Endline Evaluation of Rwandan Children's Book Initiative (RCBI)

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1. EXECUTIVE SUMMARY

Through the support of the Innovation for Education fund, a partnership between the Governments of Rwanda and the UK, Save the Children in Rwanda began implementation activities for the Rwandan's Children Book Initiative (RCBI) in May of 2013 to support publishers to produce high quality, age appropriate, Kinyarwanda children's books and to distribute these books to schools, at the same time as improving teachers' skills, knowledge and confidence to use books in support of literacy acquisition and learning outcomes.

As observed in most developing countries, a serious "children's book gap" was noticed in Rwanda. The main challenges in these countries are:

- **Availability:** A lack of age appropriate, local language children's books means children don't have books with which to acquire and practice their reading skills. Further, what is available is often poorly written, edited, illustrated and designed, in the wrong language or for the wrong age group.

- **Poor supply chain:** Local publishers lack the skills, knowledge and experience to produce high quality children's books. Furthermore, as a result of low demand for non-textbook materials, they lack incentives to produce good quality non-textbook material.

- **Inadequate demand:** Although all efforts to improve reading skills acknowledge the importance of good quality, age appropriate, local language material most projects take a decision to produce or procure that material on a one-off basis. In this way they fail to address the system-wide issues associated with the supply chain or with how the demand for the material will be sustained.

- **Poor management and use:** Even if material is available and meets basic quality standards it is often not accessible to, or within, schools. Evidence also indicates that even when appropriate, quality reading materials are available within schools, teachers don't have the skills to use them effectively[1].

RCBI was designed to pilot techniques within Rwanda to address these "children's book gap" challenges. Over the life of this project, RCBI aimed to achieve the following intermediate outcomes:

1) Publishers, authors, and illustrators have the knowledge, skills and confidence to produce high quality children's books in Kinyarwanda;
2) Quality, quantity and range of children's books is established and sustained, and mechanisms are in place that will stimulate demand in the future;
3) Teachers have the knowledge, skills and confidence to manage school book collections and use books to support reading and learning.

RCBI expected that by the end of the intervention, new high quality Kinyarwanda children's books would have been produced by local publishers. These books would then be used in schools by teachers who would have the skills, knowledge and confidence to use the books in

[1] The Brookings Institution, *A Global Compact on Learning*. (Washington DC: Brookings Institution, 2011)

support of improving students' reading skills, supporting the concept that children need to learn to read in order to read to learn. Furthermore, evidence generated through this project would help to inform Save the Children, the Government of Rwanda and other relevant actors on future programming and budget prioritisation relating to the production and use of children's books.

The baseline for this project was carried out in May-June 2013 to establish the benchmarks for measuring progress towards the stated outcomes of the project and to understand the initial situation with respect to the project's research questions. As the project had two levels of intervention – national and local – the evaluation was structured accordingly to outline the purpose, methodology, results and conclusions of the two separate components. In order to assess the contribution of the RCBI and the extent to which this vision was achieved, an endline evaluation was carried out in March 2015. The endline assessment investigated any improvement in the areas mentioned above with a focus on the support provided to publishers to enable them to produce high quality, age appropriate, Kinyarwanda children's books. At the same time, the study assessed the level of improvement in teachers' skills, knowledge and confidence to use books in their classrooms following RCBI support.

National Level Findings in relation to Outcomes:

1) Publishers, authors, and illustrators have the knowledge, skills and confidence to produce high quality children's books in Kinyarwanda;
2) Quality, quantity and range of children's books is established and sustained, and mechanisms are in place that will stimulate demand in the future.

Indicator 1: Evidence that publishers, writers, editors and illustrators who benefited from RCBI training and capacity building are using the knowledge and skills acquired. .

Interviews with the authors, publishers and illustrators reveal that RCBI has contributed to increasing their knowledge, skills, and confidence. Analysis of interviews and focus groups with authors, illustrators, publishers, editors, and representatives of the Rwanda Library Services, Ministry of Education and Development Partners shows that RCBI training contributed to increase participants' knowledge, skills, and confidence. In the focus groups, they also mention that RCBI helped them to build connections among the different actors to better understand the steps that illustrators, writers, and publishers go through to complete their work.

Indicator 2: Increase in the number of Kinyarwanda children's story-books.

Through trainings and mentorship, **RCBI supported the development of 47 Kinyarwanda children's books over the course of the project**. These books were intended for a P1-P3 audience, either for read aloud or read alone purposes.

Indicator 3: Increase in the range of Kinyarwanda children's storybooks

With the approval of the 47 books, the range of children's book similarly has increased. There are currently now 9 books available for nursery (pre-primary) level, 5 of which were non-fiction, whereas 4 were fiction books. At the primary level, there are 36 books, 6 of which were non-

fiction and 30 of which are fiction. It's worth noting that several of these titles are versions of concept books that can often vary in their classification as fiction or non-fiction. In this case, any concept books without a plot related to a character has been classified as non-fiction.

Indicator 4: Increase in the quality of Kinyarwanda children's storybooks

The endline book review analyzed 50 books including 25 books created following the publishing industry's collaboration with RCBI and 25 books that existed on the market prior to the RCBI intervention. Each book was analyzed using the detailed guidelines and criteria established by REB for assessing book quality. **A comparison of 'RCBI'[2] and 'non-RCBI' books revealed that RCBI books were of a significantly higher quality and greater range than non-RCBI books.** RCBI books scored 'acceptable', 'good' and 'excellent', with no books scoring as 'not acceptable' and 'poor'. RCBI books scores contrast sharply with the scores of non-RCBI books, which scored 'not acceptable' and 'poor' under several of the criteria of assessment.

Local Level Findings in relation to Outcome:

3) Teachers have the knowledge, skills and confidence to manage schoolbook collections and use books to support reading and learning.

In order to assess the impact of RCBI at the level of schools and students, head teachers, teachers and students were surveyed and classrooms observed in 26 schools in Burera district in the Northern Province of Rwanda where RCBI activities took place and 26 schools in Rubavu district in the Western Province, where no RCBI activities had taken place. An assessment of reading skills was also conducted with students.

Indicator 1: Frequency of reading storybooks by students

The endline survey revealed significant increases in the frequency of reading storybooks in schools in Burera schools when compared to baseline and control schools. Whereas only about half of teachers in RCBI schools reported reading storybooks to students at baseline, all of them (a significantly higher percentage than the control group) reported reading storybooks to their students at endline. All of the teachers in RCBI schools reported asking their students to read storybooks while only 61% of teachers in the control group reported doing so.

When teachers were asked how many storybooks they asked their students to read in one school term a vast majority of RCBI teachers reported asking students to read more than 3 storybooks[3] at endline whereas none of the control group teachers reported doing so.

Indicator 2: Changes in teacher practice in P1[4], P2 and P3 classroom use of storybooks

Of the P2 and P3 classrooms observed, a significantly higher percentage of RCBI classroom lessons included reading activities as compared to the control group and a significantly higher percentage of RCBI teachers were observed using storybooks in their lessons as compared to teachers in the control group. These observations included substantially more RCBI teachers reading a storybook aloud during classroom observation than

[2] Note that the term 'RCBI books' refers to books published by Rwandan publishers following support received through RCBI. RCBI doesn't directly produce or publish books.

[3] Note that this is the highest value children were asked if they read.

[4] P1 students were not included in the endline sample as they did not have sufficient exposure to the RCBI activities, hence not appearing in the analysis and results.

control group teachers and of the teachers who read aloud to their students, a significantly higher percentage of RCBI teachers were observed using effective strategies for read aloud including holding up the books so that all students could see the writing clearly, identifying the book title for students, talking about the cover illustration, reading clearly in a volume that all students could hear and modeling fluent reading, with adequate pace, speed and intonation. Further, a significantly higher percentage of RCBI teachers than control teachers used comprehension strategies during read aloud including using a pre-reading activity to get students thinking about the story, encouraging students to make predictions about the story during reading, asking students to recall simple facts during reading the story, asking students deeper comprehension questions about the story that required students to think critically about the story or connect it to their lives, and encouraging students to reflect on the story through post reading activities.

Additionally, as compared to control group classrooms, **a significantly higher percentage of RCBI classrooms exhibited print-rich environments**, which included professionally printed materials, teacher-made materials, student-made materials, words matched to pictures, alphabet sequence, wall materials in Kinyarwanda and other materials on classroom walls.

Other positive practices compared to the control group included that RCBI teachers allowed students to choose their own books for independent reading, allowed or encouraged their students to find a reading spot other than their desks such as a mat in the classroom, outside the classroom or under a tree, and asked students questions about the books that encouraged students to think critically about the story.

During lesson observations, a significantly higher percentage of RCBI teachers as compared to control group teachers were observed encouraging students to read storybooks at home. Students were observed borrowing storybooks to take home to read during the observed lesson in 11% of observed classrooms in the RCBI schools whereas no students were observed borrowing storybooks to take home to read in any of the control group classrooms. RCBI has had a substantial impact on children reporting that they are reading at least one type of reading material at home or at school.

Indicator 3: Access to storybooks by students in P1-P3

Books being kept on open shelving and in individual classrooms as opposed to the head teacher's office or elsewhere in the school building means that that they are visible to and more easily accessible to students. Overall, fewer head teachers reported storybooks being kept in the head teacher's office at endline as compared to baseline while a higher percentage of RCBI head teachers reported storybooks being kept in individual classrooms at endline than at baseline. In contrast, none of the control group head teachers reported storybooks being kept in individual classrooms at endline. In addition a significantly higher percentage of head teachers in RCBI schools reported books being stored in open shelving (as opposed to in boxes or closed cupboards) at endline compared to control group school head teachers.

At endline, according to teacher report, **a significantly higher percentage of RCBI classrooms had reading materials available for students as compared to control group classrooms**. For instance, only 34% of teachers in the control group reported having storybooks in their classrooms while 98% of teachers in the treatment group reported having storybooks in their classrooms. In a significant majority of RCBI classrooms teachers reported books being

displayed somewhere in the classroom so that students could see the front cover while this was reported to be the case in a minority of control classrooms.

Additionally, a significantly higher percentage of teachers at endline in the RCBI group as compared to the control group reported students being able to hold and look at storybooks in the classroom and a significantly higher percentage of teachers in the RCBI group than control group reported students having access to storybooks on their own (without the supervision of the teacher or another adult). **The overwhelming majority of RCBI children report holding non-textbooks in the classroom and over half in each grade also report taking the books home.** These findings were validated during classroom observations where students were observed holding and reading storybooks during lessons in a significantly higher percentage of RCBI classrooms than control classrooms.

RCBI and development of reading skills among students in Burera

In addition to measuring the expected outcomes relating to changes in practices, following anecdotal evidence gathered throughout the project implementation, which indicated that children exposed to the RCBI intervention were better readers than their contemporaries who didn't benefit from the intervention, the decision was made to introduce a reading assessment to compare RCBI students' reading skills with those from control schools.

This assessment found that RCBI students have higher average reading skill scores than control school students. The presence of storybooks obviously and overwhelmingly predicts the probability of student reading. In exploring equity in the prediction of the probability of reading with sound comprehension, an interaction effect reveals that girls in the RCBI group are more likely to be readers with comprehension.

RCBI and story writing skills among students in Burera

Finally, story writing workshops were piloted in four purposively selected schools (2 RCBI, 2 control) to explore the possibility of using story writing ability as an additional measure of RCBI's results. The workshops attempted to measure the degree to which children's exposure to RCBI would improve their understanding of storybook structure, familiarity with storytelling and illustrations and their creativity in general. While scores were low in general, **children in RCBI schools had higher scores (displayed better story writing skills) than children in control schools**. Although the sample size for this assessment was small and the thus the findings not generalizable, it shows promise as an additional measure of literacy skill development particularly following exposure to storybooks.

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2. INTRODUCTION

Numerous learning assessments prove that the availability of children's reading materials is critical to children acquiring basic literacy skills and is directly associated with higher student performance. Children who fail to read in the early grades fall further behind each school year, because reading ability is progressively used as a tool for acquiring other types of knowledge. Poor performing students struggle to catch up and some of them drop out from school. Despite this evidence, most developing countries, including Rwanda, experience a serious 'children's book gap'.

In order to ultimately improve literacy acquisition and learning outcomes in Rwanda, the Rwanda Children's Book Initiative (RCBI) vision is to get 'more children reading more and better books'has a vision of more children reading more and better books. To achieve this vision, several actions must take place. This includes improving the supply of books, increasing demand for books and supporting the effective use of books. The RCBI project has focused on improvements in these areas by supporting publishers to produce high quality, age appropriate, Kinyarwanda children's books and distribute these to schools, at the same time as improving teachers' skills, knowledge and confidence to use books in their classrooms in support of literacy acquisition and higher learning outcomes.

Most attempts to address the lack of reading material or improve its quality are narrow interventions that involve the implementer printing material for direct distribution. RCBI promotes a unique, whole-system approach, which addresses the book gap by intervening at every stage of the local book chain; going beyond the immediate beneficiaries to develop an entire, self-sustainable, market and industry for good quality, non-textbook, children's reading materials, in addition to ensuring that books provided to schools can be managed and used effectively.

The project is focusing on three outcomes:

1) Publishers, authors, and illustrators have the knowledge, skills and confidence to produce high quality children's books in Kinyarwanda;
2) Quality, quantity and range of children's books is established and sustained, and mechanisms are in place that will stimulate demand in the future;
3) Teachers have the knowledge, skills and confidence to manage schoolbook collections and use books to support reading and learning.

RCBI aimed to achieve these goals through the following activities

1) Training of local and regional publishers to produce high quality, age appropriate, local language children's reading material;

2) Training of the Rwanda Education Board (REB) to have set criteria for approval of high-quality reading materials;

3) Stimulating supply and demand for reading materials;

4) Providing the purchased REB approved reading materials to the P1-P3 classrooms of all primary schools in one district in Rwanda;

5) In-service training of all P1-P3 teachers, head teachers and education officials in one district on how to use the materials effectively to better support literacy acquisition and learning outcomes;

6) Pre-service training of teachers at teacher training colleges;

7) Orientation with parent-teacher committees to promote reading at home, and dissemination of a guide: "Enjoying Books at Home with Your Child"

This report discusses both national and local level interventions and aims to answer two main research questions:

1) **How do teaching practices influence students' reading habits?**
2) **How does accessibility to storybooks increase students' reading habits?**

Findings at each level are presented separately.

3. NATIONAL LEVEL RCBI REPORT

3.1 Summary of National Level RBCI Baseline Report

At the baseline, activities at national level were measured through a non-experimental, before and after, intervention comparison of results. The purpose of the national level baseline study was to collect data on the number, range and quality of the available Kinyarwanda children's storybooks published by local, regional and international publishers. The baseline results have enabled the measurement of improvement over time towards the RCBI expected results. The primary methodological approach used at baseline consisted of a detailed and in-depth book review of the Kinyarwanda children's storybooks appearing on the Rwanda Education Board (REB) approved list of supplementary materials for distribution in schools and other children's storybooks available on the market as informed by publishers.

Overall, the baseline report demonstrated that there was significant room for improvement in the number, range and quality of Kinyarwanda children's storybooks. The number of Kinyarwanda children's storybooks for grades P1-P3 and below was quite low, with only 139 books on the Supplementary Materials REB approved list. Most of the REB-approved books were written in English, which is the language of instruction in schools only from P4. It was identified that more age-appropriate and higher quality Kinyarwanda books needed to support the growth of a culture of reading in the country and to help children improve their reading skills in their native language.

Furthermore, the analysis demonstrated that there was a large gap in materials for pre-primary aged children. As research has shown, exposure to books and reading at an early age is a predictor of success in school and learning. However, age-appropriate, local language materials need to be available to support the promotion of early grade reading.

As expressed in the draft 2013-2017 Education Sector Strategic Plan (ESSP), the Government of Rwanda is committed to increasing support for pre-primary education, including providing capitation grants for purchasing books to be delivered to pre-primary classrooms, which are due

to be added to all primary schools by 2017. Hence the report showed that more N1 to N3 titles needed to be added to the REB- approved list.

The book review also showed that the quality standard of the titles needed improvement. The majority of Kinyarwanda books were deemed 'acceptable', 'poor' or 'unacceptable' across all REB standards for quality criteria such as text content, presentation, language, editorial quality and factual accuracy (the latter only for non-fiction). RCBI set to increase the number of books that increased the standards of available books to the levels of 'good' and 'excellent'. As shown in what follows, this outcome was achieved.

3.2 Purposes of Endline Report

In the endline evaluation, the scope of the evaluation was an after-intervention book review. In addition to the book review, however, new qualitative methods were also used. These qualitative methods were guided by the two following outcomes:

Outcomes:

Outcome 1. Publishers, authors and illustrators have the knowledge, skills and confidence and produce high quality children's books in Kinyarwanda and evidence that they are using the knowledge, skill and confidence acquired.
Outcome 2. Quality, quantity and range of children's books is established and sustained and a range of mechanisms are in place that will stimulate demand in the future

The methodology and the results of this study will be discussed in a way that aligns with the two aforementioned outcomes.

3.3 Methodology

The methodology for data collection at national level was carried out as follows:

i) Interviews
ii) Focus groups
iii) Non-experimental after the intervention book review

Details about each method used are provided in the following table.

Table 1: Detailed overview of methods used at the national level endline

Method	Goal & Sub Tasks	Design & Data Collection	Sample
Interviews	The goal of the interviews was to contribute toward the evaluation of Outcome 1.	Semi-structured qualitative approach to interview. . Language: 6 in English, 1 French, and 5 in Kinyarwanda.	Sample size: 12 interviews in total. The interviews were conducted in person, in Kigali. These interviews included interviews with 3 publishers, 3 authors, 3 illustrators, 1 designer, 1 editor, the REB Kinyarwanda Specialist, and a representative from UNICEF. They were conducted from 13

			to 20 March 2015. Sampling strategies: snowball sampling.
Focus Groups	Focus groups enabled exchanges among different actors, setting the foundations for collaboration among these actors long term. The goal of the focus groups was to contribute toward the evaluation of Outcome 1.	Semi-structured qualitative approach to interview. Language: mix of English and Kinyarwanda.	Sample size: three focus groups with 7 participants in total, including actors from the book industry, RCBI partners Rwanda Library Services and Ishyo Arts Centre. The first focus group included 1 author, 1 publisher, and 1 illustrator. The second group included 1 editor and 1 publisher. The third focus group included 1 developing partner (a literature project manager from Ishyo Arts Centre) and 1 employee of the Rwanda Library Services (Outreach and Extension Coordinator). Sampling Strategies: purposive sampling directed at selecting actors that already collaborate, or that might be interested in collaborating in the future.
Book Review	An endline book review has been conducted in order to test the changes brought by RCBI in terms of the quality, range, and quantity of the relevant books available. The goal of the book review was to contribute toward the evaluation of Outcome 2.	Language: Kinyarwanda.	Sample size: 50 books, 25 of which were created with the support of RCBI and the other 25 not. This aspect of the project was conducted between the 29 March 2015 and the 6 April 2015. Sampling strategies: stratified random sampling.

