Where India Reads

2017-18

Reading levels in urban and semi-urban private English medium schools
The team at Stones2Milestones would like to acknowledge the team at ACER, India for their dedication and fine eye. Stones2Milestones thanks Asmi Arul for her involvement in test validation as well as every child who appeared for the assessment. We are truly indebted to every participating school for their openness and motivation.
Where India Reads

A report on the status of reading skills of students in Grades 4 - 6 from urban and semi-urban private English medium schools in India
A note from our partners,
Australian Council for Educational Research (ACER)

ACER India undertook a review of the data analysis processes and the reporting procedure of the FAST 4, 5 & 6 assessment conducted by Stones2Milestones, an organisation that is on a mission to create a nation of readers.

The processes followed by Stones2Milestones, that have been reviewed by ACER India, meet the requisite quality standards. The review of the data analysis processes began with step by step evaluation of the data cleaning procedures.

During this process, it was recommended that excessive data deletions be avoided. The technical review included assessing the model of Item Response Theory. The 3-parameter model was adopted for calibration and the case estimation method of Maximum Likelihood Estimation (MLE) was used.

After the data analysis, the ACER India team suggested cut scores for establishing proficiency levels of student performance. Proficiency level descriptors created by the Stones2Milestones team were reviewed and suggested modifications adopted.

The ACER India team also reviewed multiple drafts of the background and technical reports on FAST. The team provided recommendations based on international best practices for reporting on educational assessments to ensure customised reporting while also meeting stakeholder needs.

ACER India was not involved in the item development or test design for this assessment.

The FAST assessment is a credible effort to shine some light on the fundamental problem of low levels of reading proficiency among a majority of Indian students. An online assessment, FAST also included a short survey on the reading habits of students. The results from the survey were correlated with academic performance.
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As I sit down to reflect on this engaging research report titled ‘FAST Reading Assessment’, a beautiful quote from William James, the well known American philosopher, comes to my mind, “So it is with children who learn to read fluently and well. They begin to take flight into whole new worlds as effortlessly as young birds take to the sky.” It is indeed true that it is the ability to read that provides a young child the capability to expand one’s own thinking and imagination and move beyond one’s immediate context. As the report says, this leads to “not just academic excellence but also to make one an independent thinker and an empowered leader with more chances of overall well-being and life-long success.”

It is in the context above that this initiative by Stones2Milestones, which assesses how well children in private English medium schools are reading (from a sample of 19,765 children across grades 4, 5 and 6 from 106 schools in 20 states) is really commendable. What adds to the value of this initiative is the fact that while the public system of education is periodically getting reviewed through NAS and ASER learning surveys, learning levels of children in private, unaided schools are assumed to be fine. This is one of the very few surveys that has tried to assess the learning levels of these children and revealed that the situation in these schools is also not as favourable as we would like to believe. This survey is not only assessing the children’s skills in the classrooms but also linking them to literacy-related experiences children have within their homes. This acknowledges the key contribution parents and caregivers at home make to developing reading skills and habits in children through modelling, scaffolding and facilitating their reading opportunities and behaviour.

The report highlights the concern that 10.9% of the children in Class 4, in unaided private schools, were not able to demonstrate even the most basic comprehension and vocabulary abilities expected of readers for that class. Further, for grades 5 and 6 too, out of the 12,477 children who appeared for the assessment, only 2.7% displayed good comprehension skills, abilities to predict and infer and a strong knowledge of age-appropriate synonyms and antonyms and abilities to evaluate the author’s intended effect on the reader. This is again a matter of concern since by this age, children should reasonably be expected to demonstrate more complex literacy skills and higher order cognitive abilities. The fact that they aren’t able to do so clearly indicates that the system has failed to provide a sound foundation by deprioritising curriculum in the early years and making it inflexible, thus preventing children from learning at their own pace.

The observation above gets further reinforced by a finding that the report brings to light: good and poor readers differ in their listening comprehension by only one month at the beginning of school, but this gap increases to 30 months by Grade 4! This clearly reflects that the learning of reading is a continuous and cumulative process, which begins at birth, and early deficits, if any, incrementally tend to widen the learning gaps. This inevitably places more and more children at risk of academic failure. In fact, the impact may be on many more children than those reflected in this study since the children sampled for
The study were a select group of interested volunteers. These may not be fully representative of the larger segment of children in more challenging contexts.

Another challenge which may be responsible for this worrisome situation could be that children may learn to decode, but lack basic skills in English language, leading to ability to 'read', but without comprehension. Coming from homes with non-English speaking backgrounds, into schools, which treat English as the first language is unfair to children, but this is a common situation in our country due to rising parental and societal aspirations. Unfortunately our pedagogy is not in sync with this scenario. This is another observation coming from the study and this points towards the critical need to address the domain of literacy not in isolation, but situate it within a comprehensive framework of developing language and literacy together in an integrated manner, with an emphasis on meaning making.

Altogether, trends in the report point to the urgent need to redesign our early schooling curriculum to allow for children to learn at their own pace and not strictly follow age-wise boundaries of the grade-wise syllabus. Currently, once a child moves to a higher grade there is absolutely no opportunity for her to revisit what the child may have missed learning in the previous year. So there is a need to acknowledge this phenomenon of learning to read being a cumulative process and provide for overlaps and flexibility in the primary curriculum.

Another emerging need is to begin early in the continuum, with emergent literacy experiences and opportunities for young children right from the preschool years. However, in these years, the focus should not be on letter recognition and writing as it is at present, which can be very detrimental for children. Instead, the curriculum should ensure many oral language opportunities for children to listen and to speak in the English language and engage with the process of reading, thus enabling them to connect with and develop a lifelong bond with books. For instance, a good read aloud of interesting texts of stories and poems from books, could set children up with the key to an enjoyable journey in reading in the years ahead.

My hope is that this report will initiate widespread discussion on the unique challenges many Indian children face due to bilingual and multi-lingual environments at home, with English as the medium of instruction in school. It is also hoped that this discourse will sensitize parents, teachers and other stakeholders regarding the urgent need to revisit our classroom pedagogy for teaching reading to children. This is an urgent need in primary schools since children learn best in ways more developmentally and contextually appropriate for them. Once that is done, future assessments of children's reading skills will undoubtedly not only present a more favourable picture of their reading levels, but also provide evidence to validate practices which will contribute to making the process of learning to read more meaningful and joyful for young children.

Dr Venita Kaul
The importance of reading is indisputable. As a value, it is celebrated and aspirational. As a skill for academic and career success, it is crucial. Research from around the world has shown that children who read for pleasure outperform those who don’t, at multiple levels.

However, before children are able to read for pleasure, they should experience learning to read English in a deliberate, systematic and incremental manner so that they are met with success right from an early age. This creates a pull for reading for pleasure. Global indicators also show that children should be independent readers with fluency and comprehension by the time they finish grade 3. The purpose of this study was to test this hypothesis in the context of Indian children in grades 4-6 studying in private, unaided English medium schools, and evaluate if they are able to read independently with fluency and comprehension. The effort behind this study was to quantify reading levels and reading abilities of these children to ensure that reading earns a place in our hearts, minds and the very important dinner conversation. Numbers don't leave much to imagination. The FAST Reading Assessment™ was born out of this desire.

FAST:
FAST is an indigenous and scientifically robust online, diagnostic assessment tool developed for children in grades 4, 5 and 6. It tests children's meaning making (comprehension) and word use fluency (vocabulary) at various degrees of complexity. Based on these, it describes the independent reading ability of children attending unaided, private, English medium schools in urban and semi urban areas. It is also a free assessment and is open to all private unaided English medium schools.

The objective of the FAST Assessment is to serve as a base from which educators and policymakers can:
1. Understand the reading process
2. Assess two components of the reading process – comprehension (meaning making) and vocabulary (word use fluency)
3. Understand how the children's home environment impacts reading skills

Participation, Coverage and Assessment principles:
19,765 children from grades 4-6, across 106 schools in 20 states of India voluntarily participated for this assessment. The children took this 50-mark, 40-minute MCQ style assessment on an intuitive online platform in the school computer lab under the teacher's supervision. Experts used principles of learning from Bloom's Taxonomy, after a thorough analysis of the National Curricular Framework, ICSE Curricular Standards of 2013 and textbooks from major curriculum publishers across India, to create FAST. Children were presented with 36 items to test their comprehension and 14 individual items around vocabulary skills. The test items actually measured the skills they were created to measure, and every item tested one particular skill at a pre-defined difficulty level.
Results and FAST Reading Proficiency Levels:
Children’s test responses were analysed using a 3-parameter IRT analysis. To be meaningful, test scores must be related to test content as well as to the scores of other examinees. Hence, FAST Proficiency Levels were created to describe the expected performance of students, in the increasing order of challenge and complexity.

