at baseline and randomized into arm A (e-reader arm) will be invited to participate in safe space groups with e-readers. We anticipate that most girls will choose to participate in the program, so approximately 384 e-readers will be inspected in this data collection activity.

b. Research Protocol

For monitoring and inventory purposes, at the start of the program we logged which girl received which e-reader (each e-reader has a unique number). This e-reader log includes the girl's name and the number of the e-reader she received. At the end of the safe space sessions for phase 1 (late September 2017), girls will return their e-readers to the program. The e-readers do not have the girls' names on them. Council staff will examine each e-reader and record the e-reader number, which books were opened, and what proportion of an opened book was read. Staff reviewing the books read on the e-readers will not have access to the log that links the e-reader number to a girl's name, nor will they have access to the master log that contains girls' names and their study ID numbers. Only at the analysis phase will data from the e-reader be linked to study participants by the study investigators or research team members designated by the investigators.

We acknowledge this one-time inspection of the e-readers is an imperfect gauge of what an individual girl read over the course of approximately 7 months. For example, others in her family may have read some of the e-books, or she may have read a book fully and then read it a second time but only partly, or she may just have flipped through pages of a book without reading it. Nonetheless, reviewing the books read will give a general sense of how much the e-reader was used, and, across all e-readers, which books were preferred.

c. Risks and Benefits to Subjects

The risks associated with this data collection activity are minimal. How much of a book has been read is not highly personal information and the approximately 100 books on the e-readers were pre-set by the project. Accessing and recording the data will occur after the close of phase 1 when the e-readers are back in possession of the Council. Staff reviewing the e-readers and recording the information will not be able to link the e-reader data with any participant's identifying information or survey responses.

One possible risk associated with the e-readers is the danger of theft. However, Worldreader has introduced e-readers in a wide range of African settings and has not found theft to be a big issue. In order to further discourage theft, the e-readers will be clearly identified as GirlsRead! project materials. Community engagement activities to ensure community and parental buy-in will further inure against theft. We note that now, after the program has been running for over 5 months (August 2017), less than a handful of e-readers (out of 417) have been stolen.

Benefits to the girl include access to the books on the e-reader. The data gathering will benefit society as we learn about the feasibility and effects of the e-readers on schooling outcomes.

d. Confidentiality

Monitoring data from e-readers is linked to a particular device. Only investigators and study staff who they designate will have access to the list that links the e-reader to a particular participant.

Finally, e-reader monitoring data will only be included in publications, presentations, and reports in an aggregated manner such that the information cannot be traced back to individuals.

e. Compensation

Participants will not be compensated for this data gathering activity. Participants will not incur any expenses as this data gathering activity will occur after they return the e-readers to the project and will not involve them or any of their time.

f. Informed Consent Process

Consent to download data from participants' e-readers will be requested of the girls as part of their consent into the immediate post-intervention assessment. As noted above, given the girls' age, this will entail first obtaining passive consent from parents (**Annex B**), and then assent from the girls themselves (**Annex C**). For girls age 18 and older, adult consent forms will be administered (**Annex D**).

Data Gathering Activity 11: Monitoring of program activities

Routine project monitoring will also include, for example, number of community-wide events held, topics discussed at community engagement events, activities undertaken at each girls' group meeting, including, in Arm A, the books discussed. This monitoring of project outputs will be conducted by FAWEZA.

In addition, FAWEZA will also monitor girls' participation in the intervention. Specifically, mentors will collect data on the number of girls enrolled in each safe space group, and their attendance and participation in group meetings. Collection of this participation data is outlined below.

a. Subject Population

All girls interviewed at baseline and randomized into arms A and B (e-reader arm and safe spaces-only arms) will be invited to participate in safe space groups. We anticipate that most girls will choose to participate in the program, so approximately 768 girls will participate in this data collection activity.

b. Research Protocol

One study ID will be used for both program and research data. (Program staff have no access research data.)

Program monitoring will continue throughout phase 1 (March – October 2017) of the study. Use of the monitoring data for research purposes will not occur until we begin to analyze the survey data.

c. Risks and Benefits to Subjects

The risks associated with this data collection activity are minimal. The level of participation in the program is not highly personal information, though it could be that a girl may be embarrassed by not participating as much as was expected of her.

Benefits to the girl include participating in the safe space groups, which aim to provide girls with connections with peers, opportunities to build cognitive assets, etc. The data gathering will benefit society as we learn about the feasibility and effects of safe spaces and e-readers on schooling outcomes.

d. Confidentiality

Only study staff (investigators and trained staff designated by investigators) will be able to link research and program data. .