The analysis has endorsed an issue driven approach concerned with identifying the relevant themes in order to evaluate whether the pre-established outcomes have been reached or not.

3.3.1. Validity and Reliability of the Data

Measures have been taken to ensure the validity and reliability of the data. A triangulation of different methods of analysis was used for the assessment of each outcome indicator in order to increase the validity of the data collected. The books reviewed were blindly evaluated as to control for biases. Moreover, to ensure regulation of biases throughout the report, two different people, external to Save the Children International, collected the data and evaluated the findings. Transparency has been an important criterion for data collection and analysis; the instruments

used in order to collect the data have been included in the appendixes. Data collection also emphasized the anonymity and the confidentiality of the findings both for ethical reasons and in order to ensure the truthfulness of the data collected.

3.3.2. Ethics

The project followed clear and specific ethical guidelines. Consent to use the data collected was asked for every method of data collection to the relevant individuals and institutions. During the interviews and the focus groups consent was asked at the beginning of every interview period. This involved explaining to the participants the nature of the project and asking them to provide written and formal consent.

3.4 Findings from National Level Endline

3.4.1. Outcome 1

Publishers, authors and illustrators have increased their knowledge, skills and confidence to produce higher quality children's books in Kinyarwanda.

Interviews and focus groups have been used to evaluate Outcome 1. In relation to the expected outcome, 100% of the publishers, authors and illustrators claim to have increased their knowledge, skills, and confidence as a result of RCBI training.

3.4.1.1. Knowledge

i) Authors

An author who undertook 4 trainings says that he has improved his knowledge of the publishing industry as well as age-appropriate books:

> *"[With RCBI training], I have acquired knowledge about how to bring this business to the level of early readers, understanding what kind of books are appropriate but also that there are different styles of books that can be created for children. I also know more about the market for young children aged 0-6 years old."* (Author, 4 trainings)

Another author who attended 2 RCBI trainings argues to have increased knowledge around age-appropriate writing specifically as a result of RCBI training:

> *"I learned new writing techniques, for example how to adjust my writing to children of different age groups. Before RCBI, I would write the same way without making any differentiations in regards to the reader's age."* (Author, 2 trainings)

A similar differentiation between pre-RCBI training knowledge and post-RCBI training knowledge in regards to age-appropriate writing is made by an author who has undergone 3 RCBI trainings:

"We learned how to write for children because in the past we used to write stories, without taking into consideration the age of the reader and we were not able to say for what level the book should be. But after our trainings we learned to recognize for which age group the story was meant to be." (Author, 3 trainings)

ii) Illustrators

Just like the authors, illustrators claim to have increased their knowledge. For example, an illustrator who underwent 5 workshops affirms that RCBI training has increased his understanding of type-appropriate illustrations for children's books, learning about different styles of illustrations such as posters or concept designs:

"I learned about different types of illustrations, such as posters, concept designs, etc. This knowledge also applied to the education sector, as I now understand better what types of illustrations should be used when writing for students. I had to do a lot of changes before because I didn't understand the vision of the writer." (Illustrator, 5 trainings)

Similarly, another illustrator who has undergone 2 trainings identifies increased knowledge as a result of RCBI training, such as learning to balance texts and images on the same page, and to differentiate between types of illustrations for different age groups.

"I definitely gained a lot of knowledge [as a result of RCBI]. Before RCBI, I had limited knowledge about children's books. I didn't know how things were done, how to place pictures, how much text to place on pages. We learned almost everything. We learned how to place images and texts [on a page]. We learned how to differentiate the categories of books for example, books for children aged 0-3, 3-6, 6-9. We learned how to produce books for those different categories, which I believe was a very good thing. We also learned the basic design techniques like placing images to make them more appealing to children and how to place texts to match the images." (Illustrator/Designer, 2 trainings)

iii) Publishers

A publisher who has attended all the relevant trainings argues to have learned about how to structure the content of a story and about the different types of books available on the market:

"I learned about the different types of children's books that exist on the market. This information was new to me and wasn't something they taught us in school. I learned about the different stages of a story and what needs to go in each one of them. The recent workshop I attended taught me about how to do the design and layout of a children's story." (Publisher, attended three trainings)

Likewise another author claims to have increased his knowledge as a result of RCBI training, for example, by learning about different types of books such as books written abroad:

"I was already a publisher when I joined the RCBI programme but participating in it allowed my company to publish new products. For example, with the first training they showed us samples of children's books published outside of Rwanda." (Publisher, attended three trainings) [5]

A demonstrated by this qualitative data, authors, illustrators, and publishers claim to have increased their knowledge with RCBI training, including their knowledge of age-appropriate books, publishing industry, books available on the national and local market, different genera of books for children, critical and analytic knowledge about how to write, knowledge about how to illustrate and organize a story, and how to balance texts and illustrations in a story.[6]

3.4.1.2. Skills

Authors, publishers and illustrators, state that RCBI training has also contributed to develop their skills.

iv) Authors

An author who has undergone 4 RCBI trainings, for example, mentions that he has improved his writing skills as a result of RCBI training:

"The skills I have acquired through RCBI allow me to identify the different levels of readers and to know for which audience a specific book is meant. […] I can also critique children's books." (Author, 4 trainings)

RCBI training has also taught authors clarity. For example, an author with 2 RCBI trainings says:

"Before RCBI, we would write stories that were very heavy in style, with many ideas and lots of words, which made it harder for children to really follow them. Now we are learning new methods to simplify our style and make our stories clearer, and more understandable." (Author/publisher, 2 trainings)

Another author claims to have learned writing skills such as learning to structure a story from the introduction to the conclusion:

"Now when I write a book I know the different parts of the story I will be working on, from the introduction to the conclusion. They taught us what should go in each part of the story and in the case of the conclusion; we learned that it should include something exciting that would make the reader really enjoy the story." (Author, 3 trainings)

[5] Also an editor interviewed pointed to the fact that RCBI training increased his relevant knowledge: *"Through those RCBI trainings, I have improved and sharpened my editing knowledge. Through those trainings, the organizers taught us what makes a good text, a good story, a good plot."* (Editor, 2 workshops)

[6] To specify, this has been found across all the interviews.

v) Illustrators

Illustrators say that they learned to make collages, to use watercolors and better drawings. For instance, an illustrator who has attended 10 trainings says:

> *"The new techniques I learned during RCBI workshops taught me how to make books that are easier to read and more appreciated by children. For example, I have learned the 'collage' method and watercolor. You can see the result in my work now, with simpler shapes that children can identify more easily."* (Illustrator, 10 trainings)

Another interviewee mentions to have become an illustrator as a result of RCBI training as well as having improved Kinyarwanda language skills:

> *"My drawing skills have improved and have become more professional as before I was drawing just out of passion and not really for work. I have also improved my Kinyarwanda and can help with language requirements for story writing. Now, I can also write my own stories, which I didn't use to do before."* (Illustrator, 5 workshops)

vi) Publishers

Publishers argue that RCBI training taught them managing skills, as the following extract suggests:

> *"One skill is on managing a publishing house. Then a second one is how to write a children's book, and knowing how to categorise or levelling books. We had general knowledge but we gained skills teaching us how to categorise the different books. If someone brings me a children's story then I can evaluate if the story is for children aged 0-6, 6-10, or beyond. Prior to RCBI, I only had 2 children's stories."* (Publisher, 4-5 trainings)

Publishers also benefitted from learning about illustration techniques:

> *"I learned new techniques like the collage method, how to make posters, etc. Those trainings are not meant to show us exactly what to do but rather what children's illustrations should look like, then we adapt it to our personal style. The skills I acquired were not only limited to illustration but also expanded to writing as I have learned how to write my own stories too."* (Publisher, attended three trainings)

> *"The first training helped me a lot and allowed us to create a new product for the Rwandan market. Before RCBI we didn't have children's books like the ones you see today, of good quality and made by Rwandans…Through our trainings, we experimented with different papers, tried stickers, printed on different formats, etc. We are grateful for this programme."* (Publisher, attended three trainings)

Therefore, as these quotes suggest, publishers, authors, and illustrators in the interviews all claim to have increased their relevant skills as a result of RCBI training.

3.4.1.3. Confidence

Finally authors, illustrators and publishers argued that participating in RCBI training increased their confidence.

iv) Illustrators

RCBI trainings 'opened new horizons' for an illustrator by teaching him new skills and acquiring relevant knowledge:

> *"Before RCBI, I wasn't very confident with the illustrating industry, and the differences between then and now are noticeable. I now understand how others worked to make their books very successful. I wanted to learn new techniques and felt there were not enough training sessions. I now look at the age group and make illustrations to match that specific audience. I also look for relevant topics such as clothing, food and nutrition, flowers and nature, etc. Yes, participating in trainings opened new horizons for me and helped me push myself further to meet techniques used elsewhere, that are now taught here through RCBI".* (Illustrator, 10 days of trainings)

Another illustrator that has attended 5 RCBI trainings similarly claims that RCBI has increased his confidence by increasing his knowledge and skills through trainings:

> *"Each illustrator has its own style and sometimes that style is not appropriate for the younger public. So I learned by adapting myself to children's perspective and their level of understanding. I learned to create clearer, simpler and cleaner illustrations when working on a children's book. I pay attention to the layout and use fonts that are easier to read by children and make clear distinctions, between the text and the illustrations, so the pages are not confusing for the child. Very much so: RCBI improved my confidence! Participating in these activities gives me new ideas on how to better myself in this profession. Now I look at books differently and feel more involved in the book industry."* (Illustrator, 5 trainings)

v) Authors

The following is an extract from an interview with an author who attended 1 training and similarly to the illustrators claims to have increased confidence as a result of acquiring writing skills with RCBI trainings:

> *"The activities we conducted during the training that I underwent improved my confidence. I can say that I know what it means to be a children's book author."* (Author, 1 day of training)

Similarly, another author points to the link between the knowledge and skills acquired through RCBI training and confidence:

> *"Before RCBI, I didn't know the rules and was writing out of passion. I didn't know that world very well. I would say that the knowledge I acquired about this industry was a result of my participation in RCBI. RCBI improved my confidence."* (Author, 3 days of trainings)

vi) Publishers

Likewise, a publisher argues to have learned through RCBI about the expectations of the market, and that this resulted in increased confidence:

> *"There were no training for publishers and there are no local publishing schools either. So as publishers, we didn't have many venues to learn about this business. Personally I had interest in this field because I am a writer and I worked in a printing company. While working there, I saw that there were not many children's books or the ones that were published were not attractive. So when I started this company, I wanted to create products children would enjoy but didn't know which way to go to achieve that goal…So this programme helped me bring my vision to life. It showed me the ropes to becoming successful in this publishing business."* (Publisher, attended all trainings)

Another publisher also says:

> *"Participating in the RCBI programme helped us gain more confidence in our professions."* (Author/publisher, 2 trainings)

These statements demonstrate that the authors, publishers and illustrators interviewed have reportedly increased their relevant skills and knowledge in a way that has also contributed to increase their professional confidence.

Similar findings were also acquired through focus groups. On 26 March 2015, 3 focus groups were conducted at the Rwanda Library Services. Participants of these focus groups were authors, illustrators, publishers, editors, and representatives of the Rwanda Library Services and Ishyo Arts Centre, a cultural organisation that regularly brings together readers and writers around literature events. There were seven participants in total divided in the three groups.

In accordance with the findings from the interviews, a large number of the participants in the focus groups commented that RCBI training contributed to increase their knowledge of age-appropriate books. For example, an illustrator involved in a communication agency dealing with producing children's books claimed that RCBI training provided guidance in developing his writing skills for various age groups. Another participant, a primary school teacher who started writing several years ago, stated that those trainings helped to improve her writing by making it more appropriate for the different levels of readers. She even stated that before she became involved with RCBI, she participated in writing competitions and wrote these stories without a clear understanding of how stories had to be structured. Moreover, a publisher who has had over ten years of experience argued that this initiative opened his eyes to the specific needs of the children's book industry in Rwanda. Specifically, he argues, RCBI training taught him how to write for this particular audience. An editor also argues that these trainings taught him how to evaluate books content and messages.

Moreover, some claimed that RCBI training also increased their knowledge of the publishing industry. For example, the aforementioned editor argues that through the different trainings, he met with various writers, designers, and publishers, and learned about the challenges that they faced in their respective fields. Likewise the aforementioned publisher argued that RCBI helped

him to understand better the complexities of the publishing business, such as tailoring their products to the public and adapting marketing strategies to the local market. Similarly another publisher claimed that RCBI allowed him to meet with different authors, illustrators, and publishers active in this industry. He also adds that he has observed people becoming more aware of the importance of the children's book industry and more willing to support it as a result of RCBI.

Finally, in all of the focus groups, it was mentioned that RCBI helped them to build connections among the different actors in ways that could promote the production of more and higher quality children's books in the future. These actors connected through RCBI activities or meetings like the focus groups. They also met informally through friends and/or referrals. Some of these actors used to collaborate even before, but now through RCBI there is more acknowledgment of how everyone works, what steps illustrators, writers, and publishers go through to complete their work. In so doing, they argue that RCBI helped to value each step of the book chain, and every actor in this industry.

A comparison of the findings from the focus groups and the interviews, therefore, reveal that the expected outcome established at the beginning of the project has been attained. Not only have RCBI trainings increased knowledge, skills and confidence among the relevant actors, but RCBI has also enabled illustrators, authors and publishers to establish professional relationships. And in so doing, it has fueled collaborations at different levels, setting the foundations for a bigger and better Rwandan publishing industry.

3.4.2. Outcome 2

Quality, quantity and range of children's books is established and sustained, and mechanisms are in place that will stimulate demand in the future.

3.4.2.1. Quality

In total, the endline book review analyzed 50 Kinyarwanda children's books deemed appropriate for P1-P3 level. These books included 25 books created in collaboration with RCBI and 25 books that were previously available on the market and not produced in collaboration with RCBI. As mentioned in the methodology, the data collector blindly evaluated the books. The results were then analyzed by a different assessor. Each book was analyzed using the detailed guidelines and criteria established by REB for assessing book quality. This assessment adhered to the following criteria:

Text content:
- Appropriateness of story/text/theme for the age group
- Interest level for the age group
- Appropriateness of length for age group

Presentation:
- Quality, attractiveness and appropriateness of cover age group
- Appropriateness of, page design & layout for age group *(including placement and amount of text on page)*

- Quality, relevance and appropriateness of illustrations for age group
  - Appropriateness of font & font size for the age group
  - Appropriate and accurate use of color for age group

Language:
- Quality of writing
- Suitability of language use for the age group
- Appropriateness of language patterns, vocabulary and sentence structure for age group

Editorial:
- Respect of age appropriate conventions and absence of typos and other errors

Factual accuracy (for non-fiction only):
- Facts are accurate and age appropriate

These were ranked by the data collector on a scale of '0 ('not acceptable') to '4' ('excellent'). The following tables present the average score for each criterion of the books assessed. The first table presents the findings for the RCBI books; the second table for the non-RCBI books.

Table 2: Average Score for RCBI books [7]

Criteria	Rating	Category RCBI		Total
		Fiction	Non Fiction	
Content	Not acceptable	0 %	0 %	**0 %**
	Poor	0 %	0 %	**0 %**
	Acceptable	18 %	0 %	**18%**
	Good	36 %	6%	**42 %**
	Excellent	38 %	2 %	**40%**
Total		**92 %**	**8 %**	**100%**
Presentation	Not acceptable	0 %	0 %	**0 %**
	Poor	0 %	0 %	**0 %**
	Acceptable	14 %	0 %	**14 %**
	Good	40 %	2 %	**42 %**
	Excellent	38 %	6 %	**44 %**
Total		**92%**	**8 %**	**100 %**
Language	Not acceptable	0 %	0 %	**0 %**
	Poor	0 %	0 %	**0 %**
	Acceptable	14%	0 %	**14 %**
	Good	44 %	0 %	**44 %**
	Excellent	34 %	8 %	**42%**
Total		**92 %**	**8%**	**100 %**
Editorial	Not acceptable	0 %	0 %	**0 %**
	Poor	0 %	0 %	**0 %**
	Acceptable	0 %	0 %	**0 %**
	Good	24 %	0 %	**24 %**

[7] Decimals in this table have been rounded up to the closest digit. Also it is important to highlight that in this report small differences have not be considered as a sign of significant change as only 50 books have been tested, so a change among only few books may result in a great change in percentage.

	Excellent	68 %	8 %	**76 %**
Total		**92 %**	**8 %**	**100 %**
Factual accuracy	Not acceptable	N/A	0 %	0 %
	Poor	N/A	0 %	0 %
	Acceptable	N/A	0 %	0 %
	Good	N/A	50 %	50 %
	Excellent	N/A	50 %	50 %
Total		N/A	**100 %**	**100 %**

Table 2 shows that under each criterion of assessment RCBI books scored under the categories of 'acceptable', 'good' and 'excellent', with no books scoring as 'not acceptable' or 'poor'. RCBI books also scored 'excellent' on editorial (76%), and between 'good' and 'excellent' for language (good: 44%; excellent: 42%), presentation (good: 42%; excellent: 44%) and content (good: 42%; excellent: 44%). RCBI books' scores contrast sharply with non-RCBI books' scores, as shown by the table and the figures below.

Table 3: Average Score of Non-RCBI books [8]

Criteria	Rating	Category Non-RCBI		Total
		Fiction	Non Fiction	
Content	Not acceptable	7 %	0 %	**7 %**
	Poor	20 %	7 %	**27 %**
	Acceptable	35 %	1 %	**36 %**
	Good	30 %	0 %	**30 %**
	Excellent	0 %	0 %	**0 %**
Total		**92 %**	**8 %**	**100%**
Presentation	Not acceptable	14 %	6 %	**20 %**
	Poor	20 %	1 %	**21 %**
	Acceptable	24 %	1 %	**25 %**
	Good	34 %	0 %	**34 %**
	Excellent	0 %	0 %	**0 %**
Total		**92 %**	**8 %**	**100 %**
Language	Not acceptable	4 %	0 %	**4 %**
	Poor	24 %	4 %	**28 %**
	Acceptable	24 %	4 %	**28 %**
	Good	17 %	0 %	**17 %**
	Excellent	1 %	0 %	**1 %**
Total		**92 %**	**8 %**	**100 %**
Editorial	Not acceptable	0 %	0 %	**0 %**
	Poor	10 %	4 %	**14 %**
	Acceptable	8 %	0 %	**8 %**
	Good	14 %	4 %	**18 %**
	Excellent	14 %	0 %	**14 %**
Total		**92 %**	**8 %**	**100 %**
Factual accuracy	Not acceptable	N/A	0 %	**0 %**
	Poor	N/A	100 %	**100 %**

[8] Decimals in this table have been rounded up to the closest digit. Also it is important to highlight that in this report small differences have not be considered as a sign of significant change as only 50 books have been tested, so a change among only few books may result in a great change in percentage.

