## RESEARCH REPORT

## Bangla Reading Fluency: © Way Out to Improve the Situation



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# BANGLA READING FLUENCY: A WAY OUT TO IMPROVE THE SITUATION 

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## Introduction

The entrance to information on a global scale is reading. A student learns to read before reading to learn. A reader has a wonderful chance to learn about the world. Reading involves more than just decoding the text; it also involves comprehension and reading aloud with an acceptable rate, decoding words correctly, recognizing words, phrases, and sentences as coherent, meaningful units (Johnson, 2017), and reading words without stretching or slicing them into separate sounds (Anthony, 2023). This capacity to read quickly, accurately, and with appropriate expression is known as reading fluency. According to Anthony (2023), "fluency is the reader's ability to read with accuracy, automaticity, appropriate phrasing, and intonation." Students must be able to read fluently, whether they are reading loudly or silently, to comprehend what they read (Plessis, 2022). The three fundamental components of reading fluency are the concept of print, phonemic awareness, and vocabulary (Dixon, 2018).

The standard for Bangla reading fluency was set at 46 correct words per minute for grade III (Alam et al., 2021). According to research, third-grade children's reading fluency was 48 words per minute, with significant achievement variance among the pupils (Roy et al., 2019). Education professionals are now worried about Bangladeshi elementary school children's fluency in reading Bangla. Policymakers are now interested in the situation to increase the primary students' ability to read Bangla fluently.

The researcher gains knowledge about the level of reading fluency among Bangladeshi third graders as well as methods for increasing the pupils' levels of fluency through this study. The researchers in this study have prepared several sets of texts with the assistance of primary school teachers. Two sets of imaginative and informative passages were developed after the piloting and distributed to grade three pupils to assess their level of reading fluency. Following the primary analysis of the quantitative data from the first stage of data collection, the researcher gathers qualitative data from classroom teachers through interview scheduled and by observing them teach in Bangla.

Numerous studies have shown that reading fluency is necessary for the development of comprehension and reader motivation. It is believed to act as a transitional tool between early and advanced reading (Felton, 2022). Reading fluency is crucial because students need to be motivated to read and develop the habit of reading for academic purposes. This study will be crucial in determining the true level of reading fluency among Bangladeshi pupils in grade three and in offering solutions to the problem.

## Rationale of the Study

Comprehension is one of the major components of reading skills. Comprehension is a fundamental reading skill that youngsters acquire when they learn to sound out words and identify sight words (Hollowell, 2023). Although the development of fluency and reading comprehension skills may appear to be two distinct language skill types, research indicates that they are interconnected(Voyager Sopris Learning, 2022) A pupil can read with appropriate expression and prosody if they can understand the content. As stated by Voyager Sopris Learning, 2022, proficient readers will have an easier time deciphering difficult words and comprehending complex subjects.

However, primary school students in Bangladesh do not have a satisfactory level of reading comprehension. According to research by World Vision, 54 percent of third-grade pupils do not comprehend what they read, and the reading fluency rate is also quite low(The Daily Star, 2018). Different research by the National Academy for Primary Education found that 6 percent of class three kids are completely unable to read and 73 percent of them struggle to read in Bangla (Roy, et al., 2019). Which is a significant challenge to meet the competency requirements of the national curriculum. Moreover, a study conducted by Alam et al. (2020) recommended a baseline study to identify the present situation of students' reading fluency of Grade 3 and suggested year-wise situation analysis for measuring students' reading fluency level.

Despite the fact that many things are being done to change the situation. However, policymakers want to take more action to raise the fluency level of primary students. Nevertheless, there is a sizable knowledge gap in this area. There are not enough insights on the issues, nor are there enough details about solutions. Therefore, it is of the utmost significance that this study pinpoints the issues causing the students' poor performance in this area and try to offer appropriate recommendations for how to move forward.

## Objectives of the study

The aim of the study was to identify the factors that impact students' Bangla reading fluency skills which lead to a way forward to improve the current situation at the primary level of Bangladesh. To meet the target, this study tried to find out the answer to the following research questions-

- What is the present status of Bangla reading fluency at grade 3?
- What are the factors that have an impact on Bangla reading fluency in grade 3 ?
- What actions need to be taken to improve the situation?


## Literature Review

## Reading and aspects of reading

The act of reviewing a set of written symbols and extracting meaning from them is referred to as "reading" (English Club, 2023). It is the most fundamental element of language. A proficient reader can read at the right rate, comprehend what the text is trying to express, and extract information from it. As readers gradually learn that meaning is frequently more complex than a single word, sentence, or even paragraph, their reading abilities get better with time. In the end, readers develop their ability to make associations and read between the lines (Tánczikné, 2017).

Decoding or pronouncing the text is the initial step in learning to read (Hollowell, 2023). Decoding is therefore important for learning to read. When kids are aware that each letter of the alphabet stands for a certain sound, they can decode it. The following phase is teaching children how to decipher printed words, separate each sound into its own entity, and then assemble those independent elements to read the word (Hollowell, 2023).

The second, particularly important for reading ability, is vocabulary knowledge. Simply explained, vocabulary is the collection of all words. This includes a wide range of other keywords in addition to sight words and frequently used words (Johnson, 2017). With each book they read, good readers expand their vocabulary, and they can recall these terms when they are used again. They begin by studying sight words as their first task (Hollowell, 2023).

A student who reads for academic purposes needs to comprehend the text's meaning. Understanding the material is necessary for reading with improved expression and maintaining a steady pace. It is the major reading skill component to understand the text while a child can sound out the written text and identify the word's meaning (Hollowell, 2023).

## Reading fluency

Another consideration is reading fluency. Fluency in reading refers to the capacity for rapid, accurate, and appropriate reading. Students must be able to read fluently to comprehend what they read, whether they are reading aloud or in private (Plessis, 2022). A fluent readers can read more quickly, accurately, and expressively because they are automatic readers. They can also recognize words with ease. Reading will go more swiftly for fluent readers because they won't have to spend as much time decoding words. They might also use context cues to detect unknown words. Fluency in reading refers to the ability to comprehend what is read, which is most apparent when reading aloud (Hollowell, 2022). Reading aloud with ease and emotion is one of the most
impressive traits of a fluent reader (Reading Rockets, 2023). Fluent readers read as though they were speaking naturally because they are automated readers (Armbruster, Lehr, \& Osborn, 2002).

## Fluency Scale

The act of reading can be achieved with varying degrees of fluency. As early-grade readers develop their skills, they will face a range of fluency levels. To effectively support their students, a teacher must be aware of each student's current level and offer guidance, observation, and feedback accordingly. The National Assessment of Educational Progress Fluency Scale(Hasbrouk, 2008) outlines four levels of fluency.

Table 2.1: National Assessment of Educational Progress Fluency Scale

| Fluent | Level 4 | A reader can primarily read in larger, meaningful phrase groups, with only <br> occasional regressions, repetitions, or deviations from the text |
| :---: | :---: | :---: |
| Fluent | Level 3 | Readers can primarily read in three- or four-word phrase groups, with some <br> small groups present, but mostly appropriate phrasing that preserves the <br> author's syntax. |
| Non- <br> Fluent | Level 2 | Readers can primarily read in two-word phrases, with some three- or four- <br> word groupings, and occasional word-by-word reading. |
| Non- <br> Fluent | Level 1 | Reader primarily reads word-by-word, with infrequent or nonsensical two- <br> word or three-word phrases. |

## Factors influence reading fluency

A reader becomes a fluent reader with some background skills. These skills like the concept of print, phonemic awareness, vocabulary are the main factors behind reading fluency. The kid has the best opportunity of being able to grasp what they read, to learn from reading, and to learn about reading when all the components of fluent reading come together (Dixon, 2018). The two most effective cognitive elements are vocabulary and past knowledge (Kinneret Misgav, 2023).

## Concept of print

Reading means the recognition of words from a written text. Word recognition is the skill of being able to instantaneously recognize full words by sight without having to sound them out (Plessis, 2022). So, before reading a reader must know about the written form of language. this written form is a printed version of the language. Reading starts from the pre-reading activities. "Print awareness (also called concepts of print) is the understanding that print carries meaning, that books contain letters and words" (Reading Rockets, 2023). At the beginning of the learning to read stage children pick up print concepts via listening to people read to them and from looking at books before they can read (Hollowell, 2023). The first reading instruction a youngster receives is in
print awareness. Children who are aware of print comprehend that print has various purposes depending on the context in which it appears (Reading Rockets, 2023).

## Phonemic awareness

The capacity to hear, recognize, and manipulate the component sounds that makeup words is known as phonemic awareness (ladev, 2021). It is the strategy where a reader makes the connection between sounds and letters. It requires phonological and phonemic awareness abilities (Hollowell, 2021). Children need to understand how the sounds in words function before they can learn to read print. They must realize that phonemes, or discrete speech sounds, are the building blocks of words. A child's ability for phonological and phonemic awareness is a reliable indicator of how well or poorly they will read later (Reading Rockets, 2023). There is a regular relationship between phonemes, or the sounds of the spoken language, and graphemes, or the written letters and spellings that correspond to those sounds (Johnson, 2017). Phonemic awareness is important because it develops students' word reading, comprehension and helps students learn to spell (Armbruster, Lehr, \& Osborn, 2002). Students learn to read and spell words accurately and quickly through phonics education, which incorporates repetition and activities to reinforce previously learned letters and sounds (Rognlie, 2017).

## Vocabulary

The words we need to know to communicate successfully are referred to as our vocabulary(Reading Rockets, 2023). Learning vocabulary is crucial to learning to read with understanding and with proper stress and intonation. To understand the words they read in print, beginning readers must employ the words they hear orally. Children who hear more words spoken at home pick up more words and have larger word vocabularies when they start school(Reading Rockets, 2023). In books, sight words are commonly employed and visible. They typically need to be memorized because they can't be heard out phonetically(Hollowell, 2021). The vocabulary is familiar to readers. It is simpler to understand the material if the reader has a bigger vocabulary(Johnson, 2017). There are four different categories of vocabulary. These are Listening, speaking, reading, and writing vocabulary. A child's reading vocabulary consists of words that he can decode or words that he recognizes when he reads them (Rognlie, 2017).

## Comprehension

The focus of more fluent readers is on making connections between the ideas presented in a text and their past knowledge. They can focus exclusively on comprehending because of this (Armbruster, Lehr, \& Osborn, 2002). Prereading instruction, during reading instruction, and postreading instruction are all parts of comprehension instruction and involvement (Johnson, 2017).

Reading comprehension depends on some cognitive factors. Like Vocabulary, Fluency, Active Reading, Critical Thinking, and Prior Knowledge. Students use their prior knowledge to make connections between what they already know and the content they are reading to better understand what they are reading (Hart, 2023).

## How to develop reading fluency

The final objective of reading is reading comprehension, which is a foundational skill of language. Therefore, the reader must read at the appropriate pace. accuracy, phrasing, and comprehension. There are numerous strategies, tactics, techniques, and approaches that can be used to increase pupil reading fluency.

## Instructional Strategies for fluency development

There are two main fluency-related instructional strategies that have been investigated by research. In the first method, known as repeated and supervised oral reading (often referred to as "repeated reading"), students read aloud passages numerous times while getting feedback and direction from the teacher. The second method, known as independent silent reading, pushes children to read widely on their own (Armbruster, Lehr, \& Osborn, 2002). So, a teacher has to provide models of fluent reading so that students can practice reading the passages with proper fluency. Schools or teachers can ensure books to read independently. Reading programs provide an emphasis on fluency using exercises like echo and choral reading, which give pupils a chance to enhance their reading abilities and model fluency after the teacher (Hollowell, 2021).

## Activities for Repeated Oral Reading Practice

## Student-adult reading

Reading aloud to an adult who serves as an example of fluent reading, assists with word recognition, and offers feedback is known as student-adult reading (Armbruster, Lehr, \& Osborn, 2002) The Bangla Teacher's Guide recommended giving the students examples of reading to follow. Following the teacher's model reading, the students take turns reading aloud. The teacher listens to each student's reading, identifies any issues, and offers feedback on how to overcome them (NCTB, 2023).

## Choral reading

Choral reading is when a group of people read aloud at the same time (Armbruster, Lehr, \& Osborn, 2002). Choral reading is modeled by choir members, who also provide less able kids a chance to practice before reading independently (Harlow, 2021).In choral reading, the teacher reads aloud to the class as the students copy their pace. This gives the pupils the benefit of a model
while they practice reading aloud. The instructor may pause at any point to answer queries, offer commentary on the text, go over a word in the vocabulary, or remind the class that s/he wants them to be reading (Hasbrouk, 2008). Choral reading is a key practice recommended by teachers for poem recitation. Students will recite aloud in front of the class after the teachers' model recitation (NCTB, 2023). If instruction is required, the teacher will give it, and they will receive feedback for improving their fluency.

## Cloze reading

Cloze reading involves the teacher reading aloud most of the passages while the pupils follow along in silence. The students' task is to read it aloud as a class when the teacher leaves out an essential vocabulary or topic word, not a basic sight word, once or twice every few phrases (Hasbrouk, 2008).

## Tape-assisted reading

which involves reading aloud in conjunction with or as an echo of an audio-taped model (Armbruster, Lehr, \& Osborn, 2002).

## Partner reading

which entails reading aloud with a partner who is more fluent than you are (or with a partner of similar ability) and who can serve as an example of fluent reading, assist with word recognition, and offer feedback (Armbruster, Lehr, \& Osborn, 2002).

## Readers' theater

is the practice and presentation of a dialogue-rich script from a book in front of an audience (Armbruster, Lehr, \& Osborn, 2002). By aiding kids in remembering what happened, dramatic play retelling of the event enhances reading comprehension. As the story develops, characters and themes teach children about narrative structure, enhancing play with literacy (Harlow, 2021).