FAST currently uses two scales:
- Grade 4 student abilities, mapped on one scale with 4 proficiency levels: Level One to Level Four
- Student abilities of the children from both grades 5 and 6, mapped on a combined scale with 5 proficiency levels – Level One to Level Five

Worrisome Data Trends:
- Out of the 7,288 children who appeared in FAST 4, only 12.5% children demonstrate a full and detailed understanding of one or more kinds of texts and are able to challenge themselves to deal with unfamiliar ideas
- Even more surprising is the fact that 796 children – almost 11% of those who appeared in FAST 4 – don’t even have the abilities of a FAST 4 Level 1 (lowest level) reader
- For FAST 5 & 6, out of the 12,477 children who appeared for the assessment, only 2.7% displayed good comprehension skills, abilities to predict and infer and a strong knowledge of age-appropriate synonyms and antonyms
- Only 2.7% had the ability to evaluate the author’s intended effect on the reader

A Call to Action:
FAST also demonstrated that children with reading-ready environments at home, characterised by access to books of their choice, regularity of reading and support from an adult scored better than those who did not. This enlightens us about the need for a complete reading ecosystem with parents, schools and teachers as equal stakeholders in a child’s journey to build the will and skill of reading.

In the face of India’s enormous linguistic, cultural, and socio-economic diversity, to understand and address this reading gap and its impact is a task that should merit the deepest urgency, care and multi-pronged creativity. If this is not compelling enough for a dinner table conversation, what is?
Background
What we need to know about reading

Reading, as it occurs in everyday life, is a pervasive and highly diverse activity.¹ Common sense along with proven academic research in the USA, the UK and Singapore² dictate that voluntary reading and good reading ability serve as the basis for success in academics and a career of one’s choice. Teaching children to read fluently with understanding should be one of the main goals of early formal education. This is because of the abilities reading develops, namely, to achieve one’s goals, develop one’s knowledge and potential, and participate constructively in society.³

Perhaps because of this, in most developed countries of the world, it has been the norm to teach reading and conduct scientific research on reading skills from early on in a child’s academic life. This research then feeds back into creating national behavioural and environmental markers to support and enhance the reading habit. These high-quality, large-scale research programs lead to substantial human and technological investment in programs to enhance reading levels, which have proven to be great levers of success.

Countries in Asia and around the world use cutting edge assessments to fine-tune children's reading levels and create an ecosystem of parental and educator support tools. Standardised reading assessments, pre-defined reading levels and a multitude of mobile applications and offerings drive conversations around reading from roundtables in policy circles, schools, libraries to the household dining table. Dining table conversations are generally reserved for intuitively important or ubiquitous issues, such as a city’s traffic or weather problems. When reading appears as a part of someone’s dining table conversations, it is an indicator that the general populace has recognised its importance. However, India is still at a stage where its policymakers, school leaders and parents require persuasive evidence to acknowledge the pivotal role that reading plays in an individual’s academic and life achievements.

Global research proves this explicitly. According to Bernice E Cullinan of the New York University, “Students’ reading achievement has been shown to correlate with success in school and the amount of independent reading they do. This affirms the predictability of a success cycle: we become more proficient at what we practice.”⁴

Research has also shown that being able to read at expected grade level fluency, with comprehension by the end of grade 3, is the single largest predictor of all future academic success.⁵ Three quarters of children who are poor readers at the end of grade 3 will remain so during high school.⁶ By extension, one can infer that reading ability is the single largest predictor of all future middle school and high school academic success. This includes success in the board exams in grade 10 and 12 as well. Moreover, the world economy demands a more educated workforce, and grade level reading proficiency is key to achieving this.⁷
An ecosystem to bring reading instruction to the forefront does exist in India. NCERT’s National Curricular Framework of 2005 and ICSE’s Research, Development and Consultancy Division in 2013 have both deemed reading as an important focus area for language instruction.

Given that India stands at the cusp of demographic potential, this doesn’t seem enough. It is clear, now more than ever, that an impactful data-driven analysis is needed to bring two specific issues, here so far missing, about children’s reading in India, to the important conversation of the ‘dinner table’:

- What are the reading levels in English of children attending English medium schools mostly located within urban or semi-urban settings?
- How does the reading environment in one’s home affect children’s independent meaning making (comprehension) and word-use fluency (vocabulary) abilities: two important skills that drive academic achievement in primary and middle school¹

The objective of this study, conducted with children in grades 4-6 going to unaided private schools in urban and semi-urban regions, is a step towards India’s data evidence to indicate:

- What children can read,
- Which skills children possess at different grade levels, and
- What the children’s habits of reading at home with their family members, indicate about their reading skills

¹ This study focused on reading in English as it is a global, aspirational language for parents, children and schools in India.
Stones2Milestones is pioneering the effort in India to highlight that being able to read independently with fluency and comprehension matters a great deal. Reading is beyond basic literacy. It is about enhancing overall cognition, which directly impacts creativity, innovation, empathy and higher order thinking. If the young cannot read meaningfully, India cannot grow.

In fact, a study on language development in young children, titled ‘The Early Catastrophe: The 30 Million Word Gap Study’, shows that test performance at grade 3 level - age 9 is impacted by a child’s accomplishments before Kindergarten level (age 3). Children, during their first three years at home, are most absorbent and have been exposed to many different things by their families. By age 3, when many of them move on to more formal schooling, teaching interventions must focus on facilitating an entire general exposure to learning and not addressing lack of certain information or skill that they haven’t yet learnt. Once the children are able to speak for themselves, they are able to learn and embrace opportunities for new experiences. However, their past experiences at home continue to influence new opportunities for learning and experience. Simply put, events and experiences in one’s childhood determine one’s ability to gain and grasp new information.

This situation is challenging in many Indian households where English is a second or even third language. Children here are spoken to in a regional language at home and at school are expected to learn in a formal setting in a language foreign to them – English.

This challenge is further highlighted by the fact that children in early grades perform poorly in reading tests. On a test of reading comprehension administered to grade 5 students across the country, only 46% of students were correctly able to identify the cause of an event (NCERT 2011). Himachal Pradesh and Tamil Nadu, the two Indian states that participated in the PISA 2009+ test, had lower mean scores in mathematics, reading, and scientific literacy, than any participating country with the exception of the Kyrgyzstan.

Stones2Milestones’ vision is to enable children to find their place in the world through the power of reading. Our work explicitly builds the ‘skill & will’ to read with understanding (or meaning) during the formative years of three to nine. This is fundamental for not just academic excellence but also to make one an independent thinker and an empowered leader, with more chances of overall well-being and life-long success. We are committed to achieving this by explicitly teaching children of ages 3-9 to read in English.
By teaching children to read and creating a love for it, we are equipping them to understand the world, as it is today and also preparing them for the unknown.

The depth, deliberateness and the intensity this work demands\(^b\) – even its need – are invisible to the eye, but meeting the need itself is essential. FAST is a part of this intensity. The first step to put reading on the dining table is to create awareness on the state of reading in India today. The FAST assessment is a step in this effort to show this through hard-hitting assessment and behavioural data.

\(^b\)Find our approach to teaching reading in Appendix 1.
Objectives
There is enough evidence to prove that while the importance of early grade reading is undeniable, there is a dearth of data to make this truly visible for educators serving the Indian ecosystem.

The objective of the FAST Assessment is to serve as a base from which educators can:
- Understand the reading process
- Assess two components of the reading process – comprehension and vocabulary (meaning making and word use fluency)
- Understand how the children’s home environment impacts reading skills

Principles
Though reading is a complex and diverse activity, it is important to quantify it and define it. For the purposes of FAST, we adopted the definition of reading as given by NAEP (National Assessment of Educational Progress, USA), that defines reading as a dynamic cognitive process that allows students to:
- Understand written text
- Develop and interpret meaning, and
- Use meaning as appropriate to the type of text, purpose, and situation

These processes, as defined by NAEP, are built on two key abilities of a reader - decoding and meaning-making. ‘Decoding’ skills are what enable us to read a text and ‘Meaning-making’ skills and strategies enable us to understand, engage and get involved with a piece of text. Decoding is being able to use visual, syntactic, or semantic cues to make meaning from words and sentences, and it includes phonics, phonemic awareness and recognizing high-frequency words. Meaning making includes comprehension, word use fluency (vocabulary usage) and reading fluency (reading with tone and expression).

FAST is a diagnostic assessment tool developed for children in grades 4, 5 and 6. At this age, according to various curricular frameworks in India, children are already supposed to be independent readers, and as a result, well versed with decoding skills. FAST tests children's meaning making (comprehension) and word use fluency (vocabulary) at various degrees of complexity. Based on these, it describes the independent reading ability of children attending unaided, private, English medium schools in urban and semi urban areas.

Framework
As a guiding document for the overall project, the FAST blueprint was developed in consultation with a panel of language, reading and assessment experts.
The test items were age-appropriate with engaging texts, different genres and set to measure pre-defined skills.

It is a document which was created over three rounds of reviews and updates. It includes content and skill based guidelines to support item creation and lists the skills and sub-skills required by a student in order to answer a certain kind of question.