	Acceptable	N/A	0 %	**0 %**
	Good	N/A	0 %	**0 %**
	Excellent	N/A	0 %	**0 %**
Total		N/A	**100 %**	**100 %**

As Table 3 shows, non-RCBI books were graded 'excellent' only for language (1%) and for editorial (14%). This score is much lower than RCBI books, which where graded as 'excellent' for 42% under the criterion of language, and 76% for editorial. Moreover, in contrast with RCBI books that scored null for 'not acceptable' and 'poor', non-RCBI books scored 'not acceptable' and 'poor' under several of the criteria of assessment as illustrated in Figures 1 and 2 below.

a) Comparison between RCBI and non-RCBI books at Endline

b) Comparison between Baseline and Endline Book Review

Endline figures show increased quality of books in contrast with the baseline book review findings, as the following tables illustrate. Figure 3 compares endline RCBI books with baseline figures for 'excellent'; Figure 4 presents findings from baseline and endline RCBI figures for the category of 'poor' across all criteria.[9]

[9] It is important to highlight that in the baseline report books where distinguished between 'read aloud' and 'read alone'. However, in the endline report, they were not because most RCBI books were possible for use for both 'read aloud' and 'read alone', as they frequently had large illustrations and size. To compare endline with baseline, RCBI books have been compared with 'read aloud' books, as they can serve both read aloud and read alone functions.

Finally, this last figure comparing non-RCBI book figures baseline with endline shows that without the intervention of RCBI no book in the observed time frame has risen to the level of 'excellence' that as previously shown many of the RCBI books share.

3.4.2.2. Quantity

By working with 7 local publishers, RCBI supported the development and promotion of 47 Kinyarwanda titles targeting P1-P3 age group.

At baseline, there were 139 Kinyarwanda books approved by REB for use in P1-P3 classrooms. At endline, there was a 33% increase, with an additional 47 titles currently approved for use by REB. If you further consider that at baseline, only four of these approved titles were produced by local publishers, compared to the

Additionally, another 10 books and 10 educational posters have been published by these local publishers that are not yet approved by REB yet are available on the free market. The following table highlights the increases in publishing outputs since the onset of RCBI engagement:

Table 4: Total Publishing Outputs of Publishers at Baseline and Endline

Publisher	# Books published at baseline	# Books published at endline	% Increase
Kibondo	3	14	467%
Penda Kusoma	16	3	19%
SBD	0	21[10]	2100%
Excel	0	9	900%
Furaha Publishers	0	4	400%
Bloo Books	0	14	1400%
Bakame	48	2	4%

[10] Ten of these publications are posters with nursery rhymes and songs

3.4.2.3. Range

With the approval of the 47 books, the range of children's book similarly has increased. There are currently now 9 books available for nursery (pre-preprimary,) level, 5 of which were non-fiction, whereas 4 were fiction books. At the primary level, there are 36 books, 6 of which were non-fiction and 30 of which are fiction. It's worth noting that several books categorized for this purpose as pre-primary would also be useful in a primary 1 classroom, as many children enter school without having any book knowledge. Additionally, several of these titles are versions of concept books which can often vary in their classification as fiction or non-fiction. In this case, any concept books without a plot related to a character has been classified as non-fiction.

Other variables of range may also be considered. Due to previous REB guidelines on standard sizes of readers, of the 25 non-RCBI supported books, 23 of them were A5 size. This small size indicates the intended purpose of the books were for children to read independently. Additionally, they were all similarly paperback books with standard paperweight (pages between 80- 100 grams and covers less than 200 grams). The illustrations appeared to be mostly hand-drawn and painted with watercolors or acrylics (23 out of 25) with the remaining two titles using what appeared to be clipart images. In terms of types of books, of the 25 books, there were 22 fiction titles and 3 non-fiction titles. The evaluator noted that themes largely explored in the books related to everyday life of children in the city or village, with many having a strong moralistic message. It was indicated that some of the images, language or themes were obviously taken from another region of Africa, rather than Rwanda.

RCBI-supported books demonstrated greater diversity. In terms of technical specifications, the books varied in sizes and dimensions (including 3 big books in A3 size), with only one title being the standard A5 size. There was also greater diversity in the printing formats, with book including weights of 80, 100, 150, 200, 300 and 400 grams. Illustrations and images also demonstrated a range of artistic techniques, including collage, ink print, and mixed-media techniques. The evaluator again noted a wider range of themes explored, including a range of fantasy, non-fiction and a greater amount of contextualized stories that directly reference Rwandan places (national parks, towns, etc.) or reflect the Rwandan context (cultural icons, toys, food, etc.)

Sustainable Mechanisms for Stimulating Demand:

In order to ensure a continued market for the newly-developed children's books, several mechanisms have been introduced to stimulate supply and demand and to ensure that the book sector progress is sustainable.

Progress Towards a National Book Policy

In 2013, the Rwanda Library Services (RLS) formally requested RCBI's support in developing a National Book Development Policy. The project engaged technical assistance to draft the policy in collaboration with RLS. In 2014, the draft document was submitted to Parliament for approval. In February 2015, it was announced that RLS had shifted from the Ministry of Sports and Culture and now was to be under the Ministry of Education. There is still a lack of clarity on the implications of this decision, and as a result the policy has effectively been paused until it is finalized which Ministry will be responsible.

Children's Book Forum

Designed to address both the supply and demand issues, the establishment of a Children's Book Forum (CBF) functioned as a network of exchange for book professionals as well as a means to sensitize the public as to the importance of literacy and reading. It has provided a forum that effectively served as a clearing house for information on national and regional policy developments, a place in which education stakeholders (including writers, illustrators, editors, publishers, librarians, teachers, and booksellers) can share information and a consultative group in which policy issues can be discussed. Active participation in the forums provided members with the opportunity to share new and emerging evidence and identify both the impediments and enabling factors in the policy and operational environment for literacy.

In strong collaboration with RLS, the Outreach Coordinator convened a meeting with board of advisors in November 2014, and the first general assembly of the Children's Book Forum took place in December 2014 The CBF also has sponsored a book conference in February 2015, with a key presentation targeting policy-makers on investing in children's book.

Purchasing Consortium

There has been a continuing demand from Save the Children and other development partners in Rwanda for the production of reading materials. Several organizations have already shown interest in the books developed with support from RCBI; a purchasing consortium was established to bring greater economies of scale to future book purchasing done by government, schools and development partners. By working in partnership to make large book orders, there are a variety of benefits for both buyers and suppliers.

The book actors surveyed appreciated that the purchasing consortium also effectively functioned as a showcase for the newly produced books and provided much-needed exposure for the local publishers who had previously been largely unknown both in private and public sectors. Partner organizations and developing partners indicated the value of such events, noting that they had previously not known where or how to purchase Kinyarwanda books.

3.5 RCBI National Level Conclusions

In conclusion, endline national level assessment reveals that RCBI has had an overwhelmingly positive impact on the publishing industry at a national level having increased knowledge, skills, and confidence across all groups. Furthermore, as the interviews and the focus groups predicted, the book review uncovered that newly acquired knowledge, skills, and confidence has already significantly improved the production of higher quality, age appropriate, books for young children. RCBI has also had an impact on the ways in which the actors collaborate with each other, having importantly established mechanisms to stimulate the production of more and better books in the future.

The evaluation also indicates that RCBI has contributed to increasing the quantity and range of Kinyarwanda children's books on the market in Rwanda. With a 33% increase in REB approved titles, RCBI has affected the number of books currently available for use in classrooms. According to the book evaluation process conducted, the assessed RCBI books represented a

both a higher quality of book, with the overwhelming majority of the books being assessed as Excellent or Good quality. Additionally, it was concluded that books represented a wider range in terms of technical specification, illustrations, and themes.

4. LOCAL LEVEL RCBI REPORT

4.1 Summary of Local Level RCBI Baseline Report

The baseline findings showed that teaching practices and school environment appeared to significantly affect reading habits. As for accessibility to books, the baseline indicated that having access to a book collection at school did not seem to influence students' reading habits. Findings showed that reading habits were similar in school and at home, and for grades P1-P2 and grade P3.

With respect to outcome indicators, data showed that amongst the 68% of children who reported that they read, the majority read at least once a week. Frequency was similar in school and at home, and for grades P1-P2 and grade P3. Teaching practices related to reading seemed to be positive in most schools, but limited by a lack of books. It was not possible to collect data on number of storybooks accessible to teachers and students. However, baseline data showed that teachers had more access to books than students.

Apart from the findings related to the evaluation questions and outcome indicators, baseline data clearly pointed out that the home environment had a strong effect on children's reading habits. Parental reading habits, together with socio-economic status, seemed to predict if a child would read or not. It was also noticeable that children and teachers affirmed they read religious books more than storybooks or magazines/newspapers. Data on availability of books in schools was unfortunately inconclusive as there were considerable discrepancies between reports from students, teachers and head teachers at baseline.

4.2 Purposes of RCBI Endline Report

The RCBI local level baseline evaluation covers Primary 2 and Primary 3 grades and attempts to answer the following questions, which relate to the project's expected outcome of 'Teachers have the knowledge, skills and confidence to manage school book collections and use books to support reading and learning'.

Evaluation Questions:

1) How do teaching practices influence students' reading habits?
2) How does accessibility to storybooks impact students' reading habits?

The three outcome indicators set for the local level intervention in Burera district are:

Outcome Indicators:

1. Frequency of reading by students in Burera schools.
2. Changes in teaching practice in P1, P2 and P3 teachers' use of books in Burera schools.

3. Number of storybooks accessible to teachers and students in P1-P3 classes in Burera schools

Results presented in this report are grouped by each of these indicators. In an effort to be concise only those results relevant to these indicators are shared in this report.

4.3 Methods

Local level activities took place in Burera, a district in the Northern Province of Rwanda. All 91 schools in Burera benefitted from the RCBI local level activities. Schools in Rubavu district were selected as control at baseline mainly for practical reasons, including existing Save the Children relationships with district education authorities leading to a smoother approval process to collect data with the district. Schools in Rubavu district did not have access to any RCBI activities. Analysis of key variables at baseline determined that the treatment and control groups were not statistically different and hence comparable (Appendix 4).

The local level baseline was conducted in May/June 2013 and the endline was conducted in March 2015.

4.3.1. Study instruments

Baseline
During the 2013 local level baseline, Save the Children developed and used the following assessment tools:

1) Head teacher survey;
2) Teacher survey;
3) Student survey; and
4) School book collection checklist.

Endline
The Head teacher, Teacher and Student surveys were reviewed and fine-tuned for use in the 2015 endline assessment. Additionally, based on recommendations from the baseline assessment, a classroom observation instrument was included at endline. The school book checklist was not used at endline, as it was absorbed into the classroom observation checklist. Anecdotal evidence from monitoring suggested that RCBI students were reading at a higher level than non-RCBI students in higher grades within their own schools. Subsequently, in order to ascertain potential impact of RCBI on the reading skills of students, a literacy assessment was conducted at endline for Primary 2 (P2) and Primary 3 (P3) children, both in RCBI treatment and control zones. This assessment was an adaptation of the reading assessment tool used in the Literacy Boost program administered elsewhere in Rwanda. Hence at the 2015 endline the following tools (attached to the report as Appendix 9) were used:

1) Head teacher survey;
2) Teacher survey;
3) Student survey;
4) Classroom observation; and
5) Student reading assessment

4.3.2. Data collection procedures and protocols

For both baseline and endline, a survey regarding management and availability of storybooks was administered by surveying the head teacher at each school. Primary 1 (at baseline only), Primary 2 and Primary 3 Kinyarwanda teachers were randomly selected within each school and surveys regarding availability and use of books (particularly storybooks) were administered with these teachers. At endline the selected teachers were also observed teaching a Kinyarwanda lesson to their students. From within each selected teachers' classroom an equal number of male and female students were randomly selected on the spot and a survey was administered to these students. At endline a reading assessment was also administered to these students.

Baseline
All tools were field tested, adapted to the local context and translated to Kinyarwanda prior to data collection at the 2013 baseline. At this time, eight enumerators and three Save the Children staff who served as supervisors were provided a five-day training prior to data collection. This training covered data collection techniques, RCBI instruments and ethical standards. Consent and assent forms for participants were also developed at this time.

In each school P1, P2 and P3 classes were randomly selected for the baseline. For each of these classes an equal number of male and female students were randomly selected on the spot to be surveyed. Triangulation of data was determined by surveying the Kinyarwanda teachers responsible for teaching the selected classes as well the head teachers at each selected school. Data was collected using paper surveys and entered manually into Excel at baseline. Analysis of key variables at baseline determined that the treatment and control groups were not statistically different at baseline.

Endline
The teacher, head teacher and student survey tools used during the baseline were reviewed and the Kinyarwanda translation cross-checked prior to the 2015 endline data collection. The classroom observation tool used for BCBI[11] evaluation in Bhutan was adapted for use in Rwanda in consultation with RCBI program staff familiar with classrooms in Burera and Rubavu districts. The reading assessment used by Literacy Boost in another district of Rwanda was adapted for RCBI. This adaptation included shortening the assessment by removing sections that were not relevant to RCBI and including a print awareness sub-test. While classroom observation validated findings from the teacher report in a majority of cases, there were discrepancies between head teacher and teacher report, specifically regarding availability and storage of books. This may be due to limited involvement on the part of head teachers in RCBI activities.

4.3.2.1. Use of tablets for data collection
All instruments were digitized using Tangerine, a data collection software developed by Research Triangle Institute (RTI)[12]. Tangerine was been found to be a more efficient method of data collection and eliminated the need for data entry personnel. The data was subsequently

11 Bhutanese Children's Book Initiative

12 http://www.tangerinecentral.org/

gathered using Samsung tablets in the field allowing data to be uploaded daily and eventually downloaded in .csv format for analysis.

4.3.2.2. Training of data collectors

The endline evaluation employed 25 data collectors who had recently been involved with a Literacy Boost reading assessment using Samsung T-230 and T-231 tablets. Hiring enumerators familiar with the software cut down on the time required to train assessors on use of the tablets as well as ensured that the enumerators knew the procedures of daily care of the tablets and were familiar with the data collection software used. This also enabled the training to be focused specifically on the different content of assessment, without having to repeat training on general evaluation practices, such as Ethics, Child Safeguarding, etc. An intensive five-day training was conducted with enumerators in Kigali by Save the Children staff familiar with the instruments used. Training, conducted in Kinyarwanda and English, included explanation of and discussion surrounding assessment items, role-play between enumerators in how to conduct the assessments, and piloting of the instruments in the field followed by group debrief sessions.

4.3.2.3. Supervision of data collection process

Enumerators were divided into teams for the purposes of data collection and each team was assigned a team leader. The team leader was responsible for all logistics of the team including charging/care of the tablets, obtaining consent/assent forms from participants, conducting the random selection of participants at schools, and the team's uploading data on a daily basis. The team leaders were in regular communication with the Evaluation staff at Save the Children during data collection so that any issues faced in the field were resolved in a timely manner.

4.3.2.4. Data Analysis

Data from each instrument was downloaded from Tangerine in a .csv format and analysed using SPSS software by Save the Children Monitoring, Evaluation, Accountability and Learning (MEAL) team members in the Rwanda country office and STATA by Save the Children US. Where information from both time points was available, data was analysed for significant differences between endline and baseline. Otherwise, significant differences between treatment and control groups on key variables were examined at endline.

A before and after examination of key variables available at both baseline and endline was conducted. For the variables added for further inquiry at endline a comparison of responses by teachers, head teachers and students as well as classroom observations in the control group (Rubavu district) and treatment group (Burera district) was conducted for statistical significance.

4.3.3. Sampling framework

The same sampling methods were used at baseline and endline. During the baseline, data was collected from a sample of 52 schools across the two evaluation districts: 26 in Burera district (treatment) and 26 in Rubavu district (control). Amongst the 91 treatment schools in Burera, 26 were randomly selected to be part of the evaluation. In Rubavu, 26 out of 79 schools were randomly selected to be in the control group. Sampling in both districts was stratified by sector and randomization was at school level (see Appendix 5). The same schools were selected at baseline and endline. However, to ensure that there was no bias in the support given to schools, the RCBI officer working with schools was not aware which schools would be included in endline analysis.

4.3.3.1. Determination of sample size at baseline

At the baseline, a decision was made to sample more P3 students than P1/P2 students due to the fact that in Rwandan schools only P3 students are expected to be able to read all combinations of letter blends which are found in most Kinyarwanda children's storybooks. Therefore an optimal sample size was computed for P3 students at baseline. In order to compute the sample size at baseline, we assumed that 60% of children were reading at baseline and the expected increase was 30%, i.e. 18 percentage points on existing reading initiatives in some select cells. The intra-class correlation was assumed to be 0.2, consistent with what is found in the literature (Duflo et al., 2007). The power of the sample was set up to 0.8 and the significance level set to 0.5. Therefore, for a cluster size (class) of 16 students, the required number of clusters (schools) was 50 (25 treatment and 25 control), i.e. 400 students in the treatment group and 400 students in the control group. While power analysis recommended a minimum of 50 schools in the sample, a total of 52 schools were sampled to account for the possibility of attrition. In addition to 16 P3 students, information was gathered on 4 P1 and 4 P2 students at the 2013 baseline.

No P1 students were sampled at endline because these students had just begun school and had only received the RCBI intervention for less than two months. Instead, information at endline was gathered from 12 P3 students and 12 P2 students.

At each school classes were randomly selected on the spot by the enumerators, following guidance provided by Save the Children (Appendix 6). In each of the classes an equal number of male and female students were randomly selected on the spot to be surveyed.

The following table outlines the instruments and sampling methodology that was used:

Table 4. Assessment instruments and samples at baseline and endline

Assessment Instrument	Description of Sample	
	2013 Baseline Study	2015 Endline Study
Head-Teacher Survey	52 Head Teachers: 1 from each school	52 Head Teachers: 1 from each school
Teacher Survey	133 Teachers	94 Teachers At each school 1 P2 and 1P3 Kinyarwanda teacher was randomly selected and surveyed
School Book Collection Checklist	1 checklist per school	X
Student Survey	1248 students: 24 students randomly selected at each school including: P3: 16 (8 boys, 8 girls) P2: 4 (2 boys, 2 girls) P1: 4 (2 boys, 2 girls)	1248 students: 24 students randomly selected at each school including: P3: 12 (6 boys, 6 girls) P2: 12 (6 boys, 6 girls)

Student Reading Assessment	X	1248 students (24 students randomly selected at each school including: P3: 12 (6 boys, 6 girls) P2: 12 (6 boys, 6 girls)
Classroom Observation	X	96 classrooms: Each teacher surveyed was observed once (twice if they taught more than one grade level).