## Phonemic awareness

Children are developing phonemic skills when they can hear a word and isolate the sounds. Phonemic awareness is addressed in reading programs through rhyming exercises and the creation of new words by removing or substituting phonemes (Hollowell, 2021).

Children can demonstrate their phonemic awareness in several ways, such as: Identifying the words that share the same first consonant ("Bell, bike, and boy all have /b/ at the beginning.") (Armbruster, Lehr, \& Osborn, 2002).A game for letter recognition is included in the guides for teachers of Bangla. The teacher will give some words that begin with a certain letter during this game. Students will raise their hands if the word begins with a specific letter, and they will not
raise their hands if the teacher says the word begins with a different letter (NCTB, 2023). This method allows the teacher to rehearse each letter. Children who have strong phonemic awareness abilities are likely to learn to read and spell more quickly than those who have weak or no phonemic awareness abilities (Armbruster, Lehr, \& Osborn, 2002).

## Vocabulary instruction

In explicit instruction, teachers use vocabulary lists and provide clear instructions on the meaning and usage of each term. When children can determine the meanings of words by examining context cues from visuals or other words in the same sentence or paragraph, implicit instruction happens while reading (Hollowell, 2021). Most vocabulary is learned indirectly, some words should be taught directly. (Armbruster, Lehr, \& Osborn, 2002). Direct instruction aids children in learning challenging vocabulary, including those that reflect complicated ideas. Direct instruction includes:

- providing students with specific word instruction; and
- teaching students word-learning strategies (Armbruster, Lehr, \& Osborn, 2002)


## How to give specific word instruction

- Before students read a text, it is helpful to teach them specific words they will see in the text.
- Children learn words best when they are provided with instruction over an extended period and when that instruction has them work actively with the words.
- Students learn new words better when they are using them often and in various contexts (Armbruster, Lehr, \& Osborn, 2002).


## Teaching students word-learning strategies

- Teach how to use word-part information to determine the meanings of words in the text.
- Teach how to use dictionaries and other reference tools to learn word meanings and increase knowledge of word meanings; and
- Teach how to determine word meanings using context clues (Armbruster, Lehr, \& Osborn, 2002).


## Word game

Children can concentrate on comprehending their reading rather than decoding unfamiliar words if they are taught to distinguish high-frequency and sight words. Gameplay suggestions from Primary Concepts include Word Bingo. A word is called out by the teacher. If a player has the word, a counter is added to the Word Bingo board. The winner is the first person to mark five words in a row or column. Word walls and music can both be used to teach high-frequency and sight words (Harlow, 2021).

## Text comprehension instructions

A learner will be able to comprehend a story if they can decode words, comprehend their meanings, and read quickly. Questions that require readers to name fundamental tale elements like characters, environment, and plot can be used to gauge comprehension (Hollowell, 2021). By teaching readers how to employ specific comprehension tactics, text comprehension can be increased. Good readers adopt intentional plans-sets of actions-called comprehension strategies. The techniques listed below appear to have a strong scientific foundation for enhancing text comprehension (Armbruster, Lehr, \& Osborn, 2002).

## 1. Monitoring comprehension

Students with high comprehension monitoring skills are aware of when they have understood what they have read and when they have not (Armbruster, Lehr, \& Osborn, 2002).

## 2. Using graphic and semantic organizers

Using diagrams or other visual aids, graphic organizers help students understand the concepts and how they relate to one another in a text. The following are some benefits of using graphic organizers with students: 1 . Give students resources to analyze and visualize relationships in a text. 2. Assist students in creating well-structured summaries of texts (Armbruster, Lehr, \& Osborn, 2002).

## 3. Answering questions

According to research, teachers' probing questions help children learn from reading more effectively. Students who receive education on how to better answer questions are more likely to learn more as they read (Armbruster, Lehr, \& Osborn, 2002).

## 4. Generating questions.

It is better for pupils' active reading comprehension and text processing when they are taught to ask their own questions. Students can assess their understanding of the material they are reading and their ability to respond to questions by creating them (Armbruster, Lehr, \& Osborn, 2002).

## 5. Recognizing story structure.

The organization of a story's events and content into a plot is referred to as the story structure. Students who can identify story structure are more likely to enjoy, comprehend, and remember stories (Armbruster, Lehr, \& Osborn, 2002).

## 6. Summarizing.

A summary is a compilation of a text's key points. When summarizing, students must decide what information in the text is crucial, then distill it and put it in their own words (Armbruster, Lehr, \& Osborn, 2002).

## 7. Making use of prior knowledge

To increase their comprehension, you can assist your pupils in making use of their existing knowledge. Ask the students when previewing what they already know about the selection's subject matter (such as the topic, concept, or historical era). Discuss the text's key words and phrases. To help pupils prepare for what they are about to read, show them some drawings or diagrams (Armbruster, Lehr, \& Osborn, 2002).

## 8. Using mental imagery

Encourage your students to develop mental pictures of the text they are reading. Encourage them to see a scene, a character, or an event as it is described in the text, for instance (Armbruster, Lehr, \& Osborn, 2002).

## Early graders reading development strategy.

Large-format books can be used in the classroom by the teacher to read aloud to the kids so they can follow along at an acceptable pace and with good phrasing, intonation, and expression. (Hasbrouk, 2008).

## Improving struggling readers' fluency

It is a research-based method to develop the reading fluency of struggling readers. In this method activities will be completed in some steps. According to (Hasbrouk, 2008), there is a step-by-step procedure to assist struggling readers to improve their fluency, and it is as follows:

In Step one students will select a passage from their level. After selecting the passage, they read the passage and the teacher calculated cwpm (Correct Word Per Minute).

In Step two students will read the same passage three to four times along with a model reading of a trained person or an audio. In this stage, students are not just listening, but they are read aloud (softly) with full attention to the text. The teacher will be encouraging them to point out
information from the text that they have to answer some comprehension questions after finishing the task.

In Step three students will read aloud independently and calculate the Correct word per minute. They must read until they happily reach their targeted rate.

In the final step, students will read for the teacher. The teacher will calculate the cwpm. Students will pass if they fulfill the following four criteria. A. the cwpm score meets the targeted rate. B. Errors are below three. C. students read the passage with the correct phrasing and attention to punctuation. And D. students can answer some comprehension questions after reading the text.

If students do not pass, they must practice the same text. If they pass, then they will practice 10 12 passages in this method. Teachers will do these activities 20 minutes per day and three to four days per week, which can make a significant change in students' reading fluency.

## Assessment of reading for fluency development

Evaluation is essential for the development of reading fluency. According to the booklet of (Save the Children, 2016), there are two ways to evaluate a student's strengths and weaknesses and provide them with the proper feedback. Formative assessment comes in two flavors: formal and informal. In a formal formative evaluation, a teacher evaluates the students' reading abilities using predetermined Items.

Aspects of reading fluency that teachers informally evaluate students on during classroom activities include phonemic awareness, letter knowledge, vocabulary, fluency, and comprehension is an informal formative assessment (Save the Children, 2016).

The following tactics can be used by teachers for informal formative evaluation.

- After hearing the letters, words, sentences, paragraph, or story, ask to talk or speak about it.
- To have a letter, word, sentence, paragraph, or story read to you.
- asking easy questions.
- After speaking, reading, or answering a question, the teacher will identify any difficulties and provide feedback based on the pattern of those difficulties.


## How to calculate fluency

Fluency is the speed at which a student can read aloud and the fluidity of the reading. Fluid readers can pay more attention to grasping the meaning of what is being read and pay less attention to decoding or sounding out words (Huson, 2021). A teacher needs to be aware of the student's fluency levels to help them develop it. Therefore, teachers need to assess their students' fluency
levels. (Huson, 2021) suggests that a teacher could assess the fluency rate by using the steps listed below.

Words read correctly per minute divided by the total number of words read in a minute.

- No matter the students' learning levels, choose two or three concise passages from a gradelevel basal text or other grade-level content.
- Each passage should be read aloud by a different student for exactly one minute.
- Total the words that each student read for each passage. Calculate the typical words read per minute.
- Keep track of how many mistakes each text contained. Calculate the typical error rate per minute.
- Deduct the typical total number of words read per minute from the typical number of mistakes read per minute. The average number of words correctly per minute (cwpm) is the outcome.
- Several times a year, repeat the process. Students' reading progress can be easily captured by graphing their cwpm over the course of the year (Armbruster, Lehr, \& Osborn, 2002).
- Teachers use probing questions to determine how well a student has absorbed the material they have just decoded to determine comprehension (Huson, 2021).


## Reading-friendly classroom Environment

The development of reading fluency is emphasized in reading-friendly teaching environments. These settings provide reading resources, opportunities for language development, and cordial teacher-student relationships.

If we imagine a classroom where everything is labeled with words and pictures such that children are continually making connections between written language and the things it stands for. To support students with disabilities in the classroom, teachers show these labels based on the needs and interests of their students (Dorrell, 2002). Students can observe how words are used frequently by looking at calendars, timetables, signs, and directions. This teaching environment is excellent for improving reading fluency (The Access Center, 2007). These classroom situations are incredibly beneficial for getting every kid in the group involved in the teaching and learning process, particularly the process of developing reading skills.

## 1. Labeling the materials

Labeling is one aspect of a print-rich classroom. Labeling promotes independent learning and creates a comfortable environment for children (Cruser, 2012). If you want to be labeling the materials in a classroom, you must abide by a set of rules, says (John Cruser, 2012).

- Correctly use both capital and lowercase letters; only proper names start with capital letters.
- The words are legibly printed or typed.
- All words have the proper spelling.
- A label's letters are all the same size, type, and color.


## 2. Book Corner

A print-rich environment is crucial for the growth of kids' reading and writing abilities. Some leveled books could be kept in a basket or hung up on the classroom wall with a colorful bag. (Save the Children, 2016). Book areas, displays, libraries, and outdoor reading areas-can play a big role in motivating kids to read and enjoyment of independent reading(Gray, 2017). Book corner activity may be fruitful by incorporating this activity into the daily routine.

## 3. Role of teachers in literacy-rich Environments

To assist students, remember and generalize new concepts and skills, teachers employ a few communication strategies, including questioning, labeling things, and experiences with new vocabulary, and providing practice (Whitehurst, 2003). According to Gunn, Simmons, and Kameenui (1995), teaching staff design activities that give students "opportunities to integrate and extend their literacy knowledge by reading aloud, listening to other students read aloud, and listening to tape recordings and videotapes in reading corners."

## Methodology

This section includes the nature of the study, population, sample and sampling procedure, data collection tools and analysis method.

## Study Design

This study followed a mixed methods approach specifically the explanatory sequential design. The integration in an explanatory sequential design is intended to connect the quantitative and qualitative phases of the study so that the subsequent qualitative phase provides a strong explanation for specific results from the initial quantitative phase (Creswell \& Clark, 2018). The researcher collects and analyzes quantitative data first, then collects and analyzes qualitative data in connection with the quantitative results, and finally, uses both results to find the answers to research questions.


Figure 3. 1: Explanatory sequential design (Cresswell \& Clark, 2011)
This study followed the most usable approach for measuring reading fluency by statistically determining the fluency level at which students can read with comprehension (Jukes, Cummiskey, \& Gargano, 2018). The ability to answer comprehension questions after reading a text is referred to as 'reading with understanding'. This method of measuring fluency is based on the premise that reading fluently is a prerequisite for reading with comprehension and that there is a strong relationship between fluency and comprehension (Jukes et.al., 2018).

## Strategies for Phase 1

Phase 1 was mainly focused on quantitative data collection and analysis which lead to determining the selection of samples and instruments for phase 2 . The first phase comprises sampling techniques and sample selection, text development for the reading fluency test, piloting and finalizing the test tools, selecting and training the research associates for data collection, data collection, data entry and data analysis process. Details of all the steps are as follows:

The census for phase-1 was all Government Primary Schools (GPS) in Bangladesh. This study covered all divisions and considered six different types of regions and gender issues as well. The populations of the study for phase1 were:

Table 3. 1: Population of the study

| Grade | Boys | Girls | Total number of Students |
| :---: | :---: | :---: | :---: |
| Grade 3 | $1,708,300$ | $1,648,752$ | $3,357,052$ |

[Source: (MoPME, 2022)]
A multistage cluster sampling strategy was used to select the required number of students from grade 3. As the population size is large (greater than 20,000), the following formula was used to determine the statistically representative sample size:

Sample size $=\frac{\mathrm{Z}^{2} \times \mathrm{P}(1-\mathrm{P})}{\mathrm{e}^{2}}$ .(Cochran, 1963)
[Here, $\mathrm{Z}=1.96$ (for $95 \%$ confidence level), $\mathrm{e}=0.05, \mathrm{P}=0.5$ ]

By solving the above equation sample size was found to be 384 . To avoid risk, the required sample size was determined as 400 for this study. To select a representative sample from each of the six locations, the total sample size was then, $400 \times 6=2400$. Finally, a total of 2389 students were traced for data collection. The sampling design was as follows:


Figure 1: Sampling design

- All eight administrative divisions were covered in this study.
- From the divisions, considering the six different regions-Metropolitan cities, Rural area (rural areas are selected from plainland), Char area, Coastal area, Haor area and Hill tracts) a total of 12 districts were selected purposively.
- A total of 24 upazilas were selected, 2 upazilas from each district using purposive sampling techniques considering the location type.
- From each upazila, 5 schools were selected by simple random sampling (SRS) techniques and thus, a total of 120 Government Primary Schools (GPS) were selected.
- From each school, 20 students were selected by systematic random sampling and thus, a total of 2400 students were selected for data collection where girls and boys were selected equally.

