READ Baseline Survey Report

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Acronyms

ANOVA	Analysis of variance: Statistical models used to analyze variation and differences among and between groups
DPE	Directorate of Primary Education
ECCD	Early Childhood Care and Development
ES	Effect size: The effect size is a measure of the magnitude of an observed difference, expressed in standard deviations in order to compare across different types of measures.
GPS	Government Primary School
HLE	Home literacy environment: Hess and Halloway (1984) identified five dimensions of the home literacy environment that are theoretically related to reading achievement in children: *value placed on literacy, press for achievement, availability and use of reading materials, reading with children, and opportunities for verbal interaction.*
ICC	Inter-cluster Correlation: the proportion of variation in a measure that is explained by the fact that all observations (students) are clustered in units (schools/classrooms)
ICT	Information Communication Technology
M&E	Monitoring and Evaluation
MUW	Most-Used Words
PTA	Parent-Teacher Association
RBM	Reading Buddies and Mentoring
RNGPS	Recognized Non-Governmental Primary School
RWC	Reader with Comprehension
SC	Save the Children
SES	Socio-economic Status
SMC	School Management Committee
WPMC	Words per Minute Correct

Executive Summary

READ is a 4-year collaboration with the Government of Bangladesh, supported by the US Agency for International Development, to improve early grade reading competence. Learning to read affects all aspects of children's education. By ensuring a strong foundation at the beginning of school, the expectation is that fewer children will repeat grades or drop out in the primary cycle, and a higher proportion will complete school with solid primary school skills – such as literacy - which are critical life skills in today's world. The project focuses on four areas of intervention: 1) teacher education and continuous professional development; 2) reading assessment; 3) increased availability of reading material, and 4) increased opportunities for reading in the community and support from community members/institutions.

The READ Baseline Survey was started in March and completed by June 2014. The purpose of this survey was to better understand the specific strengths and weaknesses of children's reading skills in the intervention areas, and to identify groups of children most at-risk of failing to learn to read. An additional objective of the survey was to benchmark the reading competency of Grade 1, 2 and 3 children so that it could be compared with children's reading competences at some later time. In between these two assessments, the intervention will take place. The second assessment allows us to explore and measure the efficacy of the intervention.

In total, the reading competence of 3008 children was assessed from101 schools across 21 districts in 6 divisions of Bangladesh. The selection was done by a two-stage systematic cluster random sampling. In the first stage, schools were randomly selected from 21 PROOTEVA working districts school list. In the second stage, ten children, 5 boys and 5 girls, were randomly selected from each of grade 1, 2 and 3. Schools' attendance registers were used as the sampling frame for the selection of children.

Children's assessment took place outside the class room to minimize distractions for the assessed children and to make sure that we were not priming the next children to be assessed The identification of letters, words and sounds were assessed for *all* children. Reading fluency, accuracy and comprehension were assessed only for children who could already read. A 'reader' is defined as a child who can read at least 5 words correctly in the first 30 seconds of reading from a story not seen before. The stories were developed by experts previously involved in primary grade textbook development in Bangladesh. This ensures that the assessment is consistent with expected grade-wise reading competence.

Consent was given to READ by the Director General, Directorate of Primary Education (DPE) to conduct this kind of work in the primary schools. Prior to every assessment, informed consent was

obtained from both the head teacher and student. If consent was not obtained, the interview was dropped.

The questionnaire was fine-tuned from the invaluable feedback of the DPE and by pilot interviews. The honorable Director General of DPE and other DPE employee in M&E cell observed the data collection.

On average, grade 1 children are able to identify 51% of the 50 letters of the Bangla alphabet. Grade 2 children can identify 71% of the letters. The identification of frequent words also follows an increasing trend. Grade 1 children recognize 26% of the most frequent words found in their textbook; grade 2 children recognize 50% of frequent words in their textbook; and grade 3, 65%. Both grade 1 and 2 children showed comparatively lower skill in identifying similar beginning sounds of words and detecting sounds that rhyme in a set of words selected from their textbook. The ability to identify antonyms among grade 3 children was more than two times higher than grade 2 children, with grade 3 students identifying antonyms for 45% of the selected words and grade 2, 18%.

On average, readers (10% in grade 1, 33% in grade 2 and 65% in grade 3) in all the three grades showed about 80% accuracy. This means that, on average, they can read 8 words correctly out of every 10 words from a previously unknown story at their grade level. Reading comprehension is lagging behind, measured by asking 10 questions from a given story. Interestingly, as the grade increased, comprehension decreased (grade 1 – 43% questions answered correctly, grade 2 – 25%, grade 3 – 16%). However, reading fluency (number of words read correctly per minute) increased as grade level increased (grade 1 – 16 w/m, grade 2 – 23 w/m, grade 3 – 28 w/m).

When observed separately background variables like pre-primary experience, involvement in household chores, story read to children, children see any of their family members to read do not make statistically significant difference in most of the areas of reading competence.

The comprehension ability of preprimary experienced Grade1 children is near to a statistical difference with the non-preprimary children at 6% level of significance ($t= -1.88$, $p = 0.063$, $df=99$) whereas the reading comprehension of Grade 2 ($t= 1.65$, $p = 0.1$, $df=312$) and Grade 3 ($t= 0.20$, $p = 0.84$, $df=644$) children do not differ significantly in between preprimary experienced and non-preprimary children.

Grade 1 children's involvement in household chores also do not statistically differ at 5% level of significance from the children who did not take part in household chores in identifying letters ($t= 0.07$, $p = 0.9$, $df=988$) and reading frequently used words ($t= 1.69$, $p = 0.09$, $df=988$). The similar trend is observed in grade 2 and grade 3 in reading accuracy (Grade2: $t= 0.87$, $p = 0.38$, $df=331$; Grade3: $t= 0.12$, $p = 0.9$, $df=647$), fluency (Grade2: $t= 1.03$, $p = 0.30$, $df=323$; Grade3: $t= 1.09$, $p = 0.27$, $df=64$) and comprehension (G2: $t= 0.65$, $p = 0.52$, $df=312$; G3: $t= 1.16$, $p = 0.25$, $df=647$).

The reading accuracy of Grade 1 children to whom story was read and children to whom story was

not read are statistically different ($F(1,99)=19.6$, $p < 0.01$, $df=99$) at 1% level of significance. However, these two groups do not differ significantly at 5% level in their skill of reading accuracy (Grade2: $t=0.75$, $p = 0.45$, $df=333$; Grade3: $t=2.44$, $p = 0.015$, $df=647$), reading fluency ($t=1.4$, $p = 0.16$, $df=325$ Grade3: $t=1.86$, $p = 0.06$, $df=645$) and reading comprehension (Grade2: $t=0.3$, $p = 0.76$, $df=313$; Grade3: $t=0.80$, $p = 0.42$, $df=647$).

Children who saw at least one of their family members to read do not differ statistically from the children who did not see any of their family members to read in the skill of letter identification (Grade1: $t=0.998$, $p = 0.3$, $df=1000$), reading frequent words(Grade1: $t= 1.38$, $p = 0.16$, $df=1000$), reading fluency (Grade1: $t=0.92$, $p = 0.36$, $df=98$; Grade2: $t= 0.27$, $p = 0.79$, $df=325$; Grade 3: $t= 1.48$, $p = 0.14$, $df=645$) and reading comprehension (Grade1: $t= 0.02$, $p = 0.9$, $df=98$; Grade2: $t= 0.56$, $p = 0.57$, $df=313$; Grade3: $t= 0.31$, $p = 0.76$, $df=647$). However, Grade1 children differ statistically in reading accuracy ($t= 2.33$, $p = 0.02$, $df=99$) although grade2 and grade3 children do not differ statistically (Grade2: $t= 0.32$, $p = 0.74$, $df=333$; Grade3: ($t= 1.41$, $p = 0.16$, $df=647$) at 5% level of significance.

1.1 Overview of READ

At the end of grade 3 only 67% students in Bangladesh achieve relevant competency in Bangla. At the end of grade 5 only 33% achieve that desired competency [National Student Assessment, 2011]. In ***Keys to Literacy*** Lyon, G Reid (1998) shows that there is 90% probability that a child will remain a poor reader at the end of the fourth grade if the child is a poor reader at the end of the first grade. He also observed that 90%-95% of poor readers can reach average reading skills with early intervention.

To enhance the early grade reading competency in Bangladesh, Save the Children is implementing a USAID-funded Early Childhood Development program known as READ from 2013 through 2017. The project aims to improve reading skills among grade I, II and III children.

The goal of READ is to improve early grade reading competence. Learning to read affects all aspects of children's education. By ensuring a strong foundation at the beginning of school, the expectation is that fewer children will repeat grades or drop out in the primary cycle, and a higher proportion will complete school with solid primary school skills – such as literacy - which are critical life skills in today's world. The project focuses on four areas of intervention: 1) teacher education and continuous professional development; 2) reading assessment; 3) increased availability of reading material, and 4) increased opportunities for reading in the community and support from community members/institutions.

1.2 Objective of the Baseline Survey

The first objective of the baseline survey was to better understand the strengths and weaknesses of children's reading skills in the intervention areas, and to identify groups of especially vulnerable children. The second objective of the baseline survey was to benchmark the reading competency of Grade 1, 2 and 3 children so that it could be compared with children's reading competences at some later time. In between these two assessments, the intervention will take place. The second assessment allows us to explore and measure the efficacy of the intervention.

Background information of the children has been also collected to understand any influence by reading environment at home, family's economic status and other factors on their reading competency.

1.3 Information collected

All together 3008 completed questionnaires in Tangerine (each with Background Information and Reading Assessment)

1. 101 completed school background surveys
2. 2850 score sheets for Bangla for grades- I, II and III

1.4 Components of Reading Assessment

The components of reading assessment will be the following –

1.4.1 List of key variables

A. Socio-demographic variables

- Age
- Sex
- Number of family members
- Household assets

B. Reading Assessment Variables

- Alphabet knowledge
- Identifying most used words
- Detecting similar beginning sounds
- Detecting ending rhyme from set of words
- Ability to decode pseudo words
- Vocabulary (name of fruits and vegetables, antonyms)
- Sentence Making
- Reading fluency
- Reading accuracy
- Reading comprehension

C. Home Learning Environment

- Reading time
- House tutor
- Chores
- Story-telling and reading to the child by family members and encouraging them to study
- Children see to read their family members
- Availability of other reading materials

D. Education history

- ECCD (pre-primary)
- Change of School
- Repeat in class

1.5 Conceptual framework

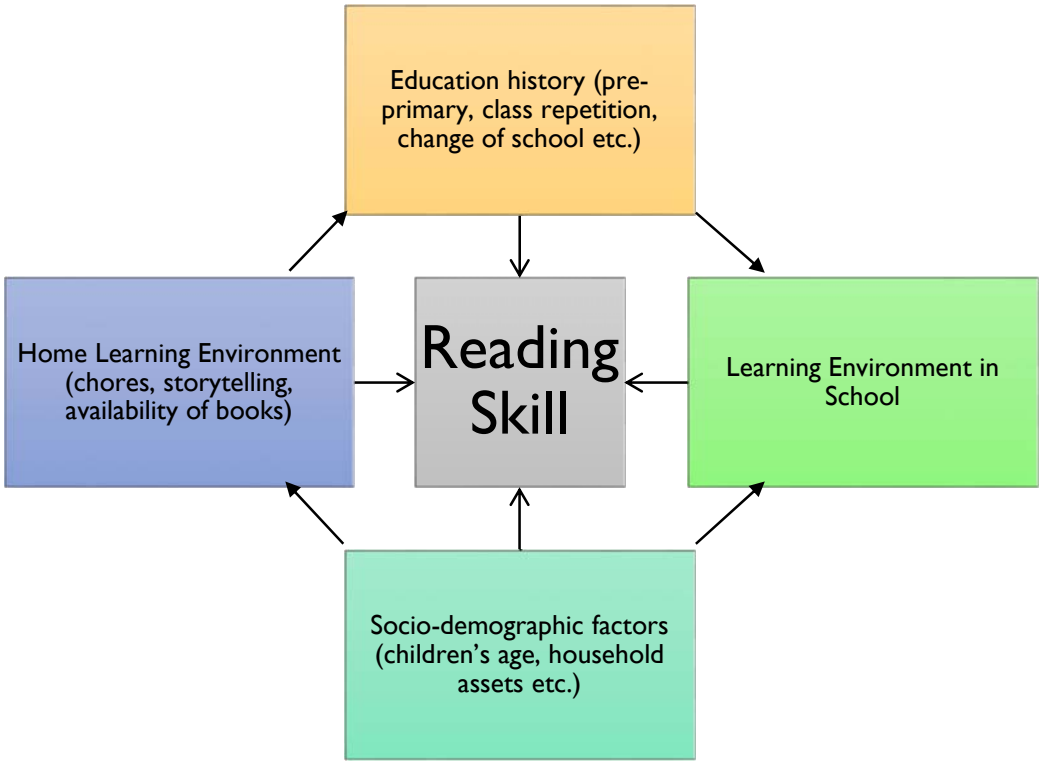


Figure 1.1 Conceptual Framework

1.6 Operational Definitions

Table 1.1 Operational Definitions	
List of variables	**Operational definition**
Letter Identification	The number of letters (out of all 50 letters of Bangla alphabet) which the child correctly pronounced.
Most Used Words	The number of words (out of 20 of the most frequently used words in grade 1, 2 and 3 Bangla textbook) correctly read aloud by the child.
Similar Beginning Sounds	The number of similar beginning sounds detected (out of 10 set of the words from grade 1, 2 and 3 Bangla textbook) correctly from a set of 3 words out of which 2 words have a similar beginning sound.
Ending Rhyme in Words	The number of ending rhymes detected (out of 10 set of the words from grade 1, 2 and 3 Bangla textbook) correctly from a set of 3 words out of which 2 words correspond with the same ending rhyme.
Antonyms	The number of antonyms given (for 10 words from grade 1, 2 and 3 Bangla textbook) correctly by the child.
Pseudo Words	The number of nonsense/ pseudo words (out of 20) correctly decoded aloud.
Sentence Making	The number of words (out of 8 words from grade 3 Bangla textbook) appropriately used to make a sentence by the child.
Reader	A child who is able to read at least five words correctly from a previously unknown story in the first 30 seconds of reading. Readers were allowed to continue reading until they finished the passage or refused to read any further; non-readers were stopped and read the passage by the assessor.
Fluency	Tested during the oral reading passage sub-test, fluency is defined as the number of words read correctly per minute.
Accuracy	The percentage of the total words in the passage read correctly by students.
Reading Comprehension	Children's ability to correctly answer 10 questions following the administration of the oral reading passage sub-test.