4.3.4. Validity and reliability of the data

Measures were taken at baseline and endline to ensure the validity and reliability of the data. A statistical sample size was calculated using power analysis to determine the optimal number of schools at the baseline. Two extra schools were included (in anticipation of possible attrition) at baseline and the same number of schools was retained for endline evaluation. A control district was included as a counter factual to the treatment district. The control groups that were assessed during the baseline were assessed again during the endline. Before starting the data collection, tools were tested and adapted. Collected data was translated from Kinyarwanda to English. During the training of enumerators, ethical standards, anonymity and confidentiality were emphasized. Training of enumerators included role-play and thorough practice with test to ensure inter-rater reliability of data.

Given the self-report nature of the survey instruments used at baseline and endline, enumerators were instructed to emphasize the anonymity and confidentiality of the data so as to minimize social desirability bias as much as possible. To further ensure reliability of data gathered, during 78 of the surveys conducted, two assessors administered the assessment, one as a 'talking assessor' and one as a 'listening assessor'. Following the assessment, both assessors checked and discussed (without changing) any discrepancies in responses noted between their two versions of the assessment. This was thought to bolster a shared understanding of the questions posed in the instrument and safeguard the reliability of responses noted at each subsequent assessment, even when only one assessor was administering a survey. No statistically significant differences were found between the responses recorded by both assessors while observing the classroom. Once the assessors were noting minimal discrepancies between their observations, administration was resumed with only one assessor.

4.3.5. Ethics

Data collection followed strict ethical guidelines. The purpose and procedures of the study were explained to each participant in detail and their written and/or oral consent was sought prior to beginning any of the surveys, assessments or observations. Participants were informed that they had the option to opt out of any of the surveys/assessments at any time.

4.4 Study Sample

4.4.1. Head Teachers

A total of 52 head teachers were surveyed at baseline, 26 (50%) from schools in Rubavu district (control) and 26 (50%) from schools in Burera district (treatment). Head teachers of the same 52 schools were surveyed at endline, 26 (50%) from schools in Rubavu and 26 (50%) from schools Burera. Approximately 40 (76.9%) of the head teachers surveyed were male whereas 12 (23.1%) were female.

There was a wide range with regards to how long the participating schools had been operational. According to Head Teacher report, the schools visited ranged in year of opening from 1926 to 2009. About 32 (62%) schools were reported to have access to electricity at baseline (n=52) while 35 (69%) schools were reported to have access to electricity at baseline (n=51). Approximately 37 (71.0%) schools had access to water at baseline (n=52) while 38 (73.1%) had access to water at endline (n=51). Of the 52 schools visited, 50 had both morning and afternoon shifts. Fifty of the head teachers reported that their schools had parent teacher associations (PTAs) whereas 2 head teachers reported that their schools did not.

4.4.2. Teachers

A total of 133 randomly selected Kinyarwanda teachers from P1, P2 and P3 were surveyed at baseline and 94 randomly selected teachers were surveyed at endline (Teacher randomization/selection outlined in Appendix 6). Questions were asked of teachers regarding the availability of books (particularly storybooks) in their classrooms, the frequency of use of these books by the teachers themselves and the level of regular accessibility of these books to their students.

Of the 133 surveyed at baseline, 63 (47.4%) were in the control district (Rubavu) and 70 (52.6%) were in the treatment district (Burera). These included 42 (31.6%) male teachers and 91 (68.4%) female teachers.

Of the 94 teachers surveyed at endline, 46 (49.0%) were in the control district and 48 (51.0%) were in the treatment district. These included 35 (37.2%) male teachers and 59 (62.8%) female teachers.

The figure below (Table 5) gives a summary of grades taught by the teachers surveyed:

Table 5. Grades taught by Kinyarwanda teachers

Grade	Baseline survey		Endline survey	
	n	%	n	%
Primary 1 only	46	35%	0	0%
Primary 2 only	31	23%	40	43%
Primary 3 only	31	23%	38	40%
Primary 1 and 2	9	7%	4	4%
Primary 2 and 3	13	10%	9	10%
Primary 1 and 3	1	1%	3	3%
Primary 1,2 and 3	1	1%	0	0%
Not specified	1	1%	0	0%
Total N	133		94	

4.4.3. Classrooms

The Kinyarwanda teachers who had been randomly selected to complete the teacher survey were asked whether they would allow enumerators to conduct an observation of their classroom during a Kinyarwanda lesson. The classrooms of those who consented were observed. In cases where a teacher taught more than one grade level, two classroom observations were conducted for that teacher (one classroom per grade level). Ninety-six classrooms were observed in all. A total of 49 teachers were observed teaching in the treatment group of which 24 (49%) were observed teaching Primary 2 and 25 (51%) were observed teaching Primary 3 classes. In the control group 47 teachers were observed teaching a Kinyarwanda lesson of which 23 (49%) were observed teaching Primary 2 classes and 24 (51%) were observed teaching Primary 3 classes.

Table 6 provides a summary of the sample of teachers whose classrooms were observed:

Table 6. Sample characteristics for teachers of classrooms observed

	RCBI group		Control group	
Sample Characteristics	**n**	**%**	**n**	**%**
Grade				
Primary 2	24	49%	23	49%
Primary 3	25	51%	24	51%
School shift				
Morning shift	29	59%	30	64%
Afternoon shift	20	41%	17	36%
School level				
6-Year Primary Education	34	69%	27	57%
9-Year Basic Education	6	12%	8	17%
12-Year Basic Education	9	18%	12	26%
Teacher's gender in the observed class				
Female	18	37%	19	40%
Male	31	63%	28	60%
Location of the school				
Urban	1	2%	12	26%
Rural	48	98%	35	75%

4.4.4. Students

In each of 52 schools, classes were randomly selected and an equal number of boys and girls randomly sampled by grade. The same schools were visited at baseline in May/June 2013 and endline in March 2015. At baseline P1, P2, and P3 were assessed, but at endline only P2 and P3 were included, so P1 was dropped from this reporting for lack of a comparison. Student data from one RCBI school were not included in analysis at endline due to issues related social desirability bias detected during data collection.[13] This led to a slightly smaller sample size in the control group at endline.

[13] One school attempted to have P4 students take the assessment in order to reflect higher scores. As validity at this location was compromised, the scores from this school were dropped from analysis.

Table 7. Sample by Level, Time and Group

	Baseline		Endline	
	RCBI	Control	RCBI	Control
Schools	26	26	25	26
Students				
Primary 2	105	98	285	308
Primary 3	412	416	287	304
Total	517	514	572	612

At baseline, 4 P1 students, 4 P2 students and 16 P3 students were sampled at each school. All grade samples were half boys and half girls. At endline, a new sample of 12 students in P2 and 12 in P3 was drawn – six boys and six girls. At this point in time, the RCBI schools had 13 months of intervention, while the control schools had school as usual.

The implementation of RBCI coincided with roll out of a national literacy and numeracy initiative (L3), which was also being implemented across P1 and P2 classes in all schools of Burera and Rubavu in 2014, and P3 in 2015. This may have led to a general improvement in exposure to reading activities and availability of student readers and teacher read aloud stories in both control and treatment groups.

Comparability of treatment and control samples

The control schools have significantly larger class sizes (43 versus 36 students on average) and significantly higher socio-economic status. In fact, a full quarter of control students are in the wealthiest SES quintile while only ten percent of RCBI students are in this quintile. At endline too, RCBI students sampled are significantly poorer than their control area counterparts. There are no other significant differences between the samples.

4.5 RCBI Local Level Endline Results

4.5.2. Indicator 1: Frequency of reading by students in Burera schools

According to results from the teacher report, RCBI students were more likely than control students to be read storybooks to by their teachers as well as be encouraged to read storybooks themselves. Whereas only about half (54%) of teachers in Burera schools reported reading story books to students at baseline, all (100%) of teachers in Burera schools reported reading story books to their students at endline. This is a significantly higher percentage of teachers than those in the control schools at endline where only 70% of teachers reported reading storybooks to their students (compared to 50% at baseline). (Fig.6). All of the teachers surveyed in Burera district schools reported asking their students to read story books while only 61% of teachers in the control group reported doing so (Fig.7). When teachers were asked how many storybooks they asked their students to read in one school term at endline a vast majority of RCBI teachers (90%) reported asking students to read more than 3 storybooks at endline whereas none of the control group teachers reported doing so. A majority of the control group teachers (87%) reported asking students to read only one storybook per school term at endline (Fig.8). This response is potentially influenced by the distribution of L3 project materials, which includes one pupil reader collection per term for P1-P3 students.

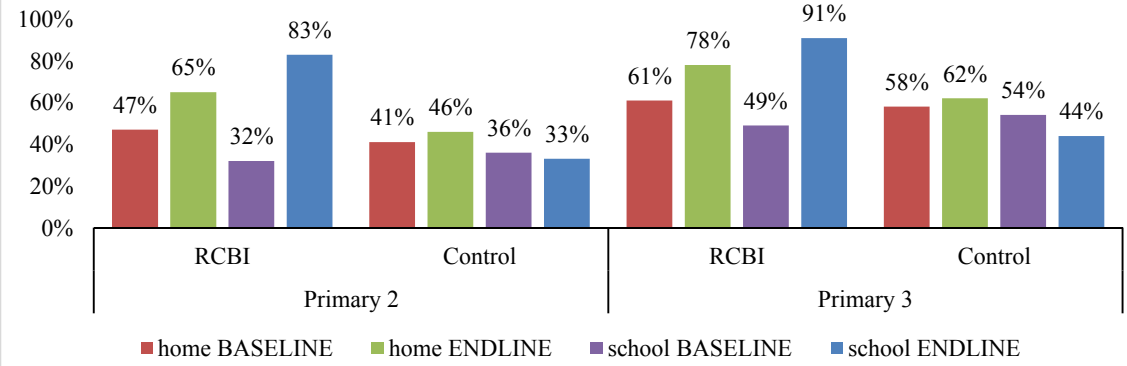
*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

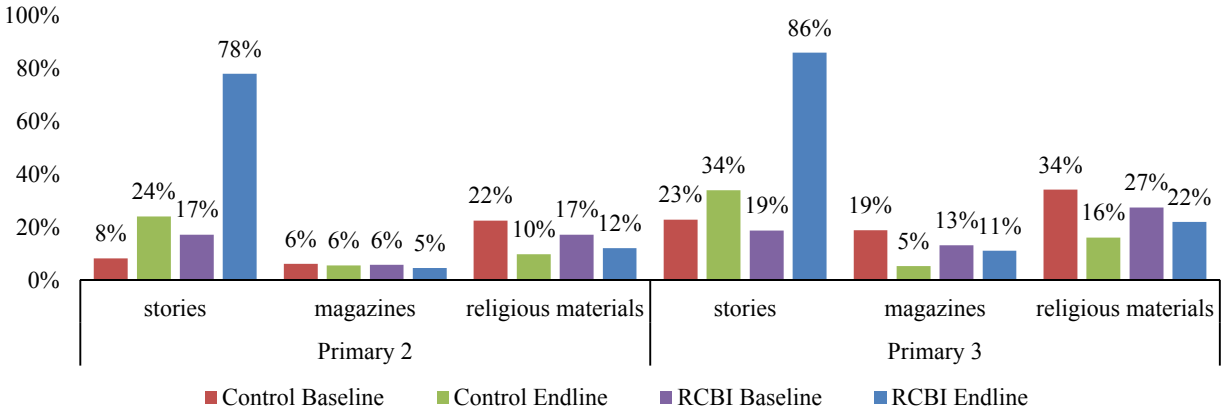
Figure 9 indicates that RCBI has had a significant impact on the percent of children reporting that they are reading at least one type of reading material at home or at school. The differences between these and control peers' reports of reading in their homes and schools are significant (p<.001). In both grades the percent of RCBI children reporting reading in school is higher than reports of reading at home.

Figure 9. Percent of children reading at least one type of book by place, grade and time



When it comes to frequency of reading, Figure 10 shows the percentage of children reporting that they are reading often in school: everyday or once a week by grade and time as well as type of material. As seen by the red bars in Figure 10, RCBI appears to have a huge impact on the frequency of reading in schools. There is not much movement in the frequency of reading other materials in school – and in fact frequent reading of religious materials decreases in both groups and grades.

Figure 10. Percent of children reading everyday or once a week by time, group and grade



4.5.3. Indicator 2: Changes in teaching practice in P1, P2 and P3 teachers' use of books in Burera schools

Print materials

As presented in Table 8 below, significant differences were found between control and RCBI classrooms with regards to percentage of classrooms with print material on the walls, the latter having significantly higher print materials. As compared to control group classrooms, a significantly higher percentage of RCBI classrooms had professionally printed materials[14], teacher-made materials[15], student-made materials[16] words matched to pictures[17] alphabet sequence[18], wall materials in Kinyarwanda[19] and other materials[20] on classroom walls. No significant differences were found as regards student-made materials and pictures, illustrations or drawings without words in the classroom.

Table 8. Print material observed in classrooms

Types of materials	Control (n=47) vs. RCBI (n=49)	0 materials	1 material	2-3 materials	> 3 materials
Professionally printed materials**	Control	62%	26%	9%	4%
	RCBI	**31%**	**22%**	**31%**	**16%**
Teacher-made materials*	Control	28%	13%	21%	38%

[14] (Cramer's V=.388; p<.01), [5](Cramer's V=.299; p<.05) [6] (Cramer's V=.231; p>.05), [7](Cramer's V=543; p<.001), [8](Cramer's V=.332; p<.05) [9](Cramer's V=.437; p<.001), [10](Cramer's V=.389; p<.01)

	RCBI	**8%**	**8%**	**20%**	**63%**
Examples of student-made[nss] materials	Control	87%	4%	2%	6%
	RCBI	71%	12%	10%	6%
Pictures, illustrations or drawings (no words)[nss]	Control	83%	9%	9%	0%
	RCBI	78%	18%	2%	2%
Words matched to pictures, illustrations or drawings***	Control	57%	9%	19%	15%
	RCBI	**12%**	**12%**	**14%**	**61%**
Alphabet (A, B, C … each sequence counted once)*	Control	68%	19%	11%	2%
	RCBI	**37%**	**33%**	**18%**	**12%**
Wall materials in Kinyarwanda***	Control	43%	15%	13%	30%
	RCBI	**8%**	**10%**	**16%**	**65%**
Other materials	Control	96%	4%	0%	0%
	RCBI	**65%**	**20%**	**6%**	**8%**

Note: *: p<.05; **: p<.01, ***: p<.001, nss: not statistically significant

*: p<.05; **: p<.01, ***: p<.001

At baseline, a high percentage of teachers (both control and RCBI groups) reported using positive strategies during read aloud. However anecdotal evidence regarding actual practice in these classrooms cast doubt on the high positive responses provided by teachers. Regardless, RCBI appears to have had a positive impact on frequency of use of storybooks by teachers as well as strategies used by teachers to teach reading in Burera district. Endline assessment indicated that a significantly higher percentage of RCBI teachers than control teachers reported showing students the book cover and predicting the content of the story prior to reading (100% vs. 83%, p<.01), asking students to discuss what they knew about the story prior to reading (96% vs. 83%, p<.05), asking questions about the story during reading (98% vs. 87%, p<.001) and asking students to predict what would happen next in the story during reading a story book (96% vs. 57%, p<.001) (Figs. 12, 13, 14 and 15).

*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

In addition, at baseline a higher percentage of RCBI school teachers than control teachers reported encouraging students to look at illustrations, asking students to identify what they liked about a story, encouraging students to think about similarities between the story and their own lives, asking students to read by themselves and arranging students into small groups to read though the difference was not statistically significant (Table 9).

Table 9. Reading activities reported by teachers

	Baseline			Endline		
	Control (n=63)	RCBI (n=70)	Sig level	Control (n=46)	RCBI (n=48)	Sig. level
Teacher report of activities						
Encourages students to look at illustrations	98%	91%	nss	96%	100%	nss
Asks students to identify what they	97%	90%	nss	94%	96%	nss

liked in a story						
Asks students to identify any similarities between the story and their own lives	94%	84%	nss	94%	96%	nss
Asks students to read by themselves	89%	83%	nss	98%	100%	nss
Asks students to read as homework	92%	80%	*	98%	96%	nss
Arranges students into smaller groups and asks them to read	81%	80%	nss	91%	94%	nss
Has enough copies of the book being read for every student in the small group to have a copy	29%	40%	nss	67%	38%	**

Note: *: p<.05; **: p<.01, ***: p<.001, nss=not statistically significant

Of the P2 and P3 classrooms observed, while only 9% of RCBI teachers had a lesson plan (as compared to 38% of control group teachers, p<.001) a significantly higher percentage of RCBI classroom lessons (100%) were observed to include reading activities as compared to the control group (64%) and a significantly higher percentage of RCBI teachers (92%) were observed using storybooks in their lessons as compared to teachers in the control group (13%). (Fig. 16 and Fig. 17)

*: p<.05; **: p<.01, ***: p<.001.

*: p<.05; **: p<.01, ***: p<.001.

Kinyarwanda lessons in RCBI classes (more often than control classes) included read-aloud sessions and importantly RCBI teachers (more than control teachers) were observed to be using effective strategies during these sessions. A significantly higher percentage of teachers in RCBI schools (91%) were observed reading a storybook aloud to their students during classroom observation than control group teachers (77%).

Table 10 shows that of the teachers who read aloud to their students, a significantly higher percentage of RCBI teachers were observed using effective strategies for read aloud including holding up the books so that all students could see the writing clearly (80%), identifying the book title for students (98%), talking about the cover illustration (92%), reading clearly in a volume that all students could hear (91%) and modeling fluent reading, with adequate pace, speed and intonation (92%). Further, a significantly higher percentage of RCBI teachers than control teachers used comprehension strategies during read aloud including using a pre-reading activity to get students to predict what may happen in the story (79%), encouraging students to make predictions about the story during reading (71%), asking students to recall simple facts during reading the story (86%), asking students deeper comprehension questions about the story that required students to think critically about the story or connect it to their lives (77%) and encouraging students to reflect on the story through post reading activities (66%).