Table 1: Sample distribution at a glance

| Division | District | Upazila | No. of Schools | Students <br> (Grade 3) |  | Total <br> Students |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Girls | Boys |  |  |
| 8 | $2 \times 6=12$ | $2 \times 12=24$ | $5 \times 24=120$ | $10 \times 120$ <br> $=1200$ | $10 \times 120$ <br> $=1200$ | $1200+1200$ <br> $=2400$ |
| Purposive Sampling | Simple Random <br> Sampling | Systematic Random <br> Sampling |  |  |  |  |

The researchers chose to develop two different types of texts for the reading fluency testimaginative text and informative text. Researchers examine the Bangla textbook for third graders and establish a text development guideline based on the textbook's topics, employment of punctuation symbols, text and sentence length, and word length.

## Workshop on texts development

A guideline for developing the texts devised by the research team before the workshop. For the development of the text, the following text development guideline issues were discussed which are as- the number of words in a sentence, number of conjunct letters, number of words in the text, standard of the aptness of text for Grade III, nature of texts (imaginative and informative), the difficulty level of text, consideration of religious and social aptness, and text writer etc. Following the guidelines, the research team arranged a two-days workshop at NAPE intending to develop different types of texts for this study. The texts were developed by real practitioners, who were experts in developing texts and they were classroom teachers and came from 07 different GPSs in Bangladesh.

## Text Development process

At first, the teachers developed 28 texts (14 Imaginative and 14 Informative) along with 6 to 8 questions based on knowledge, understanding and inferential for each of the Grade 3.

Researchers examine the raw texts created by the classroom teacher in the workshop. Next, they finalize the raw text by adhering to the guidelines and standards for text development. Once a final version of both imaginative and informative text is produced, the researchers develop an assessment tool to assess students' reading fluency. This tool contains eight imaginative texts and eight informative texts.

Table 3. 2: Text Development Guideline

| Criteria | Descriptions |
| :---: | :---: |
| Punctuation marks | The full stop (Darhi), comma and question marks |
| Use of joint letters (Juktobornor) | - One joint letter in a word <br> - Use joint letters from the textbook. <br> - Use High-Frequency joint letters used in the textbook. <br> - Use clear joint letters. |
| Difficulty level of words | - Same as textbook <br> - No word further than the class level textbook and previous class textbook |
| Letters in a word | - 3-4 letters word should be 50-70 percent. <br> - The highest number of letters in the word should five |
| Words in a passage | Passage developed between 130 to 150 words |
| The subject matter of the passage | Students' familiar topics and like textbooks of grade three |
| Types of passage | Informative and Imaginative |
| Nonsense word | Use 4-5 letters nonsense words |

Table 3. 3: Fluency Measuring Tool's Structure

| Criteria | Description |
| :---: | :--- |
| Passage type | Informative and Imaginative |
| Nonsense word | Use 4-5 letters nonsense words |
| Comprehension question | Five follow-up questions for each text. |
| Tools Design | Print on one side of A4 size paper and font size 16 |

## Instruction for Data Collectors

To apply the assessment tools in the field an instructional guideline was prepared-

- Avoid interfering with schools' natural setup as much as you can.
- Let the students know how you plan to approach the reading fluency test.
- Five comprehension questions will follow the reading of an informative text by the student.
- Provide them with an imaginative text from the same set to read and ask five comprehension questions in a similar manner.
- One by one, switch out the tools.
- Mark "]" (third bracket) for 180-second reading point identification.
- If someone cannot complete the full text in 180 seconds, give them the chance to do so.
- Write down how many seconds it took someone to finish the passage if they did it before 180 seconds had passed.
- shortly after the students finished reading the passage, ask the following question.
- Ask them comprehension questions from the part of the section of text they just finished reading if anyone can't finish it.


## Piloting and Finalization of Tools

The final drafted tools (consisting of eight imaginative and eight informative texts) were used to collect piloting data from four government primary schools in the Mymensingh district. After analyzing the piloting data, two sets of texts (two informative and two imaginative) were selected for the final reading fluency test. The researcher finalizes the four selected texts (two informative and two imaginative) according to the piloting data analysis results and text development guidelines.

## Data Collection Process

This study has been carried out in the government primary school of Bangladesh. The field of this study was fixed by six different regions or areas. For selecting the areas, the envisaged were Char area, Coastal area, Haor area, Rural area (the rural area was selected from plainland), Hilly area, and Metropolitan city. All eight divisions were also covered during the selection of districts. Finally, with the coordination of a statistician, the team selected 12 districts throughout the country. From each district, the team selected 2 upazilas and from each upazilas, they selected 5 primary schools.

## Selection of Research Associate

A total number of 24 field level Research Associates had been selected from different Primary Teachers Training Institutes (PTIs) to collect the primary data from the selected government primary schools.

## Training for Researchers Associate

Before going to collect the data from the field, the research team arranged a 2 days long virtual workshop via zoom. In this workshop, there were 24 field-level researchers from PTIs and

URCsand 12 from NAPE research team members. In the workshop research methodology, data collection guideline, tools administration by using the guideline, and data entry process in the Kobo toolbox was oriented to them. These trained enumerators collected data from the field and submitted those data through Kobotoolbox.

## Time of Data Collection

The data were collected from sampled GPS from November 16 to December 8, 2022. Two research associates were deployed in each district to collect data. To supervise the data collection process, one member of the research team in each district was also employed.

## Data Entry

After collecting data from the field, data entry was done in KoboToolboxboth offline and online. The members of the research team enter data in the KoboToolbox template. When completed the entry, the data was then cleaned and coded for analysis.

## Quantitative Data Analysis

The collected data was analyzed through quantitative data analysis procedures. According to Jukes et. al. (2018), four different kinds of statistical method was widely used for assessing reading fluency like the mean method, the median method, the linear regression method, and the logistic regression method. In this study, the median method was used as it is easy to use for measuring reading fluency. Also, this method was used in various countries for measuring reading fluency benchmarks.

SPSS (Statistical Package for Social Sciences), Jamovi, JSP software was used to analyze the cleaned data. MS Excel was used for preparing data visualization charts, graphs, etc. To satisfy the purposes of the research, various types of analysis were done which are as follows:

- Frequency, Percentages
- The measure of central tendency- mean, standard deviation
- Data conversion- Z-score or normalization, measuring weighted value
- Significance Test- T-test, ANOVA (Analysis of Variance)
- Correlation

For data presentations, several approaches were used which are as follows:

- Frequency tables, Cross tables
- Pie chart, Bar chart, customized combo chart
- Boxplots


## Strategies for Phase 2

Following the first phase of data collection, researchers discover certain schools where students did well in fluency tests, while other schools witnessed poorer performance. To discern the reasons behind students' achievements, researchers compile qualitative data from the best and lowestperforming schools.

## Selection of respondents

Based on the academic achievements of the students, five schools with the highest performance and five schools with the lowest performance were chosen for collecting qualitative data. After selection, the Bangla teacher of grade 3 from each school was selected for an in-depth interview. For each of

## Tools development

Based on the quantitative data, researchers attempted to deeply understand several aspects that may have an impact on students' reading fluency. so that they develop an interview schedule for the grade 3 Bangla teacher.

The researcher additionally develops a tool for classroom teaching observation in Bangla to triangulate data and determine the teaching strategies of best-performing and worst-performing schools.

## Data collection

Members of the research team visited the selected school to observe the classroom teaching methods used by the Bangla teachers, as well as their strengths and areas for improvement. Following the classroom observation was over, the researchers conducted a thorough interview with the teachers.

## Qualitative Data Analysis

Qualitative data collected in phase 2 was analysed by following Braun \& Clarke's (2006) thematic analysis approach at a semantic level. Figure 3.2 shows the thematic analysis process following the approach.


Figure 3.2: Braun and Clarke's thematic analysis process

## Coding

In qualitative data presentation, to protect privacy and confidentiality interviewed teachers and observed classrooms are given code by following the below table:

Table 3.2: Coding for qualitative data

|  | Teacher Interview Code | Classroom Observation Code |
| :---: | :---: | :---: |
| Code | $\mathrm{TI}^{10}-\mathrm{TI}^{88}$ | $\mathrm{CO}^{01}-\mathrm{CO}^{08}$ |

## Ethical Consideration

To conduct this study the researchers followed some ethical issues:

- Researchers first explained the purpose of this study to the respondents to collect data. Respondents were assured that the data would only be used for academic research purpose and that their identity would be kept confidential. During data collection, the researchers have taken consent from every school for collecting data.
- Respondents were informed about the purpose of the study. Consent was obtained from the participants.
- Researchers took special care to respect the privacy, confidentiality and cultural sensitivities of the participants and their related institutes.
- Researchers conducted interviews in the Bengali language. The researchers understood all respondents' languages. All data were collected in Bengali and translated by the researchers into English for coding and generating themes.
- During the literature review, researchers gave more attention to avoiding plagiarism. The researcher used direct quoting or paraphrasing or summarizing to use documents used in text and text citations.


## Data Presentation (Quantitative Phase)



Figure 4. 1: Hitmap of data collection areas

## Fluency status of grade $\mathbf{3}$ students



Figure 4. 2: Proportion of respondents regarding fluent and non-fluent reader
There were 2389 respondents in all, of whom, according to the reading fluency test, $78 \%$ of respondents were fluent in reading whereas $22 \%$ were revealed as non-fluent.


Figure 4. 3: Proportion of fluent and non-fluent readers according to gender

Among the respondents, $48.6 \%$ were boys and $51.4 \%$ were girls. Among the fluent readers, more than half of them are girls $(54.3 \%)$ and the rests were boys. Thus, the proportion of non-fluent readers was larger for boys than that of girls.


Figure 4. 4: Proportion of fluent and non-fluent readers according to location
Figure 4.4 reveals that the highest $94.8 \%$ of fluent readers were found in the hill tracts area and the second-closest proportion of fluent readers came from the Metropolitan cities ( $92 \%$ ). Besides, $60.9 \%$ and $63.3 \%$ of fluent readers came from the char and haor areas respectively which are the lowest proportions among the six areas. This indicates that a larger number of children in the metropolitan city and Hill areas read fluently, while this number is considerably less in the char and haor areas.

## Status of non-fluent readers regarding background variables

This section illustrated the status of non-fluent readers according to various background variables which are as- parental education and occupation,

## Parental education of non-fluent readers



Figure 4. 5: Parental educational qualification of non-fluent readers

It is clearly evident that a significant number (about 40\%) of non-fluent readers were not concerned about their parental education. Moreover, a noticeable trend found that the fewer their parents are the educated proportion of non-fluent readers increased. A considerable proportion of their parents were either illiterate or grade 5 completers.

## Parental occupation of non-fluent readers



Figure 4. 6: Parental occupation status of non-fluent readers
Most of the non-fluent readers have mothers who were housewives ( $90 \%$ ). There are none whose mothers were government employees. Only a few non-fluent readers' mothers were engaged in private services. On the other hand, the majority of the fathers of non-fluent readers were engaged in labour work or a daily/weekly basis labourer. There were some non-fluent students found whose fathers were engaged in business.

## Reading fluency test results for fluent readers

## Informative and Imaginative Texts

To perform fluency tests, researchers employ two sets of tools. Two sets of texts were equally applied in each school. Ten students read set one, while another ten students read set two. Each pupil received a different set of tools in turn. Set- 1 consisted of an imaginative and informative text which are "Neelpakhi" and "Gollachhut" whereas, set-2 consisted of "Dimgachh" and "Neelgiri" respectively.

Table 4. 1: Respondents distribution according to the text type

|  | Imaginative <br> text | $\mathbf{f}$ | $\boldsymbol{\%}$ | Informative <br> text | $\mathbf{f}$ | $\boldsymbol{\%}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Set-1 | Neelpakhi | 952 | $51.0 \%$ | Gollachhut | 952 | $51.0 \%$ |
| Set-2 | Dimgachh | 915 | $49.0 \%$ | Neelgiri | 915 | $49.0 \%$ |
|  | Total | 1867 | $100.0 \%$ | Total | 1867 | $100.0 \%$ |

According to this table, "Neelpakhi" and "Dimgachh" were the two imaginative texts that were applied to $51 \%$ and $49 \%$, respectively, of the fluent respondents. Again, "Gollachhut" and "Neelgiri" were the two informative texts that were employed by $51 \%$ and $49 \%$, respectively, of the fluent respondents. There were 2389 total responders, of which 1867 were fluent readers according to the reading fluency test.


Figure 4. 7: Boxplot for comparison between imaginative and informative text fluency scores In both cases, there were outliers and those were lies outside of the upper whiskers. Moreover, it is clear that students got a higher score, a mean of 63 , in imaginative text than in informative text with a mean score of 56 . Though their dispersion was similar, the median line for informative text was lower than that of imaginative texts which indicated that students got imaginative text easier than the informative texts.

## Location-wise test results

Table 4. 2: Location-wise cwpm and comprehension score according to text type

| Location Type | Imaginative Text |  | Informative Text |  |
| :---: | :---: | :---: | :---: | :---: |
|  | cwpm | Comprehension <br> rate | cwpm | Comprehension <br> rate |
| Char area | 33.9 | 41.4 | 30.0 | 26.3 |
| Coastal area | 36.8 | 64.3 | 32.7 | 57.5 |
| Haor area | 32.9 | 34.1 | 29.3 | 23.5 |


| Hill Tracts | 46.5 | 55.6 | 41.6 | 44.0 |
| :---: | :---: | :---: | :---: | :---: |
| Metropolitan city | 55.4 | 62.0 | 47.4 | 49.7 |
| Rural area | 39.1 | 57.6 | 34.6 | 39.1 |

In imaginative texts, students from metropolitan cities achieved the highest average fluency rate of 55.4 cwpm with a comprehension rate of $62 \%$. Hill Tracts students had the second-highest fluency rate ( 46.45 cwpm ) with a comprehension rate of $55.6 \%$. On the other hand, Haor region students' fluency rate ( 32.88 cwpm ) is the lowest among all areas, along with their understanding level ( $34.1 \%$ ). The rural areas' students performed comparatively better in fluency ( 39.1 cwpm ) with $57.6 \%$ understanding, while the coastal areas' children showed a strong reading comprehension rate of $64.3 \%$ through their fluency rate is 36.8 cwpm .