Chapter 2: Baseline Survey Methodology

2.1 Study design

An intervention/control pretest-posttest design was chosen to understand the impact of READ intervention on grade 1, 2 and 3 children. The baseline survey could be considered as the pretest before any intervention was implemented. This research design is part of a larger impact evaluation involving the PROTEEVA program. As such, there are three groups in this study: READ program plus PROTEEVA program, PROTEEVA program only, and control. This design was chosen not only to understand the combined impact of participating in PROTEEVA early childhood development followed by participation in READ during primary school, but also to understand the added value of being enrolled in the READ program after enrollment in PROTEEVA versus receiving PROTEEVA without the READ program.

2.1.1 Study period

The READ Baseline Survey was started in March and completed by June 2014. Before the data collection started data collectors such as Field Research Assistants and Field Research Supervisors were trained. A field test was conducted to finalize the questionnaire at the end of the training.

2.1.2 Study area

The study area is scattered countrywide. Data collection took place in 102 primary schools across 21 districts in 6 divisions of Bangladesh. Districts with Save the Children pre-primary intervention (PROTEEVA) were considered as study area. No district from Rajshahi division, 1 from Chittagong division and 4 from each of the remaining 5 divisions were included as study area.

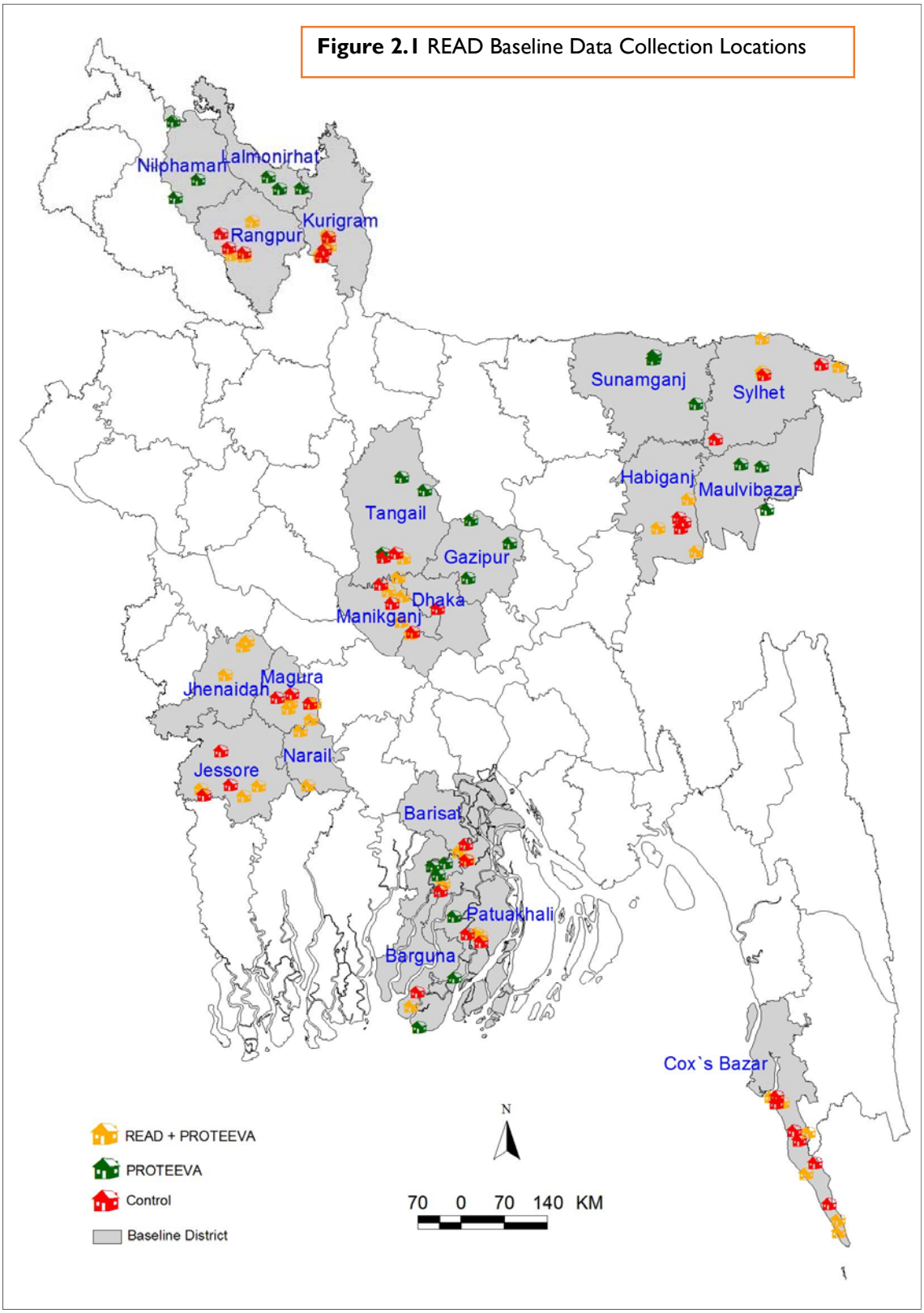
Inclusion criteria

- Children from grade 1, 2 and 3 present in their class room during the data collection were recruited in the study.

Exclusion criteria

- Children absent or unwilling to participate were excluded from the study.

Figure 2.1 READ Baseline Data Collection Locations



2.2 Sample size

The sample size for each grade was calculated by using statistical software STATA, version:12

Intervention Group: READ + Proteeva only school children

Comparison Groups:

- Proteeva only School children (comparison 1) and
- Control School children sample (comparison 2)

2.2.1 Syntax and Estimated sample size

[Here the considerations are, minimal detectable effect size of 0.3 standard deviations, 95% confidence level, 80% power, 0.1 intra-school correlation between student scores, and a ratio of 1.3 (READ + Proteeva) students to Control School children (and a ratio of 1.2 READ + PROTEEVA students to Proteeva only school children]

- Intervention (n1) = 304, Comparison 1 (n2) = 364
  [sampsi 1 1.3, sd(1) a(0.05) p(0.8) pre(0) ratio(1.2)
  sampclus, obsclus(10) rho(0.1)]

- Intervention (n1) = 295, Comparison 2 (n3) = 384
  [sampsi 1 1.3, sd(1) a(0.05) p(0.8) pre(0) ratio(1.3)
  sampclus, obsclus(10) rho(0.1)]

Table 2.1 READ Baseline schools and their types

School Type	No. of Schools
Comparison 1 (Control group)	30
Comparison 2 (Proteeva intervention group)	39
Intervention Group (Proteeva + READ intervention)	32
Total School	101

Ten children, 5 boys and 5 girls, from each grade 1, 2 and 3 were interviewed. In total, data was collected from 3008 children, 1004 from grade 1, 1003 from grade 2 and 1001 from grade 3.

2.2.2 Sampling

A two-stage cluster random sampling method was used to draw the school children for participation. Schools from 21 districts were selected by systematic random sampling. Schools from the same division were considered as a cluster. Boys and girls were then selected by systematic random selection. The class attendance register was used as sampling frame to select the students.

2.3 Data collection technique

A semi structured questionnaire was used for each of grades 1, 2 and 3. Some of the questions in the questionnaire were structured, some were unstructured. Some questions were also added to break the ice and make a rapport with the respondents. The questionnaire was pretested to refine the formulation and improve functionality. A face to face, one-on-one interview procedure was followed.

Figure 2.2 The honorable DG to DPE in a data collection session

Interview was taken during morning shift class time for grade 1 and 2, and during afternoon shift for grade 3 children. The head teacher's consent was taken from every school. Children's consent was also sought before the interview was started.

2.3.1 Data collection instrument

Data was collected using 7-inch electronic tablets. The questionnaire was uploaded by early grade reading assessment Tangerine software for each grade 1, 2 and 3.

2.3.2 Data Collection Monitoring

The field data collection was monitored closely by Monitoring, Evaluation and Research (MER) cell, READ. The M&E cell, DPE also observed the data collection process. On occasion, the Director General, DPE observed the field work.

2.3.3 Data management and analysis

Once the survey was done, the data was downloaded in Excel format from the Tangerine central website. It was then edited and cleaned for analysis. For analysis, STATA software, version 12 was used.

The data was analyzed firstly to see the descriptive statistics like frequency, mean, median, standard deviation, histogram etc. Point bi-serial correlation, chi-square and t-tests were performed to understand the association between key variables.

2.4 Measurement

In addition to their background information, competency was measured by the criteria detailed in following table 2.1.

Table 2.2: Competency Criteria for Grade 1, 2 and 3 Children

	Letters	Frequent Words	Similar Beginning Sounds	Ending Rhyme in Words	Pseudo Words	Antonyms	Sentence Making	Reading Accuracy	Reading Fluency	Reading Comprehension
Grade-1	√	√	√	√	X	X	X	√	√	√
Grade-2	√	√	√	√	X	√	X	√	√	√
Grade-3	X	√	X	X	√	√	√	√	√	√

2.5 Ethical considerations

Questions in the questionnaire were ordered in such a way that easier questions could come in the beginning and children may find it easy going. Once the field work started, every child and corresponding school's head teacher was informed in detail about the benefit of the study and any risk that it could possibly incur. Confidentiality and anonymity of the information obtained from the participants was assured. To ensure 'respect for autonomy' consent were taken from the participants.

Grade I Children

3-1.1 Background Information

Children's background information on Socio-demography (such as, age, sex, household assets), Home Learning Environment (such as, chores, storytelling, availability of books) and Education History (such as pre-primary education, repeat in class, change of school, having house-tutor) were collected in the survey.

3-1.1.1 Socio-demography

The average age of grade I children was 6.65 years (± SD = 1.3 years, n=738). About 80% of children ranged from 6 to 8 years old. The detail age distribution is given in table 3-1.1.

Table 3-1.1 Socio-demography of grade-I children

Socio-demographic attributes	Frequency	Percentage (%)
Age in years (n=738)		
Less than 6	92	12
6	258	35
7	243	33
8	93	13
9 and above	52	7
Ownership of Household Assets (n=1001)		
Electricity	525	52
Television	211	21
Refrigerator	49	5
Cow	595	59
Goat	352	35
Hen/ Duck	765	76
Bicycle	307	31
Motorcycle	45	4.5
Land	744	74

Household Assets

About half of grade I children (52%) had electricity at their home. One in every five of the households (21%) had television. Refrigerator and motorcycle were owned by very few. Only about 5% of grade I children's households had it. Three quarters of their households had hens/ ducks and land.

3-1.1.2 Home Learning Environment

Chores

About one third (37%, n=1001) of grade I children were not involved in daily household activities. On average, they spent 2.26 hours (± SD = 1.1 years, n=629) for household chores in a week day. The time duration of household chore is detailed in table 3-1.2.

Reading at Home

In 90% of cases the family members encouraged grade I children to read. The majority (67%) of children had an opportunity to listen to stories from their family members. About three quarter (77%) of the children's family members read story to them. In 78% of cases the children saw their family members to read.

Using library books

Using library books has not yet been inculcated as a practice among school going children in Bangladesh. Only 9% of the children borrowed book from library and 4% read it. However, 19% (n=1000) of grade I children assisted others in reading. About half of them claimed availability of books other than the text books at home.

Availability of books at home

Collection of book at grade I children's home is not remarkable. They mostly had religious books. Some had (15%) story books. Outside these categories, colorful picture books and other un-identified type of books were reported by few of them.

Story read to children

About three quarters (77%, n=1002) of grade I children's (at least one) family members read stories to them in the past week.

Table 3-1.2 Home learning environment of grade I children

Home learning environment attributes	Frequency	Percentage (%)
Time spent in chores (n=629)		
Less than 1 hour	20	3
1 hour	140	22
2 hours	214	34
3 hours	196	31
More than 3 hours	59	9
Type of books available at home (n=1000)		
Religious texts	439	44
Book on religious personality	21	2
Magazine	2	0
Newspaper	4	0
Story book	147	15
Colorful picture book	20	2
Comic book	3	0
Other books	89	9

Family members encouraged children to read

In case of 90% (n=1002) of grade I children, at least one of their family members encouraged them to read in the past week.

Children see their family members to read

Seventy seven percent of grade 1 children (n=1002) saw at least one of their family members to read in the past week.

3-1.1.3 Education History

Preprimary

Most of the grade 1 children (78%, n= 1002) in surveyed schools attended preprimary. The highest portion of them (40%) attended Save the Children preprimary (PROTEEVA) followed by BRAC preprimary (21%).