Table 10. Teaching strategies observed during Story book Read-Aloud

Read-aloud strategies observed	Control (n=47)	RCBI (n=49)	Sig. level
Teacher read aloud during the lesson	**77%**	**92%**	+[21]
Students were allowed to choose book/text for the activity	**0%**	**51%**	***
Students were given guidance on how to choose the book/text	-[22]	**76%**	-
Teacher made sure all students could see the book and its writing clearly	**45%**	**90%**	***
Teacher identified the book title or helped students to identify the book	**7%**	**98%**	***

[21] Borderline significant (p=.07)

[22] No measure of association were computed for the crosstabulation of type of intervention (control and RCBI) and the variable "Students were given guidance on how to choose book/text" as students in the control were not allowed to choose book/text for the activity (see row above). There was a skip logic in case students were not allowed to choose, and this was the case for the control group.

title			
Teacher talked about the cover illustration	**3%**	**94%**	***
Teacher used a pointer/finger to point to each word as it was read	**13%**	**51%**	***
Teacher held the book with the text and/or pictures facing students	**19%**	**84%**	***
Teacher read clearly and at a volume all children could hear	**74%**	**92%**	*
Teacher talked about the pictures/illustrations in the book	**32%**	**86%**	***
Teacher read fluently (with adequate pace, speed, intonation)	**77%**	**94%**	*
Teacher used a pre-reading activity to get students to think about what might happen in the story (drawing, make predictions)	**29%**	**78%**	***
While reading the book the teacher encouraged the students to try and anticipate what was going to happen next	**13%**	**74%**	***
Teacher asked simple comprehension questions that recalled the facts of the story	**71%**	**86%**	nss
Teacher asked deep comprehension questions that required children to think critically about the story or connect it to their lives	**58%**	**78%**	+[23]
Teacher used a post-reading activity to get students to reflect on the story	**32%**	**63%**	**
Teacher explained new or difficult words	39%	51%	nss
More than half of the students were observed to be focused in the reading aloud	87%	88%	nss

Note: *: p<.05; **: p<.01, ***: p<.001, nss=not statistically significant

While there appeared to be no significant difference in the percentage of teachers in RCBI schools (29%) and control schools (34%) who were observed asking their students to read independently during the classroom observation, Table 11 shows that in classrooms where this reading activity took place during observation, a significantly higher percentage of RCBI teachers allowed students to choose their own books for independent reading (52%), allowed or encouraged their students to find a reading spot other than their desks such as a mat in the classroom, outside the classroom or under a tree (58%), and asked students questions about the books that encouraged students to think critically about the story or connect it to their lives in some way (46%). In all (100%) of the RCBI classrooms where independent reading took place a majority of students were noted to be focused on the reading activity whereas a majority of students seemed focused on independent reading in only 83% of the control classrooms where this reading activity occurred.

Table 11. Teaching strategies observed during independent student reading

Reading activities observed	Control	RCBI	Sig. level
Students read independently	36%	31%	nss
Students were allowed to choose the book/text for the reading activity	**0%**	**50%**	**
Each child had a book to read from	69%	69%	nss
Teacher allowed or encouraged students to find a place other than their desks for the independent reading activity (a mat in the classroom, outside the classroom, under a tree, etc.)	**8%**	**56%**	**
Teacher used a pre-reading activity to get students thinking about what would happen in the story (drawing, make predictions)	31%	38%	nss

[23] Borderline significant (p=.06)

Teacher asked simple comprehension questions that recalled the facts of the story (memory recall, facts about the story)	64%	63%	nss
Teacher asked deep comprehension questions that required children to think critically about the story or connect it to their lives (their opinion, emotions)	**17%**	**50%**	+[24]
Teacher used a post-reading activity to get students to reflect on the story (e.g. rename the book, true/false, continue the story)	25%	33%	nss
Teacher explained any new or difficult words	100%	96%	nss
More than half of the students were observed to be focused on the independent reading activity	**91%**	**100%**	nss
The teacher was circulating watching and listening during students' independent reading	82%	73%	nss

Note: *: p<.05; **: p<.01, ***: p<.001, nss=not statistically significant

Not only were RCBI teachers more likely to use storybooks in the classroom than control teachers, they were also more likely to encourage students to read storybooks at home. During lesson observations, a significantly higher percentage of RCBI teachers (25%) as compared to control group teachers (2%) were observed encouraging students to read storybooks at home (p<.001). Students were observed borrowing storybooks to take home to read during the observed lesson in 10% of observed classrooms in the RCBI schools whereas no students were observed borrowing storybooks to take home to read in any of the control group classrooms. (Fig.18)

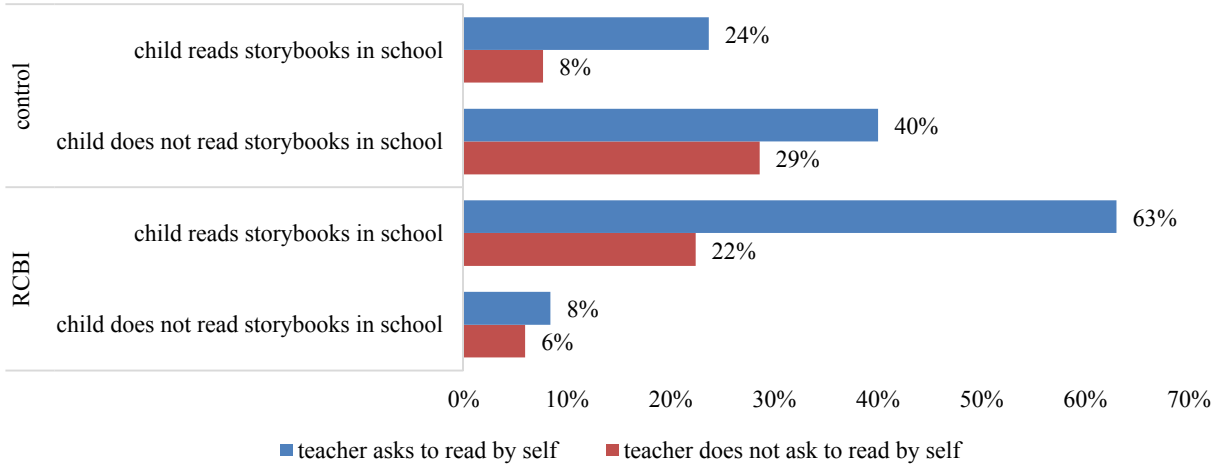
Note: *: p<.05; **: p<.01, ***: p<.001

RCBI is enabling greater access to and practice with books in the classroom. According to student report, there was a striking difference between baseline and endline in teachers asking children to read out loud as well as allowing them to choose a book to read. In each case, the children in RCBI schools report being asked to do so by their teachers significantly more often than their peers in control schools (Fig. 19).

[24] Borderline significant p=.07

With regards to the association between teachers asking students to read and children reading in school, at baseline it appears that teachers asking children to read by themselves was not related to whether or not a child reported reading storybooks in school. However at endline this has shifted in in both control and RCBI schools (Fig. 20).

Figure 20. Percent of children reading storybooks in school at endline by teacher asking them to read and group



4.5.4. Indicator 3: Number of storybooks accessible to teachers and students in P1-P3 classes in Burera schools

Books being stored in a head teacher's office or in another room in the school can translate to less frequent access for teachers and students. By having books available in individual classrooms as opposed to elsewhere in the school building, RCBI has made books more accessible to teachers and students. Fewer head teachers at endline reported storybooks being stored in the head teacher's office as compared to baseline (Fig 21.). Significantly higher percentages of RCBI head teachers as compared to control teachers reported storybooks being stored in the school library at both baseline and endline (Fig. 22). The most striking difference however, is with regards to head teacher report of books being stored in the RCBI classrooms at endline (40%) as compared to RCBI classrooms at baseline (19%) (Fig. 23). While 40%[25] of RCBI head teachers reported books being stored in individual classrooms at endline, none of the control group head teachers reported storybooks being kept in individual classrooms at this time.

*: p<.05; **: p<.01, ***: p<.001, nss=not statistically significant

[25] Based on program team observations, this number seems to obviously underreport the percentage of RCBI schools where books are stored in individual classrooms. It may be the case that head teachers have inaccurate information regarding book storage and further monitoring is warranted.

*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

RCBI classroom teachers reported having more books (of different types) in their classrooms at endline than control teachers. According to teacher report, a significantly higher percentage of RCBI classrooms had magazines (60%), religious books (77%) and storybooks (98%) available for students at endline as compared to control group classrooms (20%, 54%, and 72% respectively) (Figure 24). The percentage of RCBI classrooms with storybooks available for students increased from 71% of at baseline to 98% at endline. In a significant majority of RCBI classrooms (98%) teachers reported books being displayed somewhere in the classroom so that students could see the front cover while this was reported to be the case in only 22% of the control classrooms. (Fig. 25). These results are not surprising given that RCBI provided books to participating classrooms as well as shelves within which to store them.

*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

Having books in open shelving (as opposed to closed boxes or cupboards) means more access to books for teachers and students. Figure 26 shows that a significantly higher percentage of head teachers in RCBI schools reported books being stored in open shelving at endline (44%) compared to control group school head teachers (4%) (p<.01)[26].

In addition, students reportedly had more independent access to books than control group classrooms. A significantly higher percentage of teachers in the RCBI group (98%) as compared

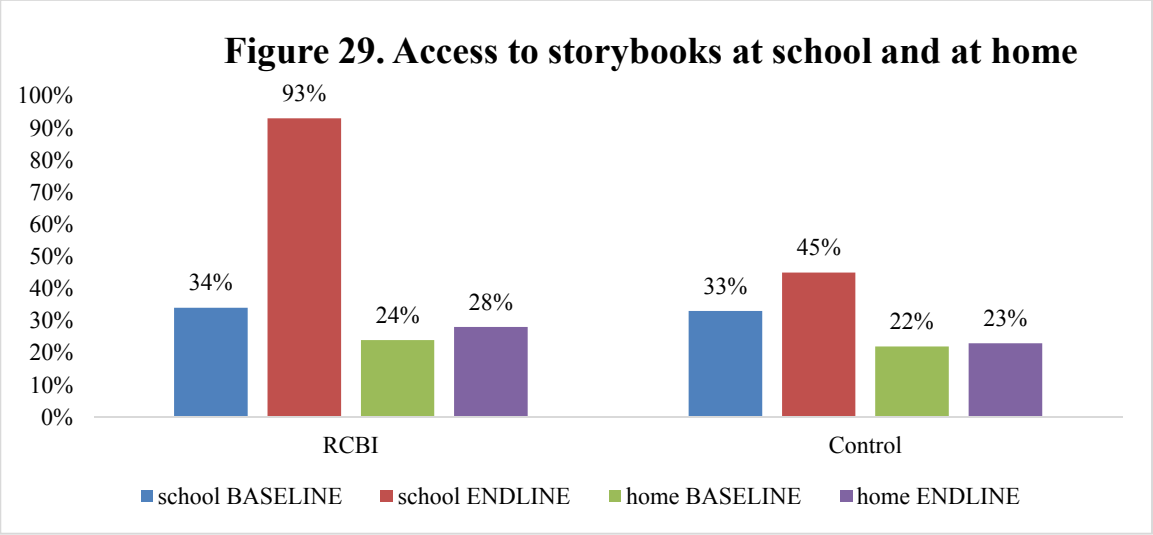
[26] As RCBI provided shelves in which to display books, this percentage was expected to be much higher at endline. Perhaps a low level of head teacher participation in RCBI activities and/or low awareness regarding RCBI classroom activities led to this low percentage.

to the control group (22%) reported students being able to hold and look at storybooks in the classroom ($p<.01$) and a significantly higher percentage of teachers in the RCBI group (77%) than control group (11%) reported students having access to storybooks on their own (without the supervision of the teacher or another adult) at endline ($p<.001$). (Fig.27, Fig 28).

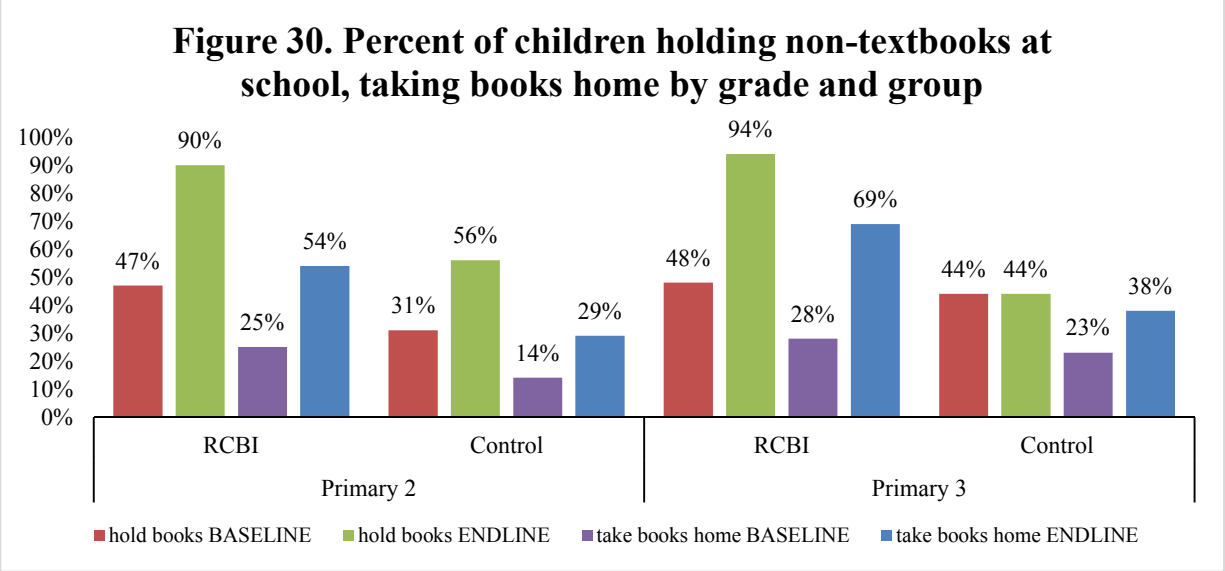
*: p<.05; **: p<.01, ***: p<.001

*: p<.05; **: p<.01, ***: p<.001

Figure 29 shows the students' access to storybooks at school and at home in May 2013 at baseline as well as in March 2015 at endline. It is clear that RCBI has enhanced the classroom experience of text for children. Movement in access to storybooks at home, however, is less dramatic.



It is clear in Figure 30, that the overwhelming majority of RCBI children report holding non-textbooks in the classroom and over half in each grade also report taking the books home, validating teacher report of these activities.



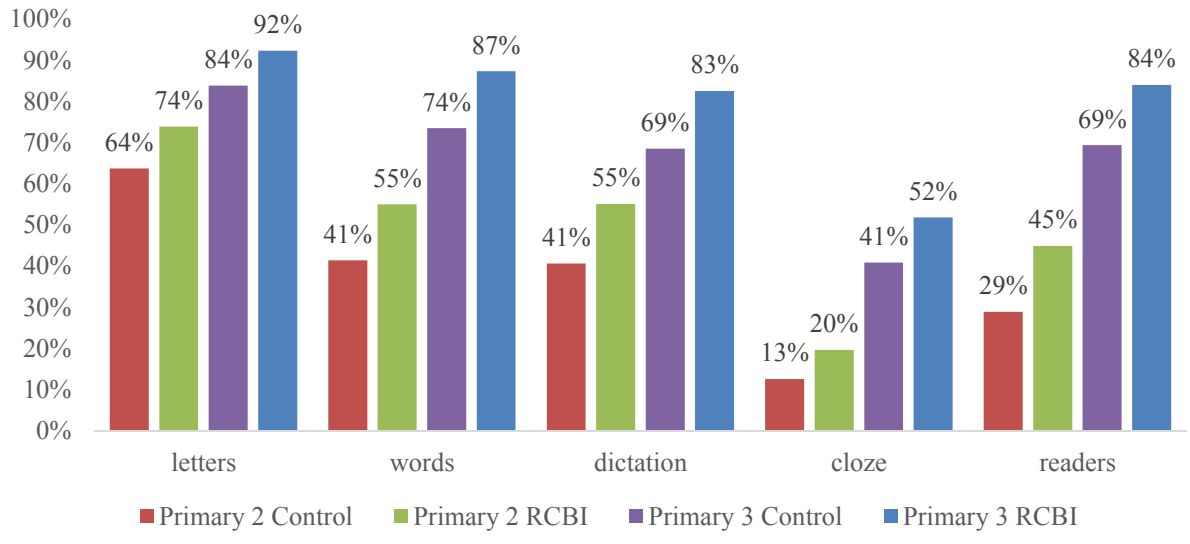
This teacher report was further validated during classroom observations where students were observed holding and reading storybooks during lessons in a significantly higher percentage of RCBI classrooms (47%) than control classrooms (6%) ($p<.001$). (Fig.31)

*: p<.05; **: p<.01, ***: p<.001

4.5.5. RCBI and the development of reading skills among students

The ultimate test of increasing access to and habits around using books is whether this leads to greater levels of reading skills. To check whether RCBI had any impact on the reading skills of children who participated, at endline, the children interviewed were also given a battery of tests comprising assessments of letter knowledge, ability to read words in isolation, dictation, a cloze assessment of comprehension and a reading passage to assess their fluency, accuracy and understanding. While there is no baseline measure of skills for comparison, Figures 32 presents the skills profiles of all P2 and P3 students in both RCBI and control schools, while Figure 35 considers higher order skills among readers of the assessment passage only.

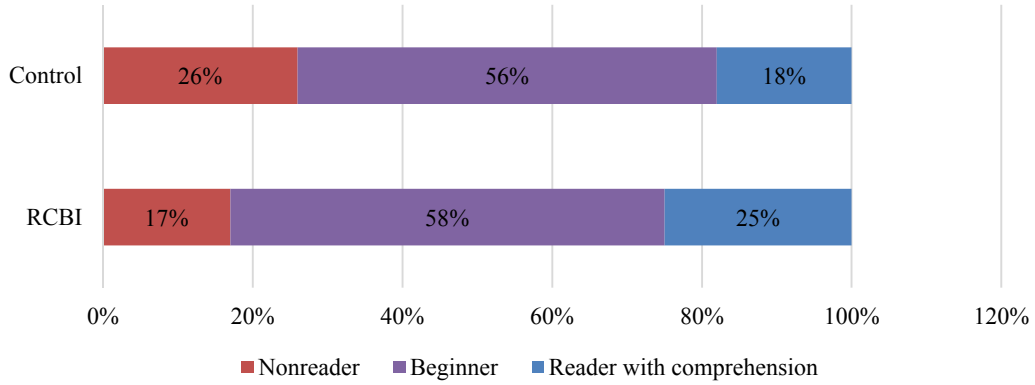
Figure 32. Average Skills by Grade and Group: Full Sample



It is clear in Figure 32 that RCBI students have higher average reading skill scores than control school students. All group differences within grade in Figure 33 are statistically significant at the $p<.05$ level with the exception of single word reading in P2. Many P2 are yet to master foundational skills.

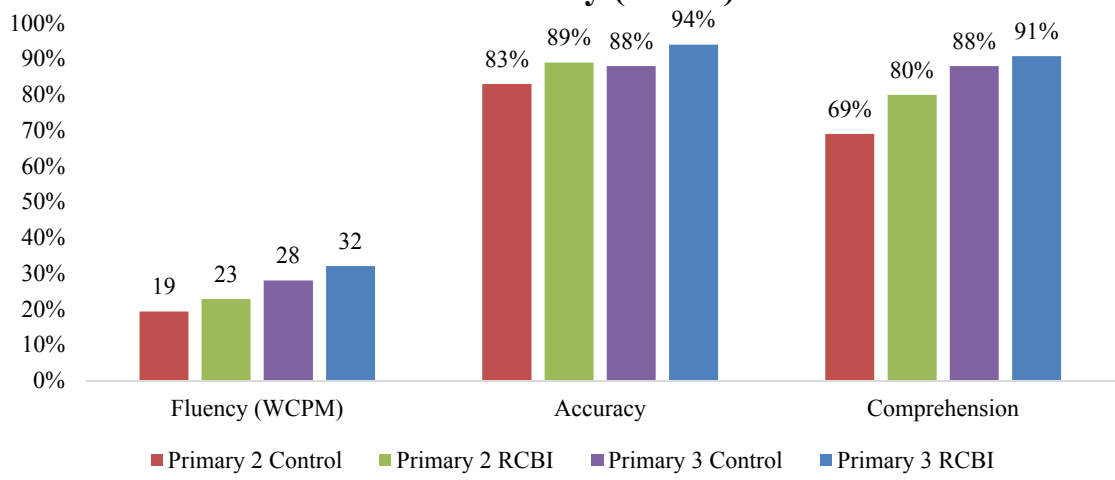
There are three groups represented in these data – those who are not yet reading the grade level passage ('nonreaders'), those who are decoding the passage but not yet demonstrating that they can make meaning of the text ('beginners'), and those who are reading with comprehension. Figure 33 presents the percentage of students in each of these groups for both RCBI and control.