In informative texts, students from urban areas had the highest fluency rate ( 47.4 cwpm ) with the highest comprehension rate (49.7\%). Students from Hill Tracts had the second-highest fluency score (41.6 cwpm), and the second-highest understanding rate (44.0\%). However, the Haor region students' fluency rate ( 29.3 cwpm ) and understanding level ( 23.54 percent) were the lowest among all the regions. In addition, the children from coastal areas showed a strong reading comprehension rate of $57.5 \%$ even though their fluency rate was 32.7 cwpm , while the students from rural areas performed better in fluency ( 34.6 cwpm ) with having understanding rate of $39.1 \%$.


Figure 4. 8: Location-wise fluency score ${ }^{1}$ according to text type
The chart displays the normalized weighted score obtained by converting the cwpm and comprehension rate to z -scores and then combining them by giving weightage. The comparative bar charts showed that there is not a noticeable difference between students' performances in imaginative and informative texts regarding six different locations. Looking into details, students from rural areas performed comparatively better in imaginative texts (49.1) than informative texts (46.1). It has been demonstrated that students in every area do better when reading imaginative

[^0]texts than when reading informative texts, with the exception of haor and coastal areas whereas students performed similarly in hill tracts.

From the ANOVA test results for informative texts, it is found that the differences of fluency scores among the six locations were strongly statistically significant with $\mathrm{p}<0.01$ which indicates that these differences are actual and these occurred due to various variables which need to be identified. Similar findings are obtained for imaginative texts with $\mathrm{p}<0.1$ [seeAnnex-A, Table A 5].


Figure 4. 9: Location-wise total fluency score ${ }^{2}$
The achievement score among the six location types decreased steadily from the Metropolitan city to the Haor area, as shown in Figure 4. 9. Rural area, char area, and haor areas scores below 50 in weighted total score, while Metropolitan city, Hill tract, and coastal areas score above 50. The ANOVA test also indicated these location-wise differences are statistically strongly significant with $\mathrm{P}<0.01$.

Table 4. 3: Location-wise test results according to the person who helps students at home

| Location Type | Helping hands at home (\%) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Parents | Brother/Sister | Relative | Private tutor | Coaching center |
| Char area | 35.5 | 36.4 | 12.3 | 32.5 | 1.3 |
| Coastal area | 47.3 | 18.8 | 11.7 | 47.7 | 2.3 |
| Haor area | 42.5 | 28.3 | 11.3 | 36.7 | 0.8 |
| Hill Tracts | 50.7 | 14.6 | 9.6 | 57.6 | 0.6 |
| Metropolitan city | 36.0 | 15.9 | 7.4 | 44.2 | 20.1 |
| Rural area | 49.5 | 27.3 | 11.4 | 21.5 | 3.8 |

[^1]The frequency of availing of private tutoring is most prevalent in hilly regions (57.6\%) and second highest in coastal areas ( $47.7 \%$ ). While $44.2 \%$ of students in metropolitan cities take private tuition, $20.1 \%$ of them are enrolled in coaching centers. This implies that $60.3 \%$ of students in metropolitan cities receive additional academic assistance from external sources, be it private tutors or coaching institutes. As per the available statistics, the rate of acquiring extra academic support from private tutors in char areas ( $32.5 \%$ ) is higher than in rural areas ( $21.5 \%$ ).

Parental support is also high in hilly regions (50.7\%) and second highest in rural areas (49.5\%). The lowest rates of $35.5 \%$ and $36.0 \%$ of parental support are observed in char and metropolitan regions respectively. The rate of parental support in haor and coastal areas is $42.5 \%$ and $47.3 \%$, respectively.

Remarkably, $36.4 \%$ of students in char areas receive additional academic support from their siblings, which is the highest rate in this regard. Conversely, only $14.6 \%$ of students in hilly regions take extra school support from their siblings, which is the lowest rate among others.

The rate of taking additional school support from relatives is highest in char areas (12.3\%) and lowest in metropolitan cities ( $7.4 \%$ ).

## Gender-wise test results



Figure 4. 10: Test results for imaginative texts regarding gender
Girls do well in imaginative text reading, with a weighted score of 50.4; nevertheless, their fluency rate is just 42.7 cwpm, with a comprehension rate of $54 \%$. Boys, on the other hand, had a lower fluency score (48.9) where the fluency rate is 40.9 cwpm with a comprehension rate of $53.7 \%$. Yet, these gender-wise difference in fluency scores for imaginative texts is not statistically significant
( $\mathrm{p}>0.05$, see Annex-A, Table A 6)which indicates that there is no differences of performances in boys and girls.


Figure 4.11: Test results for informative texts regarding gender
With a weighted score of 49.3 , the data indicates that girls did slightly better than boys when reading informative texts; nonetheless, their fluency rate was only 37.5 cwpm and their comprehension rate was $41.3 \%$. The weighted score for boys was comparatively lower (48.2), their fluency rate was lower ( 36.1 cwpm ) and their comprehension rate was greater ( $41.5 \%$ ) than girls. Boys perform somewhat better in reading comprehension than girls, though according to weighted scores girls' score is greater than boys'. However, the differences found were not statistically significant as $\mathrm{P}>0.05$ (see Annex-A, Table A 6).

Table 4.4: Total fluency scores regarding students’ sex

| Sex | Total fluency score |
| :---: | :---: |
| Boy | 48.6 |
| Girl | 49.9 |

According to the data, girls perform better than boys in terms of the weighted total score ( 49.9 vs . 48.6). This indicates that the girls 'average performances were comparatively better on fluency and comprehension scores when reading both imaginative and informative texts through the Ttest indicates no significant difference between their performances(see Annex-A, Table A 6).

Test results according to parents' status


Figure 4. 12: Students' total fluency score regarding mother's education
The educational background of their mothers was unknown to $35.2 \%$ of students and their total fluency score was 48.5 , the third lowest score. About one-fifth of the students ( $22.2 \%$ ) said that their mother did not have any institutional knowledge and the fluency scores for them were found 39.7 which is the lowest among all groups in the chart. According to the respondents, $14 \%$ of their mothers were grade eight passed and $10.1 \%$ of mothers had SSC certificates and total fluency scores for those respondents were 51.4 and 45.4 respectively. Only $0.1 \%$ of respondents' mothers, on the other hand, had higher degrees who secured scores 76 which were the highest. Gradually, from HSC to a higher degree, the percentage of mothers with educational qualifications decreases. The fluency score gradually rises as mothers' educational backgrounds become more advanced. In addition, the significant test confirms that the differences found according to students' mother's educational qualifications were strongly statistically significant with $\mathrm{p}<0.01$ (see Annex-A, Table A 7) and thus it can be inferred that mother education did substantial effects on students' reading fluency.


Figure 4. 13: Students' total fluency score regarding father's education

About $40 \%$ of students did not know what their fathers' educational backgrounds were. About one-fifth of the students claimed that their father's institutional knowledge was only at the grade 5 level. The remaining responses revealed that $9.3 \%$ of students' fathers did not have institutional knowledge, $12.7 \%$ of fathers had class eight passed certificates and their total fluency scores were 39.6 and 51.1 respectively. Conversely, only $0.2 \%$ of respondents' fathers hold a higher degree and their fluency score was 56.2. Except for graduate degrees, where the percentage (4.7\%) increases from HSC (3.4\%) marginally, the number of fathers with educational qualifications gradually declines from illiteracy to higher degree status whereas the total fluency scores progressively increase in a reverse manner.

The overall finding of this table was that students' fluency score was better if fathers' educational background was good. With the exception of fathers with higher degrees, the fluency score of students gradually increased as fathers' educational backgrounds grew more advanced. Like mother education, students' father education also had a positive impact on their Bangla reading since the differences in fluency scores were found to be statistically strongly significant (see Annex-A, Table A 8).


Figure 4. 14: Comparison of students' fluency score on the status of parents' education The figure illustrates the comparison of students' total fluency scores according to their mothers and fathers' education. Student's fluency scores steadily increased with the increase of their parent's educational qualification and a similar trend was found for both mother's and father's education till their post-graduation. In the case of mothers' higher education, students got the highest fluency score of 76 whereas the fluency score was 56.2 , significantly low in the case of father's higher education.


Figure 4.15: Students' total fluency score regarding parents' occupation
About the occupation that parents did, $1.4 \%$ of students and $0.1 \%$ of students, respectively, did not know what their father or mother do for their income. Most of the respondents (84.8\%) stated that their mothers were housewives, while $43.5 \%$ of respondents stated that their fathers were workers. Fathers who own their own businesses make up $23.2 \%$ of students. Of the mothers,
$2.4 \%$ had government service, while $4.7 \%$ of the fathers have such employment. $12.1 \%$ of students' fathers work in private service, compared to $4.2 \%$ of respondents' mothers.

Data showed that only small percentages of parents of government service holders, $2.4 \%$ were mothers and $4.7 \%$ of fathers-attend government primary schools. Nearly $66.7 \%$ of children at the government primary school ( $43.5 \%$ of laborer and $23.2 \%$ of businessmen who own their own businesses) originate from limited or lower-income families. Most of the students' mothers ( $84.8 \%$ ) do not have any occupations that are income oriented.

Compared to other professionals, government service holders' mothers' children score much higher (60.7) in terms of fluency, while government service holder fathers' children score notably higher (68.0) in terms of fluency. Overall fluency rates for children whose mothers work in private services are 53.5 percent, while overall fluency rates for children whose fathers work in private services are 55.5 percent. For their children's education, a middle-class family can afford the necessary expenses, which is challenging for parents with lower incomes. On the other hand, among all other groups, parents of workers' children achieve the least scores. In terms of overall reading fluency, laborers who are mothers of their children achieved a score of $47.4 \%$, while those who are fathers of their children achieved a score of $44.2 \%$.

For mother occupation, it was found from the ANOVA test that the differences obtained in total fluency scores are statistically significant ( $\mathrm{p}=0.03$ ) at the 0.05 level(see Annex-A,

Table A 9). On the other hand, a statistically strong significant effect was found on students' total fluency scores which occurred due to the father's occupation (see Annex-A, Table A 10).


Figure 4. 16: Comparison of students' fluency score on the status of parent occupation
The comparison of students' total fluency scores regarding parental occupation clarifies that for all occupations students' scores had almost similar trends. Besides, in the case of government employee fathers, students scored 68 whereas students scored 60.7 in the case of mothers.

Table 4.5: Total fluency scores according to attending in parents meeting

| Attending parents meeting | $\%$ | Total Fluency Score |
| :---: | :---: | :---: |
| Yes | 87.7 | 49.8 |
| No | 12.3 | 45.4 |

According to data, $87.7 \%$ of parents regularly attended parent meetings; the rest of them only occasionally did so. The achievements of regular participant parents and irregular participant parents differ relatively little as a result. The children of regular parents who participated in meetings achieved a total reading fluency score of 49.8 , while the children of irregular parents attained a total fluency score of 45.4. In addition, T-test discovered that this difference in fluency scores is statistically strongly significant with a value of 0.007 ( $\mathrm{p}<0.01$ ) which implies that students' performance was influenced by the communication and cooperation between parents and the schools (see Annex-A, Table A 11).

Table 4.6: Total fluency scores according to having scope loud reading in the classroom

| Loud reading in the classroom | $\boldsymbol{\%}$ | Total Fluency Score |
| :---: | :---: | :---: |
| Yes | 96.0 | 49.5 |
| No | 4.0 | 44.6 |

It is revealed that $96.0 \%$ of students reported having the opportunity to read aloud in their Bangla classes, while just $4.0 \%$ mentioned having no such option. Moreover, students who had the chance to read aloud in the class had a fluency score of 49.5 , compared to 44.6 for students who did not. In the case of loud reading in the classroom, the $t$-test confirmed that this difference in fluency score had no impact on students' performance (see Annex-A, Table A 12).

Table 4.7: Total fluency scores according to having a helping person outside of school

| Help outside the school | $\%$ | Total Fluency Score |
| :---: | :---: | :---: |
| Yes | 91.7 | 50.0 |
| No | 8.3 | 41.3 |

The data presented in the chart indicates that a vast majority of students, i.e., $91.7 \%$, receive assistance from sources beyond the school premises. Conversely, only a small fraction of students, that is, $8.3 \%$, do not have any external support. Additionally, the statistics revealed that students who receive help outside of school exhibit a performance score of 50.0 which is higher than those who do not receive any out-of-school support. Moreover, the p-value for the t -test is found smaller than 0.01 (see Annex-A, Table A 13) for this difference in performances which is evidence for helping hand outside of school hours had a statistically strong significant effect on fluency scores.

Table 4. 8: Helping person(s) outside of school

| Helping person(s)outside of school | \% | Total Fluency Score |
| :---: | :---: | :---: |
| Parents | 43.7 | 52.2 |
| Brother/Sister | 22.5 | 43.2 |
| Relative | 10.3 | 44.2 |
| Private tutor | 40.9 | 52.1 |

The above data reveals that $40.9 \%$ of students who went to government primary schools obtained academic support from house tutors, whereas $5.7 \%$ are registered in coaching centers. This suggests that a combined total of $46.6 \%$ of learners receive private schooling, either from a house tutor or a coaching center. Furthermore, $43.7 \%$ of guardians offer support to their offspring, and $22.5 \%$ of scholars receive help from their siblings. The percentage of additional school assistance from family members is $10.3 \%$, which is the second-lowest score of all.

## Test results for school-level variables



According to the graph above, there are libraries in $26.7 \%$ of government primary schools, whereas there are bookshelves in $64.2 \%$ of schools and no libraries at all in $9.2 \%$ of schools.