Finally, program monitoring data will only be included in publications, presentations, and reports in an aggregated manner such that the information cannot be traced back to individuals.

e. Compensation

Participants will not be compensated for participation in this data gathering activity.

f. Informed Consent Process

Consent to use monitoring data on girl's participation in the safe spaces groups for research purposes will occur as part of their consent into the midterm assessment. As noted above, given the girls' age, this will entail first obtaining passive consent from parents (**Annex B**), and then assent from the girls themselves (**Annex C**). For girls age 18 and older, adult consent forms will be administered (**Annex D**).

Data Management

The study will be carried out with high sensitivity to the cultural issues that it raises. A number of strategies will be implemented: 1) all interviewers will speak the local language and will be familiar with the local culture; 2) FAWEZA will work with community leaders and mentors to prepare the community prior to data collection so that they are aware and accepting of the study prior to the arrival of the enumerators; 3) the intervention includes a community engagement component (beyond preparation for data collection) that will involve the community in discussions about the importance of building a culture of reading and supporting girls' education.

A complete protocol training will be conducted with all personnel. The training will include review of study procedures, instruments, ethics, and confidentiality.

For Phase 1, survey instruments will be administered by electronic data capture. All questionnaires will be translated into the most common local languages in the study areas. Computer-Assisted Personal-Interviewing (CAPI) on tablet computers will be completed for every participant. The local Study Coordinator and data manager will check all completed questionnaires for completeness and accuracy. Data will be exported into Stata for further internal consistency checks and analysis. The ACASI will utilize customized software developed by the information technology staff at the Population Council.

Electronic data will be collected and stored on secure tablet computers with multiple layers of security, requiring login at the computer and application level. The data will be backed-up daily on external media, encrypted and stored in a secure environment. The ACASI data will be merged with the data collected via CAPI using ID codes assigned to each respondent. No personal identifying information will be included with the participant's survey responses. The file that links participants to their responses will be stored in a password protected computer and available only to study investigators and coordinators.

For Phase 2, survey instruments will be administered with a paper and pencil. The questionnaires will be translated into the most common local languages in the study areas, but the literacy assessment will be in English as it is English literacy that is being assessed. Depending on the advice of local partners, we will either use bubble sheets for the answers so that responses will later be scanned into digital format, or, if that is not advised, trained data entry staff will enter the responses into computers at the Council's office in Lusaka. Data will be exported into Stata for further internal consistency checks and analysis.

Electronic data will be stored on secure computers with multiple layers of security, requiring login at the computer and application level. The data will be backed-up on external media, encrypted and stored in a secure environment. No personal identifying information will be included with the participant's survey responses. The file that links participants to their responses will be stored in a password protected computer and available only to study investigators and coordinators.

Data Analysis and Dissemination of Project Findings

Data analysis

Data analysis will be conducted by the Population Council.

The central problem with assessing the impact of programs such as GirlsRead! on outcomes and behaviors related to the health, education and attitudes of adolescent girls is that there may be important unobserved factors that directly affect both participation in the program and the outcomes and behaviors of interest. Therefore any association with program participation and outcomes and behaviors may reflect such unobserved factors and not necessarily the causal effects of the program per se. Examples of

such unobserved factors include some at the individual level such as innate capabilities and ambition, some at the household level such as the extent of support for girls' development, and some at the community level such as the quality of schooling.

It is important in program evaluation to recognize the estimation problems that result from selection into program participation and to investigate the degree to which estimated program impacts are sensitive to alternative assumptions about the underlying selection processes. The GirlsRead! evaluation will deal with these questions through both the study design, the data collected and analytical approaches. First, we will use a randomized cluster design, where each school is a cluster, which allows for the possibility of program participation to be independent of school (or school community) factors. To assess program impact, we will utilize an intent-to-treat analysis, estimating the average effect of the program on the individual in the population exposed (that is, standard 7 girls in Arms A and B) relative to the controls (standard 7 girls in Arm C). Second, we will collect extensive individual, family and school data in an effort to lessen the importance of unobserved factors and include these in secondary analyses. Third, we will investigate carefully the possibility of spillovers that might compromise the measurement of impact. Fourth, we will use econometric estimation techniques to control for these issues, such as individual fixed effects estimation that will control for unobserved fixed individual, family and community characteristics and instrumental variable estimates using the randomization as an instrument to investigate the impact of GirlsRead! on outcomes and behaviors.

Dissemination of project findings

The findings of our study will be disseminated in a variety of venues and will reach diverse audiences. Not only do we intend to contribute to the academic literature on adolescent health and schooling outcomes, we also plan to inform local policy makers and donors about the results of this study. Publications in peer-reviewed journals will be pursued in the areas of demography, development and education. Such publications will serve the Zambian education and health community indirectly by highlighting the relevant issues concerning adolescent girls that influence the perspectives and agendas of international donors, program managers, and academics.

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