Figure 33. Percentage of children at not reading, decoding and reading with comprehension



There are significantly more readers with comprehension in RCBI schools. Focusing in on the two groups of readers, Figure 34 compares the average skills among this subset children.

Figure 34. Average Passage Reading Skills among Readers Only (n=669)



Among readers, average fluency score differences by group within grade are small, but significant; however, accuracy and comprehension scores are significantly different only among

P2 students. Accuracy and comprehension are not detectably different among P3 students in RCBI and control schools.

Factors affecting reading habits and being a reader with comprehension

At baseline, multivariate models were fit using data from children in P1-P3 and showed that the probabilities of a child reading at home or in school were most significantly driven by home and not school factors other than grade and teacher education. As the endline sample has removed the youngest children, this analysis refits the baseline model among children in P2 and P3 only and uses student-report of teacher actions. Table 12 shows that while being an RCBI school did not predict probability of reading at school or at home at baseline, it strongly predicts both at endline.

Table 12. Multivariate models predicting the probability of reading at school or at home at both baseline and endline, and of being a reader with comprehension at endline

	Reading at school		Reading at home		Reading with comprehension
	Odds ratio at baseline	Odds ratio at endline	Odds ratio at baseline	Odds ratio at endline	Odds ratio at endline
RCBI	0.86	3.14***	0.95	2.95***	1.42
sex	0.84	0.85	0.87	0.96	1.13
age	1.05	0.97	0.98	0.93	0.85**
grade	1.92	1.17	1.12	0.96	8.29***
storybooks in school	1656.59***	466.76***	1.59*	1.56	1.29
enjoys books	2.56	2.40	0.96	1.05	1.58*
have a favorite book	3.26**	1.21	2.14***	0.83	1.15
holds a book in school	3.00**	3.90***	1.30	1.77	1.42
teacher reads	1.35	4.71	1.20	3.89	1.03
has storybooks at home	0.88	1.87*		84.26***	0.87
takes stories home	4.34***	1.60	1.36	2.53***	1.04
read a story outside of school last week	1.98*	1.80*	3.10***	1.57*	1.84***
read over holiday	0.85*	1.20	2.15***	2.34***	0.96
% of family told a story to student	1.36	2.47*	2.09**	0.60	1.09
SES quintile 2	1.11	0.36*	1.00	2.02**	1.17
SES quintile 3	1.44	0.48	0.93	1.64	1.12
SES quintile 4	1.26	0.42*	1.41	1.48	1.03
SES quintile 5	1.85	0.33*	1.17	0.87	1.19
Observations	969	1102	1157.00	1102	1102
R2	0.73	0.68	0.22	0.48	0.21

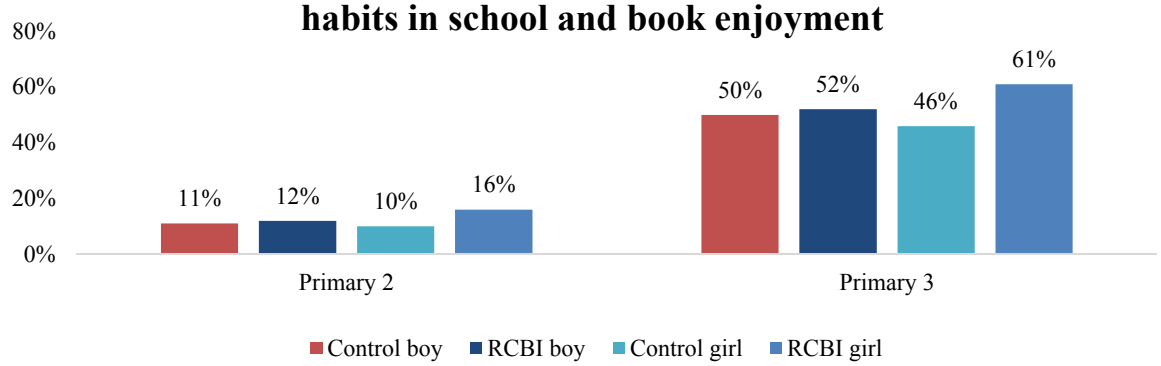
* p<.05; ** p<.01, ***p <.001

The presence of storybooks strongly predicts the probability of student reading. In fact, it does so perfectly in the baseline model for reading at home and this model is refit without this central factor to investigate additional influential factors. At school, it does so in a smaller magnitude at endline – which is expected since the books are so much more prevalent, especially in RCBI classrooms. Controlling for this key factor, additional predictors of the probability of reading are: being in an RCBI target area, having storybooks at home, and reporting reading a story outside

of school last week and over school holidays. In fact, reporting reading a story outside of school last week significantly predicts reading at school, at home and being a reader with comprehension.

In exploring equity in the prediction of the probability of reading with comprehension, an interaction effect in Figure 35 reveals that girls in the RCBI group are more likely to be readers with comprehension.

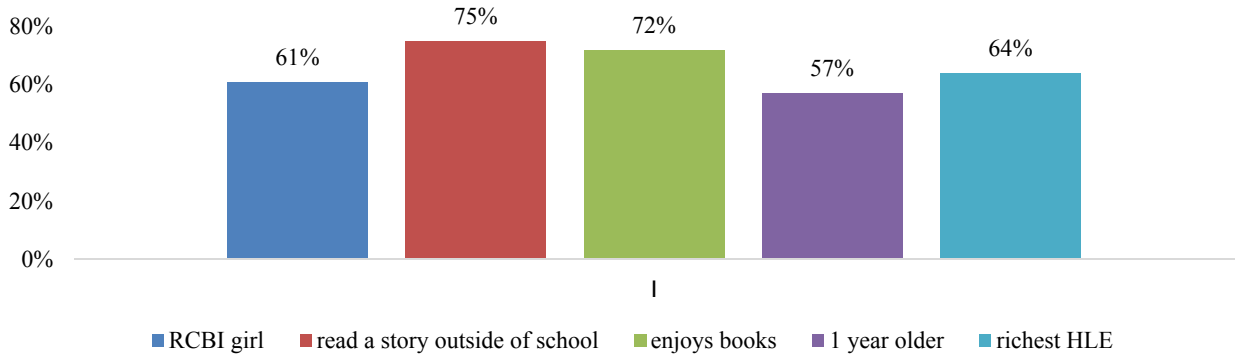
Figure 35. Probablity of being a reader with comprehension by sex, grade and group, controlling for socioeconomic status, home literacy environment, reading habits in school and book enjoyment



While we do not have baseline data from which to compare the reader with comprehension status of P2 and P3 girls and boys by group prior to RCBI implementation, this result suggests that RCBI may be disproportionately benefitting girls. Additional attention to skill levels by sex and grade is warranted.

Additional influential factors affecting the probability of being a reader with comprehension are presented in Figure 36. This Figure uses a P3 RCBI girl as a prototypical student, so 61% is the basis for comparison. In each case, the influential factors are added one at a time, so that a RCBI girl who reports having read a story outside of school last week is 14 percentage points more likely to be a reader with comprehension than a girl who did not, and another who enjoys books is 11 percentage points more likely to be a reader with comprehension.

Figure 36. Factors affecting the probablity of being a reader with comprehension: habits, enjoyment, age and home literacy, controlling for socioeconomic status, sex, grade and group



Interestingly, an additional year of age is associated with a four-percentage point decrease in the predicted probability of being a reader with comprehension. Attention to the reading opportunities of repeaters who are struggling to master this important life skill may be warranted.

RCBI Story Writing Workshops

At endline RCBI piloted storywriting workshops in four schools to explore the possibility of using story writing ability as an additional measure of RCBI's results. The RCBI team designed the activity as a proxy for familiarity with storybooks with the assumption that if children are exposed to books regularly, they'll have greater story knowledge and think about the need to have a title, name of author, illustrator, etc. The piloted approach also attempted to explore how stories could contribute to the building of creative thinking, imagination, and the production of authentic ideas. This section details the methodology used, sample strategy and size, results from the pilot and appropriateness of these workshops as an evaluation activity.

Methodology

The purpose of the workshops was to attempt to measure the degree to which children's exposure to RCBI would improve their understanding of storybook structure, familiarity with storytelling and story illustrations and their creativity. A guidance note was developed to be used by a local consultant with instructions on how to conduct the workshops, select students and assess the stories written by them against a set criteria.

Activities were conducted in Kinyarwanda and students were instructed to pair up to write and illustrate an original story (from their own imagination) in about 30 minutes. Children were allowed to decide who to pair with and who would write, who would illustrate the stories. Each school had six pairs of children who produced six stories.

The following assessment rubric was used to score children's work:

1 - Story has a title
2 - Story has an author's name
3 - Story has a cover illustration
4 - Story indicates the illustrator's name

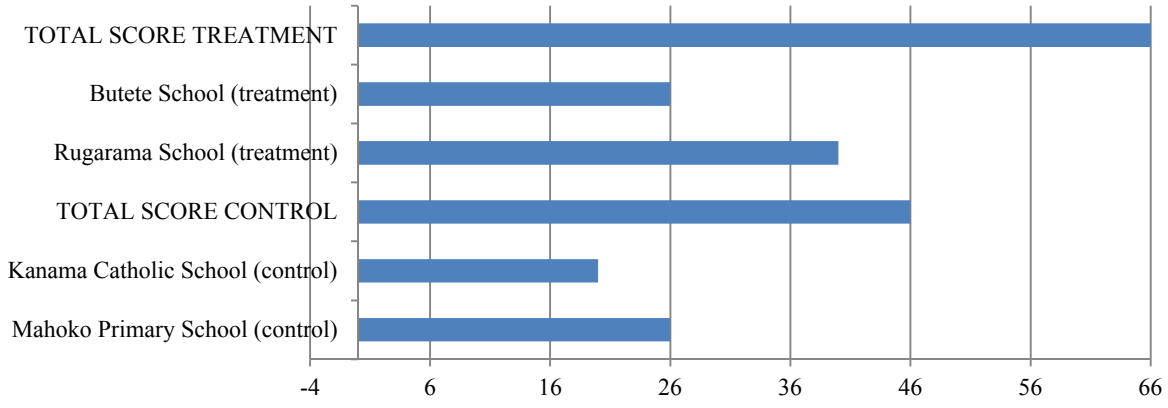
5 - Story has an appropriate introduction
6 - Story has original content, not replicated from another story
7 - Story has text on all appropriate pages
8 - Story has illustrations on all appropriate pages
9 - Story has a discernible plot
10 - Story has an appropriate conclusion

Sample strategy and size
Four schools, two in the control district (Rubavu) and two in the treatment district (Burera), were purposively selected by the RCBI team for the pilot. In each school a group of 10 - 12 students from P3 were selected either by the Head Teacher or the P3 teacher. They were allowed to select the best performing students and each group had a gender balance.

Results
The stories produced by the students (see Appendix 8 for examples) were scored by the consultant against the assessment rubric and analysed by the RCBI team. Each rubric item present in the story (e.g. story has a title) was scored as 1 (one) and items not present in the story were scored as 0 (zero). A total score of 10 (ten) could be achieved by each pair and a total score of 60 (sixty) could be achieved by each school.

The highest score achieved by a pair was 9 (nine), in a treatment school, and the lowest score was 0 (zero), in a control school. On average, the 12 pairs in the two control schools scored 3.8, while the 12 pairs in the two treatment schools scored 5.5. In general, scores were low in treatment and control schools. Three out of four schools (two control and one treatment) scored less than half of the points, as can be seen in the graph below (Fig. 37).

Figure 37. Story writing workshop-Total score per school



The total score in treatment schools was 66 and in control schools was 46. The lowest performing treatment school scored the same as the highest performing control school (26 points). In both treatment and control schools the highest scoring items were to include an appropriate introduction in their stories and to have a discernible plot. Treatment school students scored more points than control students on inclusion of author and illustrator's names in their stories, inclusion of a cover illustration and original content of the stories. The only item control

schools scored more than treatment (although by one point only) was inclusion of an appropriate conclusion to the story.

Most stories had about two pages. In terms of content, characters were sometimes humans (adults and children) and sometimes animals (with leopards, hares and dogs being the ones featured more often, although several other animals were featured in different stories as well, such as ant, hyena, goat and duck). Quite a few stories were based on local folktales and a few plots were about things that happened on the character's way to school, or while at school. Illustrations were simple, but adequate for the age group and context. Including illustrations on the appropriate page was the item students struggled with the most. Only one of the pairs (in a treatment school) scored 1 on this item, with all other pairs scoring 0 (zero). It was the lowest scoring item of all, followed by inclusion of text on the appropriate pages (only 2 pairs in the treatment schools scored 1 on this item). Apart from these two items control schools also scored 0 (zero) on inclusion of the illustrator's name on the story. None of the pairs in treatment schools scored zero. The graph below (Fig. 38) includes sub-totals per school by item.

Conclusion

While treatment schools have an overall higher score than control ones, scores were low in general. While this is a small sample and findings cannot be generalized it would be important to reflect on how future teacher training activities can take these findings into account to improve teaching practice and, as a consequence, students familiarity with storybooks.

To be used as an evaluation activity a more representative sample size (number of schools selected) and a more rigorous sampling strategy would be needed in the future. The workshop could also be used as a formative assessment by teachers to assess how familiar their students are with storybooks and storytelling, identify struggling learners and make changes on their teaching to address main difficulties. As the majority of the students selected for the workshop enjoyed writing stories story writing activities could also be used as a "fun activity" to stimulate students' perception of reading and listening to stories as a joyful, enjoyable activity.

4.6 RCBI Local Level Conclusions

Endline assessment reveals that RCBI has had an overwhelmingly positive impact across indicators on the local level.

Substantial gains were noted in outcome indicator 1, with frequency of reading by students in Burera. In both grades the percent of RCBI children reporting reading in school is higher than reports of reading at home. This is likely a product of book provisions being placed in schools as well as earlier program intervention with teachers trained on promoting reading in the classroom. Additionally, the concept of students being allowed to borrow books to take home is still very new to schools in Rwanda, so it's not surprising that this practice is not yet fully accepted. However, the gains in reading frequency at home are also significant, and can likely be contributed to the sensitization campaign directed at Parent Teacher Associations later in the life of the project.

The evaluation also indicates a positive impact on outcome indicator 2, with positive changes in teaching practice and use of books in Burera schools. RCBI appears to have had a positive impact on frequency of use of storybooks with all RCBI classroom lessons observed to include reading activities, and a significantly higher percentage of teachers in RCBI schools observed reading books aloud to children. Additionally, RCBI teachers (more than control teachers) were observed to be using effective instructional strategies during these sessions, including explicit techniques for developing students' comprehension. This is an important practice, as recent evidence in Rwanda has continuously highlighted reading comprehension skills lagging in primary schools. Significant differences were also found between control and RCBI classrooms with regards to the classroom environment being print-rich, with words and letters displayed to support learning and automaticity. Treatment group evidenced a considerably higher percentage of classrooms with print material on the walls, the latter having significantly higher print materials. It was also evidenced that RCBI teachers were not only more likely to use storybooks in the classroom, but they were also more likely to encourage students to read storybooks at home.

Significant gains were also evidenced on outcome indicator 3, with an overwhelmingly larger number of storybooks accessible to teachers and students in P1-P3 classes in Burera schools. Unsurprisingly, the provision of classroom-based book collections increased students' exposure to storybooks, with a greater number observed being read to or observed holding non-textbooks in the classroom. Additionally, the benefits of access also impacts the home literacy environment, as over half of the students in each grade also report taking the books home. Book access at home seems to also have a staggering impact on other evaluated variables. In fact, reporting reading a story outside of school last week significantly predicted reading at school, at home and being a reader with comprehension. Further, the evidence indicated that reading outside of school has greater influence on these variables than students' socio-economic status.

Furthermore, RCBI students were found to have higher average reading skill scores than control school students. While we do not have baseline data, a comparison of treatment and control students indicates that the presence of storybooks obviously and overwhelmingly predicted the probability of student reading at endline, as RCBI students had higher average reading skill scores than control school students. There were significantly more readers with comprehension in RCBI schools, particularly girls across both grade levels. Interestingly, being on over-age

student is associated with a four-percentage point decrease in the predicted probability of being a reader with comprehension.

5. OVERALL PROGRAM RECOMMENDATIONS

In the event of further replication of a similar children's book project, key recommendations have been noted by beneficiaries, evaluators and program staff based on these experiences and the endline results.

An extended length of a program of this nature would establish a stronger foundation for the whole system approach to book development and provision. More time would allow not only for more books to be created, but also with less time-pressure, greater market research could be facilitated in order to ensure that books are responsive to the interests of Rwandan children. An extended length would also allow the book production component to be initiated in advance to the purchasing of any books. With the limitations on implementation time, RCBI's initial book purchases for schools occurred before the publishers had published the RCBI-supported books. This resulted in a smaller market for the publishers as well as the provision of some books of lesser quality in classroom book collections. With greater time or alternatively, more field-based officers, both the national level and local level activities could be extended to other geographic areas in Rwanda. It would be valuable learning to test how the program fares with beneficiaries of different demographics.

Stimulating demand for children's books outside of Save the Children has proven the largest challenge. Greater emphasis on this issue is essential, and from the onset of the project, activities should focus on raising awareness of the books published and identifying new markets. Key partnerships should also be developed in order to reach a wider audience.

The evidence indicates that reading at home has a strong impact on reading frequency and fluency. Although home literacy environment is essential, the evidence also suggests that the probability of being a reader with comprehension (the ultimate goal of reading development) is higher among RCBI students even when socioeconomic status, home literacy environment, reading habits in school and book enjoyment are taken into account.

Reading at home was found to have a strong impact on reading frequency and fluency at baseline, when children's access at school was limited and continued to be the case at endline, even after children were provided greater in-school access. It is recommended that similar programs should intensify efforts at engaging parents from the on-set of the project, ensuring that they are made aware of how to encourage their children to read at home. This sensitization should take place in various modes, through cascaded orientations in the PTAs, distribution of print materials and through general media campaigns on the radio or newspapers. In addition the focus on comprehension skills provided by RCBI seems to have a strong impact on students' comprehension skills when reading. Programs should continue to train teachers on skills such as those modeled during read aloud (making predictions, asking in-depth questions before, during and after reading books etc.) that strengthen students' comprehension of text.