The assessment, presented to the 19,765 participating children of grades 4, 5 and 6:

- Was completely online
- Was designed to give children a stimulating, age appropriate and challenging experience
- Had two sections: Meaning making (comprehension) with 36 individual questions and Word use fluency (vocabulary) with 14 individual questions
- Had three passages. Children taking FAST 4 were presented with a poem, a non-continuous instructional passage (recipe) and a continuous narrative passage. Children taking FAST 5 and 6 were presented with a poem and two continuous narrative passages
- Was completely objective. It only included MCQs. There were 12 questions with three options each for the poem and the passage in the comprehension section and 14 questions in the vocabulary section
- Purely competency-based, linking every question to a particular skill
- Lasted for 40 minutes and was worth 50 marks
Test item development

On the basis of the assessment blueprint, our team of experienced English language and assessment experts created all the test items after a deep study of the National Curricular Framework, ICSE Curricular Standards of 2013 and textbooks from major curriculum publishers across India. This was a challenging exercise due to the absence of rigorous, definite and specific standards of reading. We took special care to ensure that the test items would be pedagogy and school board agnostic. Furthermore, we were careful that:

- The selection and number of words in the passages, instructions, test items and answer options were age appropriate
- Texts used were engaging, of different genres and similar to what students encounter at each grade level
- The test items actually measured the skills that they are designed/created to measure, and that every item tested one particular skill at a pre-defined difficulty level

We used Bloom’s taxonomy as a brief guide to map questions by skill and difficulty level, and created one assessment for grade 4 and one for grades 5 and 6 combined for greater granularity of data for analysis. We also created a detailed item map to capture this mapping, wherein each test item was tagged with the skill and sub-skill being tested. Then, an elaborate item descriptor was developed for each test item during the item design phase. For quality control, a team of three experts reviewed each descriptor against the FAST blueprint.

After test item generation, a different panel of experts examined each passage and test item to ensure curricular appropriateness as well as fairness towards gender, cultural and ethnic sensitiveness. We removed all the items that tested more than one skill, were too simple or complex for a level or required for the children to have specific cultural knowledge.

Execution

FAST was a completely free of charge, online, self-administered assessment for children in a school setting. We reached 106 participant schools through outreach efforts and they participated voluntarily.
The FAST Journey

**OBJECTIVES**
- Understand the reading process
- Assess comprehension and vocabulary (meaning making and word use fluency)
- Understand how the children’s home environment impacts reading skills

**FRAMEWORK**
Comprehensive document containing content and skill based guidelines to support item creation and the skills and sub-skills required by a student in order to answer a certain kind of questions

**EXECUTION**
FAST was a completely free of charge, online, self-administered assessment for children in a school setting

**CREATION**
Test item creation on the basis of assessment framework after deep study of the National Curricular Framework, ICSE Curricular Standards of 2013 and textbooks from major curriculum publishers across India

**PRINCIPLES**
- Timeliness
- Consistency
- Audit compliance
- Validity
- Fairness
- Reliability

**CREATION**

1. Item design and development on the basis of framework
2. Internal & External review
3. Cog-lab pilot under close observation
4. Items uploaded on platform for IRT trials
5. Psychometric analysis using 3-parameter IRT
6. Final assessment
We then shared an administration manual with the schools that registered to help conduct the tests in their computer lab under the supervision of lab assistants and teachers. Online administration for this one of a kind, reading assessment helped us reach many schools and children in urban and semi-urban pockets of the country. The further advantage of an automated system is that it removes errors that may have resulted from manual scoring or data entry.

We developed our own state-of-the-art, child-friendly, simple and easy to navigate platform, which recorded every child’s response to each test item, the time taken by the child on each test item, as well as child’s score on each test item. At the end of the test every student was able to see his or her own detailed performance scorecard. Only authorised data analysts had access to download student assessment data from the platform for further analysis. We ensured the confidentiality of the children's identities at all times.

Coverage and Participation
FAST was formally launched in the month of September 2017, post which, the test items went through stages of further fine-tuning on the basis of rigorous analyses of test and item characteristics obtained from 3-parameter IRT (Item Response Theory) analysis. A total of 19,765 students from 106 schools across 20 states participated in FAST.

Given that the purpose of this entire project was to understand children's reading levels after they theoretically become independent readers (post grade 3), FAST was administered to children in grades 4, 5 and 6 of private, unaided, English medium schools. We hypothesised that after grade 3, the most important measurable goal associated with continued reading growth and development, is for students to learn and apply reading strategies for understanding texts and other materials at increasing levels of difficulty across the instructional areas. With an aim to study the impact of reading gaps over time, we decided to also test children in grades 5 and 6.

The characteristics of schools that participated in FAST:
- Private, unaided, English medium schools
- Situated in tier 1, 2, 3 cities of India as per the Census of India, 2011
- Schools situated in villages were geographically located in the vicinity of urban centres
- Catering to the urban or semi-urban population

Tables 1 and 2 summarise the participation in the FAST assessments in each grade level and by states.

*Find a sample of the individual student report in Appendix 4.*
### Table 1: No. of children who appeared for FAST by grade

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<th>GRADE</th>
<th>NO. OF CHILDREN</th>
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<td>5</td>
<td>8268</td>
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<tr>
<td>6</td>
<td>4209</td>
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<td><strong>GRAND TOTAL</strong></td>
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### Table 2: No. of children who appeared for FAST by State

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<th>STATE</th>
<th>No. of Students for FAST 4</th>
<th>No. of Students for FAST 5</th>
<th>No. of Students for FAST 6</th>
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<td>West Bengal</td>
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<td><strong>Grand Total</strong></td>
<td><strong>7288</strong></td>
<td><strong>8268</strong></td>
<td><strong>4209</strong></td>
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</table>

*By the day of commencement of the analysis, only 2 children from Rajasthan had appeared for the assessment.*
From Raw Scores to the FAST Scale, Reading Proficiency Levels, Student-wide distribution at each level, Data stories

By many standards FAST is a breakthrough for educators in India. It measures children’s performance across a gamut of higher order and lower order reading skills and uses this performance to pinpoint the child’s reading ability along an indigenously developed and scientifically robust reading scale. To be meaningful, any test scores must be related to test content as well as to the scores of other examinees. Hence, FAST Proficiency Levels were created to describe the expected performance of students, in increasing order of challenge and complexity, when students respond to various test items and text types. The specific cognitive processes and associated skills described against each proficiency level are directly linked with students’ reading abilities.

The possibility this creates for educators is endless. There is now a clear road map to indicate the abilities a child at each reading level possesses, along with a data-driven approach on the kinds of skills teachers need to work on developing to enhance children’s reading levels. Since the assessment also caters to a specific target audience, the opportunities for teacher-level collaboration, sharing of ideas and conducting pilot interventions is a hugely scalable initiative, waiting to be taken.

From Raw Scores to the FAST Scale and FAST Proficiency Levels

While FAST was a 50-mark test, raw scores often have limitations in reporting latent traits of students that sometimes leads to the misinterpretation of skill proficiency. This is especially true in the case of comparing student abilities of different test groups and monitoring progress in learning. Therefore, following the final phase of testing, student ability levels (theta) were computed in January 2018 through a 3-parameter IRT analysis. Subsequently, these latent ability scores were transformed to FAST Scale Scores through linear transformation. According to Kolen and Brennan (2004), when scale scores are constructed, the direct relationship of the scores to the test content might be lost. Hence, to aid in score interpretation by providing content information along with scale score in the form of proficiency levels, item mapping and scale anchoring procedures were used.

Item maps are tools that help readers understand student performance. To create FAST Item maps, all items in the test were ordered in descending order of difficulty using parameter (difficulty) values obtained from the IRT analysis, based on how many children answered each question correctly. At the time of test item design, describing the knowledge and skills required to answer each item successfully, a team of content experts created descriptors for each item. Bock, Mislevy and Woodson (1982) suggested this type of item map procedure for use in NAEP. The items in FAST Item map were additionally tagged with the skills and sub-skills required for skill-based analysis.
The FAST Assessment

1. Raw Scores
   - FAST is a 50-mark test. The raw scores (number of items correctly answered by a student) often have limitations in reporting latent traits of students that sometimes leads to the misinterpretation of skill proficiency, hence they are required to be transformed to scale scores.

2. 3-Parameter IRT Analysis
   - IRT is a modern paradigm for design, analysis and scoring of tests. It is a family of statistical models used to calibrate test items, and to score student ability. The 3-parameter model uses item difficulty, item discrimination and the extent to which students can guess the correct answer.

3. Latent Ability Scale
   - Student ability levels (theta) were computed at the end of 3 PL IRT analysis. In IRT, Persons and items are located on the same continuum, individual children were located on the latent variable continuum according to observed responses to each item.

4. FAST Scores
   - To aid in score interpretation by providing content information along with scale score, item maps and person-item-maps were used in scale anchoring procedure. In item maps, each item is tagged with skills/sub-skills being tested, and an item descriptor. In a person-item-map, student ability distribution is plotted against the item difficulty distribution.

5. Linear Transformation
   - FAST Scores were created using Linear transformation. In FAST-4 or FAST-5 & 6, a student can score minimum 200 and maximum 800.

6. Latent Ability Score
   - Scale anchoring is the process of identifying a set of score points (also called cut-off scores) and providing general statements of what a students achieving each of these selected score points know and are able to do when presented with the test items on the given item map.