Change of School

In 38% of cases, grade 1 children changed school, of which 36% changed once. The leading causes for changing school were preprimary only school (20%) and guardians' choice (14%).

Repeat in Class

Some of grade1 children (14%, n=1002) repeated in their class whereas 9% repeated in preprimary. Those who repeated in class and those who did not are significantly different ($F(1, 734)=11.69$, $p< 0.01$) in their age. However, age can explain only 1.6% of variation of class-repetition ($r^2 = 0.0156$).

Absence in Class

About a quarter of grade1 children missed school in the week prior to the interview. The major reasons were visiting relatives (14%, n=1000) and illness (5%). Another 4% didn't specify any cause. The other causes are household tasks and taking care of ill family members.

Study Time

On average, grade1 children spent 2 hours (± SD = 49 minutes, n=929) per day to study. The following histogram presents the distribution of children's self-reported study time –

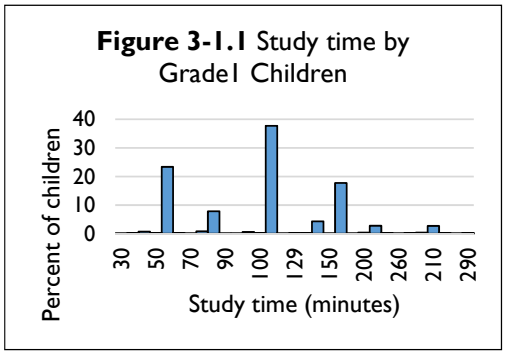


Figure 3-1.1 Study time by Grade1 Children

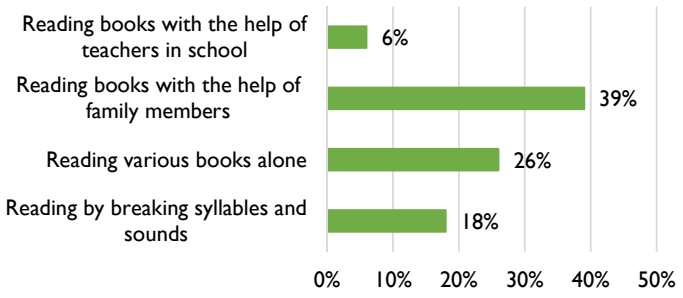
Private Tutor and Reading with Friends

Nineteen percent of grade 1 children read with their friends whereas 37% were assisted by private tutor.

Ways to Read Better

Children were asked what they do most frequently to learn to read better. To read better, children reported that they practiced reading by breaking syllables and sounds, reading various books alone, reading books with the help of family members and reading books with the help of teachers in school. Figure 3-1.2 presents the frequency of this data.

Figure 3-1.2 Grade 1 Children's Way of Better Reading



3-1.2 Competences

Several dimensions of grade1 children's competencies were assessed (Table 2.1). First of all, they were asked to identify letters of the Bangla alphabet. Then they were given a list of 20 frequent words from grade level textbook. Their phonemic awareness was assessed by similar beginning sounds and end-sound rhyming sounds from grade level text book.

A 59-word previously unknown story, tailored to their grade level, was provided to children for reading aloud. Children able to read at least five words correctly from the story in the first 60 seconds of reading were identified as readers. Only the readers were asked to continue reading the story to the end. After completion, 10 questions from the story were asked. Those answers were used to understand their comprehension ability. Readers' fluency and accuracy of reading were measured as well.

3-1.2.1 Letters, Words and Sounds

Letter Knowledge

Grade1 children were strongest in letter knowledge. On average, they identified 52% of the letters (26 out of 50) correctly.

Fifty five percent of children identified half (25) or more of the letters. All the 50 letters were identified by only 4% of grade 1 children. However, 17% of them failed completely to identify any letter. The letter knowledge of grade1 children is shown in figure 3-1.3. The five most difficult letters were (য, ঢ, ঢ়, ৎ, ঃ) identified correctly by about one third of grade 1 children. On the other hand, the five easiest letters were (অ, আ, ক, ই, প) identified correctly by about two thirds or more of grade 1 children.

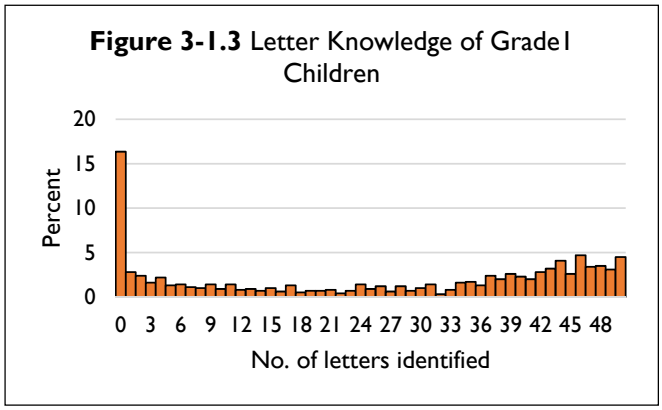


Figure 3-1.3 Letter Knowledge of Grade1 Children

Frequent Words

On average, grade1 children identified one quarter of the given frequent words (5 out of 20) correctly. Thirty two percent of children identified more than half of the words whereas 58% were unaware about any of the words. Their understanding of frequent words is shown in figure 3-1.4.

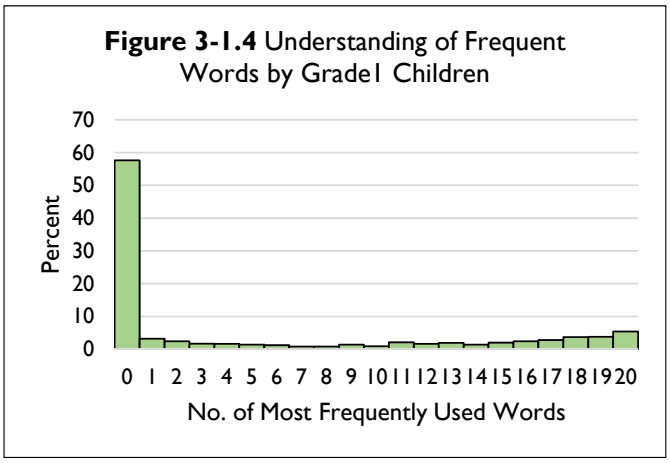


Figure 3-1.4 Understanding of Frequent Words by Grade1 Children

3-1.2.2 Similar Beginning Sounds and Rhyme Words

To understand children's phonemic awareness, 10 sets of word triplet were clearly and loudly spoken to them. At first two examples were shared with each of the children. Then the sets of words were pronounced loudly one by one. In case of their failure to respond, the words were repeated again.

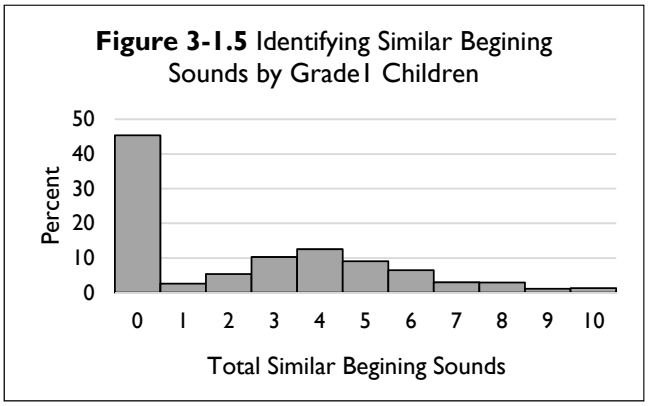


Figure 3-1.5 Identifying Similar Begining Sounds by Grade1 Children

Grade1 children's phonemic awareness was found to be weaker in comparison with their letter knowledge and frequent word knowledge. Almost half of the children couldn't identify any of the sounds or rhyme.

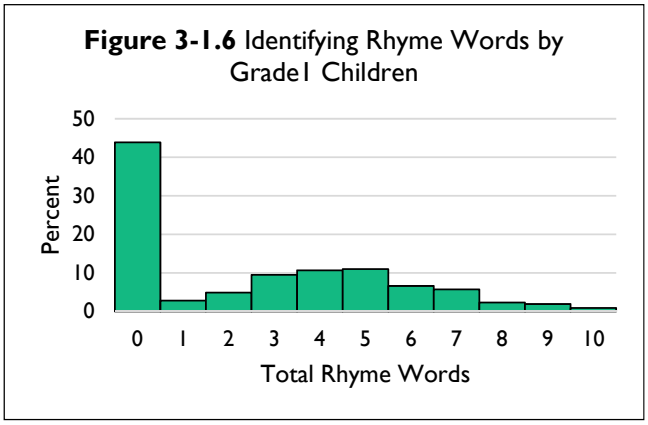


Figure 3-1.6 Identifying Rhyme Words by Grade1 Children

On average, they identified two sets out of ten sets of similar beginning sounds and rhyming words.

3-1.2.3 Reading and Comprehension

Accuracy

One in every ten children in grade1 was identified as a 'reader'. On average, readers read with 79% accuracy (± SD= 20, n=101). That implies, out of every 100 words, 79 were read correctly. There were 59 words in the story for grade1 children; on average, the children were able to read 46 words correctly.

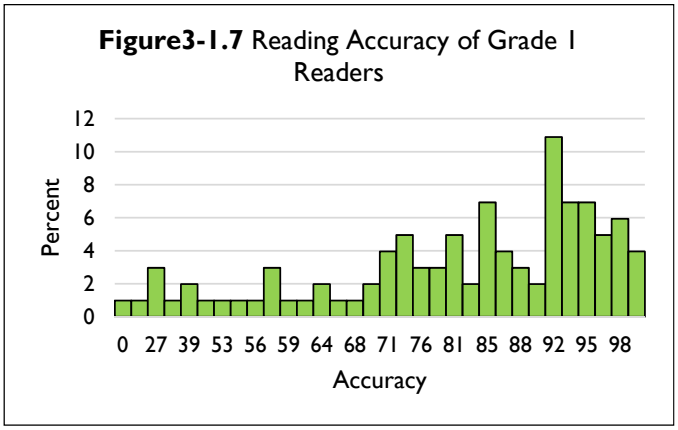


Figure3-1.7 Reading Accuracy of Grade 1 Readers

Fluency

Grade1 children's average reading fluency (or words per minute read correctly) was 16 words per minute (± SD= 10, n=99). Their overall reading fluency could be better understood by the histogram in figure 3-1.8.

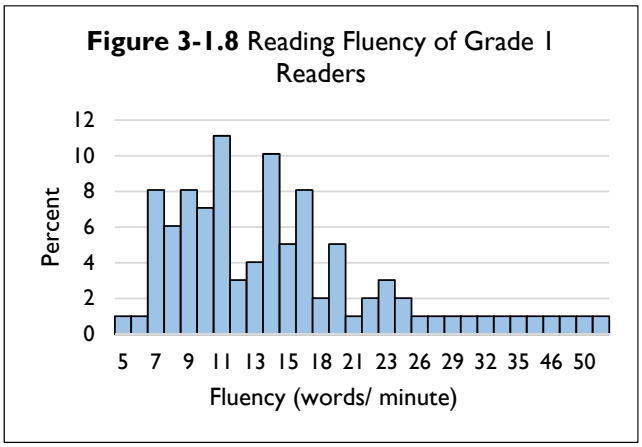


Figure 3-1.8 Reading Fluency of Grade 1 Readers

Reading Comprehension

Grade1 reader's average reading comprehension was about 43%. That is, on average, they answered 4 out of 10 comprehension questions correctly. Their ability was observed the weakest in answering evaluative question followed by inferential questions and summary question. About 1 in every 5 (19%) grade1 readers answered the evaluative question correctly. Summary question was answered correctly by about one third of the readers. The ability of answering literal questions by grade 1 readers varied largely. It ranged from 21% to 78%. Reading comprehension ability is detailed in table 3-1.3.

About 3% of grade1 readers showed their potential in answering 5 or more out of 6 literal comprehension questions correctly. About one tenth of them completely failed to answer any of the literal comprehension questions. It might be worthy to look into the detail of their literal comprehension ability (Appendix C).

Table 3-1.3 Reading Comprehension of Grade1 Children

Questions	Question Type	Percent of Children answered questions correctly (%)
Q1	Summary	34
Q2	Literal	21
Q3	Literal	69
Q4	Literal	78
Q5	Literal	65
Q6	Literal	24
Q7	Literal	31
Q8	Inferential	52
Q9	Inferential	35
Q10	Evaluative	19

3-1.3 Background Information and Reading Competency across Intervention and Control Groups

Three types of schools were selected for the READ baseline survey. The types were defined by the upcoming presence or absence of READ intervention. The two groups where no READ intervention is intended are comparison groups. The Control Schools and PROTEEVA only Schools are comparison groups. In PROTEEVA only schools there were PROTEEVA preprimary intervention, and in

Table 3-1.4 Grade 1 children's background information across school type

School Type	Preprimary Experience	Chores	Story read to children
READ + Proteeva	97%	66%	81%
Proteeva only	92%	58%	77%
Control only	80%	60%	73%

Control Schools there was no PROTEEVA. In the READ intervention schools there was PROTEEVA preprimary intervention previously.

3-1.3.1 Background Information

Table 3-1.5 shows grade1 children's participation in preprimary school, chores and stories read to them by family members. The table shows that children in intervention schools participated more in preprimary, chores and stories read to them than the comparison groups. PROTEEVA schools' children are statistically different from READ + PROTEEVA schools (t= 3.9, p = 0.0001, df=648) and control schools (t= 2.5, p =0.01, df=645) in terms of identifying letters. However, no statistical difference is observed between the READ + PROTEEVA school children and control school children (t= 1.46, p > 0.1, df=705).