Table 4.9: Students' fluency scores according to having library access

| Students have Library access | $\mathbf{f}$ | \% | Total Fluency Score |
| :---: | :---: | :---: | :---: |
| Yes | 1548 | 89.8 | 50.5 |
| No | 176 | 10.2 | 42.9 |

Among the schools having a library or bookshelf about 89.8 students reported that they had access to the library. Additionally, those who have access to libraries had fluency scores of 50.5, compared to 42.9 for those who do not and these differences in fluency scores had a strong statistically significant effect as the p-value obtained by t-test if found smaller than 0.01 (see Annex-A,

Table A 17).
Table 4. 10: Having class-wise SRM and total fluency score

| The library has class-wise SRM | \% | Total Fluency Score |
| :---: | :---: | :---: |
| Yes | $93.4 \%$ | 50.3 |
| No | $6.6 \%$ | 39.7 |

Supplementary Reading Materials SRM indicates class-level texts, which are made available to students for independent reading. The majority of school libraries or bookshelves (93.4\%) contained SRM and students of those schools scored about 50 which was higher than compared to those who did not have SRM in the libraries or on the bookshelves.

Table 4. 11: The teacher who taught grade 3 Bangla has Bangla subject-based training

| The teacher has subject-based training | \% | Total Fluency Score |
| :---: | :---: | :---: |
| Yes | 65.8 | 47.4 |
| No | 34.2 | 50.1 |

Each subject in the primary school curriculum has a six-day training course called "subject-based training." At a government primary school, two teachers generally complete subject-specific training for each subject. Data showed that $34.2 \%$ of teachers who teach Bangla in classrooms do not have any subject-based training in Bangla, while $65.8 \%$ of those teachers have this training. Additionally, data showed that students of teachers who do not have subject-based training do marginally better on fluency tests (50.13\%) than students of teachers with such training, whose fluency scores are $47.41 \%$. The variations of the results regarding teachers' training were found strongly statistically significant (see Annex-A, Table A 18).


Figure 4. 17: Students' total fluency score regarding teachers' educational qualification
According to the abovementioned data, $35.0 \%$ of teachers at government primary schools have postgraduate degrees, although $41.7 \%$ of them are graduates. On the other hand, only 23.4 percent of teachers have HSC and SSC level qualifications. Additionally, statistics showed that teachers with graduate or postgraduate degrees had students with greater fluency scores than teachers with

HSC and SSC passes. Graduate and postgraduate teachers' pupils achieve fluency scores above $50 \%$, whilst HSC and SSC-passed teachers' students achieve fluency scores below $50 \%$.


Figure 4. 18: Students' fluency scores regarding teachers' professional degree
A large percentage of teachers (65.5\%) have a Certificate in Education C-in-Ed training, while $25.0 \%$ have a Diploma in Primary Education DPEd Degree. 9.5\% of teachers have a degree of BEd or any other professional degree. Additionally, the overall fluency performance of students taught by teachers with a C-in-Ed degree is $62.36 \%$, the highest among all teachers, and that of students taught by teachers with a DPEd degree is $48.24 \%$. In contrast, the performance of teachers with other degrees and a BEd was $37.58 \%$ and $49.14 \%$, respectively.

Table 4. 12: Reading materials at home and their fluency score

| Reading materials at home | Frequency | Percent | Total Fluency Score |
| :---: | :---: | :---: | :---: |
| Yes | 677 | 36.3 | 56.92 |
| No | 1190 | 63.7 | 44.94 |

The teacher has limited knowledge about the reading resources available in their students' homes. However, one of them stated that "due to the socio-economic circumstances, I believe there are very scarce reading materials in the students' households $T I^{01 "}$. According to the abovementioned data, $36.4 \%$ of students have reading materials at home, whereas $63.7 \%$ of students do not. Additionally, pupils who had access to reading materials at home scored $56.92 \%$ on the fluency exam, compared to $44.94 \%$ for students without such materials at home.

Table 4. 13: Score of loud reading at home and their fluency score

| Loud reading at home | Frequency | Percent | Total Fluency Score |
| :---: | :---: | :---: | :---: |
| Yes | 1572 | 84.2 | 49.7 |
| No | 295 | 15.8 | 47.2 |

A large percentage of students $(84.2 \%)$ responded that they have the opportunity to read aloud at home, compared to $15.8 \%$ who did not. Additionally, students who read aloud at home achieved a 49.7 total score on the fluency test whereas the opposition obtained 47.2 on the overall fluency test.

## Correlations with various intrinsic and extraneous variables

Table 4. 14: Correlation among the internal variables of imaginative text

| Components of <br> Imaginative Text | CWPM | Comprehension | Incorrect <br> words | Spelled <br> words | Incorrect <br> punctuations | Repeated <br> words |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CWPM | 1 | $.427^{* *}$ | $-.392^{* *}$ | $-.402^{* *}$ | $-.055^{*}$ | $-.141^{* *}$ |
| Comprehension | $.427^{* *}$ | 1 | $-.320^{* *}$ | $-.291^{* *}$ | $-.073^{* *}$ | 0.021 |

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

In the case of imaginative text, a strongly significant correlation was found with cwpm for every other variable which was comprehension, number of incorrect words, punctions, spelled words and repeated words. CWPM had a positive and moderate correlation (0.427) with reading comprehension. Other variables had negative correlations, and the number of incorrect and spelled words had moderate-level correlations. Comprehension also negatively correlated with the number of incorrect words moderately and spelled words to some extent.

Table 4. 15: Correlation among the internal variables of informative text

| Correlation <br> among <br> components of <br> Informative text | CWPM | Comprehension | Incorrect <br> words | Spelled <br> words | Incorrect <br> punctuations | Repeated <br> words |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CWPM | 1 | $.397^{* *}$ | $-.338^{* *}$ | $-.351^{* *}$ | $-.078^{* *}$ | $-.083^{* *}$ |
| Comprehension |  | 1 | $-.377^{* *}$ | $-.207^{* *}$ | -0.036 | 0.01 |

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level ( 2 -tailed)
In the case of informative text, a strongly significant correlation was found with cwpm for every other variable. It is found that cwpm had a positive and moderate correlation (0.397) with reading comprehension. Other variables were negatively correlated, and the number of incorrect and spelled words had moderate-level correlations ( -0.338 and -0.351 respectively). Comprehension also negatively correlated with the number of incorrect words moderately and spelled words to some extent.

Table 4. 16: Correlation of total fluency score with extraneous variables

|  | $\begin{gathered} \mathrm{T} \\ \text { ot } \\ \text { al } \\ \mathrm{sc} \\ \text { or } \end{gathered}$ $\mathrm{e}$ | На <br> vin <br> g <br> libr <br> ary | Lib <br> rar <br> y <br> acc <br> ess | $\begin{gathered} \text { Rea } \\ \text { din } \\ \mathrm{g} \\ \text { boo } \\ \text { ks } \end{gathered}$ | Clas <br> swis <br> e <br> SR <br> M | Teac her's subj ect base d train ing | Teac her's educ ation | $\begin{gathered} \text { Teach } \\ \text { ers } \\ \text { Profes } \\ \text { sional } \\ \text { degre } \\ \text { e } \\ \hline \end{gathered}$ | Moth <br> er <br> Occu <br> patio <br> n | Fathe <br> r Occu patio n | Lou <br> d <br> readi <br> ng in <br> class <br> roo <br> m | Hel <br> p <br> out <br> sid <br> e <br> the <br> sch <br> ool | Rea <br> ding <br> mat <br> erial <br> s at <br> hom <br> e | Lo <br> ud <br> rea <br> din <br> g at <br> ho <br> me |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| To tal Sc or e | 1 | $.08$ | $\stackrel{.10}{5^{* *}}$ | $.$ | $.088^{*}$ | . 053 | $\begin{gathered} 0.02 \\ 1 \end{gathered}$ | 0.020 | 0.011 | $. \overline{-} .068^{* *}$ | $\begin{gathered} 0.04 \\ 1 \end{gathered}$ | $\mathbf{2}^{\mathbf{2}}$ | $\xrightarrow[* *]{.245}$ | $\begin{gathered} 0.0 \\ 39 \end{gathered}$ |

Some extraneous variables had positive correlations with total fluency scores which were strongly statistically significant at 0.01 level. Though the intensity of correlations was below a moderate level, those variables had a positive impact on students' fluency skills to some extent. Having reading materials at home was correlated with a total score of 0.245 whereas reading books at the library and having library access had a correlation coefficient of 0.135 and 0.105 respectively. In addition, the scope of having assistance outside of school had a positive correlation with students' fluency score of 0.102.

## A comparison between current study results with a previous fluency study

Secondary analysis has been done to make a comparison of the current study results with the study done by NAPE previously in 2020 just before the Covid-19 pandemic. It helped to find the effect of the pandemic on students' reading fluency skills.


Figure 4.19: Comparative boxplots between current study and the previous study
Students who have at least $80 \%$ comprehension were compared in this comparative boxplot. The variations among the students of the current study were found low in comparison with the previous study which is a good sign. On the other hand, students in the current study were found low scorer than the previous study which could be the negative impact of Covid 19 pandemic.


Figure 4. 20: Comparison of respondents with $80 \%$ comprehension in both texts

The previous study suggested a benchmark for Bangla reading fluency at 46 cwpm with $80 \%$ comprehension. Compared with the benchmark $23 \%$ of respondents were found fluent in the earlier study whereas this was found $11.9 \%$ in this study which decreased to almost half the proportion. Moreover, the proportion of respondents within the benchmark found also found higher for the former study (14\%) than for the current study (9.3\%).


Figure 4.21: Comparison of respondents irrespective of comprehension
This figure makes a comparison between the two studies on the proportion of respondents within the suggested benchmark with any level of comprehension. Here again, in comparison with the previously completed study, the proportion of fluent readers ( $60 \%$ ) was almost double that of the present study ( $33.8 \%$ ) and the proportion of respondents within the benchmark irrespective of comprehension was also found higher than that of the present study as well.

## Data presentation (Qualitative Phase)

## Impact of Covid on reading fluency

Interviews with teachers uncovered various remarks from various teachers. According to several assistant teachers, there were no academic losses because the school was shut down during the Covid-19 outbreak for the reason that online instruction continued at the time $\left(\mathrm{TI}^{05}\right)$.

However, a different set of teachers noted that there were significant learning deficits. Teachers at schools where pupils performed so poorly on fluency tests noted that "Stopped face-toface teaching activities during Covid is one of the most significant causes of non-fluency ( $\left.T I^{02}\right)^{\prime \prime}$ ". The students are unable to participate in online teaching activities. As a result,

We were unable to provide lessons to our first and second-graders about the alphabet and other fundamental knowledge about the Bangla language. The current third-grade cohort contains students who were previously in grades one and two. As a result, there is a notable disparity in reading fluency among third graders $\left(T 1^{03}\right)$.

Despite the learning gaps, some schools keep performing with collaborative plans. so that they might achieve success in minimizing students' learning gaps. Mrs. Rahnuma ( $\mathrm{TI}^{01}$ ), a fictitious name, was an assistant teacher at a school where the pupils performed well on reading fluency tests. She described the story of their school's journey to improve the students' reading fluency when the school reopened after the COVID-19 pandemic.

## Practices of good performed schools

Researchers attempted to identify the factors responsible for the students' better performances in the second round of data collection. Researchers identified several aspects from the teacher's interview and classroom observations that contributed to the students' good achievements.

## A case of good practice

Even though our pupils are doing well, the first circumstances following the reopening of school were terrible. We saw considerable learning loss related to reading fluency. Particularly the third-grade pupils were experiencing worrisome learning losses. Due to the closeness of the schools during the COVID-19 pandemic condition, most of them literally forgot letter knowledge.

Following the reopening of the school, all the teachers formed an agreement to contribute to increased reading fluency under the direction of our head teacher. So, we made some decisions.

1. We set up a meeting with the parents to inform them of the challenge with their children and our plan to improve it. Consequently, they endorsed our strategy and committed to cooperating with us.
2. The objective that each teacher has confirmed is to increase reading fluency. Because of this, reading is emphasized in every lesson.
3. We use a variety of strategies in our Bangla classes to help students with their reading. As an example, letter knowledge, combined letter knowledge, partner reading, model reading, choral reading, etc.
4. We pay close attention and provide feedback in accordance with the reading assessment. We noticed a big change in our students' reading as a result. Therefore, we keep up our efforts. Unfortunately, only a small number of the pupils were able to overcome their learning gaps. Therefore, there is no choice but to continue to teach them in their former class.

## Motivating parents

When conducting interviews, teachers from schools where pupils perform well on fluency tests are cited that they develop relationships with parents. They motivate them to promote the development of their children's reading abilities. A teacher stated, "Sometimes we have scheduled meetings with parents at various times and advised for more support to be given to the students at home to develop the reading skill $\left(T I^{01}\right)$." Teacher-parent involvement in students' reading fluency development is reportedly very helpful.

## Practicing different activities in the classroom

Educators utilized a variety of techniques to enhance the reading fluency of their students. One teacher explained, "When teaching Bengali in the classroom, I incorporated choral repetition, group recitation, and individual reading exercises $\left(\mathrm{TI}^{01}\right) . "$ Some teachers utilize instructional materials to enhance students' reading comprehension. They employ word and letter cards to facilitate the development of Bengali reading proficiency ( $\mathrm{TI}^{05}$ ). Additionally, they encourage students to read together in pairs and groups $\left(\mathrm{TI}^{01}\right)$ to foster better understanding. Certain schools found that providing online classes during the COVID-19 pandemic was beneficial in preventing students from falling behind in their reading abilities $\left(\mathrm{TI}^{05}\right)$.