7. Proficiency Levels Linked to the Fast Scores
   - FAST-4 has 4 proficiency levels, while FAST-5 & 6 have 5 proficiency levels. It is assumed that students know and are able to do all of the skills in the statements at or below a given proficiency level. It must be noted that there isn’t sharp difference between the students scoring just below and just above a level cut-off score.

As a process of reflecting student performance, latent ability was scaled to FAST Scores using linear transformation, where mean = 500 and standard deviation = 50.
To further create proficiency levels from the item map, a scale anchoring procedure was adopted. Scale anchoring is the process of identifying a set of score points (also called cut-off scores). It also includes providing general statements of what students achieving each of these selected score points know and are able to do when presented with the test items on the given item map. Typically, these cut-off scores are either equally spaced along the scale score or are selected to be a set of percentiles, such as the 10th, 25th, 50th, 75th and 90th percentiles.19

To identify the cut-off scores for FAST proficiency levels, an exploratory data analysis of the person item map was carried out by plotting student ability distribution against the item difficulty distribution. Almost equidistant score points were identified along the ability scale, and these identified theta cut-off levels were transformed to scale scores as per the process given above. Based on the descriptors of items that were found within each cut-off scale score range, content specialists developed general statements of skills and knowledge demonstrated by students scoring in each range.

**Excluded Data**

On the FAST platform, we are able to see a child’s response to each test item, whether that response is correct or incorrect and the time taken by a child to answer each test item. Interestingly, it was observed that several children across grades, answered a few test items in an unreasonable short amount of time, less than 3 seconds for instance. It is improbable that a child is able to read and respond to a question by clicking on it in such a short time frame. Hence all test items in such instances were treated as ‘Not Administered’, i.e., not counted for scoring, during IRT analysis. There was no pattern of specific test items being responded to in such a fashion. This points to several behavioural peculiarities, which could include reading fatigue, non-seriousness and bad monitoring practices.
In scale anchoring, it is assumed that examinees know and are able to do all of the skills in the statements at or below a given score level. It should also be noted that there is not sharp difference between the students scoring just below and just above a level cut-off score. Each level is a continuum indicating that a student scoring higher than others within a given proficiency level has higher probability of answering the items correctly compared to the students scoring lesser within the same proficiency level.

FAST currently uses two scales:

- Grade 4 student abilities, mapped on one scale with 4 proficiency levels: Level one to Level four
- Student abilities of the children from both grades 5 and 6, mapped on a combined scale with 5 proficiency levels: Level one to Level five

Scores on both of these scales range between 200 and 800 (Mean=500; and SD=50).

FAST Reading Proficiency Levels
For capturing the progression of reading skills with complexity and difficulty of the test items, the scale score has been divided into various levels of increasing proficiency, almost equally spaced on the scale.

As seen in the tables that follow, a cut-off score and ability descriptors characterise each level. Level descriptors explain in detail the skills and sub-skills a child has and the cognitive processes he is able to perform. It is assumed that a child who has achieved a certain proficiency level is able to demonstrate the skills described at that proficiency level as well as below that level. The story of how children in private, unaided English medium schools read, comes to life here.
At this reading level, readers can:

- Locate one or more specific pieces of explicitly stated information from age-appropriate yet unfamiliar descriptive text.
- Understand how an author’s choice of words and language add meaning to a text when there is minimal competing information.
- Able to make simple connections between events in the text and common, everyday knowledge.
- Perform simple meaning making tasks at this stage.

At this reading level, readers can do everything at Level 1, plus:

- Locate one or more pieces of information through inference or retrieval.
- Understand and relate with characters of a text, compare and contrast their feelings and actions and construe meaning within a limited part of the text with implicit information.
- Use textual and pictorial clues to ascertain the meaning of unfamiliar words and also understand the use of idioms and metaphors.

At this reading level, readers can do everything at Level 1 and 2, plus:

- Connect information found in a text to knowledge from other sources.
- Assess the claims made in the text against their own age-appropriate knowledge of the world.
- Perform appreciative, analytical and evaluative tasks.

At this reading level, readers can do everything at Levels 1, 2 and 3 plus:

- Demonstrate a full and detailed understanding of one or more kinds of texts.
- Deal with unfamiliar ideas, in the presence of prominent competing information.
- Generate abstract categories for interpretations.
- Display sophistication in comprehension and vocabulary, both.

Only 12.5% children out of 7288 can proficiently read and comprehend unfamiliar, age-appropriate text, a skill children should have learnt by the end of grade 3.
Level 1
Children at FAST 4 – Level 1 (below FAST Score 440): 10.9%

Children at FAST 4: Level 1 are able to:
- Recognise and retrieve explicit information from the title of the text
- Interpret information from a specifically highlighted part of the text
- Understand how an author’s choice of words, sentence structure and figurative language add meaning to text
- Make straightforward inferences about the relationship between two pieces of information (actions or explanations) in the text
- Identify meanings of simple words by using textual or pictorial contextual clues
- Identify synonyms of specific words in a sentence from a range of simple, familiar options

Level 2
Children at FAST 4 – Level 2 (Cut-off FAST Score 480): 29.3%

Children at FAST 4 - Level 2 are able to:
- Recognise and retrieve explicit information from the body of the text
- Evaluate a piece of text and recommend alternative ideas for specific questions asked
- Evaluate the use of literary tools like idioms and provide insights on their effects on a piece of text
- Compare and contrast two characters in a single piece of text
- Construe the meaning of a phrase in an instructional text based on contextual clues
- Recognize the use of some language features (e.g., metaphor, tone, imagery) of a piece of text and apply that knowledge to make logical connections and provide explanations
- Identify meanings of slightly more complex words by using textual or pictorial contextual clues
- Identify synonyms of specific words in a sentence from a range of slightly difficult options

Level 3
Children at FAST 4 – Level 3 (Cut-off FAST Score 520): 24.6%

Children at FAST 4 - Level 3 are able to:
- Integrate information across a text to explain relationships and sequence of events
- Interpret reasons, recognize evidence, and give examples to establish causal relationships between two pieces of information in descriptive text
- Appreciate and evaluate the style of narrative or instructional text

*Find detailed level descriptors in Appendix 5.*
• Identify antonyms of words in context from a range of simple options

**Level 4**

**Children at FAST 4 – Level 4 (Cut-off FAST Score 560): 12.5%**

Children at FAST 4 - Level 4 are able to:

• Infer the meaning of unfamiliar words from clues in a sentence
• Integrate textual information to interpret the writer’s mood and tone across a poem, associate it with simple images and analyse its intended effect on the reader
• Distinguish and interpret complex information from different parts of text in order to answer questions that use language features like metaphors, idioms and homophones

**FAST 4: A data story**

Sullivan and Bowen’s (2013) elegant study investigated links between own reading and reading in the home and cognitive scores of vocabulary, mathematics and spelling. They found that those who read books at or before age 10 and newspapers at or before 16, had a 14.4 percentage point advantage in vocabulary, a 9.9 percentage point advantage in mathematics, and an 8.6 percentage points advantage in spelling at age 16.²¹

Given this research it is alarming that out of the 7,288 children who appeared in FAST 4, only 12.5% children demonstrate a full and detailed understanding of one or more kinds of texts and are able to challenge themselves to deal with unfamiliar ideas. An analysis of NCERT, ICSE and state board curricula shows that unfamiliar ideas are predominant in children’s learning material from grade 4 onwards (since newer subjects are also introduced), and this suggested inability to deal with them is worrying. By extension, the lack of this ability, coupled with difficulties in categorising and processing information, must have a negative impact on a child’s overall academic achievement.

Even more surprising is the fact that 796 children – almost 10.9% of those who appeared in FAST 4 – don’t even have the abilities of a FAST 4 Level 1 reader. This means that children are graduating from one grade to the next without essential tools for success, and are dangerously close to falling behind through high school. Juel C’s (1991) essay titled ‘Beginning Reading’ in The Handbook of Reading Research suggests (which this data agrees with) that in the beginning some children rely heavily on word memorisation and appear to be successful at word reading, but struggle to make meaning in the later grades when such memorisation becomes inefficient.²² This seems exactly to be the case here.

On a brighter note, the 12.5% of children at or above FAST 4 level 4 are able to demonstrate a full and detailed understanding of one or more kinds of texts. A child at this level shows sophistication in comprehension and vocabulary, both.
Only 2.1% children out of 8268 show advanced comprehension and vocabulary abilities.