3-1.3.2 Reading Competency

In figure 3-1.9 and 3-1.10, grade1 children's accuracy, fluency and reading comprehension are shown as per the school type.

Fig 3-1.9 Grade 1 Children's Accuracy and Comprehension

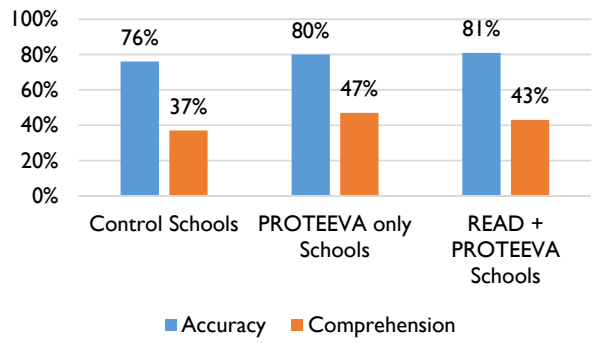
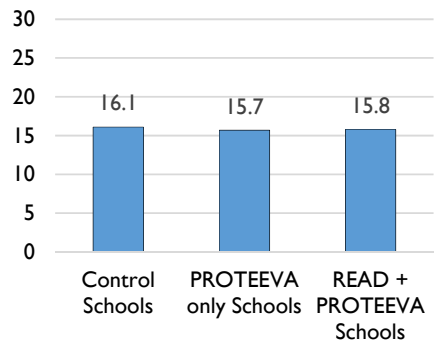


Fig 3-1.10 Grade 1 Children's Reading Fluency



The difference among the groups is very little or negligible. The reading fluency of READ + PROTEEVA schools children are not statistically different from the PROTEEVA schools (t= 0.14, p < 0.1, df=68) or control schools (t= -0.12, p < 0.1, df=59) children.

READ + PROTEEVA school children do not differ statistically from PROTEEVA school (t= 0.35, p > 0.1, df=69) or control school (t= 1.25, p > 0.1, df=60) children in reading accuracy.

In reading comprehension, the control schools lag behind from PROTEEVA schools by 10%. However, READ + PROTEEVA schools do not differ statistically from none of the PROTEEVA schools (t= -0.66, p > 0.1, df=69) or control schools (t= 0.81, p > 0.1, df=60).

3-1.4 Relationship between Background Variables and Reading

3-1.4.1 Preprimary

Grade1 had the lowest number of readers (10%, n=998). A weak correlation is observed between attending preprimary and identifying letters from Bangla alphabet and reading frequent words. However, there is significant statistical difference ($p < 0.01$) between children with and without preprimary experience in case of both identification of letters and reading frequent words.

The comprehension ability of preprimary experienced children is near to a statistical difference with the non-preprimary children at 6% level of significance ($t = -1.88$, $p = 0.063$, $df = 99$).

Table 3-1.5 Correlation of Preprimary Schooling with Grade1 Children's Reading

Assessment Criteria	Coeff. of Correlation with preprimary	t	p-value	df =n-1
Letter Identification	0.22	7.09	0.0001	996
Frequent words reading	0.14	4.33	0.0001	996

The difference in comprehension and accuracy of these two groups is shown in figure 3-1.11.

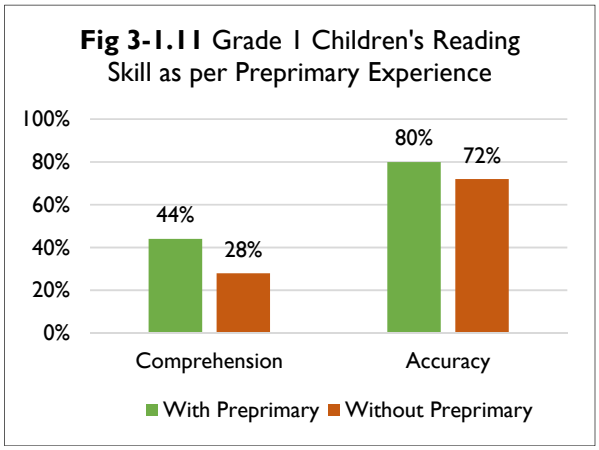


Fig 3-1.11 Grade 1 Children's Reading Skill as per Preprimary Experience

3-1.4.2 Chores

Grade1 children with household chores showed a slightly better ability in reading in comparison with their no-chore counterparts. They showed better performance in all the three categories of reading assessment such as comprehension, accuracy and fluency.

Children with no chore was 13 words per minute fluent whereas children with chores had 17 words per minute fluency (n=96). The difference in comprehension and accuracy of these two groups is shown in figure 3-1.12.

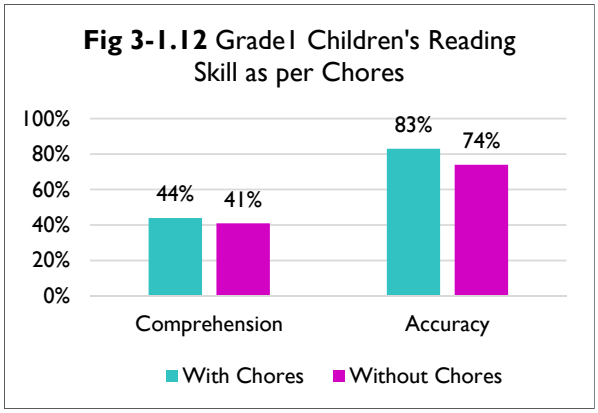


Fig 3-1.12 Grade1 Children's Reading Skill as per Chores

Children involved in household chores do not statistically differ at 5% level of significance from the children who did not take part in household chores in identifying letters (t= 0.07, p = 0.9, df=988) and reading frequently used words (t= 1.69, p = 0.09, df=988).

3-1.4.3 Story Read to Children

Grade1 children to who at least one of their family members read showed better ability in comprehension, accuracy and fluency. Noticeably, children to who at least one of their family members read showed twenty percentage points more accuracy than their counterparts. The reading accuracy of children to whom story was read and children to whom story was not read are statistically different (F(1,99)=19.6, p < 0.01, df=99) at 1% level of significance. About 17% change in reading accuracy could be explained by 'family members read to children' ($r^2 = 0.165$). However, these two groups do not differ statistically in identifying letters (t= 0.998, p = 0.3, df=1000) and reading frequent words (t= 1.39, p = 0.16, df=1000).

Children to whom stories were not read had an average fluency of 12 words per minute whereas children to whom stories were read had 17 words per minute (n=99) fluency. At 5% level, the two groups do not differ statistically (t=1.88, p = 0.064, df=98) at 5% level of significance. However, there is difference in comprehension and accuracy of these two groups shown in figure 3-1.13.

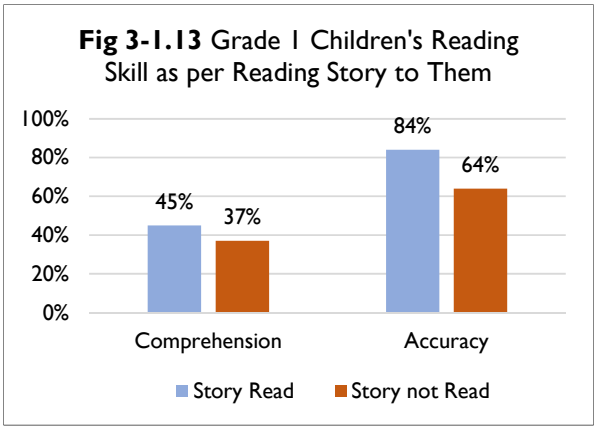


Fig 3-1.13 Grade I Children's Reading Skill as per Reading Story to Them

In case of reading comprehension the two groups do not differ statistically (t=1.29, p = 0.20, df=99).

3-1.4.4 Family members encouraged children to read

Children whose family members encouraged them to read do not differ statistically from the children whose family members did not encourage them in identifying letters (t= 0.59, p = 0.5, df=1000) and reading frequently used words (t= 0.88, p = 0.37, df=1000). However, their reading accuracy differ statistically (t= 3.7, p < 0.01, df=99).

3-1.4.5 Children see their family members to read

Children who saw at least one of their family members to read do not differ statistically from the children who did not see any of their family members to read in the skill of letter identification (t=0.998, p = 0.3, df=1000), reading frequent words(t= 1.38, p = 0.16, df=1000), reading fluency (t=0.92, p = 0.36, df=98) and reading comprehension (t= 0.02, p = 0.9, df=98). However, they do differ statistically in reading accuracy (t= 2.33, p = 0.02, df=99) at 5% level of significance.

3-1.4.6 Children's Gender

Due to difference in children's gender no statistically significant difference is observed in their skill of letter identification (t= 1.65, p = 0.09, df=1000), reading frequent words (t= 0.88, p = 0.37, df=1000), reading accuracy (t= 0.44, p = 0.66, df=99), reading fluency (t= 0.07, p = 0.9, df=98) and reading comprehension (t= 0.48, p = 0.63, df=99).

3-1.4.7 Children's Age

Like gender children's age does not make any statistically significant difference in their skill of letter identification (F (1,734)= 0.4, p = 0.52), reading frequent words (F (1,734)= 1.44, p = 0.23), reading accuracy (F (1,83)= 0.46, p = 0.5), reading fluency (F (1,82)= 0.02, p = 0.87) and reading comprehension (F (1,83)= 1.26, p = 0.26).

Grade 2 Children

3-2.1 Background Information

Children's socio-demographic information (such as age, sex, household assets), home learning environment (such as, chores, storytelling, availability of books) and education history (such as pre-primary education, grade repetition, change of school, receiving -tutorial) etc. were collected in the survey.

3-2.1.1 Socio-demography

The average age of grade2 children was 7.8 years (± SD = 1.08 years, n=869). About 85% of children ranged from 7 to 9 years old. The detail age distribution is given in table 3-2.1.

Table 3-2.1 Socio-demography of grade 2 children

Socio-demographic attributes	Frequency	Percentage (%)
Age in years		(n=869)
Less than 7	48	6
7	328	38
8	291	33
9	132	15
10 and above	70	8
Ownership of Household Assets		(n=1002)
Electricity	506	50.5
Television	228	23
Refrigerator	49	5
Cow	593	59
Goat	339	34
Hen/ Duck	824	82
Bi-cycle	353	35
Motor-cycle	39	4
Land	791	79

Household Assets

About half of grade2 children (50.5%) had electricity at their home. One in about every four households (23%) had television. Only 5% of grade 2 children's households had refrigerator and 4% had motorcycle.

About 80% of their households had hens/ ducks and land.

3-2.1.2 Home Learning Environment

Chores

About one quarter (27%, n=1002) of grade 2 children were not involved in daily household activities. Those who did chores spent 2.3 hours (± SD = 1.1 years, n=736) on average per week day. The time duration of household chores is detailed in table 3-2.2.

Reading at Home

Almost every child in Grade 2 was encouraged to read by their family members. More than half (54%) of them had an opportunity to listen to stories from their family members.

Using library books

Use of library books is not yet inculcated as a practice. Only 14% of children borrowed a library book and 8% read it. However, 30% (n=1002) of them assisted others in reading.

Availability of books at home

More than half of second graders (57%) claimed availability of books other than the text books at home. Those were mostly religious books (48%). Some had (21%) story books. Outside these categories, colorful picture books and other un-identified type of books were reported by few of them.

Story read to children

About four of every five (81%, n=1003) grade 2 children's (at least one) family members read stories to them in the past week.

Table 3-2.2 Home learning environment of grade 2 children

Home learning environment attributes	Frequency	Percentage (%)
Time spent in chores (n=736)		
Less than 1 hour	34	5
1 hour	147	20
2 hours	199	27
3 hours	292	40
More than 3 hours	70	9
Type of books available at home (n=1002)		
Religious texts	476	48
Book on religious personality	17	2
Magazine	2	0
Newspaper	8	1
Story book	213	21
Colorful picture book	14	1
Comic book	2	0
Other books	13	1

Family members encouraged children to read

Almost every (99%, n=1003) grade 2 child was encouraged to read by at least one of their family members in the past week.

Children see their family members to read

About three quarters (77%) of grade 2 children (n=1003) saw at least one of their family members to read in the past week.

3-2.1.3 Education History

Preprimary

Most of the grade 2 children (68%, n= 998) in surveyed schools attended preprimary. The highest portion of them (38%) attended Save the Children preprimary (PROTEEVA) followed by BRAC preprimary (18%).

Change of School

In 32% of cases, grade 2 children changed school, of which 31% changed once. The leading causes for changing school were that the school had no higher section other than preprimary (19%) and guardian choice (10%).

Grade repetition

Very few grade 2 children (8%, n=1003) repeated in their class whereas 17% repeated in grade 1 and 6% in preprimary.

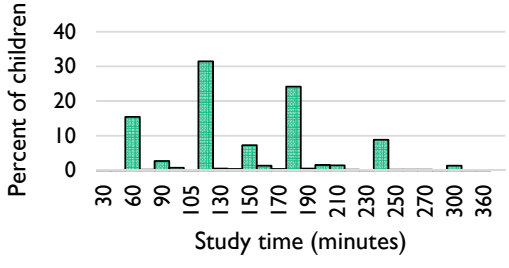
Absence in Class

About one quarter of grade2 children missed school in the week prior to the interview. The major reasons were visiting relatives (12%, n=1002) and illness (5%). Others (5%) did not specify the cause. The other causes are household chores, care of younger siblings and of ill relatives.

Study Time

On average, grade 2 children spent about two and half an hour (± SD = 57 minutes, n=952) each day studying. The following histogram illustrates the study time of grade 2 students.