## Reading Assessment in Classroom

Teachers must be aware of each student's specific fluency level to support them in developing their reading fluency. To teach reading fluency in the classroom, teachers assess this skill. A teacher at a well-performed school mentioned that "I used to frequently assess my students' reading abilities. Then, I instruct the students to read from their textbooks. However, the elements of reading fluency (speed, accuracy, and understanding) were not thoroughly considered ( ${T I^{01}}^{01}$ ".

## Choral Reading

Reading aloud in a classroom, students follow the teacher and Everyone in the class is welcome to take part in this activity is choral reading. Students benefit from listening to the model reading while they read aloud with others without lethargy. This method is employed by top-performing schools to improve reading fluency. According to a teacher, "I allow students to repeat after me in the chorus $\left(\mathrm{TI}^{01}\right)^{\prime \prime}$

## Partner Reading

The most effective approaches to enhancing reading fluency are implemented by the schools with the highest results. An assistant teacher of Bangla stated during the interview,
"I request that the students read aloud in groups. For this group reading, I construct a group of a maximum of five individuals. The group's participants include both fluent and
less-fluent readers. A fluent reader is chosen as the group leader, and they supervise the other participants' progress influency. Each group member read aloud whereas the others listened and provided the less fluent reader feedback. This practice was repeated until everyone in the group could easily read the defined text ( $T I^{01}$ )".

## Supporting struggling students

Through the identification of specific areas of difficulty, customized assistance is offered within the classroom. A teacher highlighted during the interview that "I match students who are having trouble with reading with those who are fluent in reading, thus enabling them to learn together $\left(T I^{05}\right)$. Furthermore, "I advise parents to make reading a top priority at home ( $\left.T I^{01}\right)^{\prime}$ ".

## Use of Library

Most of the students at well-performing schools have library or SRM access to read independently. It raises students reading fluency levels. The teacher believes that borrowing books from the library will improve students' reading fluency $\left(\mathrm{TI}^{03}\right)$, and students are encouraged to read or borrow books from the library from friends or classmates ( $\mathrm{TI}^{01}$ ). Students in well-performing schools are motivated and supported by their teachers to read books from their library or book collection.

## Bangla Teaching-Learning Activities in Well-performed Schools

Researchers identify some activities which are used by the well-performed school for developing their student's reading fluency from the data of classroom observation and teacher interviews.

Model reading-Presenting model reading is a common technique for all schools ( $\mathrm{TI}^{01}$ ), it is also identified while observing classroom teaching $\left(\mathrm{CO}^{05}\right)$.

Group reading-To accomplishes this task, the teacher forms groups comprising 4-5 pupils in each group. One student with proficient reading abilities is chosen as the leader in each group. The leader is entrusted with the responsibility of guaranteeing that all members of the group can read precisely and smoothly. The winner will be the leader who can ensure the reading proficiency of every member of the group (TI01).

Introducing the main theme- while teaching any text teacher describes the main theme of the text. As a teacher mentioned that "I have introduced the main theme of the lesson and encouraged students to express themselves through speaking and writing (TIO1)".

Joint letter teaching- joint letter separation is a must activity for Bangla class. teachers use this activity in every lesson. As a teacher mentioned that "I have shown the joint letters by breaking them down to the unique letter of the daily lesson. Students are then prompted to write their examples $\left(\mathrm{TI}^{01}\right)$. The classroom observation information also indicates that the classroom teacher
of $\mathrm{CO}^{02}, \mathrm{CO}^{03}$, and $\mathrm{CO}^{04}$ displayed the joint letters by separating them into distinct letters, allowing the pupils to transcribe by separating and pronouncing the terms with combined characters.

Making sentences- In the Bengali class, a frequently used technique employed by the teacher is to make sentences using newly introduced words. The teacher encourages students to identify and write down any unfamiliar vocabulary they face while reading. Once identified, the teacher proceeds to explain the meaning of each word. This exercise helps to enhance the students' vocabulary and comprehension abilities, as they are encouraged to construct meaningful sentences $\left(\mathrm{TI}^{01}\right)$. This approach was also observed during classroom observation $\left(\mathrm{CO}^{02}\right)$.

Reading test- Researchers have discovered that teachers generally lack knowledge or awareness of the fundamental components of standard reading fluency. A teacher defines reading fluency as the "capability to articulate and read the text with accurate pronunciation (T1 ${ }^{02}$ ). Teachers evaluate the students' reading proficiency by having them read from a textbook. According to a teacher's statement, "I evaluate the reading ability of my students in Bangla language during classroom teaching. Nevertheless, I did not give much attention to the aspects of reading fluency, including speed, accuracy, and comprehension ( $T I^{01}$ )." Bangla classroom teaching observation of $\mathrm{CO}^{02}$ revealed that the teacher evaluates the students' reading skills by instructing them to read from their textbooks.

Supporting struggling students- Through the identification of specific areas of difficulty, customized assistance is offered within the classroom. A teacher highlighted during the interview that "I match students who are having trouble with reading with those who are fluent in reading, thus enabling them to learn together $\left(T I^{05}\right)$. Furthermore, "I advise parents to make reading a top priority at home ( $\left.T I^{01}\right)^{\prime}$.



## Practices of low performed schools

According to the teacher, researchers discovered that there are some factors behind the low achievement of students in fluency tests.

## Learning Gap

Teachers have asserted that the COVID-19 situation has led to a significant learning disparity. This has made it challenging for them to bridge the gap and facilitate the smooth development of their students. One teacher stated that "the suspension of in-person teaching during the COVID outbreak meant that the present third-grade students missed out on valuable learning opportunities when they were in grades one and two ( ${\left.T 1 I^{02}\right)}^{0}$ ". "Consequently, it has been difficult to reduce the learning gap of these third-grade students through classroom activities ( ${T I^{03}}^{03}$ )", another one expressed.

## Unconsciousness of guardians

In many instances, parents are unaware of their children's reading fluency. As one teacher pointed out, "Parents' earnings are solely dependent on small-scale financial activities in Sundarbans. As a result, they are oblivious to their children's academic pursuits (TI ${ }^{02}$ )."

## Discussion

## Reading fluency status of grade $\mathbf{3}$ students

Among the 2389 sampled students about $80 \%$ of them were fluent readers and the rest one-fifth of were found to be non-fluent. Fluent readers read automatically (Armbruster, Lehr, \& Osborn, 2002) and one of their key characteristics is their ability to read aloud with emotion and ease (Reading Rockets, 2023). Students are required to read fluently for comprehending what they read (Plessis, 2022) as comprehension is one of the core skills of oral reading(Hollowell, 2021) According to the National Assessment of Educational Progress Fluency Scale (Hasbrouk, 2008), this study treated level 1 and level 2 as non-fluent readers who could primarily read in two-word phrases with some three or four-word groupings and occasional word-by-word reading (see chapter Literature Review, Table 2.1).

Looking into details about the non-fluent readers, girls' proportion of fluent readers was found about $10 \%$ larger than that of boys. Moreover, in the case of location-wise fluency status, hill tract regions got the highest number of fluent readers followed by metropolitan cities in the second position. On the other hand, there were significantly fewer fluent readers in the char and haor districts.

Specifically, looking into the status of non-fluent readers, it seemed that parental education had a significant influence on being non-fluent because a considerable proportion of their parents were either illiterate or grade 5 completer. Moreover, among the non-fluent readers, $90 \%$ of their mothers were housewives and 60 of their fathers were engaged in labour work which also indicated that parental occupation also influenced being a non-fluent reader. Other variablesattending parents' meetings, loud reading in the classroom, having helping person(s) outside of school were not found to be impactful for their inability to read fluently.

## Reading fluency test results

Two sets of text were implied for the reading fluency test. Each set of text contains one imaginative and one informative text which was applied to each respondent. Studies on Reading fluency indicated that words correct per minute (WCPM) might differ depending on the difficulty level of texts (Ardoin et al., 2005; Compton et al., 2004). To minimize the variations, this study used two sets of text with similar difficulty levels.

In both types of texts, imaginative and informative, metropolitan city and hill tract regions showed the highest performance in both fluency rate (cwpm) and comprehension. Students from haor regions, on the other hand, displayed the lowest performance in both comprehension and fluency
rates for both types of text. Rural and coastal areas also performed differently. While coastal regions demonstrated relatively strong comprehension abilities, students in rural areas did comparably better on fluency tests. In-depth research will be required to determine the reasons for these inconsistent performances in various settings.

## Impact of Covid 19 on Students' reading fluency skill

Students in the present study showed lower performance compared with the study done by NAPE in 2020 which could be the result of the negative impact of Covid 19 pandemic on students' reading fluency skills. A study conducted by NCTB showed a similar result as it found that students of grade 3 had a learning loss of about 15\% in Bangla subjects due to Covid 19(NCTB, 2023). It also found a large increase in the "severe" level learning gap in Bangla for the same grade. In addition, a group of teachers' also declared a significant learning deficit due to the pandemic. A teacher at a poorly performed school asserted, "Stopped face-to-face teaching activities during Covid is one of the most significant causes of non-fluency ( $\left.T I^{02}\right)^{\prime \prime}$.There were teachers, in contrast, believed that there were no academic losses because of shut down during the Covid-19 outbreak(TI ${ }^{05}$ ).

## Impact of different regions on Students' reading fluency skill

With the exception of haor and coastal regions, where performance was comparable, students performed marginally better while reading imaginative texts than when reading informational texts. The differences in fluency scores for both imaginative and informative texts across areas were strongly statistically significant, which refutes the idea that the variations truly occurred. Further research is required to determine the causes of these variances.

Students in the metropolitan city area performed the best (61.8) followed by the hill tracts area (54.7), whereas those in the haor and char regions performed the least ( 34.1 and 38.0 respectively). These regional disparities were shown to be extremely statistically significant. One of the factors contributing to the exceptional academic performance of students in metropolitan areas may be the fact that about $60 \%$ of them received additional academic support from other sources, such as private tutors or coaching facilities. In addition, about one-third of them also got parental support. Additionally, parents ( $50.7 \%$ ) and private tutors ( $57.6 \%$ ) were the most common sources of additional academic support in hilly areas. Students in the haor and char areas, in contrast, rarely had access to coaching centers, and about one-third received help from private tutors. Many of the students in these two lowest-performing areas relied on their parents or their siblings for assistance. Finally, having additional academic support from external sources was found to be statistically strongly significant which means, it had a significant impact on students' reading fluency skills.

The fluency rate for imaginative text was found to be around 40 cwpm , and the understanding rate was just above $50 \%$ for both genders. The total fluency score was determined to be statistically insignificant, hovering around 50. Similar findings regarding a negligible gender difference in the overall fluency score were made for informative texts. However, in this text type, the comprehension rate was close to 40 and the fluency rate was determined to be below 40 cwpm, which was comparatively lower. These variations in fluency and understanding for various text types suggested that informative text was slightly more challenging for children to understand than imaginative text.

## Impact of parental status on Students' reading fluency skill

## Parental Education

Over one-third of the students in the sample were unaware of their parents' educational backgrounds. According to the study, as a mother's educational level grows, so does students' overall fluency score. Children of illiterate mothers scored 39.7, while for women with higher educational attainment, the score steadily increases to 76.0. The strong statistically significant finding at the 0.01 level further demonstrated the major influence of mother education on students' reading fluency performance. In addition, the father's education level had a significant positive influence on the students' reading fluency scores. When compared to mother education, father education attainment enhanced their children's fluency scores in a comparable trend.

This positive effect of parental education on their Child's fluency score was further supported by teachers who noted that "... parental education influences their children's academic results $\left(T I^{05}\right)$ " or who believed that "... parental education has a significant impact on student's performance $\left(T I^{03}\right)$ ". The teachers' voice explained this good influence: "Educated parents are concerned about their children's education $\left(T I^{02}\right)^{\prime \prime}$. Teachers had the opinion that mothers who were educated assisted their children in studying at home, either alone or with others. Most of the time, educated mothers assist their children at home by themselves with the help of a house tutor or other family members, according to a teacher ( $\mathrm{TI}^{01}$ ).

## Parental Occupation

The students' reading fluency performance was also found to be significantly influenced by their profession. The results of the study showed that children of government employees had the highest total fluency scores, which were 60.7 and 68.0 , respectively. Furthermore, the majority of mothers were housewives, and their children scored 48.8 in fluency whereas the majority of fathers worked in the labor force.

Teachers' opinions also supported that parental occupation had effects on students' fluency scores. For instance, one of the teachers expressed, "Children of financially stable parents consistently attend school, have better dietary conditions, and are given appropriate learning assistance resources $\left(\text { TI }^{03}\right)^{\prime \prime}$. In many instances, parents were unaware of their children's reading at home according to teachers. For example, a teacher pointed out, "Parents' earnings are solely dependent on small-scale financial activities in Sundarbans. As a result, they are oblivious to their children's academic pursuits (TI ${ }^{02}$ )".

## Parental interaction with the school authority

It is also revealed that communication between the parents and school authority, and their relationship influenced students' reading fluency skills. Quantitative data revealed that students’ performances in reading significantly improved for whom parents regularly attended parents meeting, which was confirmed by teachers-parent-teacher involvement in students' reading fluency development was very helpful. Students performed better in this case because "... scheduled meetings with parents... and advised for more support to be given to the students at home to develop the reading skill $\left(T I^{01}\right)$ ". Teachers motivated parents to promote their children in reading. This was linked with parental support at home which was proved earlier that have a positive impact on students' higher fluency scores.

## Impact of school-level variables

## Library Access

The study confirmed the effect of having a library with access to it on students' reading fluency skills. About $90 \%$ of the schools had a library or bookshelf and students at those schools scored about 50 in fluency, which was found to be distinctively higher than those who did not have access. One of the interviewee teachers believed that borrowing books from the library would improve students' reading fluency $\left(\mathrm{TI}^{03}\right)$. Another revealed the same in this manner, "Students are motivated by one another to receive books from the library, and fluency develops by reading books from the library $\left(T I^{01}\right)^{\prime \prime}$.