In relation to program outcomes, it is recommended that children's book projects also include reading fluency indicator, as there is now evidence that reading frequency and availability

improves reading abilities. This relationship should be further investigated from the design stage of the project. Additionally, there seems to be evidence that exposure to story reading correlates to other skills including improved story writing, comprehension skills, creativity and even story writing abilities. The correlation between increased frequency of reading and these variables should be explored in greater depth.

The endline evaluation findings also suggest that RCBI may be disproportionately benefitting girls. Further investigation of skill levels by sex and grade is warranted in order to achieve greater equity in learning gains. Additionally, attention to the impact of RCBI on repeating students would provide greater insight on differentiating the program to better address the wide age range of students found in P1-P3 classrooms.

6. RCBI PROGRESS AGAINST BENCHMARKS

Following assessment at baseline, endline targets were set against each of the specified project indicators. The following table summarizes national and local level progress at the 2015 endline assessment against the targets set at the 2013 baseline:

Indicators	Baseline Values	Targets	Endline Values
National level:			
Evidence that publishers, writers, editors and illustrators who benefited from RCBI training and capacity building are using the knowledge and skills acquired.	N/A	90% of those trained are putting into practice the knowledge and skills acquired.	100% of publishers, writers, and editors are applying the knowledge and skills acquired.
Increase in the number of Kinyarwanda children's story-books [on the REB-approved list of books]	139 books: N1-N3: 0 P1-P3: 139	30% increase on existing number of titles on the REB approved list, i.e. 181 book titles.	47 new books have been approved by REB for use in P1-P3 classrooms. This constitutes a 33% increase.
Increase in the range of Kinyarwanda children's storybooks.	Grade N1-N3: 16 available titles P1-P3: 139 available titles Type Non-Fiction: 62 available titles Fiction: 185 available titles	30% increase on available titles for the minority range, i.e. Grade: N1-N3: 21	Grade: N1- N3: 8 titles[27] Type: Non-fiction: 36 titles Fiction: 9 titles

[27] These titles are available for pre-primary as well as primary 1 level

				available titles <u>Type</u>: Non-Fiction: 80 available titles				
Increase in the quality of Kinyarwanda children's storybooks.	Criteria	% of books rated Good or Excellent for Read aloud	% of books rated Good or Excellent for Read alone	30% increase on existing baseline values, i.e.: Read aloud Read alone		Note: In the baseline report books where distinguished between 'read aloud' and 'read alone'. However, in the endline report, they were not because most RCBI books were both 'read aloud' and 'read alone' having large illustrations and size. To compare endline with baseline, RCBI books have been compared with 'read aloud' books, because 'read aloud' books can be both read aloud and read alone, but 'read alone' books cannot.		
	Content	40.0%	37.8%	52.0%	49.1%	40%		
	Presentation	20.0%	20.0%	26.0%	26.0%	44%		
	Language	31.1%	26.7%	40.4%	34.7%	42%		
	Editorial	17.8%	15.6%	23.1%	20.3%	76%		
	Promotion of positive values	9.4%	15.6%	12.2%	20.3%	x		
	Factual accuracy	23.1%	30.8%	30.0%	40.0%	50%		
Evidence of progress towards a national book policy	N/A			Evidence of progress		The national book policy was drafted and currently is awaiting approval by parliament.		
Local level:								
Frequency of storybook reading by students	Frequency of reading storybooks at least once a week	P1 &P2	P3	30% increase on existing baseline values, i.e.:		Frequency of reading storybooks at least once a week	P2	P3
						Read storybooks	78%	86%
	At school	15%	22%	19.5%	28.6%	Access to storybooks at school	93%	
	At home	13%	19%	16.9%	24.7%	Access to storybooks at home	28%	
Changes in teacher practice in P1, P2 and P3 classrooms use of storybooks	Particular practices to be monitored as proxies for changes in teaching practice:			30% increase on existing baseline values, i.e.:				
	Puts storybooks on display so that children can	42.5%		55.3%		98%		

	see the front			
	Reads a story book in class	40.7%	52.9%	92%
	Allows students to read a storybook of their choice	27.6%	35.9%	51%[28]
	Classroom has materials on walls	60.8%	79.0%	93%[29]
Access to storybooks by students in P1 – P3 ***As referenced previously, this indicator was not measurable in the baseline. A request for revision of the indicator was requested.*** **Indicator Revised to: Access to storybooks by students in P1-P3 (*measured by % of students who get a chance at school to hold and look at a book other than a story book*)**	44%			98%[30]

[28] During read aloud time.

[29] At least one example of teacher made material was found on classroom wall.

[30] Based on teacher report

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Appendix 1: Local Level Case Studies

I. Sebastien Irakunda – Book Illustrator

Sebastien (pictured right) is a young artist who was selected by Save the Children to participate in training and contribute artwork to children's books and posters as part of the Rwanda Children's Book Initiative (RCBI). Sebastien tells us his story:

"My name is Sebastien Iradukunda, I am eighteen years old. I am currently studying computer science and illustration at the Kigali Institute of Science and Technology (KIST).

I started drawing at an early age when I was in kindergarten. In kindergarten they taught us how to draw and I very quickly took to this art, which I found suited me well. So I continued drawing through the years up until now.

I've worked on my own to diversify my techniques, and [through RCBI] I've also received training in different techniques such as collage, oil painting and watercolours.
Most of my inspiration comes from the comic books that I read. I'm a big fan of comic books. I also take a lot of inspiration from online courses that I find on the internet.

When I learned that Save the Children was offering training for artists who were interested in making children's books and other materials for children, I decided to apply because people told me I had the potential to be a children's illustrator. So I signed up for the training and I met a lot of other artists, trainers, and Save the Children staff.

Before my training with Save the Children, I mostly used pencils and ink for drawing. But through the training I learned many other techniques such as collage – a technique that consists of drawing a pattern or a texture on paper, then cutting that out into shapes and gluing it down - in this way creating a motif of scenes or objects. I also discovered other techniques like watercolours – which is very colourful and also used in primary schools. The training helped me advance my skills in these techniques. I also learned how to do oil painting, and was given the supplies to do this.
The project I'm [currently] working on for Save the Children is a short book sixteen pages long for children about animals. I chose to make a book about animals because it was the subject that I like the most and this was my first project with Save the Children."
"For this project I used a mixture of techniques that I learned through my training with Save the Children, like collage. Collage is a very good technique to use for children's books because it is very simple. When a child sees a picture made through collage, they know right away what they are looking at. It's important that the images in children's books be simple so that they can easily understand the message. So when it came time to make a book, I decided that I would use collage because it is easy to do and very effective for telling stories. I also learned in my training

with Save the Children that collage is a technique that's very appropriate when teaching children language and reading. So they encouraged us this way, which was very good."

Sebastian demonstrating decoupage and collage techniques

"As an illustrator, I am someone with a certain vision, who wants to help make change. In Rwanda, we are used to reading children's books that come from other countries. These books tell stories that come from other regions and other countries other than Rwanda. I feel that if you are a child in Rwanda reading one of these books and you come across a name that you don't recognize, or a story that you don't understand, it's not very good for learning. But if a child is reading a book that was made by a Rwandan and tells a story that is familiar to them – the child is encouraged to read. A child takes a lot of pleasure in reading something that comes from Rwanda, and me as an artist, I take a lot of pleasure in creating in response to these stories. I think that the books that come from other countries don't inspire children as much. So I think things are changing quite a bit."

"The advantage of making children's books in Rwanda, is that if I am making a book about farm animals for example – I don't have to look very far to know which local animals to include. Then when a Rwandan child reads this book, they will see the animals I've drawn and say, "Hey, I know these animals! I know this cow!" I wouldn't draw a cow that is like the ones they are used to seeing in books from other countries. I would draw a cow that is like the ones they see in this country. It's the same with the other animals. They will recognize things in these books because they are used to seeing them in real life, and they'll think, "Hey, this is cool!""

Sebastien employs a mixture of traditional and digital techniques in his artwork

"I think that when children learn to read well it helps them a lot. For example, in the neighbourhood where I live, there are a lot of children who don't have access to books. They spend their time playing in the streets without much to do. But then you find there are other children with access to books who are well-educated and know lots of things that other children don't know and who are very positive. I think the kids who don't have access to books and education are destined for a life without many options, and it's easy for them to fall into criminality and drugs, those types of things. But children who have access to books and who learn to read have a much better chance. Reading leads to their intellectual development and helps them in school. Being able to read helps children live in rhythm with the development of their world, and it gives them the chance to contribute to the future of their country."
Translated from French by Colin Crowley

II. Bernard Niyonzima – Teacher

Bernard is a Kinyarwanda P3 teacher at MUGARAMA primary school, which is participating in the RCBI project.

Teachers participate in a training session for the Rwanda Children's Book Initiative

Q: Can you tell us what has been the importance of the training provided by RCBI?
A: The trainings have been so useful to us. Before, the pupils themselves did not have the reading habit, and they were indifferent to the books that they had in classes. But since we got the storybooks pupils love them. They see themselves in those books so they are more curious and willing to read them and share those stories with other children.
Q: Before RCBI intervention, did you have books in classrooms? If yes, what type of books did you have?
A: Yes we did have books but they were not many and those books had stories that were not age appropriate. Some were so complex for children's understanding. But your (Save the Children's) books are age appropriate and they easily find their way into children's hearts.
Q: Is there any change have you seen in children as a result of reading story books?
A: There are a lot of changes, but the big one is that they get used to reading and they take it up as a culture. Then those stories also carry moral lessons that help them as individual and sharpen their character. It also improves their literacy and language and they can even read other types of reading like newspapers and others without any problem.
Q: What has been the importance of bookshelves and mats in classrooms?
A: These bookshelves are mini libraries, and the way we arrange them in the class attracts the students. So when a child gets in front of it, they choose for themselves and that motivates them since it gives them the opportunity to read something they are interested in, versus how they used

to when it was me the teacher who would choose what they read.

A primary school student chooses a book from a bookshelf in her classroom

The fact that they all sit on the mat changes the mood and puts them in a reading environment. It takes their focus from every other thing they were doing, and they only concentrate on reading. Before, the teachers would be standing, or walking around the class, and there were chances that the pupils would be distracted. It also give them an opportunity to interact on an informal level, when they are discussing about the story they just read, and that increases the level of intimacy between teacher and pupils.

Q: What is the importance of the print rich environment?

A: We still had them even before, but it wasn't as good as it is today. Now as teachers we don't get tired introducing the lesson, they already have an idea of what they are going to learn. They simply look around the class and know what they are going to learn. On top of that, the pupils are involved in the production of those images around the class.

Q: What is the system used to manage the movement of books among the students?

A: The books have been labeled with numbers as we have been trained, and when a child takes a book home, we record it, and record the time h/she is supposed to bring it back. We make sure they bring them back. Even if there is some delay bringing them back because they love them and would love to stay with them for longer. They are actually given two days per book.

Q: What are the challenges you face as a teacher in implementing this?

A: The major challenge is the over population of the pupils in one class, whereby a class can have up to 60 or 70 pupils. So when it gets to read times, the mat cannot be enough and we opt to go outside under a tree to read. But still it's a challenge to get the attention of all of them since the environment is more distractive. The weather contributes to that challenge too, since when it's a rainy season, we cannot read outside at all. Another challenge is about the number of books; they are not enough for all of the pupils.

Students benefitting from learning in a "print-rich" classroom

Q: This project is very special because it focuses on literacy of the children from P1 to P3. Why do you think it is so important to focus on that age group?

A: There is a saying in Kinyarwanda, which is: *"a tree can only be molded when it is still small."* This means that from P1 to P3 is a critical age. So when the pupils get to know how to read better at that age, that will be the package they take in their older age to help them understand other lessons better, as well as being able to read other materials like sign post, newspapers and other books.

Translated from Kinyarwanda by Natasha Nishimwe

Appendix 2: RCBI Photographs

Books displayed in an open bookshelf in an RCBI classroom

Student selecting a book to read from the bookshelf

Students engaged with storybooks during read aloud and independent reading time

Various types of print material on the walls in an RCBI classroom

Appendix 3: REB Criteria for Book Quality[31]

READ ALOUD PICTURE BOOKS, BIG BOOKS FOR SHARED READING (CATEGORIES 1 and 8) **FICTION**

EVALUATORS' MARK SHEET, Categories 1 and 8 **FICTION**

Level: 0-3 years 3 to 6 years P1 to 3 P4 to P6

Title .....

Evaluator: _____ Date: _____

EVALUATION CRITERIA	Not Acceptable 0	Poor 1	Acceptable 2	Good 3	Excellent 4
1. TEXT CONTENT					
1.1 Appropriateness of story/text/theme for the age group					
1.2 Interest level for the age group					
1.3 Appropriateness of length for age group					
2. PRESENTATION					
2.1 Quality, attractiveness and appropriateness of cover age group					
2.2 Appropriateness of, page design & layout for age group *(including placement and amount of text on page)*					
2.3 Quality, relevance and appropriateness of illustrations for age group					
2.4 Appropriateness of font & font size for the age group					
2.5 Appropriate and accurate use of color for age group					
3. LANGUAGE					
3.1 Quality of writing					
3.2 Suitability of language use for the age group					
3.3 Appropriateness of language patterns, vocabulary and sentence structure for age group					
4. EDITORIAL					
4.1 Respect of age appropriate conventions and absence of typos and other errors					
5. PROMOTION OF POSITIVE VALUES (FICTION ONLY)					
5.1 Integration of an important social value (equality; gender equality, environment, moral/integrity)					
5.2 Appropriateness of the way in which the social message is addressed for age group a					
5.3 Absence of bias in illustrations, characters and plot					

READ ALOUD PICTURE BOOKS, BIG BOOKS FOR SHARED READING and (CATEGORIES 1 and 8) **NON FICTION**

[31] The standards come from the REB CPMD Standard Bidding Document.

EVALUATORS' MARK SHEET, Categories 1 and 8 NON **FICTION**

Level: 0-3 years 3 to 6 years P1 to 3 P4 to P6

Title .....

Evaluator: _____ Date: _____

EVALUATION CRITERIA	Not Acceptable 0	Poor 1	Acceptable 2	Good 3	Excellent 4
1. TEXT CONTENT					
1.1 Appropriateness of story/text/theme for the age group					
1.2 Appropriate interest level for age group					
1.3 Appropriateness of length for age group					
2. PRESENTATION					
2.1 Quality, attractiveness and appropriateness of cover for age group					
2.2 Appropriateness of, page design & layout for age group *(including placement and amount of text on page)*					
2.3 Quality, relevance and appropriateness of illustrations for age group					
2.4 Appropriateness of font & font size for the age group					
2.5 Appropriate and accurate use of color for age group					
3. LANGUAGE					
3.1 Quality of writing					
3.3 Suitability of language use for the age group					
3.3 Appropriateness of language patterns, vocabulary and sentence structure for age group					
4. EDITORIAL					
4.1 Respect of age appropriate conventions and absence of typos and other errors					
1. Factual accuracy (NON FICTION ONLY)					
5.1 Facts are accurate and age appropriate					

STUDENT READ ALONE (LEVELLED) BOOKS –
KINYARWANDA & ENGLISH FICTION (CATEGORY 2 and 8)

EVALUATORS' MARK SHEET, CATEGORY 2 and 8 FICTION

Title .....

Evaluator: _____ Date: _____

EVALUATION CRITERIA	Not Acceptable 0	Poor 1	Acceptable 2	Good 3	Excellent 4
1. TEXT CONTENT					
1.1 Appropriateness of story/text/theme for targeted level					
1.2 Appropriateness of story structure for targeted level					
1.3 Appropriateness of length for targeted level					
2. PRESENTATION					
2.1 Appropriateness of, page design & layout for age group *(including placement and amount of text on page)*					
2.2 Quality, relevance and appropriateness of illustrations for targeted level					
2.3 Appropriateness of font & font size for targeted level					
3. LANGUAGE					
3.1 Appropriateness of language patterns, conventions and sentence structure for targeted level					
3.2 Appropriateness of vocabulary/words for targeted level					
4. EDITORIAL					
4.1 Respect of level-appropriate conventions (absence of typos and other errors)					
5.0 PROMOTION OF POSITIVE VALUES					
5.1 Plot/theme addresses an important social value *(equality; gender equality, environment, moral/integrity)* in a way that is appropriate for the target audience					
5.2 Appropriateness of the way in which the social message is addressed					
5.3 Absence of bias in illustrations and characters					

STUDENT READ ALONE BOOKS – KINYARWANDA & ENGLISH (CATEGORY 2 and 8)
NON-FICTION)

EVALUATORS' MARK SHEET, CATEGORY 2 AND 8 (NON-FICTION

Title .....

Evaluator: _____ Date: _____

EVALUATION CRITERIA	Not Acceptable 0	Poor 1	Acceptable 2	Good 3	Excellent 4
1. TEXT CONTENT					
1.1 Appropriateness of story/text/theme for targeted level					
1.2 Appropriateness of story structure for targeted level					
1.3 Appropriateness of length for targeted level					
2. PRESENTATION					
2.1 Appropriateness of, page design & layout for age group *(including placement and amount of text on page)*					
2.2 Quality, relevance and appropriateness of illustrations for targeted level					
2.3 Appropriateness of font & font size for targeted level					
3. LANGUAGE					
3.1 Appropriateness of language patterns, conventions and sentence structure for targeted level					
3.2 Appropriateness of vocabulary/words for targeted level					
4. EDITORIAL					
4.1 Respect of level-appropriate conventions (absence of typos and other errors)					
5.0- Factual accuracy (NON FICTION ONLY)					
5.1 Facts are accurate and age appropriate					

Appendix 4: Balance between treatment and control

To check the balance between treatment and control key variables were analysed. The table below shows that treatment and control are similar.
Book availability seems to be slightly better in the treatment group but the difference is, for the most part, not statistically significant due to clustering effect. It is worth noting that students do not report having access to more books in the treatment group. Reading habits and student characteristics are similar between treatment and control. Teaching practices differ between treatment and control but there was no clear pattern. School characteristics are somewhat different but the pattern is not clear.