**FAST 5 Reading Level Descriptors**

**Level 1**
At this reading level, readers can:
- Locate one or more specific piece of explicitly stated information from age-appropriate yet unfamiliar descriptive text
- Understand how an author’s choice of words and language add meaning to a text when there is minimal competing information
- Draw simple contrasts with information in text and their view of the world

**Level 2**
At this reading level, readers can do everything at Level 1 plus:
- Locate and interpret one or more pieces of information from the body of a text
- Relate with characters of a text and use information about the character’s feelings and actions to identify their traits
- Interpret the writer’s mood and tone to gauge their effect on the readers
- Use context clues to ascertain the meaning of unfamiliar words as well

**Level 3**
At this reading level, readers can do everything at Level 1 and 2 plus:
- Demonstrate a better understanding of narrative and descriptive texts
- Infer with depth even when presented with unfamiliar ideas
- Display strong word analysis
- Apply literary tools like metaphors

**Level 4**
At this reading level, readers can do everything at Levels 1, 2 and 3 plus:
- Understand and appreciate text
- Integrate different messages from a piece of text and also extend their understanding to unknown examples
- Perform appreciative, analytical and evaluative tasks well
- Evaluate the effect on the reading of the author’s language and style choices
- Display strong knowledge of word meanings, synonyms and antonyms
- Show advanced comprehension and vocabulary abilities

**Level 5**
At this reading level, readers can do everything at Levels 1, 2, 3 and 4 plus:
- Understand and appreciate text
- Integrate different messages from a piece of text and also extend their understanding to unknown examples
- Perform appreciative, analytical and evaluative tasks well
- Evaluate the effect on the reading of the author’s language and style choices
- Display strong knowledge of word meanings, synonyms and antonyms
- Show advanced comprehension and vocabulary abilities
Only 3.9% children out of 4209 show advanced comprehension and vocabulary abilities.

**FAST 6 Reading Level Descriptors**

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>At this reading level, readers can do everything at Level 1 plus:</td>
<td>At this reading level, readers can do everything at Level 1 and 2 plus:</td>
<td>At this reading level, readers can do everything at Levels 1, 2 and 3 plus:</td>
<td>At this reading level, readers can do everything at Levels 1, 2, 3 and 4 plus:</td>
<td>At this reading level, readers can do everything at Levels 1, 2, 3 and 4 plus:</td>
</tr>
<tr>
<td>Locate one or more specific piece of explicitly stated information from age-appropriate yet unfamiliar descriptive text</td>
<td>Locate and interpret one or more pieces of information from the body of a text</td>
<td>Demonstrate a better understanding of narrative and descriptive texts</td>
<td>Evaluate the effect on the reading of the author’s language and style choices</td>
<td>Evaluate the effect on the reading of the author’s language and style choices</td>
</tr>
<tr>
<td>Understand how an author’s choice of words and language add meaning to a text when there is minimal competing information</td>
<td>Relate with characters of a text and use information about the character’s feelings and actions to identify their traits</td>
<td>Infer with depth even when presented with unfamiliar ideas</td>
<td>Display strong knowledge of word meanings, synonyms and antonyms</td>
<td>Display strong knowledge of word meanings, synonyms and antonyms</td>
</tr>
<tr>
<td>Draw simple contrasts with information in text and their view of the world</td>
<td>Interpret the writer’s mood and tone to gauge their effect on the readers</td>
<td>Display strong word analysis</td>
<td>Show advanced comprehension and vocabulary abilities</td>
<td>Show advanced comprehension and vocabulary abilities</td>
</tr>
<tr>
<td>Use context clues to ascertain the meaning of unfamiliar words as well</td>
<td>Use context clues to ascertain the meaning of unfamiliar words as well</td>
<td>Apply literary tools like metaphors</td>
<td>Perform appreciative, analytical and evaluative tasks well</td>
<td>Perform appreciative, analytical and evaluative tasks well</td>
</tr>
</tbody>
</table>
The sections below indicate what a child, at different reading levels is able to do.

No. of Grade 5 children below FAST 5 – Level 1 (below 200): 12.8%
No. of Grade 6 children below FAST 5 – Level 1 (below 200): 10%

Children’s abilities as reflected in their Reading Proficiency Levels: FAST 5, 6th

**FAST 5 Level 1**

**Grade 5 children at FAST 5 – Level 1 (Cut-off FAST Score 440): 23.2%**

**Grade 6 children at FAST 5 – Level 1 (Cut-off FAST Score 440): 19.8%**

Children at FAST 5 - Level 1 are able to:

- Recognise and retrieve explicit information from the beginning of the text
- Make simple predictions about a character’s future behavior/action based on information provided in the body of the text
- Evaluate a piece of text and recommend alternative ideas for specific questions asked
- Draw contrasts between information in a passage and current knowledge of the world
- Identify synonyms of words in a sentence from a range of simple, familiar options
- Identify meanings of simple words by using textual contextual clues from a sentence

**FAST 5 Level 2**

**Grade 5 children at FAST 5 – Level 2 (Cut-off FAST Score 480): 30.5%**

**Grade 6 children at FAST 5 – Level 2 (Cut-off FAST Score 480): 29.3%**

Children at FAST 5 - Level 2 are able to:

- Recognise and retrieve explicit information from the body of the text
- Interpret information from a specifically highlighted part of the text as instructed
- Use prior knowledge to hypothesise about or critically evaluate a text
- Infer the traits of a character from descriptions provided in the body of a passage
- Explain causal relationships or interactions between two or more individuals or events in narrative text based on specific information
- Infer the meaning of a phrase by relating it to broad context in narrative text
- Integrate textual information to interpret the writer’s mood and tone across a passage and analyse its intended effect on the reader

**FAST 5 Level 3**

**Grade 5 children at FAST 5 – Level 3 (Cut-off FAST Score 520): 23.2%**

**Grade 6 children at FAST 5 – Level 3 (Cut-off FAST Score 520): 24.6%**

Children at FAST 5 - Level 3 are able to:

- Use literary tools such as metaphors to describe a character in a poem
- Determine the implicit theme or main message of a passage
- Determine the implicit message of a sentence and as a result replace a non-sense word with a sensible word from a set of options
- Identify synonyms of specific words in a sentence from a range of slightly difficult or unfamiliar options
Weaving a Story from the Data

**FAST 5 Level 4**

- Grade 5 Children at FAST 5 – Level 4 (Cut-off FAST Score 560): 9%
- Grade 6 Children at FAST 5 – Level 4 (Cut-off FAST Score 560): 12.8%

Children at FAST 5 - Level 4 are able to:
- Use prior knowledge to infer and connect meanings of two unfamiliar words in a sentence.
- Integrate textual information such as use of language features (like idioms and metaphors) across a poem, to analyse its intended effect on the reader.
- Analyse an unfamiliar example and match it with relevant information in narrative text.

**FAST 5 Level 5**

- Grade 5 children at FAST 5 – Level 5 (Cut-off FAST Score 600): 2%
- Grade 6 children at FAST 5 – Level 5 (Cut-off FAST Score 600): 4%

Children at FAST 5 - Level 5 are able to:
- Appreciate and evaluate the style of a poem through the poet’s choice of words, figurative language and sentence structure.
- Infer the meaning of an unfamiliar word by relating it to broad context in a sentence.
- Identify antonyms of words in context, from a range of complex or unfamiliar options.

**FAST 5 and 6: A Data Story**

For FAST 5 & 6, out of the 12,477* children who appeared for the assessment, only 337 displayed good comprehension skills and strong knowledge of age-appropriate synonyms and antonyms, as well as abilities to evaluate the author’s intended effect on the reader.

*8268 children in FAST 5 + 4209 children in FAST 6

Developmentally, at age 10-12, children are at the beginning of a stage where they seek to clarify and express more complex concepts, move from the concrete to the abstract and apply general principles to the particular. When the tools for such expression (such as a rich vocabulary) are under-served, the readiness gap becomes an achievement gap which persists over the students’ school experience.

The same study also shows that good and poor readers differed in their listening comprehension by only one month at school beginning, but by 30 months by grade 4. It means that this learning gap, that has been captured by the FAST study in grade 4 onwards, must have started in early grades and therefore must be captured early on as well. Reading cannot happen in an isolated manner. It must be complemented and enhanced by speaking, listening and most importantly, writing and expression. The instrumental point that emerges here shows that not only poor listening leaves something to be desired in a child’s reading ability, but that poor reading ability also affects a child’s listening skills with the passage of time.
According to Lewis and Patrick (2001), “Learning to read is not just one of the goals of schooling. It is essential if students are to succeed in any grade, in any subject. According to the National Reading Panel only about 5% of children learn to read effortlessly. About 60% find early reading difficult, and of that number, 20-30% really struggle. By fourth grade, the seriousness of the problem for these children becomes obvious.”

For the 10.9% children who performed below FAST 4 Level 1, and the 10% children who performed below FAST 5 Level 1, this problem is painfully real – especially since it affects other academic subjects as well. This stands at quite a contrast to the children at FAST 5 level 5, who are able to evaluate the effect of the author’s language and style choices on the readers. They are also able to display strong knowledge of word meanings, synonyms and antonyms. This shows that their depth of reading and vocabulary abilities complement each other towards better understanding of a text. Their comprehension and vocabulary abilities are both advanced.

This awareness, backed by data, comes at a crucial moment in time where educators hold it in their hands to teach reading in the classroom, with the required attention and dedication, to children in grade 4 and below. Just assuming that children in private, unaided schools will ‘pick reading up’ because they go to an English medium school is akin to saying that one will learn to cook just because one lives in a house with a kitchen. Explicit instruction is the key.