Figure 3-2.1 Study time by grade 2 children



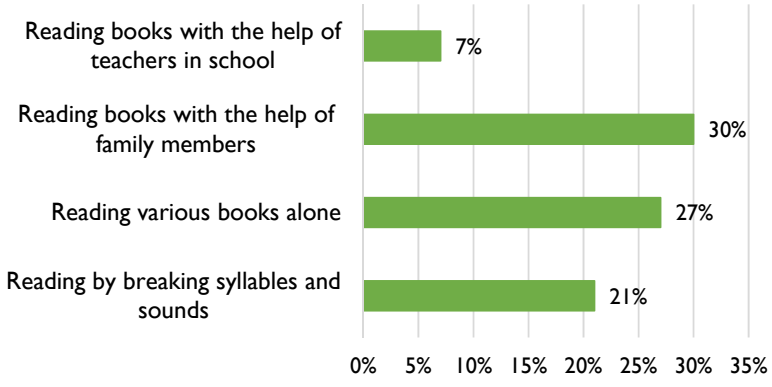
Private Tutor and Reading with Friends

About a quarter of grade 2 children read with their friends; forty-five percent (n=1002) got assistance from private tutor.

Ways to Read Better

To improve reading skills, grade 2 students practice breaking syllables and sounds, reading various books alone, reading books with the help of family members and reading books with the help of teachers in school.

Figure 3-2.2 Grade 2 Ways to Improve Reading



3-2.2 Competencies

Grade2 children's reading skills were assessed in several ways (Table 2.1). First of all, they were asked to identify letters from Bangla alphabet. Then they were given a list of 20 most used words available in their Bangla textbook. Phonemic awareness was assessed by asking for the identification of similar beginning sounds and word-end rhyming sounds from a group of words selected from the text book. Students' knowledge of antonyms was also assessed consistent with the textbook level.

An 83-word unknown story, appropriate to grade level, was provided to children for reading aloud. Children able to read at least five words correctly from the story in the first 60 seconds of reading were identified as a reader. Only readers continued reading the story to the end. After completion, 10 questions from the story were asked to assess comprehension. Fluency and accuracy of reading were measured as well.

3-2.2.1 Letters, Words and Antonyms

Letter Knowledge

Grade2 children are strongest in letter knowledge. On average, they identified 72% of the letters (36 out of 50) correctly.

Eighty percent of children identified half (25) or more of the letters. Only 5% identified all 50 letters. Six percent could not recognize any letter. The letter knowledge of grade2 children is shown in figure 3-2.3. The five most difficult letters were (ঋ, ৎ, ঢ়, ং, ঃ) identified correctly by about half of grade 2 children. On the other hand, the five easiest letters were (আ, ক, ই, ল, প) identified correctly by 80% or more of grade 2 children.

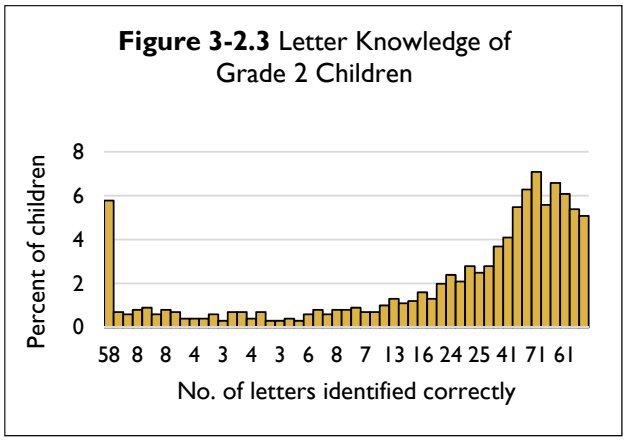


Figure 3-2.3 Letter Knowledge of Grade 2 Children

Frequent Words

On average, grade2 children identified half of the frequent words (10 out of 20) correctly. Two in every ffive of them identified three quarter or more of the words (15 or more out of 20) whereas 23% could not recognize any of the words. The understanding of frequent words is shown in figure 3-2.4.

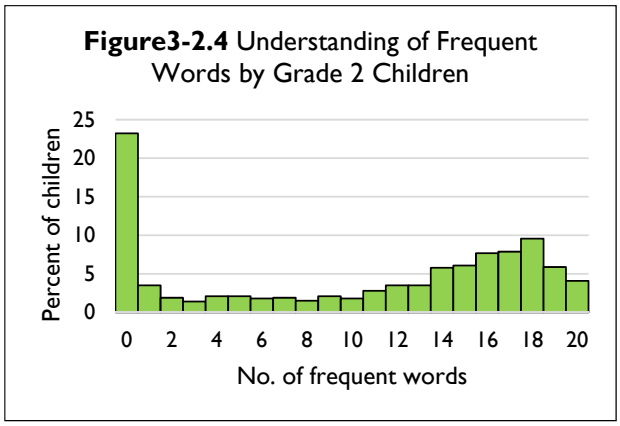
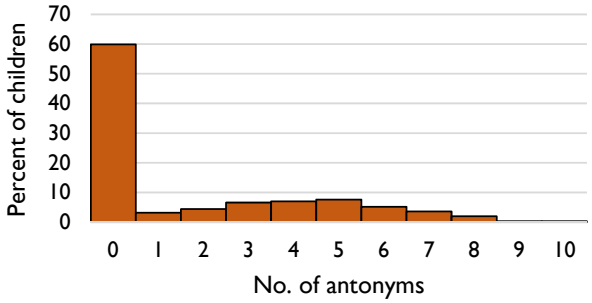


Figure3-2.4 Understanding of Frequent Words by Grade 2 Children

Antonyms

Understanding of antonyms by grade2 children was very poor. More than half of them (60%, n=1003) failed to identify any of the 10 given antonyms derived from their Bangla text. Those who could respond identified 5 or less antonyms. Only one tenth of grade2 children correctly gave more than five antonyms.

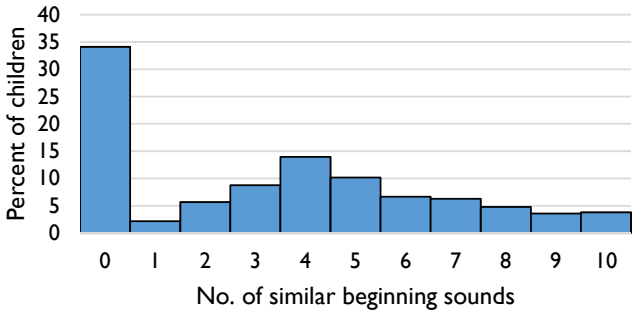
Figure 3-2.5 Answering Antonyms by Grade 2 Children



3-2.2.2 Similar Beginning Sounds and Rhyme Words

To test phonemic awareness, a 10 set of words triplet was loudly spoken to the children with similar beginning sounds or rhyming words. At first two examples were shared with each of them. Then the sets of words were pronounced loudly one by one. In case of their failure to respond, the words were repeated again.

Figure 3-2.6 Identifying Similar Begining Sounds by Grade 2 Children



Grade2 children's phonemic awareness was weaker compared to their letter knowledge and familiar

word knowledge. About one third of them could not identify any of the sounds or rhyme.

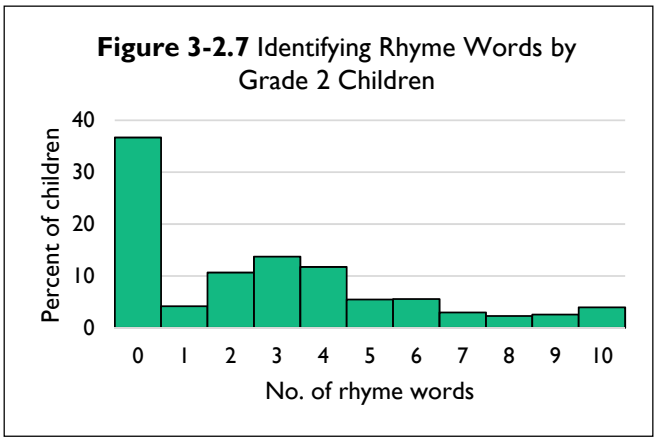


Figure 3-2.7 Identifying Rhyme Words by Grade 2 Children

On average, the second graders identified three set of words correctly out of ten sets of words with similar beginning sounds and rhyming sounds.

3-2.2.3 Reading and Comprehension

Accuracy

One in every three children in grade2 was identified as a 'reader'. On average, they read with 83% accuracy (± SD= 15, n=336). That implies that out of every 100 words read, 83 were correct. In the story for grade2 children there were 83 words, and on average they had been able to read 83 words correctly.

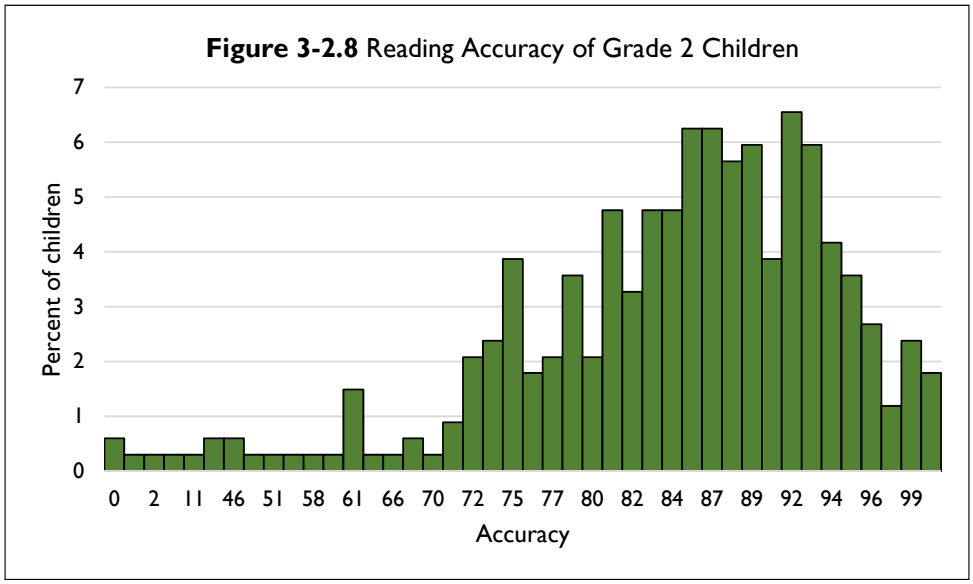
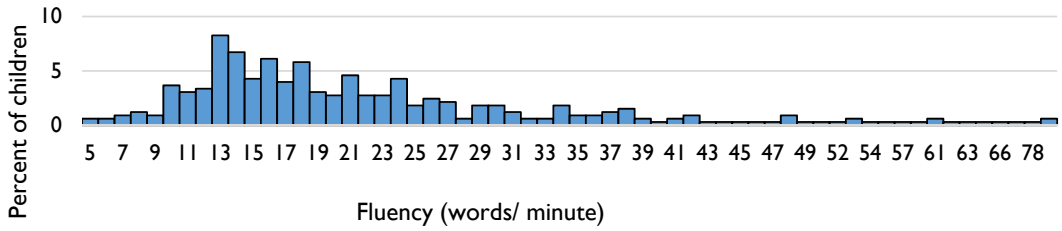


Figure 3-2.8 Reading Accuracy of Grade 2 Children

Fluency

Grade2 children's average reading fluency, words per minute read correctly, was 23 words per minute (± SD= 13, n=327). Overall reading fluency is portrayed by the histogram in figure 3-2.9.

Figure 3-2.9 Reading Fluency of Grade 2 Children



Reading Comprehension

Grade2 children's average reading comprehension was about 25%. That means that on average they answered more than 2 out of 10 comprehension questions correctly. Their ability was observed the weakest in answering evaluative question (11%) followed by inferential questions (11% and 25%) and summary question (12%). The ability of answering literal questions by grade 2 readers varied from 7% to 45%. The findings about reading comprehension ability are detailed in table 3-2.3.

About 5% of grade 2 readers showed their potential in answering 5 or more out of 6 literal comprehension questions correctly. About one fifth of them (21%) completely failed to answer any of the literal comprehension questions.

Table 3-2.3 Reading Comprehension of Grade 2 Children as per question type

Questions	Question Type	Percent of Children answered questions correctly (%)
		(n=335)
Q1	Summary	12
Q2	Literal	14
Q3	Literal	7
Q4	Literal	42
Q5	Literal	44
Q6	Literal	45
Q7	Literal	42
Q8	Inferential	25
Q9	Inferential	11
Q10	Evaluative	11

3-2.3 Background Information and Reading Competency across Intervention and Control Groups

Three types of schools were selected for the READ baseline survey. The types are defined by the presence or absence of READ intervention. The two groups with no READ intervention are comparison groups. The control schools and PROTEEVA only schools are comparison groups. In PROTEEVA-only schools, there was a PROTEEVA preprimary intervention and in control schools there was no PROTEEVA activity. The READ schools fall in the intervention group. Prior to READ, there was a PROTEEVA preprimary intervention in the same schools.

Table 3-2.4 Grade 2 children's background information across school type

School Type	Preprimary Experience	Chores	Story read to children
READ + Proteeva	76%	71%	80%
Proteeva only	80%	79%	80%
Control only	52%	71%	83%

3-2.3.1 Background Information

In table 3-2.4 grade 2 children's exposure to preprimary, chores and reading story to children by family members are displayed. PROTEEVA schools' children do not statistically differ from READ + PROTEEVA schools ($t= 1.14$, $p = 0.26$, $df=646$) but the control schools ($t= 6.86$, $p <0.0001$, $df=703$) children differ from READ + PROTEEVA schools in participating preprimary.