## Impact of Teachers'Status on Students' reading fluency skill

Bangla subject teachers of grade 3 who got a six-day subject-based training had a negative impact on students' fluency scores which was unexpected. The results of the interviews revealed that most teachers did not understand the essential elements of reading fluency. One of them gave an incorrect definition of fluency as the ability to read text with proper pronunciation. To ascertain the cause of this odd result, more research is required.

The teacher who taught Bangla in grade 3 had a significant impact on students' fluency scores regarding their educational qualifications and professional degree. The teachers who graduated or had post-graduate degrees influenced their students' higher achievement scores. Moreover, teachers who completed C-in-Ed degrees influenced their students' high achievement scores in reading fluency skills.

## Impact of classroom-level variables

## Loud reading in the classroom

Almost all the students reported having their scope to read loudly in the classroom and as all the teachers gave that scope, loud reading did not make any significant difference on students' reading fluency. Classroom observation and teachers interview reported the same- "I ask students to read aloud in groups ( $T I^{01}$ )". Classroom observation from a well-performed school also showed that the teacher asked for reading loudly as part of individual work $\left(\mathrm{CO}^{04}\right)$.

## Reading assessment in the classroom

Teachers' awareness of each student's level of fluency was found important as they had to develop their pupils' specific areas of reading deficiency. A teacher from a well-performed school verified this by saying, "I used to frequently assess my students' reading abilities $\left(\mathrm{TI}^{01}\right)$ ".

## || Various techniques used in the classroom

Several classroom teaching techniques for improving Bangla reading skills were discovered. Some of them had a positive impact on students' fluency skill development and few of them were not influential for them.

Based on teacher interviews and classroom observations in schools that performed better, model reading, and group reading be useful for the development of reading abilities. Additionally, teachers felt that joint letter teaching and providing opportunities for practicing making sentences with newly introduced words were essential for the development of reading skills.

## Test Results and Impact of the home environment

## Reading materials at home

Slightly above one-third of the students had reading materials such as newspapers, magazines, novels or any type of book for their reading at home and they performed significantly better with a fluency score of about 57. In addition, the teacher who was interviewed advised parents to prioritize reading at home $\left(\mathrm{TI}^{05}\right)$. It can be then surmized that having reading materials at home would be a suggestive factor for improving reading fluency skills.

Most of the students had scope for loud reading at home and they got comparatively better scores than those who did not get the scope. Though there was a difference, this difference was not statistically significant which concludes that the scope of loud reading did not make any difference on their fluency scores.

## Helping person(s) outside of school

Helping person(s) outside of school hours was found as a considerable factor in getting a higher score on reading fluency. Students got better fluency scores who got parental support from home or who received private schoolings such as private tutoring or coaching centre. Teachers also acknowledge the impact of outside-of-school support on student achievement. One of them pointed out that, "parental support, rather than teachers', can positively affect students' reading fluency development $\left(T I^{01}\right)$ ". Another mentioned that, "private tutors can help students review lessons taught in school $\left(T I^{03}\right)^{\prime \prime}$.

## Way Out to Improve Bangla Reading Fluency

Considering the impact factors revealed from the data the following could be a way to improve Bangla reading fluency skills for grade 3 students-

- A national wide recovery plan needs to be considered for minimizing the learning loss due to the Covid-19 pandemic.
- An in-depth and detailed study needs to be planned for identifying the causes behind the region-wise differences in performance in reading fluency.
- Parental educational and professional status can not be changed but various awareness programs could be solutions for maximizing the positive impact of parental status. Also, a long-term strategic plan needs to be designed for parent education.
- Emphasis needs to be given to the school library and its use as it was found to be effective in improving students' reading fluency.
- Effective teacher training for Bangla subjects has to design by focusing on reading skill development strategies and how to implement those strategies in classrooms.

Regarding the development of reading fluency, data led to various solutions. As general reading skill development exercises and following Covid special support exercises of top-performing schools indicate several exercises that may help others as well. These exercises have been identified by researchers as best practices for enhancing reading fluency. These procedures may be used in various school activities.

In a classroom environment, the teacher must be concerned about the development of reading skills. While teaching in the classroom, they must put their subject expertise and professional knowledge into practice. The correlation between teachers' training and students reading fluency demonstrates a strong positive relationship between both factors.

## Model Reading

The teacher's daily demonstration of reading aloud in class helps students become fluent readers. Model reading presentation $\left(\mathrm{TI}^{01}\right)$ is one of the best practices. Data indicates that teachers reading aloud to students as examples of reading while they pay close attention and pay attention to what is being read to them $\left(\mathrm{CO}^{01}, \mathrm{CO}^{02}\right)$ is very much fruitful to develop their reading accuracy.

## Choral Reading

It is noted while observing the lesson that teachers read aloud models reading to pupils while they listen with close attention $\left(\mathrm{CO}^{01}, \mathrm{CO}^{02}\right)$. After the model reading of teacher ask students to repeat after the teacher in Chorus. As a teacher cited that "I give the opportunity to students to repeat after me in chorus $\mathrm{TI}^{011}$ ". In choral reading, the teacher reads aloud to the class as the students copy their pace (Hasbrouk, 2008). This strategy gives an opportunity to non-fluent students to read repeatedly with a model and without falling into any embarrassing situations. The teacher may pause at any point to answer queries, offer commentary on the text, go over a word in the vocabulary, or remind the class that she wants them to be reading (Hasbrouk, 2008) Choral reading is a key practice recommended by teachers for poem recitation. Students will recite aloud in front of the class after the teachers' model recitation (NCTB, 2023). If instruction is required, the teacher will give it, and they will receive feedback for improving their fluency.

## Partner reading

The schools that do the best performance have certain best practices for fostering reading fluency. During the interview, a Bangla assistant teacher remarked that,

> "I ask the pupils to read aloud in groups. I form a group of four or five people for this group reading. There is a mix of fluent and non-fluent readers among the group members. A group leader who reads fluently is chosen, and they oversee the fluency improvement of the other participants. Each group member read aloud, while the other members listened and provided feedback to the non-fluent reader. This exercise continued until each member of the group could read the defined text with ease $\left(T I^{1}\right)$ ".

This activity is also described in the report "Put Reading First: The Research Building Blocks for Teaching Children to Read by (Armbruster, Lehr, \& Osborn, 2002) as partner reading which entails reading aloud with a partner who is more fluent than you are (or with a partner of similar
ability) and who can serve as an example of fluent reading, assist with word recognition, and offer feedback.

## Text summary presentation

It enhances text comprehension and keeps students engaged in classroom discussions. The finest practice of the best-performing school is to summarize the text or inner meaning of the text presented to the class following mode and choral reading practice ( $\mathrm{TI}^{05}$ ).

## Teaching joint letter (Jukto Borno)

Joint letters are a crucial linguistic component of the Bangla language. The Bangla language has numerous joint letters. It is observed that students who could not separate joint letters and are unable to identify the sound of the joint letters want to decode by spelling the word. Non-fluency is a result of spelling the letters while trying to read. Practicing with joint letters in every Bangla class is the most significant practice of the best-performing school. To separate the letters from the joint letters, teachers help students locate the joint letters in the text $\left(\mathrm{TI}^{03}, \mathrm{TI}^{05}\right)$.To improve fluency, it's also crucial to sound out the joint letter while you write.

## || Teaching Vocabulary

Students who can connect the book's meaning to prior knowledge will find themselves better able to comprehend the content. The reader who can comprehend the material can read accurately, quickly, and with good prosody. Vocabulary is the driving force behind comprehension. So, teaching vocabulary in each Bangla lesson is another recommended practice ( $\mathrm{CO}^{01}$ ). Teachers assist students in extracting unfamiliar or challenging words from the text. After that, the teacher talks about word meaning. The new word will be used as a writing prompt for the students. Students can acquire vocabulary continuously consequently to this technique ( $\mathrm{TI}^{01}$ ).

## Reading Assessment and Feedback

The best-performing schools measure their student's reading fluency. They provide feedback to their students in accordance with measurements. According to a teacher, "I ask pupils to read from a specific section of a textbook while I assess their reading comprehension, accuracy, and speed for a reading fluency test. I can identify problems by examining them and providing suggestions in response ( $T I^{01}$ )". Feedback for a formative assessment is essential. It gives students chances to improve their talents.

## | Special Care Activities

Regular classroom activities might not be enough to meet everyone's demands for learning. Therefore, children with unique needs deserve additional consideration or use different approaches. The best method for providing special care is to conduct a baseline survey to identify
the issues that non-fluent students face, then to offer feedback in accordance with those issues $\left(\mathrm{TI}^{03}\right)$. Create a pair of fluent and non-fluent readers to assist one another while reading in pairs or in groups $\left(\mathrm{TI}^{05}\right)$. If possible, use a one-to-one method to scaffold children's reading ( $\mathrm{TI}^{01}$ ).

## Commitment of Teacher

The dedication of the teachers is crucial for the development of any sort of student. When a teacher is committed, nothing is impossible. The teacher's commitment to helping learners to improve their reading fluency was particularly apparent in the schools where students did very well. As a teacher's assistant stated about their commitment "Following the reopening of the school, all of the teachers got right to work with a commitment to help students become more fluent readers under the guidance of our head teacher. As a result, we succeeded in school $\left(\mathrm{TI}^{01}\right)$ ".

## School Library

The school library, where kids can read independently, plays an important role in assisting them in becoming fluent readers. During an interview, an assistant teacher of third grade responded,
"I noticed that the pupils who are reading additional books from the school library, their fluency develops dramatically. Students are encouraged to read books on their own while their classmates check out books from the library, which is another aspect of school library ( $T I^{01}$ )".

## Parents Awareness

Collaboration between teachers and parents is of the utmost importance for the development of learners. It has been found that if the parent becomes aware, the student is more likely to attend class regularly and complete their homework than if the parent is unaware. It was mentioned by a teacher-

> "We observed that the parents teach them on their own, by a house tutor, or by someone more knowledgeable for their children's better achievement. So, we motivated them to support their children by themselves or by others. We declare that if your child is unable to read, we cannot promote him or her to the next class. Through this awareness strategy, parents are aware of their children's achievements. This technique helps to develop the student's reading skill and minimize the learning gaps $\left(T I^{01}\right)$ ".

Therefore, raising parents' awareness through mother gatherings or regular communication with parents is one of the best practices $\left(\mathrm{TI}^{05}\right)$.

## Assessment at classroom

A booklet mentioned that there are two ways to evaluate a student's strengths and weaknesses and provide them with the proper feedback. Formative assessment comes in two flavors: formal and
informal. The schools that do the best performance assess their student's reading fluency. According to assessment they give feedback to their students. As a teacher revealed that, "For a reading fluency evaluation, I ask students to read from a specific section of a textbook while I track their reading comprehension, accuracy, and speed. By evaluating them, I can pinpoint specific issues and offer suggestions accordingly $\mathrm{TI}^{01 "}$. For a formative assessment feedback is a must. Which provides opportunities for students to develop their skills. After speaking, reading, or answering a question, the teacher has to identify the specific difficulties and provide feedback based on the pattern of those difficulties (Save the Children, 2016).

## School Library

Book areas, displays, libraries, and outdoor reading areas-can play a big role in motivating kids to read and enjoyment of independent reading (Gray, 2017). The school library, where children can read on their own, is important in helping students become fluent readers. According to a third-grade assistant teacher of Bangla who was interviewed,
"I noticed that the pupils who are reading additional books from the school library, their fluency develops dramatically. Students are encouraged to read books on their own while their classmates check out books from the library, which is another aspect of school library $T I^{01 "}$.

Children are encouraged to read widely on their own through autonomous silent reading(Armbruster, Lehr, \& Osborn, 2002) this is also recognized in the literature.

## Recommendations

This study is just an initial stage for knowing the situation of Bangla reading fluency at the primary level. This study aims for only one grade. It needs several of these kinds of research for other grades. Without understanding the current status of the reading fluency level of all grades, appropriate strategies for improving present conditions can not be designed by policymakers.

Several gaps were identified in this research which need to be met up by further research which will include-

- identifying the causes of region-wise differences in reading fluency skill
- finding how to mitigate the effect of parental status-related factors on students' fluency skill
- conducting experimental research to find out the effect of best practices found in this study
- finding the scope for parent education and its challenges in the Bangladesh context
- This study also recommends the following for the policymakers-
- Year-wise situational analysis study needs to be conducted to measure the level of students' reading skills.
- Initiatives need to take for conducting a comprehensive study for setting the benchmark on Bangla reading fluency for all primary grades.
- Need to prepare grade-level text banks and disseminate them to the school level so that teachers can regularly assess their students' reading fluency levels and take necessary steps for their students.


## Conclusion

Reading fluency is important language ability. Reading fluency is the ability to read quickly, easily, expressively, and with ease (Bainbridge, 2020). Understanding the text is a key component of reading, in addition to sounding out the letters and words. A proficient reader must be able to relate the letters on the page to the language's sounds, understand how those sounds are put together to form words, understand the implication of those words, and know what those words mean when they are employed in sentences (Bainbridge, 2020). However, previous research has shown that Bangladeshi primary school children's reading fluency in Bangla is not at a suitable level.

So, to understand the current state of primary pupils in grade 3 reading fluency and to find solutions for improving it, researchers conducted this study.

Researchers learned several remarkable facts from this investigation. This study found that a considerable proportion of students are not yet fluent. Reading fluency and outside-of-school support have a substantial relationship. Additionally, it is shown that the teaching and learning methodologies used in the highest and lowest-performing schools differ noticeably.