		Control	Treatment	P-value
Book availability according to students	At least one book at home	70.1%	74.6%	0.167
	At least one book at school	74.7%	72.3%	0.561
	At least one book	88.1%	88.1%	0.964
Book availability according to teachers	Story book	49.7%	68.6%	0.156
	Magazines	31.8%	36.1%	0.737
	Religious books	65.0%	76.1%	0.359
Book availability according to head teachers	**Collection of story books**	**69.0%**	**96.1%**	**0.016**
	Collection of story books available at all time for teachers	78.5%	95.8%	0.099
	Collection of story books available at all time for students	67.2%	74.9%	0.591
Reading habits of students	Read at home	53.2%	55.3%	0.605
	Read at school	48.7%	44.4%	0.352
	Read	67.4%	67.4%	0.989
	Frequency of reading story books at home	2.6[32]	2.6	0.789
	Frequency of reading magazines at home	2.6	2.7	0.249
	Frequency of reading religious books at home	2.4	2.5	0.21
	Frequency of reading story book at school	2.7	2.6	0.666
	Frequency of reading magazines at school	2.7	2.7	0.808
	Frequency of reading religious books at school	2.2	2.1	0.72
Teacher practice	**Read a story book in class**	**26.7%**	**54.8%**	**0.033**
	Ask students to read by	91.9%	77.4%	0.125

[32] These values represent the frequency reported by children who said they read, with 1=Every day, 2=Once or more a week, 3=Once or more a month, 4=Once or more a term.

	themselves			
	Ask students to read as a homework	**99.2%**	**66.9%**	**0**
Student characteristics	**Proportion of girls**	**49.4%**	**50.6%**	**0.037**
	Percentage of students who have repeated this year	20.9%	27.1%	0.064
	Proportion of grade 3 students	67.1%	66.6%	0.264
	Wealth (standard deviation)	0.1	-0.1	0.119
	Household size	6.3	6.4	0.563
	Percentage with no mother at home	**8.1%**	**4.5%**	**0.019**
	Percentage with no father at home	16.5%	13.2%	0.129
	Percentage of household members that the child has seen reading	**42.8%**	**47.8%**	**0.032**
	Percentage of child who lives in a household where at least one household member reads	82.4%	87.7%	0.071
	Number of household members who told the child a story	2.3	2.3	0.872
	Percentage of students who have been told a story	75.3%	75.0%	0.9
	Number of household members who have told the child to read	2.7	2.7	0.966
	Percentage of students who have been told to read by a household member	82.3%	78.7%	0.286
School characteristics	Access to electricity	50.2%	73.0%	0.095
	Access to water	**84.5%**	**57.8%**	**0.037**
	Type of roof	1.9	1.8	0.313
	Number of observations	**620**	**619**	
	Standard errors are adjusted for clustering at the school level			

Appendix 5: Randomisation Guidance

Treatment & Control School Randomisation Guidance:

RCBI Treatment were assigned to all 87 Burera schools. Twenty-six schools in treatment group were randomly selected for the impact evaluation. Twenty-six schools were randomly selected in Rubavu for being in the control group. Random numbers were generated for each school and the school with the smallest random number in each sector was selected for the impact evaluation. Each Burera sector had at least one school participating in the impact evaluation (IE). Because there are 17 sectors in Burera and 26 schools were selected for the impact evaluation, the following criteria has been used to select 2 schools in some of the sectors:

a) All sectors with more than 6 schools had two schools participating in the IE (the two schools with smallest random numbers).

b) Sectors with up to 5 schools and the smallest random numbers were selected to have 2 schools in the IE.

Twenty-six schools were randomly selected in Rubavu for being in the control group. Random numbers were generated for each school. The two schools with the smallest random number in each sector were selected for the impact evaluation. Gisenyi had more schools than any other sector; hence 3 schools were selected in this sector.

Randomisation Guidance in the Schools:

Classrooms:

1- Request from the Head Teacher a list of P1, P2 and P3 classrooms whose Kinyarwanda teachers are present the day you arrive (if list not available request reference of classrooms (e.g. A, B, etc.) and write them down with a number to identify them).

2- Write down the number of the classrooms for each grade, fold the papers and pick one of the papers to randomly select which classroom teacher will participate in the baseline. (For example, if P1B was drawn amongst the P1 classrooms, you will interview the P1B class teacher (even if this teacher is not teaching in that classroom at the time you arrive), if P2C was drawn amongst the P2 classrooms, you will interview the P2C class teacher, if P3B was drawn amongst the P3 classrooms, you will interview the P3B class teacher.)

3- A sample of students from these 3 selected classrooms will be surveyed. (For example, in the example given above, the students from P1B will be the only P1 students to be interviewed, students from P2C will be the only P2 students to be interviewed and students from P3B will be the only P3 students to be interviewed.)

4- The class teacher for the selected classrooms (P1B, P2C and P3B from the example above) will be surveyed.

Students:

1- In the classroom, distribute the numbers to all students (blue numbers for girls and red numbers for boys) and ask them to put it on their desk so it's easy to see.

2- Ask the teacher to draw random numbers for each colour (just like in a bingo) until you have the necessary number of students per classroom (12 students in P3, 12 in P2). Walk around the classroom to help children to identify their number, if necessary.

3- Write down the students' names on the interview forms and collect all numbers back from the students.

Appendix 6: Guidance for random selection of classrooms and teachers

Summary:

STEP 1 – Explain to the School Head Teacher you'll need to randomly select a classroom (when we have more than one) to be observed for each target class (P2, P3, and P4). For transparency you'll do this in front of him/her.

STEP 2 – Ask the HT to list to you all the classes for each of the grades and write down on your notebook.

STEP 3 – Number each of the sections in random order.

STEP 4 – Ask the HT to call numbers and circle the section with the number called by SP.

STEP 5 – Check the data collection guidance and make sure the Kinyarwanda language is assigned
To each class in that school in front of the selected sections. These are the lessons you will observe.

STEP 6 – Ask the HT for the names of the Kinyarwanda teachers responsible for the selected sections and the time of the sections. This/these is/are the teacher(s) you will interview.

STEP 7 – Using the table on the checklist form write down all the selected sections (P2 or P3), and the teachers for the selected class.

Selecting class sections and teachers:

STEP 1 – Explain to the HT that you'll need to select a grade to be observed for each target class: P2 class or P3 class. The Kinyarwanda language teacher(s) responsible for selected class sections will also be interviewed. Tell them that following the research requirements you'll need to randomly select the sections and that for transparency you're going to do this in front of him/her.

STEP 2 – Grab your notebook. Ask the HT to list to you all the grades/sections for each of the classes. Start with P2 (list all sections), and then move to P3 Class (list all sections). Write down on your notebook.
Example:
P2 Class:
- *Section A*
- *Section B*
- *Section C*

P3 Class:
- *Section A*
- *Section B*
- *Section C*

- *Section D*

STEP 3 – Tell the HT that you will give numbers to each of the sections and that after that you will ask him/her to call the numbers, class by class. Write down one number per section, depending on the number of sections available. DO NOT show the numbers to the HT. NEVER give the numbers in the right order.

Example of what to do:
P2 Class:
- *Section A (2)*
- *Section B (3)*
- *Section C (1)*

P3 Class:
- *Section A (4)*
- *Section B (2)*
- *Section C (1)*
- *Section D (3)*

*Example of what **NOT** to do:*
P2 Class:
- *Section A (1)*
- *Section B (2)*
- *Section C (3)*

P3 Class:
- *Section A (1)*
- *Section B (2)*
- *Section C (3)*
- *Section D (4)*

STEP 4 – Going class by class, ask the HT to call numbers. For instance, say: for P2 give me a number from 1 to 3. Circle the section with the number called by HT. For P3 there's only 1 section that was automatically selected. Now for P4 give me a number from 1 to 4. Circle the section with the number called by HT.
Example:
Example of what to do:
P2 Class:
- *Section A (2)*
- *Section B (3)*
- *Section C (1)*

P3 Class:
- *Section A (4)*
- *Section B (2)*
- *Section C (1)*
- *Section D (3)*

- *In this example P2 section B, P3 section B will be observed.*

STEP 5 – Now show your notebook to the HT so that he/she can check which sections were randomly selected. Tell the HT that you have data collection guidance from Save the Children requiring that Kinyarwanda lessons will be involved. These are the lessons you will observe. Ask HT permission to observe them.

- *In this above explanation, you'll observe only the Kinyarwanda lessons for P2B, P3B.*

STEP 6 – Checking your notebook ask the HT for the names of the Kinyarwanda teachers responsible for the selected sections. Write the names down and confirm the time of each lesson with HT. Ask permission to interview these teachers. The names will let you know how many individuals (teachers) you'll need to interview. Depending on how many teachers are available in school a same teacher might teach two languages or more than one section. In this sense, for each school you might need to interview between 1 to 3 teachers.

Example 1:

P2 Class:

- *Section A (2)*
- *Section B (3)* *(Kinyarwanda teacher: Mahoro)*
- *Section C (1)*

P3 Class:

- *Section A (4)*
- *Section B (2)* *(Kinyarwanda teacher: Usanase)*
- *Section C (1)*
- *Section D (3)*

- *In this example 2 teachers will be interviewed.*

Example 2:

P2 Class:

- *Section A (2)*
- *Section B (3)* *(Kinyarwanda teacher: Mahoro)*
- *Section C (1)*

P3 Class:

- *Section A (4)*
- *Section B (2)* *(Kinyarwanda teacher: Mahoro)*
- *Section C (1)*
- *Section D (3)*

- *In this example 1 teacher will be interviewed.*

Example 3:

P2 Class:

- *Section A (2)*
- *Section B (3)* *(Kinyarwanda teacher: Mahoro)*
- *Section C (1)*

P3 Class:

- *Section A (4)*
- *Section B (2)* *(Kinyarwanda teacher: Usanase)*
- *Section C (1)*
- *Section D (3)*

➢ *In this example 3 teachers will be interviewed.*

STEP 7 – Using the table on the check list form write down all the selected sections and teachers for the school in case. If the same teacher was selected more than once write (repeated) in front of the name to ensure the table is not referring to a namesake.

Example 1:

CLASS	SECTION OBSERVED	TEACHER INTERVIEWED	TIME
P2	*section B*	Mahoro	*(2nd period: 08.45 – 09.30)*
P3	*section B*	Usanase	*(4th period: 11.30 – 12.15)*

Example 2:

CLASS	SECTION OBSERVED	TEACHER INTERVIEWED	TIME
P2	*section B*	Mahoro	*(2nd period: 08.45 – 09.30)*

Example 3:

CLASS	SECTION OBSERVED	TEACHER INTERVIEWED	TIME
P2	*section B*	Mahoro	*(2nd period: 08.45 – 09.30)*
P3	*section B*	Usanase	*(4th period: 11.30 – 12.15)*

➢ *A teacher is only interviewed once. In examples 1 and 2 Mahoro would only be interviewed once, even though you'll observe more than one lesson conducted by him.*

Appendix 7: Socio-economic status (SES) measures (established at baseline)

The indicator of socio-economic status has been created by using the assets owned by the household where the child lives. It has been found that assets owned by a household are a good proxy of the permanent income of households in developing countries (Filmer and Pritchett, 2001).

Methodology:

Children were asked about the presence of the following items in their house: television, radio, computer, mobile phone, refrigerator, car, motorbike, bicycle and the number of bedrooms. Children easily recognize these assets if they are present in their household. Thus, the error rate in data collection remains low even if students are very young.

Assets owned

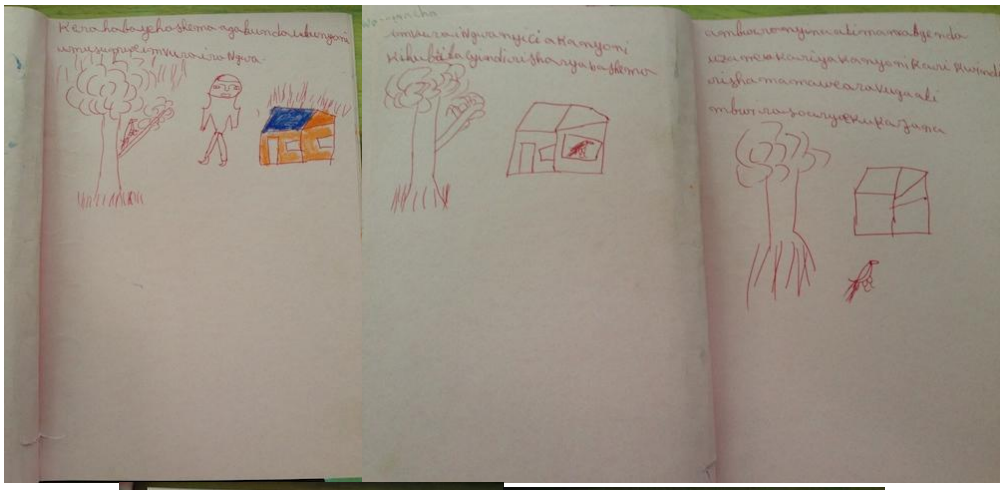
Television	12.0%
Radio	83.9%
Computer	5.7%
Mobile phone	77.4%
Refrigerator	3.2%
Car	2.5%
Motorbike	6.2%
Bicycle	20.8%
Number of bedrooms	3.46

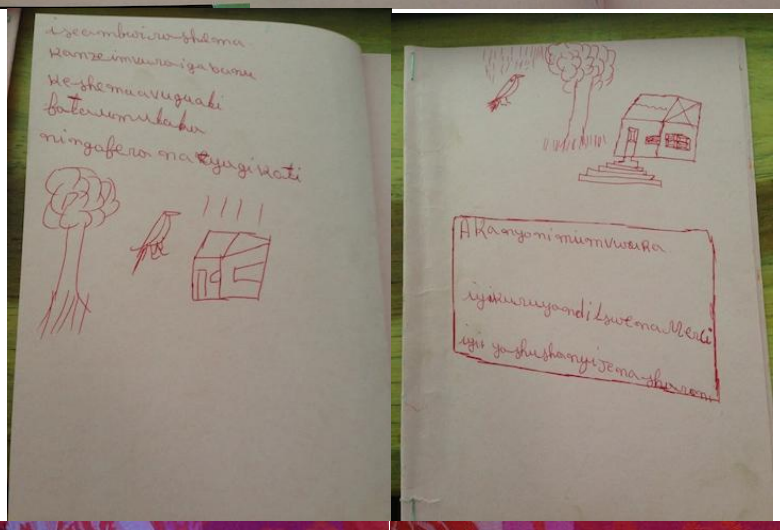
A multiple correspondence analysis has then been performed and it has been found that the first dimension explains 73% of the variance. This is a high percentage, which shows the reliability of the indicator. Moreover, all the assets are positively correlated with the first dimension. Thus, we can be confident that ownership of these assets measure a common latent trait, that is wealth. The weights associated with the multiple correspondence analysis were used to construct an indicator of wealth and this indicator was divided into four quartiles.

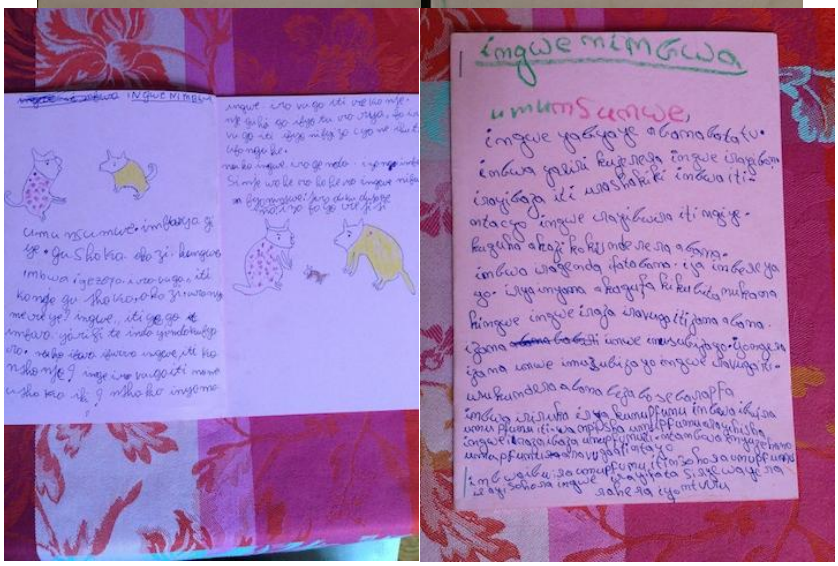
FILMER, D. & PRITCHETT, L. 2001. Estimating wealth effects without expenditure data-or tears: an application to educational enrollments in states of India. Demography.

Appendix 8: Story writing workshop photographs

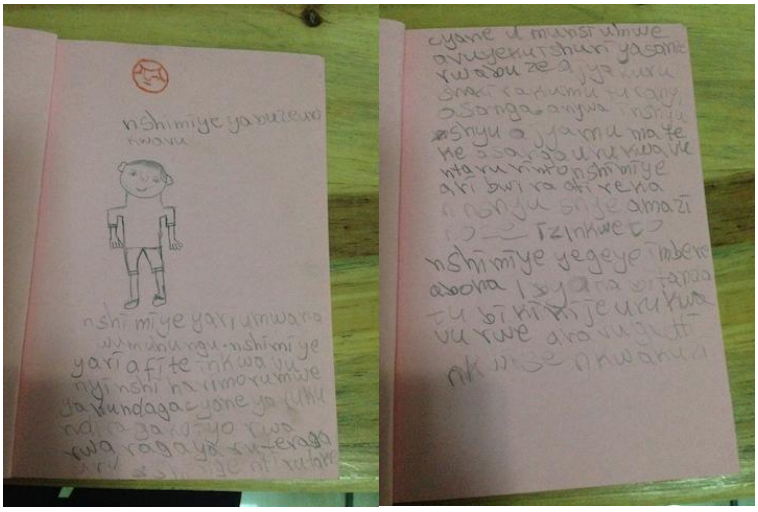
Sample pages of storybooks made by students in 2 RCBI schools

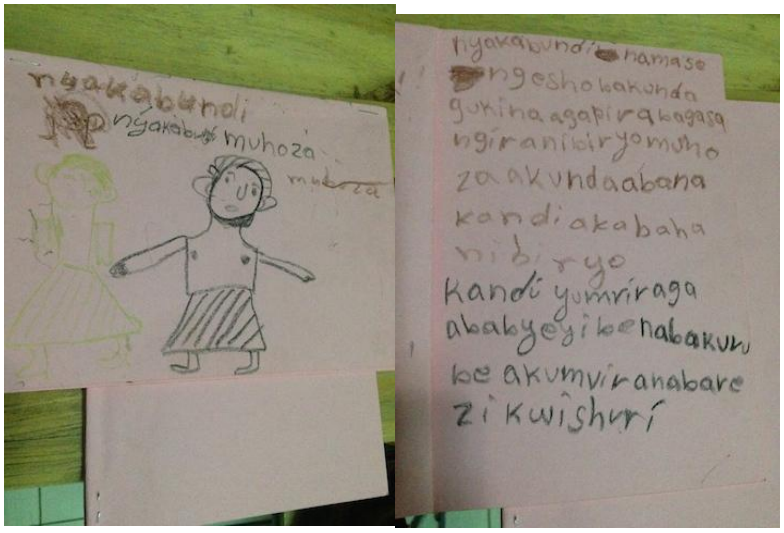






Sample pages of storybooks made by students in 2 control schools





Appendix 9: RCBI Data Collection Tools (attached)

rcbi_classroom ob form.pdf

rcbi_head teacher survey.pdf

rcbi_student survey and reading assessn

rcbi_teacher survey.pdf