However, no statistical difference is observed between the READ + PROTEEVA school children and PROTEEVA ($t= 0.79$, $p = 0.42$, $df=649$) and control school children ($t= 1.72$, $p = 0.09$, $df=706$) in doing household chores.

The table shows that intervention schools had a lower percent of children, with preprimary and chores and reading story to them, than the comparison groups.

3-2.3.2 Reading Competency

In figure 3-2.10 and 3-2.11, grade 2 children's accuracy, fluency and reading comprehension are shown as per the school type.

The difference among the groups is very little or negligible. READ + PROTEEVA school children's reading accuracy do not differ statistically from PROTEEVA school (t= 1.3, p > 0.19, df=221) or control school (t= 0.47, p = 0.63, df=224) children.

In reading comprehension, the comparison schools and READ schools' performance are almost same. However, READ + PROTEEVA schools do not differ statistically from none of the PROTEEVA schools (t= 0.30, p = 0.76, df=210) or control schools (t= 0.83, p = 0.4, df=211).

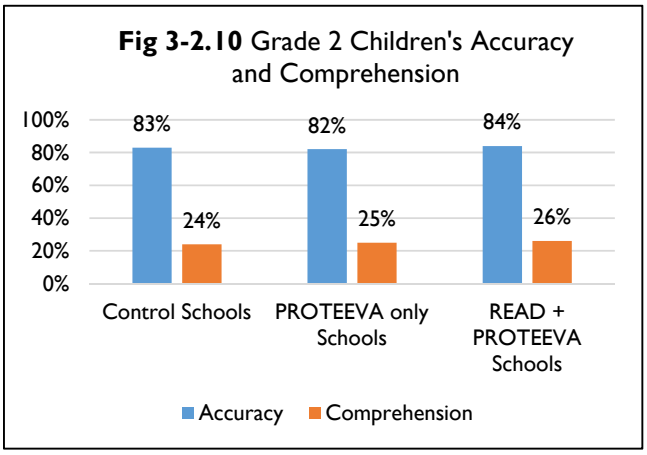


Fig 3-2.10 Grade 2 Children's Accuracy and Comprehension

The reading fluency of READ + PROTEEVA schools children do not statistically differ from the PROTEEVA schools (t= 1.7, p = 0.09, df=213) or control schools (t= 1.49, p = 0.14, df=222) children.

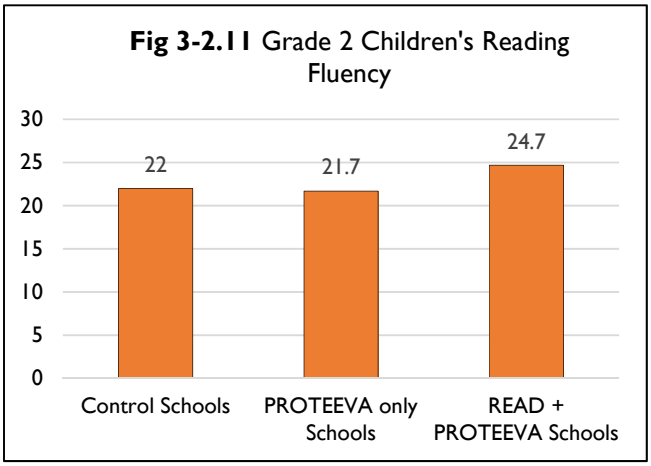


Fig 3-2.11 Grade 2 Children's Reading Fluency

3-2.4 Relationship between Some Background Variables and Reading

3-2.4.1 Preprimary

The reading fluency of both preprimary attended children and their counterpart was 23 words per minute. Their reading accuracy and reading comprehension do not have notable difference as depicted in figure 3-2.12.

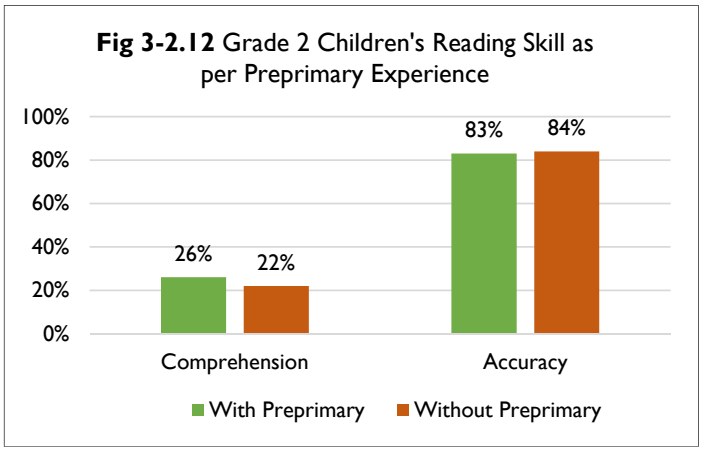


Fig 3-2.12 Grade 2 Children's Reading Skill as per Preprimary Experience

The reading accuracy (t= 0.29, p = 0.77, df=332), fluency (t= 0.52, p = 0.60, df=325) and comprehension (t= 1.65, p = 0.1, df=312) do not differ significantly in between preprimary experienced and non-preprimary grade 2 children.

3-2.4.2 Chores

Grade 2 children with household activities went neck to neck with their no-chore counterparts. The reading fluency of children who took part in household chores was 23 words per minute whereas children who did not take part in it had 22 words per minute fluency. Their reading accuracy and reading comprehension do not have noticeable difference as depicted in figure 3-2.13.

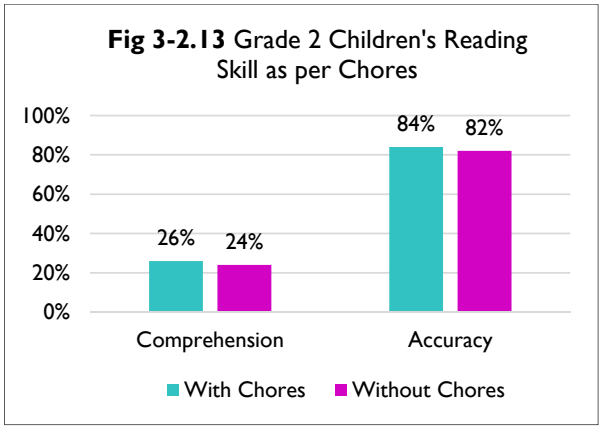


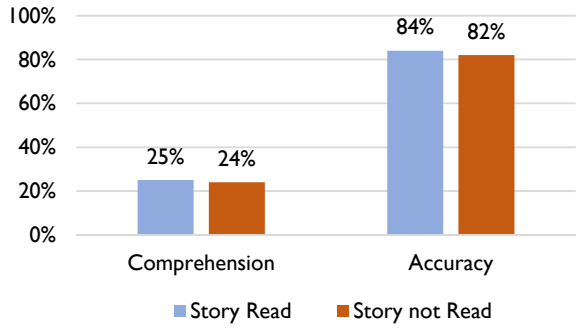
Fig 3-2.13 Grade 2 Children's Reading Skill as per Chores

Children involved in household chores do not statistically significantly differ from the children who did not take part in household chores in reading accuracy (t= 0.87, p = 0.38, df=331), fluency (t= 1.03, p = 0.30, df=323) and comprehension (t= 0.65, p = 0.52, df=312).

3-2.4.3 Story Read to Children

Children to whom stories were not read by at least one of their family members had an average fluency of 21 words per minute whereas children to whom stories were read had 23 words per minute (n=327) fluency. The difference in comprehension and accuracy of these two groups is negligible as shown in figure 3-2.14.

Fig 3-2.14 Grade 2 Children's Reading Skill as per Reading Story to Them



At 5% level of significance these two groups do not differ in their skill of reading accuracy (t=0.75, p = 0.45, df=333), reading fluency (t=1.4, p = 0.16, df=325) and reading comprehension (t=0.3, p = 0.76, df=313).

3-2.4.4 Family members encouraged children to read

Grade 2 children whose family members encouraged them to read do not differ statistically from the children whose family members did not encourage them in reading accuracy (t= 0.46, p = 0.64, df=333), fluency (t= 0.57, p = 0.57, df=325) and comprehension (t= 1.5, p = 0.13, df=313).

3-2.4.5 Children see their family members to read

Grade 2 children who saw at least one of their family members to read do not differ statistically from the children who did not see any of their family members to read in reading accuracy (t= 0.32, p = 0.74, df=333), fluency (t= 0.27, p = 0.79, df=325) and comprehension (t= 0.56, p = 0.57, df=313).

3-2.4.6 Children's Gender

Due to difference in grade 2 children's gender no statistically significant difference is observed in answering antonyms (t= 0.57, p = 0.57, df=1001), reading accuracy (t= 0.38, p = 0.70, df=333), reading fluency (t= 1.8, p = 0.07, df=325) and reading comprehension (t= 0.69, p = 0.48, df=313).

3-2.4.7 Children's Age

Like gender grade 2 children's age does not make any statistically significant difference in answering antonyms (F (1,867)= 0.26, p = 0.61), reading accuracy (F (1,309)= 0.92, p = 0.34) and reading fluency (F (1,301)= 0.11, p = 0.73). But, second grade readers' age makes statistical difference at 5% level of significance in reading comprehension (F (1,289)= 4.38, p = 0.037). However, age can explain only 15% of variation of reading comprehension (r^2=0.015).

Grade 3 Children

3-3.1 Background Information

Children's socio-demographic background information (such as, age, sex, household assets), home learning environment (such as, chores, storytelling, availability of books) and education history (such as pre-primary education, grade repetition, change of school, home tutoring) etc. were collected in the survey.

3-3.1.1 Socio-demography

The average age of grade 3 children was 9 years (± SD = 1.1 years, n=932). About 9 out of every 10 children's age ranged from 8 to 10 years. The detail age distribution is given in table 3-3.1.

Table 3-3.1 Socio-demography of grade 3 children

Socio-demographic attributes	Frequency	Percentage (%)
Age in years		(n=932)
Less than 8	40	4
8	322	35
9	329	35
10	166	18
11 and above	75	8
Ownership of Household Assets		(n=1000)
Electricity	530	53
Television	233	23
Refrigerator	44	4
Cow	565	56.5
Goat	342	34
Hen/ Duck	789	79
Bi-cycle	354	35
Motor-cycle	45	4.5
Land	801	80

Household Assets

About half of grade3 children (53%) had electricity at their home. Around one in about every four of the households (23%) had television. Only 4% of grade3 children's households had refrigerator and 4.5% had motorcycle.

About 80% of their households had hen/ duck and land.

3-3.1.2 Home Learning Environment

Chores

About one fifth (20%, n=1000) of grade 3 children was not involved in daily household activities. Those who were spent 2.1 hours (± SD = 1 hours, n=805) on average per week day. The time duration of household chore is detailed in table 3-3.2.

Reading at Home

Almost every children in Grade 3 were told to read by their family members. More than half (54%) of them got opportunity to listen to stories from their family members.

Using library books

Fourteen percent of grade 3 children borrowed book from library and 12% read it. However, 48% (n=990) of them assisted others in reading. About two third of third graders (65%) claimed availability of books other than the text books at home.

Availability of books at home

Like their junior grade children grade 3 children's home mostly had religious books (55%). Some had (28%) story books. Outside these categories, colorful picture books and other un-identified type of books were reported by them.

Story read to children

About three quarters (76%, n=1000) of grade 3 children's (at least one) family members read stories to them in the past week.

Table 3-3.2 Home learning environment of grade 3 children

Home learning environment attributes	Frequency	Percentage (%)
Time spent in chores		(n=805)
Less than 1 hour	30	4
1 hour	208	26
2 hours	300	37
3 hours	216	27
More than 3 hours	51	6
Type of books available at home		(n=999)
Religious texts	551	55
Book on religious personality	35	3.5
Magazine	6	0.6
Newspaper	9	0.9
Story book	277	27.7
Colorful picture book	17	1.7
Comic book	4	0.4
Other books	63	6.3

Family members encouraged children to read

In case of 95% (n=1000) of grade 3 children, at least one of their family members encouraged them to read in the past week.

Children see their family members to read

Seventy seven percent of grade 3 children (n=1000) saw at least one of their family members to read in the past week.

3-3.1.3 Education History

Preprimary

Around 1 in every 3 grade 3 children (36%, n= 996) in surveyed schools attended preprimary. Highest portion of them (40%) attended in Save the Children preprimary (PROTEEVA) followed by BRAC preprimary (33%).

Change of School

In 39% (n=1000) of cases grade 3 children changed school, of which 36% changed once. The leading causes for changing school were the school had no higher section other than preprimary (45%) and guardians' choice (40%, n=388).

Grade Repetition

Very few grade 3 children (8%, n=999) repeated their grade whereas 13% repeated in grade1 and 11% in grade 2.

Absence in Class

About one quarter (27%, n=1000) of grade 3 children missed school in the week prior to the interview. The major reasons were visiting relatives (17%, n=1002) and illness (9%). Another 5% did not specify any cause. The other causes are household tasks and the care of younger siblings and ill family members.