We are preparing our children to live in an ambiguous world, honing them for careers that don’t exist today. In this context, the only tools we can empower them with are the ones of expression and creating their own meaning by sifting through reams and reams of information until something of true relevance emerges. Developing the will and skill to read in English is non-negotiable in such circumstances. The earlier we rise to the challenge, the more equipped our children will be.
An analysis of children’s reading environments at home and correlation with their performance on FAST

The children were asked to respond to a short, six-question survey at the end of the assessment. This survey was intended to explore a child’s reading environment at home, access to books and reading material in English and availability of reading role models to encourage out-of-school reading. The questions were:

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you read in English at home?</td>
<td>YES NO</td>
</tr>
<tr>
<td>Do you have books in English at home?</td>
<td>YES NO</td>
</tr>
<tr>
<td>Do you select the books you want to read?</td>
<td>YES NO</td>
</tr>
<tr>
<td>Do you like to read?</td>
<td>YES NO</td>
</tr>
<tr>
<td>Whom do you read with at home? (Multiple answers allowed)</td>
<td>Myself/Father/Mother/Grandparents/Brother/Sister</td>
</tr>
<tr>
<td>How often do you read?</td>
<td>Almost every day Once a week Once a month</td>
</tr>
</tbody>
</table>
Children’s responses to these questions were analysed. Statistically, a significant mean difference was found after performing a series of T-tests and ANOVA followed by a post-hoc test.

In children of grades 4 and 5, the analyses show that the mean score in FAST is significantly higher for students who display the following reading habits:
- Reading in English at home
- Having English books at home
- Choosing the book one wishes to read
- Having an interest in reading itself (liking to read)
- Reading with others in the family, followed by reading alone
- High frequency of reading - reading almost every day or at least reading once a week

The results of this survey, however, really stand out for children in grade 6. Take for example, question 5, which asks ‘Whom do you read with at home?’

Q5 : Whom do you read with at home?

![Graph showing mean FAST Scale Score for Q5](image)

It is easily visible that for children in grade 6 who appeared for FAST 6, self-initiated involvement in reading is found to be in tandem with the maximum positive swing in the score. Combining these findings with those discovered from studying reading habits in grades 4 and 5, these new findings indicate that the students in grade 4 & 5 score better where they read with family members, whereas ANOVA and post-hoc tests performed on grade 6 data reveal that it does not matter whether the children read with their family members or by themselves. Therefore, data analyses suggest that the children who participated in FAST become independent readers in grade 6.

This definitively shows that reading as a skill and behaviour is best nurtured through a supportive ecosystem at home and school, both. For children, it is crucial to see good reading behaviour to get them started on their own path of reading success.

The graphs that follow show how children in different grades have responded to the survey. Each graph shows the mean scale score of all response groups for a specific survey question.

‘For descriptive statistics, please refer to appendix 7.’
Q1: Do you read in English at home?

![Bar chart showing mean FAST scale scores for different response groups.]

Q2: Do you have books in English at home?

![Bar chart showing mean FAST scale scores for different response groups.]

Q3: Do you select the books you want to read?

![Bar chart showing mean FAST scale scores for different response groups.]
Q4: Do you like to read?

Q5: Whom do you read with at home?

Q6: How often do you read?
The reading level drop among children is a major concern across the globe. Research shows that not only do reading rates decline as kids get older, but they’ve also dropped off significantly in the past 30 years. In 1984, 8% of 13-year-olds and 9% of 17-year-olds said they “never” or “hardly ever” read for pleasure. In 2014, that number had almost tripled, to 22% and 27% respectively.26

Another survey of 2,558 US parents and children, carried out for children’s publisher Scholastic and managed by YouGov, found that only 51% children said they love or like reading books for fun, compared to 58% in 2012, and 60% in 2010. According to the report, in 2014, 37% of children said they like reading a little, and 12% said they did not like it at all.27

With these disturbing global trends around reading and our own situation in India, the work that is needed to establish the importance of reading in our hearts and minds (and of course, dining tables) is deep and urgent. A study conducted by Scholastic and YouGov in India in 2016 showed that only 32% of children, only 3 out of 10, read two non-syllabus books a month annually. 85% of parents do want the children to read more, but the problem is further compounded by empty librarian positions in schools28.

Stones2Milestones wishes to explore the following with schools, teachers, parents and the wider community.

**At the school and teacher level**
- To conduct academic correlational analysis and a reading environment survey
- To conduct an analysis of the children’s Maths, Science and Social Science scores in any other standardised assessment or their own final exam, and their correlation to their FAST scores. Through this, we wish to test and demonstrate that reading impacts academic achievement.
- To conduct a ‘Reading Environment Survey’ at school level to see how the librarian’s or mother teachers’ reading habits, choice of books in the library and the time devoted to reading in a consistent manner impacts a child’s willingness to read.
- To conduct an indepth, longitudinal qualitative study on motivating teachers to take an extra step towards teaching reading and correlating that with children’s performance on the FAST assessment year on year.

**At the parent level**
To measure how much difference active engagement, with reading through technological interventions, impacts a child’s performance on the FAST assessment.
Parents are reading to their children less than ever. In 1999, children aged 2 to 7 were read to for an average of 45 minutes per day. In 2013, that number had dropped to an average of just over 30 minutes per day.

At the industry level
- To evidentiate the importance of reading for different professions
- To explore how reading is a driver of success at work and in life

When children graduate from schools and colleges and enter the workforce, they are often faced with sudden realisations about the importance of reading and its associated skills like writing at work, creativity, problem solving and driving one’s own learning, development and career growth.

Employers have also felt the effect of this phenomena, as they have indicated that 30% of the secretaries had difficulty reading at the levels required by their jobs, 50% of the managers and supervisors were unable to write paragraphs free of mechanical error, and 50% of skilled and unskilled employees were unable to solve Math problems using decimals and fraction. In fact, remedial writing courses are estimated to cost more than a shocking $3.1 billion for large corporate employers.

For the benefit of the country at large, all this research must tie back with changes at the policy and advocacy level. To reiterate here – if our youth cannot read, India cannot grow.
The purpose of this study was to test and measure the reading abilities of children in grades 4-6 of private, unaided, English medium schools from across the country. An indigenous and scientifically robust paper and an online test platform were created to test children’s decoding and meaning making skills. The study covered 19,765 children in 106 schools across 20 states of India.

Through a rigorous 3-parameter IRT led analysis and scaling process, two distinct reading scales were created, one for FAST 4 and one for FAST 5 and 6. Children were placed on the scale based on a cut-off score. Scores on both of these scales range between 200 and 800 (Mean=500; and SD=50).

The results of the study challenged the commonly held assumption that children can, more or less, read with comprehension by the time they are in grade 4. It evidentiated that children with low reading abilities are not able to perform simple tasks like retrieving information from the body of a text, making simple inferences, understanding word meanings in context or using synonyms and antonyms appropriately. FAST also demonstrated that children with reading-ready environments at home, characterised by access to books of their choice, regularity of reading and support from an adult, scored better than those who did not. This enlightens us about the need for a complete reading ecosystem with parents, schools and teachers as equal stakeholders in a child’s journey to build the will and skill of reading.

Reading skill development, especially in English, needs more deliberate attention in our schools and homes. Let us illustrate teaching reading with familiar a metaphor.

**Teaching reading to children is like teaching them to fish.**
- It serves a long-term purpose, it is deliberate and goal driven
- Since it is a skill at its core, it needs practice
- Since it is an always usable and essential skill, it fulfills the needs of the surrounding community

As one deeply explores the skill of fishing, one realises that it is actually an art. Different waters present challenges and also different fish. One needs to start slow – perhaps in a stream near home – before graduating to a large river and eventually the ocean. At every stage, the exposure increases, the challenge increases, the expertise increases and the satisfaction increases. And then, there are the tools. One would not go fishing in the sea with a flimsy rod.

The same is the case with reading. Through this report, it is evident that reading in English is a complex skill that needs to be taught early, deliberately, systematically, contextually and incrementally.

This data shows that now, more than ever, is the time to wake up to the importance of teaching children to read in English. This is possible when competencies to teach and nurture the reading habit are developed in educators and parents along with access to adequate resources and tools.
This study, with its own limitations, shows the state of reading of children in grades 4-6 in private, unaided, English medium schools today. It also empowers educators to understand that to avoid this dismal situation, we have to start teaching children to read early on, right from Kindergarten, so that they become independent readers with comprehension and fluency by the time they are 9 years old (in grade 3).

This study also illuminates how not being able to read independently by this age creates a ‘lagging effect’ with its own set of ramifications. In a world moving from the industrial age to a technological age, this skill gap will have widespread economic and political impact.

The future, however, is far from bleak. This study lays a foundation of awareness and invites collaborations from all stakeholders in providing timely reading interventions for children of the ages of 3-9. Being literate and being able to read is not only a birth right, it is a ledge for a more equal and just world. In the face of India’s enormous linguistic, cultural, and socio-economic diversity, to understand and address this reading gap and its impact is a task that should merit the deepest urgency, care and multi-pronged creativity.