The fluency of the pupils should be developed in Bangla reading according to the researchers' recommendations. Additionally, researchers consider that there are still knowledge gaps. Therefore, there is much opportunity to conduct further research to find an effective solution for the primary-level pupils' difficulties with Bangla reading.

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## Annex-A

Table A 1: Status of attendance at parents' meeting of non-fluent students

| Attending parents meeting | $\mathbf{f}$ | $\boldsymbol{\%}$ |
| :---: | :---: | :---: |
| Yes | 424 | 81.2 |
| No | 98 | 18.8 |
| Total | 522 | 100.0 |

Table A 2: Scope of loud reading in the classroom for non-fluent students

| Scope for loud reading <br> in the classroom | $\mathbf{f}$ | $\boldsymbol{\%}$ |
| :---: | :---: | :---: |
| Yes | 481 | 92.1 |
| No | 41 | 7.9 |
| Total | 522 | 100.0 |

Table A 3: Status of having any helping person at home for non-fluent students

| Having a helping person <br> at home | $\mathbf{f}$ | $\boldsymbol{\%}$ |
| :---: | :---: | :---: |
| Yes | 434 | 83.1 |
| No | 88 | 16.9 |
| Total | $\mathbf{5 2 2}$ | $\mathbf{1 0 0 . 0}$ |

Table A 4: Helping person at home for non-fluent students

| Helping person at home | $\mathbf{f}$ | $\boldsymbol{\%}$ |
| :---: | :---: | :---: |
| Parents | 136 | 31.3 |
| Brother/sister | 154 | 35.5 |
| Relative(s) | 75 | 17.3 |
| Private Tutor | 110 | 25.3 |
| Coaching | 15 | 3.5 |

Table A 5: ANOVA for Location Type

| ANOVA for Location type |  | Sum of <br> Squares | df | Mean <br> Square | F | Sig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weighted total <br> normal score for <br> imaginative text | Between <br> Groups | 165534.657 | 5 | 33106.931 | 63.018 | .000 |
|  | Within Groups | 977682.273 | 1861 | 525.353 |  |  |
|  | Total | 1143216.930 | 1866 |  |  |  |
| Weighted total <br> normal score for <br> informative text | Between <br> Groups | 155473.721 | 5 | 31094.744 | 62.056 | .000 |
|  | Within Groups | 932502.088 | 1861 | 501.076 |  |  |
|  | Total | 1087975.808 | 1866 |  |  |  |
| Weighted total <br> normal score | Between <br> Groups | 159302.337 | 5 | 31860.467 | 68.087 | .000 |
|  | Within Groups | 870831.265 | 1861 | 467.937 |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |

Table A 6: T-test for gender differences

| T-test for gender difference |  | Levene's Test for <br> Equality of <br> Variances | t-test for <br> Equality of <br> Means |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | F | Sig. | t | df | Sig. (2- <br> tailed) |  |
| Weighted total <br> normal score for <br> imaginative text | Equal variances <br> assumed | .339 | .560 | -1.296 | 1865 | .195 |
|  | Equal variances <br> not assumed |  |  | -1.297 | 1815.728 | .195 |
| Weighted total <br> normal score for <br> informative text | Equal variances <br> assumed | .389 | .533 | -1.004 | 1865 | .315 |
| Equal variances <br> not assumed |  |  | -1.003 | 1801.505 | .316 |  |
| Weighted total <br> normal score | Equal variances <br> assumed | .156 | .693 | -1.199 | 1865 | .231 |
|  | Equal variances <br> not assumed |  |  | -1.199 | 1810.708 | .231 |

Table A 7: ANOVA for differences regarding mother's education

| cmedu |  |  | Sum of <br> Squares | df | Mean Square | F |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | Sig. |  | Seighted total normal | Between Groups | 72321.981 | 8 | 9040.248 | 15.685 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| .000 |  |  |  |  |  |  |
| score for imaginative | Within Groups | 1070894.949 | 1858 | 576.370 |  |  |
| text | Total | 1143216.930 | 1866 |  |  |  |
| Weighted total normal | Between Groups | 58752.687 | 8 | 7344.086 | 13.258 | .000 |
| score for informative | Within Groups | 1029223.121 | 1858 | 553.941 |  |  |
| text | Total | 1087975.808 | 1866 |  |  |  |
| Weighted total normal | Between Groups | 64983.741 | 8 | 8122.968 | 15.637 | .000 |
| score | Within Groups | 965149.861 | 1858 | 519.456 |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |

Table A 8: ANOVA for differences regarding father's education

| cfedu |  | Sum of Squares | df | Mean Square | F | Sig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weighted total normal score for imaginative text | Between Groups | 89984.283 | 8 | 11248.035 | 19.843 | . 000 |
|  | Within Groups | 1053232.646 | 1858 | 566.864 |  |  |
|  | Total | 1143216.930 | 1866 |  |  |  |
| Weighted total normal score for informative text | Between Groups | 82381.836 | 8 | 10297.730 | 19.027 | . 000 |
|  | Within Groups | 1005593.972 | 1858 | 541.224 |  |  |
|  | Total | 1087975.808 | 1866 |  |  |  |
| Weighted total normal score | Between Groups | 85759.153 | 8 | 10719.894 | 21.091 | . 000 |
|  | Within Groups | 944374.449 | 1858 | 508.275 |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |

Table A 9: ANOVA for differences regarding mother's occupation

|  |  |  | Sum of |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| cmocu |  | Squares | df | Mean Square | F | Sig. |
| Weighted total normal | Between Groups | 9897.068 | 7 | 1413.867 | 2.319 | .023 |
| score for imaginative | Within Groups | 1133319.862 | 1859 | 609.640 |  |  |
| text | Total | 1143216.930 | 1866 |  |  |  |
| Weighted total normal | Between Groups | 7699.587 | 7 | 1099.941 | 1.893 | .067 |
| score for informative | Within Groups | 1080276.221 | 1859 | 581.106 |  |  |
| text | Total | 1087975.808 | 1866 |  |  |  |
| Weighted total normal | Between Groups | 8595.025 | 7 | 1227.861 | 2.234 | .029 |
| score | Within Groups | 1021538.576 | 1859 | 549.510 |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |

Table A 10: ANOVA for differences regarding father's occupation

|  |  |  | Sum of |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| cfocu |  |  |  |$\quad$| Squares | df | Mean Square | F | Sig. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weighted total normal | Between Groups | 73504.931 | 7 | 10500.704 | 18.249 | .000 |
| score for imaginative | Within Groups | 1069711.998 | 1859 | 575.423 |  |  |
| text | Total | 1143216.930 | 1866 |  |  |  |
| Weighted total normal | Between Groups | 62963.400 | 7 | 8994.771 | 16.313 | .000 |
| score for informative | Within Groups | 1025012.408 | 1859 | 551.378 |  |  |
| text | Total | 1087975.808 | 1866 |  |  |  |
| Weighted total normal | Between Groups | 68043.515 | 7 | 9720.502 | 18.782 | .000 |
| score | Within Groups | 962090.087 | 1859 | 517.531 |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |

Table A 11: T-test for parents attending meetings Independent Samples Test


Table A 12: T-test for loud reading in classroom
Independent Samples Test
Levene's Test
for Equality of
Variances t-test for Equality of Means
95\% Confidence
Interval of the


Table A 13: T-test for having helping person at home
Independent Samples Test

| Independent Samples Test |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Levene's Test for Equality of Variances |  |  |  | t-test for Equality of Means |  |  |  |  |
|  |  | F | Sig. |  | df | Sig. (2 <br> tailed) | Mean <br> Difference | Std. Error Difference | $95 \% \text { Con }$ <br> Interval Diffe | fidence of the ence |
|  |  |  |  | , |  |  |  |  | Lower | Upper |
| Weighted | Equal | 10.190 | . 001 | -4.912 | 1865 | . 000 | -10.13485 | 2.06342 | -14.18171 | -6.08798 |
| total normal score for | variances assumed |  |  |  |  |  |  |  |  |  |
| imaginative text | Equal variances not assumed |  |  | -5.497 | 192.467 | . 000 | -10.13485 | 1.84370 | -13.77131 | 6.49839 |
| Weighted total normal score for | Equal variances assumed | 14.716 | . 000 | -3.607 | 1865 | . 000 | -7.28269 | 2.01890 | -11.24224 | -3.32315 |


| informative text | Equal variances not assumed |  |  | -4.221 | 197.083 | . 000 | $-7.28269$ | 1.72522 | -10.68495-3.88044 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weighted total normal score | Equal variances assumed | 13.642 | . 000 | -4.441 | 1865 | . 000 | -8.70877 | 1.96100 | -12.55476-4.86279 |
|  | Equal variances not assumed |  |  | -5.111 | 195.285 | . 000 | -8.70877 | 1.70400 | -12.06938-5.34816 |

Table A 14: T-test for having reading materials at home Independent Samples Test


Table A 15: T-test for scope of loud reading at home
Independent Samples Test


Table A 16: School having library

|  |  | Sum of |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Squares | df | Mean Square | F | Sig. |  |
| Weighted total normal | Between Groups | 13905.042 | 2 | 6952.521 | 11.476 | .000 |  |
| score for imaginative | Within Groups | 1129311.888 | 1864 | 605.854 |  |  |  |
| text | Total | 1143216.930 | 1866 |  |  |  |  |
| Weighted total normal | Between Groups | 15561.458 | 2 | 7780.729 | 13.524 | .000 |  |
| score for informative | Within Groups | 1072414.351 | 1864 | 575.330 |  |  |  |
| text | Total | 1087975.808 | 1866 |  |  |  |  |
| Weighted total normal | Between Groups | 13799.403 | 2 | 6899.701 | 12.654 | .000 |  |
| score | Within Groups | 1016334.199 | 1864 | 545.244 |  |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |  |

Table A 17: T-test for having library access
Independent Samples Test

|  |  | Levene's Test for Equality of Variances |  |  |  | t-test for Equality of Means |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Sig. (2- | Mean | Std. Error | 95\% Confidence Interval of the Difference |
|  |  |  | Sig. | t | df | tailed) | Difference | Difference | Lower Upper |
| Weighted total normal score for imaginative text | Equal variances assumed Equal variances not assumed | . 871 | . 351 | $\begin{aligned} & \hline-3.498 \\ & -3.359 \end{aligned}$ | $\begin{gathered} 1722 \\ 212.523 \end{gathered}$ | $.000$ $001 .$ | -6.87847 -6.87847 | 1.96618 2.04770 | $-10.73482-3.02212$ $-10.91488-2.84206$ |
| Weighted total normal score for informative text | Equal assumed Equal variances not assumed | 1.345 | . 246 | $\begin{aligned} & -4.368 \\ & -4.196 \end{aligned}$ | $\begin{gathered} 1722 \\ 212.560 \end{gathered}$ | $.000$ $000$ | $\begin{aligned} & \hline-8.42927 \\ & -8.42927 \end{aligned}$ | $\begin{aligned} & 1.92966 \\ & 2.00891 \end{aligned}$ | $-12.21399-4.64455$ $-12.38922-4.46932$ |
| Weighted total normal score | Equal variances assumed Equal variances not assumed | 1.067 | . 302 | $\begin{aligned} & \hline-4.088 \\ & -3.932 \end{aligned}$ | $\begin{gathered} 1722 \\ 212.691 \end{gathered}$ | $.000$ $.000$ | -7.65387 -7.65387 | 1.87232 1.94663 | $-11.32613-3.98161$ $-11.49102-3.81672$ |

Table A 18: T-test for teachers having sub-based training


| Weighted | Equal | 1.067 | .302 | - | 1722 | .000 | -7.65387 | 1.87232 | - |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| total normal |  |  |  |  |  |  |  |  |  |
| score | variances <br> assumed |  |  | 4.088 |  |  |  | 11.326133 .98161 |  |

Table A 19: ANOVA for teachers educational qualification on students' performances

|  |  | Sum of Squares | df | Mean Square | F | Sig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weighted total normal score for imaginative text | Between Groups | 14928.093 | 3 | 4976.031 | 8.216 | . 000 |
|  | Within Groups | 1128288.836 | 1863 | 605.630 |  |  |
|  | Total | 1143216.930 | 1866 |  |  |  |
| Weighted total normal score for informative text | Between Groups | 3831.456 | 3 | 1277.152 | 2.195 | . 087 |
|  | Within Groups | 1084144.352 | 1863 | 581.935 |  |  |
|  | Total | 1087975.808 | 1866 |  |  |  |
| Weighted total normal score | Between Groups | 7982.593 | 3 | 2660.864 | 4.850 | . 002 |
|  | Within Groups | 1022151.009 | 1863 | 548.659 |  |  |
|  | Total | 1030133.602 | 1866 |  |  |  |

Table A 20: ANOVA for teachers' professional degree on students' performances

|  |  | ANOVA |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Sum of |  |  |  |  |
|  | Squares | df | Mean Square | F | Sig. |  |
| Weighted total normal | Between Groups | 18810.307 | 3 | 6270.102 | 10.516 | .000 |
| score for imaginative | Within Groups | 1050010.579 | 1761 | 596.258 |  |  |
| text | Total | 1068820.886 | 1764 |  |  |  |
| Weighted total normal | Between Groups | 28049.173 | 3 | 9349.724 | 16.608 | .000 |
| score for informative | Within Groups | 991357.042 | 1761 | 562.951 |  |  |
| text | Total | 1019406.215 | 1764 |  |  |  |
| Weighted total normal | Between Groups | 22554.365 | 3 | 7518.122 | 14.086 | .000 |
| score | Within Groups | 939870.061 | 1761 | 533.714 |  |  |
|  | Total | 962424.426 | 1764 |  |  |  |

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[^0]:    ${ }^{1}$ Fluency score -converted z-score of cwpm and comprehension rate and then combined those two z-scores by giving weightage.

[^1]:    ${ }^{2}$ Total fluency score is the average fluency score of two type of texts.