Study Time

On average, grade 3 children spent about 2 hour and 45 minutes (± SD = 63 minutes, n=975) each day studying. The distribution of study time is illustrated by the following histogram –

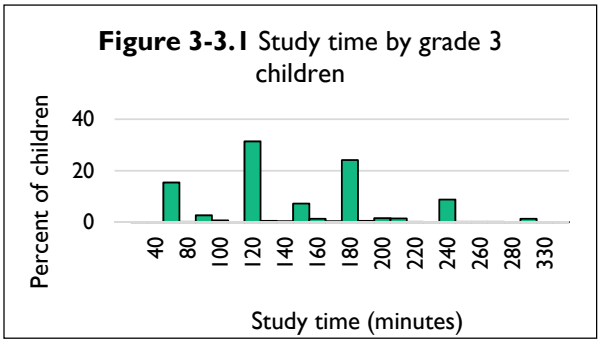


Figure 3-3.1 Study time by grade 3 children

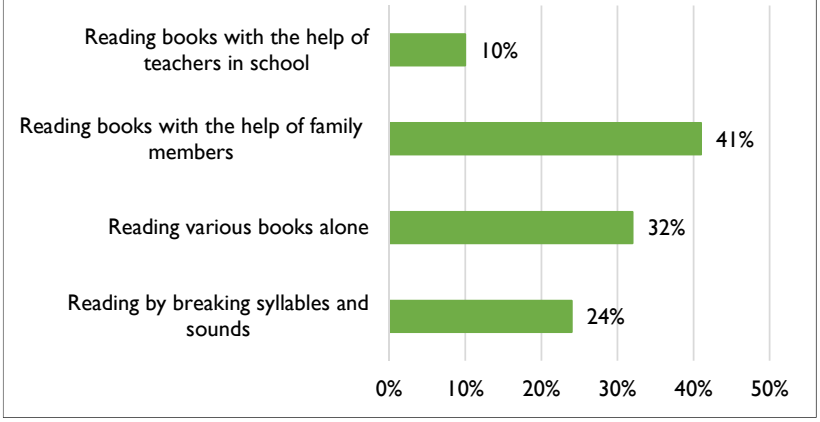
Private Tutor and Reading with Friends

About one third of grade 3 children (31%, n=992) read with their friends. Half the children make use of private tutors.

Ways to Improve Reading

Third graders practice reading by splitting syllables and sounds, reading various books alone, reading books with the help of family members and reading books with the help of teachers in school.

Figure 3-3.2 Grade 3 Strategies to Improve Reading



3-3.2 Competences

Grade3 children's competencies were assessed by giving them a list of 20 most frequently used words available in their Bangla textbook. Then, a list of 20 pseudo words was provided for decoding. Children's knowledge of antonyms and the ability to make sentences were also assessed as per their grade level.

A 122-word unknown story, consistent with the grade level, was provided to children for reading aloud. Children able to read at least five words correctly in the first 30 seconds of reading were identified as a reader. Only readers continued reading the story to the end. After completion, 10 questions from the story were asked to measure comprehension. Fluency and accuracy of reading were measured as well.

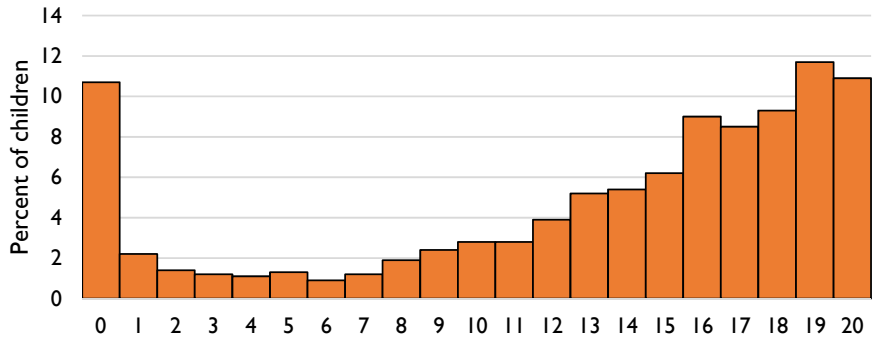
3-3.2.1 Words, Pseudo Words and Antonyms

Frequent Words

Grade 3 children were most skilled in identifying frequent words. On average, they read two third of the words (13 out of 20) correctly.

Three quarters of students read half (10) or more of the words correctly. Eleven percent could read all 20 words. However, 11% failed to read any word correctly. The knowledge of familiar Bangla words is presented in figure 3-3.3.

Figure 3-3.3 Knowledge of frequent Bangla word by grade 3 children

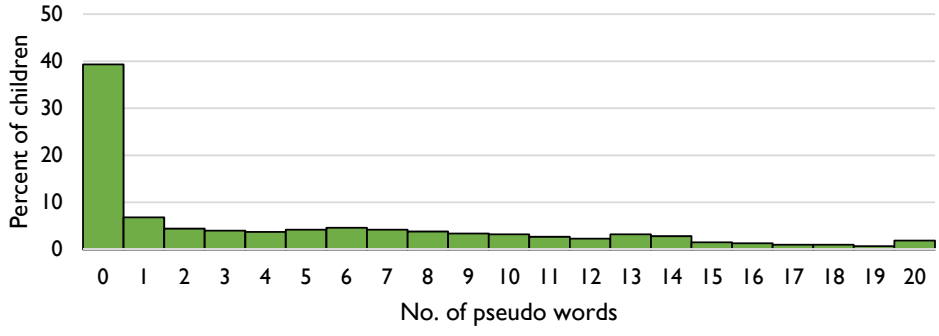


Pseudo Words

On average, grade 3 children decoded one quarter of pseudo words (5 out of 20) correctly.

One-fifth of students decoded half or more of the pseudo words (10 or more out of 20) whereas 39% (n=1000) could not decode any of the words. Their understanding of pseudo words is shown in figure 3-3.4.

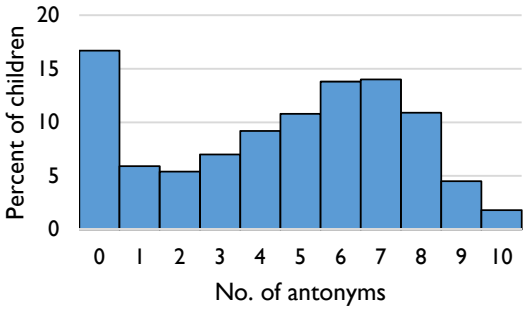
Figure 3-3.4 Decoding of Pseudo Words by Grade 3 Children



Antonyms

Understanding of antonyms by grade 3 children was moderate. They performed better than their gr2 peers. On average they answered 46% of antonyms (4.55 out of 10) correctly. Seventeen percent of them (n=1000) failed to identify any of the 10 given antonyms derived from their Bangla textbook.

Figure 3-3.5 Answering Antonyms by Grade 3 Children

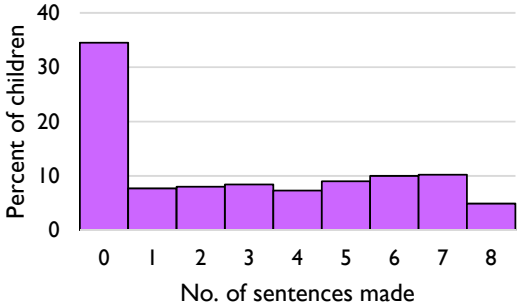


3-3.2.2 Sentence Making

Thirty-seven percent of grade3 children, on average, could make sentences (n=1000). That is, out of 8 words presented to them, children could make sentences with 3 words.

One-third of third graders could make sentences with half or more of the given words whereas another one third could not make any sentence at all.

Figure 3-3.6 Sentence making by grade 3 children

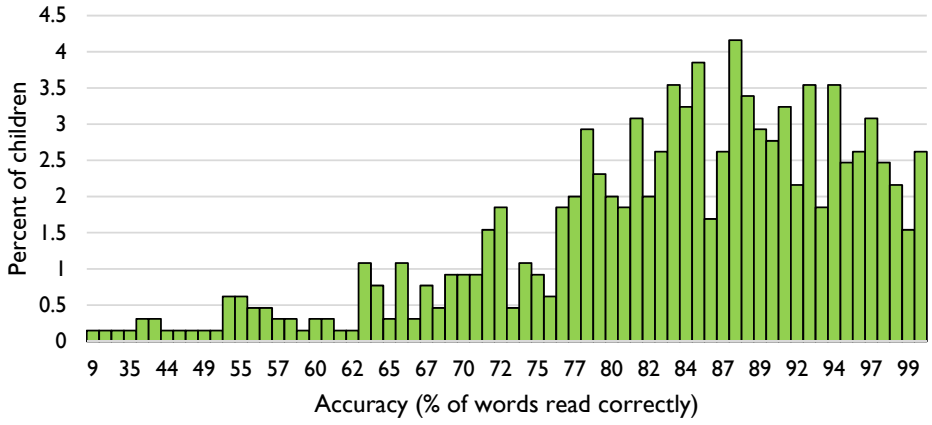


3-3.2.3 Reading and Comprehension

Accuracy

Two-thirds (65%, n=998) of grade 3 children qualified as 'readers'. On average, they read with 83% accuracy (± SD= 13, n=650). That implies that out of every 100 words, 83 were read correctly. There were 122 words in the gr3 story. On average, the children could read 83 words correctly.

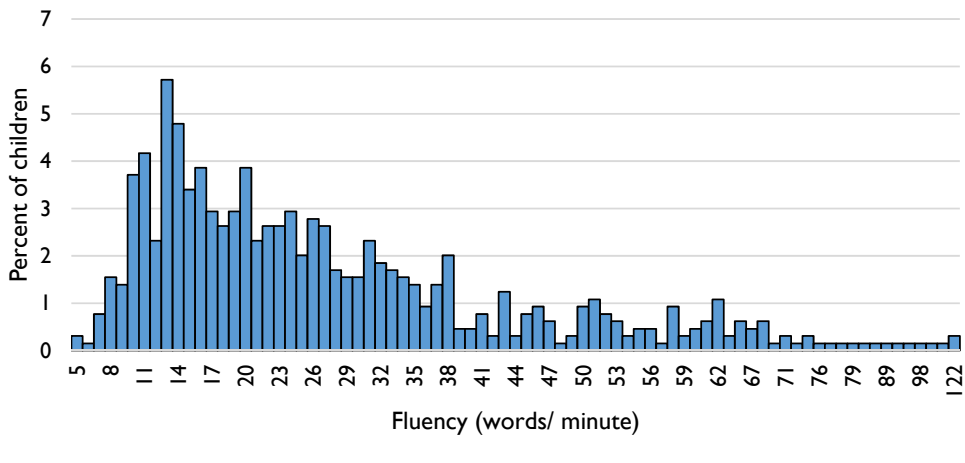
Figure 3-3.7 Reading Accuracy of Grade 3 Children



Fluency

Grade 3 children's average reading fluency, words per minute read correctly, was 28 words per minute (± SD= 18, n=647). Their overall reading fluency is detailed in figure 3-3.8.

Figure 3-3.8 Reading Fluency of Grade 3 Children



Reading Comprehension

Third graders average reading comprehension was about 16% (n=649). That means that on average, children answered more than 1 out of 10 comprehension questions correctly. A minority answered more questions whereas 43% could answer no comprehension questions. Their ability was observed the weakest in answering evaluative question (8%) followed by inferential questions (7% and 40%) and summary question (16%). The ability of answering literal questions by grade 3 readers varied from 8% to 30%. Details are provided in table 3-3.3.

About 3% of grade 3 readers showed their potential in answering 5 or more out of 6 literal comprehension questions correctly. About half of them (21%) completely failed to answer any of the literal comprehension questions.

Table 3-3.3 Reading Comprehension of Grade 3 Children as per question type

Questions	Question Type	Percent of Children answered questions correctly (%)
		(n=648)
Q1	Summary	16
Q2	Literal	8
Q3	Literal	30
Q4	Literal	12
Q5	Literal	19
Q6	Literal	13
Q7	Literal	10
Q8	Inferential	40
Q9	Inferential	7
Q10	Evaluative	8

3-3.3 Background Information and Reading Competency across Intervention and Comparisons Groups

Three types of schools were selected for the READ baseline survey. The types are defined by the presence or absence of READ intervention. The two groups where no READ intervention will be available are comparison groups. The control

Table 3-3.4 Grade 3 children's background information across school type

School Type	Preprimary Experience	Chores	Story read to children
READ + Proteeva	70%	83%	77%
Proteeva only	65%	78%	78%

Control only	57%	79%	74%

schools and PROTEEVA only schools are comparison groups. In PROTEEVA-only schools, there was a PROTEEVA preprimary intervention. In control schools, there was no PROTEEVA intervention. The READ intervention schools fall in the intervention group. Prior to READ, there was a PROTEEVA preprimary intervention in the same schools.

3-3.3.1 Background Information

In table 3-3.4 grade 3 children's exposure to preprimary, chores and reading story to children by family members is presented. The table shows that intervention schools had a higher percent of children with preprimary and chores in comparison with the comparison groups.

3-3.3.2 Reading Competency

In figure 3-3.9 and 3-3.10, grade 3 children's accuracy, fluency and reading comprehension are shown as per the school type.

The difference among the groups is very little or negligible.