If this is not compelling enough for a dinner table conversation, what is?
References


References


Appendix 1
Stones2Milestones’ approach to reading instruction

Stones2Milestones’ approach to reading instruction is simple and guided by these principles:

Start Early and Build Skills (age 3 to Grade 3)
Teach children to decode text and make meaning

Inspiration is Everything! (focus on will building with skills)
Surround children with rich, age appropriate literature that fosters a cultural connection

Don’t leave it to Chance (be systematic, extensive, explicit)
To create an internal pull for reading, children must start early, be systematic and sustain it

No Silos (learning is multi-dimensional)
Reading is complemented and enhanced by speaking, listening and written expression

Design for Sustainability and Scalability (all good work must be scaled)
Constantly innovate so that we can reach vastness and address diversity

Our pedagogy takes this approach and packages it in a way that is most beneficial for teachers to teach in a classroom setting leading to fun, for parents to explore reading with children at home and for the whole ecosystem to assess reading readiness and design interventions.
FAST is an online reading assessment for children in grades 4, 5 and 6. By grade 4, readers are far more likely to have the foundation needed to read a variety of texts and other material. It follows that in grades 4, 5 and 6, the most important measurable goal associated with continued reading growth and development is for students to learn and apply reading strategies for understanding texts and other materials at increasing levels of difficulty across the instructional areas.

What does FAST measure?
FAST tests children’s meaning making (comprehension) and word use fluency (vocabulary) in various degrees of complexity. As a result of their scores across these two skill tests, it measures children’s independent reading ability and aims to show where, in the spectrum, are our children reading today – at grade level, below grade level or above grade level.

### FAST - SKILLS SETS

<table>
<thead>
<tr>
<th>A. Comprehension Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus Area to be tested</strong></td>
</tr>
<tr>
<td>Retrieve explicitly stated information</td>
</tr>
<tr>
<td>Make Straightforward Inferences</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Application</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Analysis</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Focus Area to be tested</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
</tbody>
</table>
| **Analysis**           | 1  Analyse, compare and contrast situations, characters, relationships and elements in passages | Students to compare and contrast the events/characters in a text  
Students to describe the relationship between two characters  
Students to analyse the different components of the textual elements (character, theme, plot, setting, tone, point of view) |
|                        | 2  Understand the style and order of a text                                      | Students to note how the author’s word choice, sentence structure, figurative language, and sentence arrangement all work together to establish mood, images, and meaning in the text. |
| **Evaluation**         | 1  Understand, interpret and evaluate the author's point of view or purpose of the passage in order to rate/criticise or provide solutions to problems | Students to evaluate the authors statement and evaluate the claims made by the author. Students to understand/interpret/criticise the authors point of view |
|                        | 2  Recommend alternatives to parts of the text as asked                          | Students to evaluate a piece of text and recommend alternatives to ideas or points of view as asked.                                                  |
| **Appreciation**       | 1  Discern the mood, tone and use of figurative language in passages through idioms/metaphors and similies. | Student to evaluate the use of figurative language/ speech/proverb/ idioms and provide insights on their effects on the text.                         |

**B. Vocabulary Mapping**

<table>
<thead>
<tr>
<th>Word Use fluency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Word meaning</td>
</tr>
<tr>
<td>2  Word knowledge</td>
</tr>
<tr>
<td>3  Words in context</td>
</tr>
<tr>
<td>4  Word analysis</td>
</tr>
</tbody>
</table>
What is the format of the test?

- Completely online
- Designed to give children a stimulating, age appropriate and challenging experience
- Each test has three passages – a poem, and two passages of different styles
- All questions are multiple-choice questions
- The test is competency-based in the sense that every question is linked to a particular item
- 50 marks, 40 minutes
- Two sections: Comprehension (36 marks) and Vocabulary (14 marks)

Test Development

The following are the phases of test development:

1. Research (includes the study of frameworks like PIRLS, Florida Center of Reading Research, Alternative Assessment Techniques in Vocabulary from the Centre for Applied Research in Education, ISCE’s Research, Development and Consultancy Division)
2. Skill mapping (includes study of Bloom’s Taxonomy, CISCE Curriculum Framework 2016 and NCF 2005)
3. Skill mapping validation (from experts)
4. Item creation
5. Item testing and validation (from a sample test and experts)
6. Pilot testing
7. Item modification (through a round of IRT analysis)
8. Final test creation

Test Reporting

All children will be able to see their section wise scores at the end of the test. A detailed child and school-wise report card will be presented to the schools in due course.
Appendix 3

FAST opening page

FAST user registration form

Pre-test page

Comprehension sample question

Vocabulary sample question - 1

Vocabulary sample question - 2

Review before submitting
Appendix 4
Sample Individual Student Report

Name of the student: Gaurav Gulati
School: S2M Public School
Class: 4th
Test: FAST 4

FAST Reading Assessment™ tests children's meaning making (comprehension) and word use fluency (vocabulary) in various degrees of complexity. As a result of their scores across these two skill tests, it measures children's independent reading ability and aims to suggest areas that need celebration and intervention.

You have scored _____/50 in this assessment.
- Your score for section 1: _____/36
- Your score for section 2: _____/14

Gaurav's overall FAST snapshot
Total possible score - 50
Gaurav's total test score – 42
Time taken by Gaurav to complete the test – 25 minutes
Allocated test time – 40 minutes
Total Questions – 50
Questions that Gaurav attempted – 46

Section 1: Comprehension
Total no. of questions in this section: 36
Total no. of questions attempted: 32
Gaurav's section score: 18/36
Gaurav's section performance: 50%

<table>
<thead>
<tr>
<th>Skill</th>
<th>Description</th>
<th>Total Questions</th>
<th>Attempted Questions</th>
<th>Correct Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze</td>
<td>Draw connections among ideas. Differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test</td>
<td>8</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Apply</td>
<td>Use information in new situations. Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch</td>
<td>9</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Evaluate</td>
<td>Justify a decision or stand. Appraise, argue, defend, judge, select, support, value, critique, weight</td>
<td>9</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Retrieve</td>
<td>Retrieving explicitly stated information from unknown text</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Understand</td>
<td>Inferring the main message or theme of an unknown piece of text</td>
<td>6</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>
Section 2: Vocabulary

Total no. of questions in this section: 14
Total no. of questions attempted: 14
Gaurav’s section score - 14/14
Gaurav’s section performance: 100%

The skills tested in this section were:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Description</th>
<th>Total No. of questions testing the skill</th>
<th>No. of correct responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Meanings</td>
<td>Using prior knowledge and references to identify meanings of words</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Word Knowledge</td>
<td>identifying the meaning of synonyms, antonyms, homophones and homographs</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Word Analysis</td>
<td>identifying the meanings of words in a text by clues in the text</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

* correct responses to be inserted as per child’s answers

Report Summary:

Gaurav, in the comprehension section, you scored 50% and in the vocabulary section, you score 100% (or marks if we can’t do percentages).

Your reading rocket is in the LIFT OFF stage in comprehension. Your reading levels are good. Share what you read with your friends and family. Don't let the habit go!

Your reading rocket is IN THE STARS in vocabulary. Your ability to use words with context is superb. Keep reading to grow and glow!

‘Why is it important to be a good reader?’ you may ask. Good question and here’s why: Good readers are imaginative, creative people who can solve problems well, understand others, are better listeners and good communicators! They can feel what others feel and are kinder and stronger as well. Good readers also are curious and really eager learners. Naturally, good readers usually excel at their academics. The reader’s journey never stops!

This was a new learning experience for you, and we hope you had fun. We bet you are happy with your performance, but there is always scope for improvement.

Here are some things you can do in order to improve your reading skills:
1. Ask questions about books and stories.
2. Imagine, imagine, imagine - it’s magical.
4. Fall in love with words. Play word games with friends. Invent some yourselves.
5. Read EVERYWHERE.
6. Talk to ones you love about what they’re reading. Share with them too.
7. Make your own stories.
8. Read to love, read to challenge yourselves, read to grow.
9. Tweet what you read!
10. Read beyond your school books.
Bonus Section:

Reading Habits

We asked you to share your reading habits, and here's what you told us

<table>
<thead>
<tr>
<th>Question</th>
<th>Your Answer</th>
<th>Desirable habit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you read in English at home?</td>
<td>Insert candidate response</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you have books in English at home?</td>
<td>Insert candidate response</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you select the books you want to read?</td>
<td>Insert candidate response</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you like to read?</td>
<td>Insert candidate response</td>
<td>Yes</td>
</tr>
<tr>
<td>Who do you read with at home? (Multiple answers allowed)</td>
<td>Insert candidate response</td>
<td>Myself + Father/ Mother/ Grandparents/ Brother/ Sister</td>
</tr>
<tr>
<td>How often do you read?</td>
<td>Insert candidate response</td>
<td>Almost everyday</td>
</tr>
</tbody>
</table>

Report Summary cues:

Comprehension

<table>
<thead>
<tr>
<th>Marks (out of 36)</th>
<th>Rocket Stage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>In the Lab</td>
<td>Your reading rocket is In the Lab and needs a boost. In order to improve your performance in comprehension, you need to read the text slowly and carefully, identify the keywords in the question and then decide upon your answer. Be patient and get involved with the text.</td>
</tr>
<tr>
<td>11-20</td>
<td>Fuel Up</td>
<td>Your reading rocket needs to Fuel Up for support. In order to improve your performance in comprehension, you need to read the text slowly and carefully, identify the keywords in the question and then decide upon your answer. Read what you love and read daily.</td>
</tr>
<tr>
<td>20-25</td>
<td>Lift off</td>
<td>This means that your Reading Rocket is at the Lift Off stage. Your reading levels are good. Share what you read with your friends and family. Don't let the habit go!</td>
</tr>
<tr>
<td>26-30</td>
<td>In Orbit</td>
<td>Congratulations! This means that your rocket is in Full Orbit and your reading levels are very good! A little more effort will see you cruising among the stars.</td>
</tr>
<tr>
<td>30-32</td>
<td>In the Stars</td>
<td>Congratulations! This means that your Reading Rocket is cruising among the stars! Your reading level is superb.</td>
</tr>
<tr>
<td>33-36</td>
<td>In the Stars</td>
<td>Congratulations! This means that your Reading Rocket is cruising among the stars! Your reading level is extraordinary.</td>
</tr>
<tr>
<td>Marks (out of 36)</td>
<td>Rocket Stage</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>0-2</td>
<td>In the Lab</td>
<td>Your reading rocket is In the Lab and needs a vocab boost. Read more to know what words mean in a sentence. Make friends with a dictionary and learn new words daily. Use them in sentences</td>
</tr>
<tr>
<td>3-7</td>
<td>Fuel Up</td>
<td>Your reading rocket needs to Fuel Up for support. You need to build a richer bank of words and need to practice using them daily. Read what you love. Refer to dictionaries and thesauruses</td>
</tr>
<tr>
<td>8-10</td>
<td>Lift Off</td>
<td>This means that your Reading Rocket is at the Lift Off stage. Your word knowledge levels are good. Share what you read with your friends and family. Don’t let the habit go!</td>
</tr>
<tr>
<td>11-12</td>
<td>In Orbit</td>
<td>Congratulations! This means that your rocket is in Full Orbit and your word knowledge is very good! A little more effort will see you cruising among the stars!</td>
</tr>
<tr>
<td>13-14</td>
<td>In the Stars</td>
<td>Congratulations! This means that your Reading Rocket is cruising among the stars! Your ability to use words with context is superb. Keep reading to grow and glow!</td>
</tr>
</tbody>
</table>
Appendix 5
Reading Proficiency Level Descriptors

FAST 4: Reading Proficiency Level Descriptors
Reading Proficiency Levels: FAST 4

Level 1
Level Descriptor:
At this reading level, readers can locate one or more specific pieces of explicitly stated information from age-appropriate yet unfamiliar descriptive text, such as a poem, or a narrative text, such as a passage. When there is minimal competing information, they can also begin to understand how an author’s choice of words and language add meaning to a text. They are also able to make simple connections between events in the text and common, everyday knowledge. Children’s vocabulary skills show that they are able to perform simple meaning making tasks at this stage.

Level 2
Level Descriptor:
At this reading level, readers can locate one or more pieces of information, which may need to be inferred or retrieved from different parts of the text. They can understand and relate with characters of a text, compare and contrast their feelings and actions and construe meaning within a limited part of the text when the information provided is implicit. Children’s performance in vocabulary shows that they are able to use textual and pictorial clues to ascertain the meaning of unfamiliar words and also understand the use of idioms and metaphors.

Level 3
Level Descriptor:
At this reading level, children can connect information found in a text to knowledge from other sources, which means that they are able to assess the claims made in the text against their own age-appropriate knowledge of the world. They are able to perform appreciative, analytical and evaluative tasks.

Level 4
Level Descriptor:
Readers at this level demonstrate a full and detailed understanding of one or more kinds of texts. The tasks at hand require them to deal with unfamiliar ideas in the presence of prominent competing information, and generate abstract categories for interpretations. A child at this level shows sophistication in comprehension and vocabulary both.
Appendix 6
FAST 5, 6: Reading Proficiency Level Descriptors

Level 1
Level Descriptor:
At this reading level, readers can locate one or more specific pieces of explicitly stated information from age-appropriate texts, such as descriptive texts, poems, or narrative texts. When there is minimal competing information, they can make predictions about a character’s actions. They can also draw simple contrasts with information in text and their view of the world. They are able to perform simple, direct tasks with ease.

Level 2
Level Descriptor:
At this reading level, readers can locate and interpret one or more pieces of information from the body of a text. They can relate with characters of a text and use information about the character’s feelings and actions to identify their traits. They are more sensitive to the language of a poem or a passage and are able to interpret the writer’s mood and tone to gauge their effect on the readers. Their evaluation of a text is more pronounced and are able to connect information they read with that they experience in the world around them. They are able to use context clues to ascertain the meaning of unfamiliar words as well.

Level 3
Level Descriptor:
Readers at this level demonstrate a better understanding of narrative and descriptive texts. They are able to infer with depth even when presented with unfamiliar ideas and display strong word analysis skills, which suggests they are not thrown by unfamiliar words while reading. They use it as an opportunity to explore and discover meanings from context. They are also able to apply literary tools like metaphors to make meaning. A child at this level shows sophistication in comprehension.

Level 4
Level Descriptor:
Children at this reading level are more sensitive about the effect of a text on a reader, which shows that their reading is characterised by understanding and appreciation, both. They are able to integrate different messages from a piece of text and also extend their understanding to unknown examples. They are able to perform appreciative, analytical and evaluative tasks well.

Level 5
Level Descriptor:
Children at this reading level are able to evaluate the effect, on the reader, of the author’s language and style choices. They are also able to display strong knowledge of word meanings, synonyms and antonyms. This shows that their depth of reading and vocabulary abilities complement each other towards better understanding of a text. Their comprehension and vocabulary abilities are both advanced.
Appendix 7
Here is how the children responded to all these questions in FAST 4, 5 and 6:

<table>
<thead>
<tr>
<th>Q1. Do you read in English at home?</th>
<th>FAST 4</th>
<th>FAST 5</th>
<th>FAST 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Mean Scale Score</td>
<td>482.72</td>
<td>509.46</td>
<td>479.78</td>
</tr>
<tr>
<td>Variance</td>
<td>2,783.36</td>
<td>2,608.41</td>
<td>2,908.25</td>
</tr>
<tr>
<td>Observations</td>
<td>592</td>
<td>6012</td>
<td>603</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2. Do you have books in English at home?</th>
<th>FAST 4</th>
<th>FAST 5</th>
<th>FAST 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Mean Scale Score</td>
<td>470.40</td>
<td>509.87</td>
<td>469.08</td>
</tr>
<tr>
<td>Variance</td>
<td>2,264.71</td>
<td>2,591.62</td>
<td>2,022.86</td>
</tr>
<tr>
<td>Observations</td>
<td>416</td>
<td>6148</td>
<td>374</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q3. Do you select the books you want to read?</th>
<th>FAST 4</th>
<th>FAST 5</th>
<th>FAST 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Mean Scale Score</td>
<td>486.29</td>
<td>510.60</td>
<td>484.48</td>
</tr>
<tr>
<td>Variance</td>
<td>2,470.12</td>
<td>2,599.80</td>
<td>2,710.20</td>
</tr>
<tr>
<td>Observations</td>
<td>856</td>
<td>5690</td>
<td>1014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4. Do you read in English at home?</th>
<th>FAST 4</th>
<th>FAST 5</th>
<th>FAST 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Mean Scale Score</td>
<td>479.10</td>
<td>509.46</td>
<td>479.48</td>
</tr>
<tr>
<td>Variance</td>
<td>2,654.22</td>
<td>2,609.45</td>
<td>2,567.62</td>
</tr>
<tr>
<td>Observations</td>
<td>429</td>
<td>6108</td>
<td>533</td>
</tr>
<tr>
<td>Q5. Who do you read with at home?</td>
<td>FAST 4</td>
<td>FAST 5</td>
<td>FAST 6</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>Me with others</td>
<td>Only Others</td>
<td>Only Self</td>
</tr>
<tr>
<td>Mean Scale Score</td>
<td>520.69</td>
<td>494.30</td>
<td>515.41</td>
</tr>
<tr>
<td>Variance</td>
<td>3,172.96</td>
<td>2,333.34</td>
<td>2,395.80</td>
</tr>
<tr>
<td>Observations</td>
<td>1344</td>
<td>2866</td>
<td>2367</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q6. How often do you read?</th>
<th>FAST 4</th>
<th>FAST 5</th>
<th>FAST 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Every day</td>
<td>Once a month</td>
<td>Others</td>
</tr>
<tr>
<td>Mean Scale Score</td>
<td>512.54</td>
<td>484.84</td>
<td>498.60</td>
</tr>
<tr>
<td>Variance</td>
<td>2679.58</td>
<td>2715.20</td>
<td>2415.36</td>
</tr>
<tr>
<td>Observations</td>
<td>4445.00</td>
<td>374.00</td>
<td>1739.00</td>
</tr>
</tbody>
</table>
REGISTER NOW*

at www.f-ast.in
WhatsApp or Call us on
+91 90770 77777