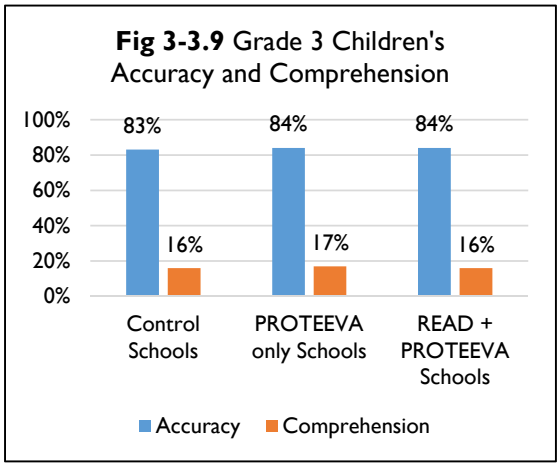


Fig 3-3.9 Grade 3 Children's Accuracy and Comprehension

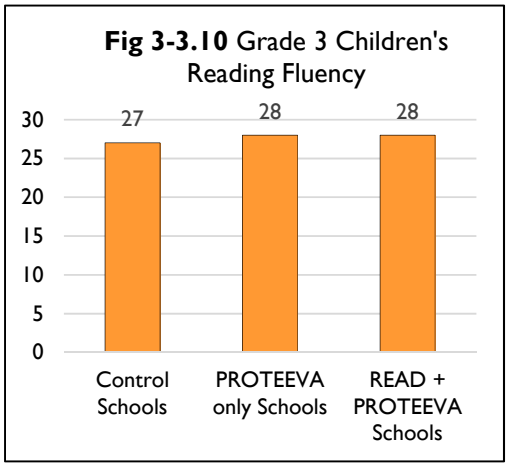


Fig 3-3.10 Grade 3 Children's Reading Fluency

3-3.4 Relationship between Background Variables and Reading

No significant difference is observed (at 5% level of significance) between grade 3 children's reading accuracy, fluency and comprehension and their preprimary experience.

Similarly, involvement in chores or story read to children has no significant (at 5% level of significance) relationship with children's reading.

3-3.4.1 Preprimary

The reading fluency of both preprimary attended children and their counterpart was 28 words per minute. Their reading accuracy and reading comprehension do not have notable difference as depicted in figure 3-3.11.

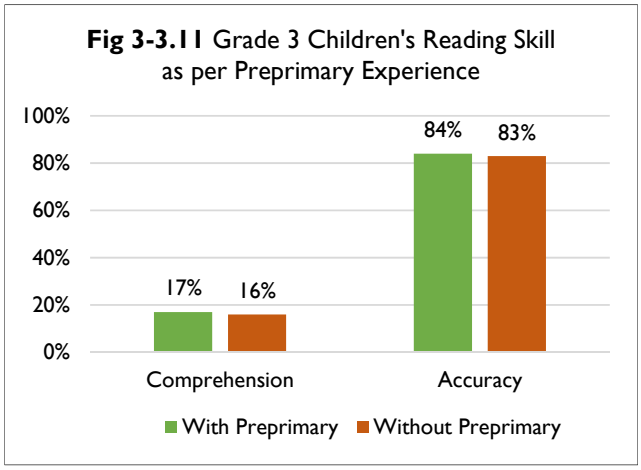


Fig 3-3.11 Grade 3 Children's Reading Skill as per Preprimary Experience

The reading accuracy (t= 0.43, p = 0.67, df=644), fluency (t= 0.89, p = 0.60, df=642) and comprehension (t= 0.20, p = 0.84, df=644) do not differ significantly in between preprimary experienced and non-preprimary grade 3 children.

3-3.4.2 Chores

Grade 3 children with household activities went neck to neck with their no-chore counterparts. The reading fluency of children who took part in household chores was 27 words per minute whereas children who did not take part in it was 29 words per minute fluency. Their reading accuracy and reading comprehension do not have noticeable difference as depicted in figure 3-3.12.

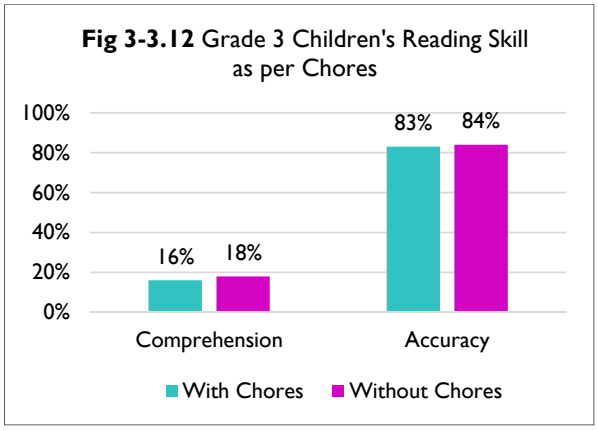


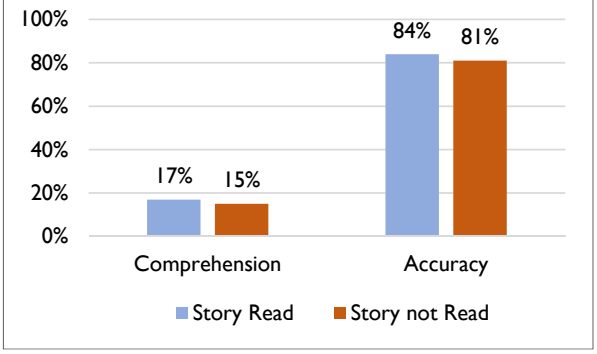
Fig 3-3.12 Grade 3 Children's Reading Skill as per Chores

Children involved in household chores do not statistically significantly differ from the children who did not take part in household chores in reading accuracy (t= 0.12, p = 0.9, df=647), fluency (t= 1.09, p = 0.27, df=645) and comprehension (t= 1.16, p = 0.25, df=647).

3-3.4.3 Story Read to Children

Children to whom stories were not read by at least one of their family members had an average fluency of 29 words per minute whereas children to whom stories were read had 25 words per minute fluency. The difference in comprehension and accuracy of these two groups is negligible as shown in figure 3-3.13.

Fig 3-3.13 Grade 3 Children's Reading Skill as per Reading Story to Them



At 5% level of significance these two groups do not differ in their skill of reading fluency (t=1.86, p = 0.06, df=645) and reading comprehension (t=0.80, p = 0.42, df=647). However, they do differ in reading accuracy (t=2.44, p = 0.015, df=647). About 1% change in reading accuracy could be explained by 'family members read to children' ($r^2 = 0.009$).

3-3.4.4 Family members encouraged children to read

Grade 3 children whose at least one of the family members encouraged them to read differ statistically from the children whose family members did not encourage them in reading accuracy (t= 2.58, p = 0.01, df=647) and fluency (t= 2.21, p = 0.028, df=645) whereas they do not differ in their reading comprehension (t= 0.91, p = 0.36, df=647). However, encouragement in reading by family members explains only 1% variation of reading accuracy ($r^2 = 0.01$) and 0.7% of reading fluency ($r^2 = 0.007$).

3-3.4.5 Children see their family members to read

Grade 3 children who saw at least one of their family members to read do not differ statistically from the children who did not see any of their family members to read in reading accuracy (t= 1.41, p = 0.16, df=647), fluency (t= 1.48, p = 0.14, df=645) and comprehension (t= 0.31, p = 0.76, df=647).

3-3.4.6 Children's Gender

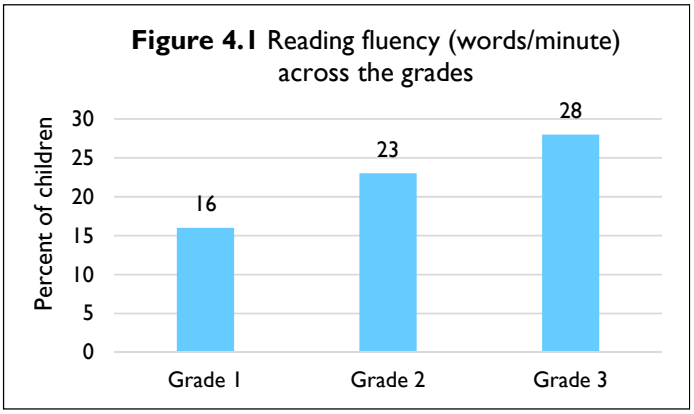
Due to difference in grade 3 children's gender no statistically significant difference is observed in reading accuracy (t= 0.43, p = 0.67, df=647), reading fluency (t= 0.09, p = 0.93, df=645) and reading comprehension (t= 0.17, p = 0.87, df=647). However, they do differ in preparing sentence from words in their grade level text (t= 2.77, p = 0.006, df=998). Inspite of this difference gender can explain only 0.08% variation in preparing sentence ($r^2 = 0.008$) from words in grade level text.

3-3.4.7 Children's Age

Like gender grade 3 children's age does not make any statistically significant difference in answering antonyms (F (1,867)= 0.26, p = 0.61), reading comprehension (F (1,628)= 2.4, p = 0.12) and reading fluency (F (1,626)= 2.84, p = 0.09). But, third grade readers' age makes statistical difference at 5% level of significance in reading accuracy (F (1,628)= 4.95, p = 0.026) and sentence making (F (1,930)= 10.27, p = 0.001). However, age can explain only 1% of variation of sentence making (r^2 = 0.011) and 0.08% variation in reading accuracy ($r^2 = 0.008$).

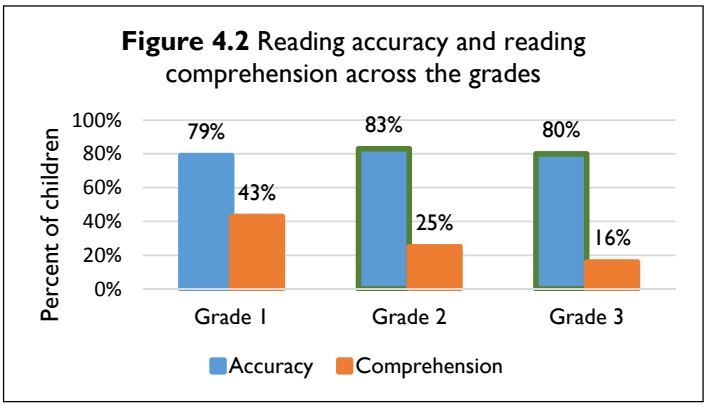
Grade 1, 2 and 3 children's reading capacity and skill differs. The socio-demographic status of children is relatively similar except in attending preprimary. The no. of children attended preprimary decreased gradually from grade 1 (78%) to grade 2 (68%) and dramatically from grade 2 to grade 3 (36%). Children's reading fluency improves from grade to grade (Figure 4.1).

Figure 4.1 Reading fluency (words/minute) across the grades



However, their reading comprehension decreases from grade to grade (Figure 4.2). In answering literal questions grade 3 children's performance was the poorest. About half (55%, n= 648) of grade 3 children was able to answer none out of six literal questions followed by grade 2 (21%, n= 335) and grade 1 (10%, n= 103) children. This can be interpreted in several ways. Maybe children were not taught in a way that emphasized comprehension. May be they did not have enough opportunities to practice. May be teachers know that children will not be tested on reading comprehension in exams, then what's the need of putting emphasize on it? Whatever the reason, in grade level summative assessment, reading comprehension is completely ignored.

Figure 4.2 Reading accuracy and reading comprehension across the grades



Considering these findings, READ is initiating diverse interventions to address some of the challenges children face to learn reading, such as, training teachers and supervisors/head teachers, catalyzing school management committees, providing supplementary reading materials, conducting more

formative assessment of children's reading skills throughout the school year, initiating libraries in schools and strengthening community libraries. The impact of the intervention and other influencers of reading will be better understood after the endline assessments scheduled for March-June 2015.

However, some specific recommendation are made in the following -

Specific Recommendations

- Many of grade 1 and grade 2 children were struggling to identify some specific letters, such as, ঋ, ৎ, ঢ়, ং, ঃ, য, ঢ. These particular letters could be emphasized in class.
- Children's phonemic awareness were observed poor all thorough the grades. It definitely demands putting more importance on it.
- Across the grades there is a group of children who are learning somewhat on pace with the curriculum, and another group who don't appear to be learning at all. In the READ interventions the varying needs of these two groups should be addressed.
- Last but not the least, children's reading comprehension was shocking. Even in answering literal questions many of them had to struggle a lot. Reading comprehension might be added as an assessment criteria in both grade formative and summative assessment.

Appendix A: List of Baseline Survey Districts

SL #	District	Division
1	Barisal	Barisal
2	Barguna	Barisal
3	Patuakhali	Barisal
4	Jhalakhati	Barisal
5	Cox'sBazar	Chittagong
6	Dhaka	Dhaka
7	Manikganj	Dhaka
8	Gazipur	Dhaka
9	Tangail	Dhaka
10	Jessore	Khulna
11	Magura	Khulna
12	Jhenaidah	Khulna
13	Narail	Khulna
14	Rangpur	Rangpur
15	Nilphamari	Rangpur
16	Lalmonirhat	Rangpur
17	Kurigram	Rangpur
18	Sylhet	Sylhet
19	Habiganj	Sylhet
20	Moulvibazar	Sylhet
21	Sunamganj	Sylhet

Grade 1

Easiest letters	Correct identification	Difficult letters	Correct identification
আ	77%	ঃ	35%
প	62%	য	34%
ই	67%	ং	34%
অ	69%	ঢ়	35%
ক	74%	ঢ	35%

Grade 2

Easiest letters	Correct identification	Difficult letters	Correct identification
আ	86%	ঃ	44%
ল	84%	ঋ	52%
প	84%	ং	50%
ই	86%	ৎ	49%
ক	88%	ঢ়	52%

Literal Comprehension - Grade1 Children		
No. of questions answered correctly	**Frequency**	**Percent (%)**
0	10	10
1	15	15
2	18	17
3	16	16
4	26	25
5	15	15
6	3	3
Total	103	100
Literal Comprehension – Grade 2 Children		
No. of questions answered correctly	**Frequency**	**Percent (%)**
0	71	21.19
1	73	21.79
2	74	22.09
3	58	17.31
4	43	12.84
5	15	4.48
6	1	0.3
Total	335	100
Literal Comprehension - Grade 3 Children		
No. of questions answered correctly	**Frequency**	**Percent (%)**
0	359	55
1	116	18
2	76	12
3	45	7
4	31	5
5	14	2
6	7	1
Total	648	100