

# ASSESSMENTS IN FOUNDATIONAL LITERACY AND NUMERACY

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June 2023



# Acknowledgements

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# EXECUTIVE SUMMARY

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The efforts of various organisations, the National Education Policy (NEP 2020) and the NIPUN Bharat directive have established the criticality of Foundational Literacy and Numeracy (FLN) in the long-term development of learners in terms of staying in school, improving higher order skills, earning decent livelihood, and having better social and health outcomes. Assessments play a key role in ensuring that FLN outcomes are measured and improved over time.

Assessments put a spotlight on the learning levels and inform course corrections for better learning trajectories of the child. They do so by creating awareness about poor learning levels among different stakeholders, help identify the needs of the child, indicate the changes in pedagogy and classroom management, call for better governance and help make key funding decisions for achievement of learning outcomes. As India moves towards its goal for achieving universal Foundational Literacy and Numeracy by 2026, assessments would play a major part.

## State of Learning assessments in India

Over the last two decades, four types of assessments have been used to measure learning outcomes in India. These comprise the following:

- International Assessments
- National/Sub-National assessments
- Community/Household Assessments
- School-based assessments

Through International assessments, India's standing on learning outcomes can be quantified in comparison to other countries. Tools created at the National level on the other hand, provide a view of the geographical trends in learning levels improvement as well as enable policy level decisions to be taken for learning improvement. These are implemented either in schools or community settings.

In order to create these tools as well as implement them at scale, various public actors like the Ministry of Education (MoE), the National Council for Education Research and Training (NCERT) and the Central Board of Secondary Education (CBSE) have been contributing overtime. Moreover, private stakeholders from the profit as well as non-profit spaces have enriched the assessment landscape. Institutes like ASER, JPAL, Ei and many more are enabling systemic reforms by strongly creating evidence on the need for robust assessments for FLN. These trends provide a boost to assessment creation and implementation.



Despite the presence of various forms of assessment though, the improvement of learning outcomes remains a gap. While several tools indicate the learning crises, the change in the learning levels is dismal. ASER 2022, for example has shown the following trends and these have been fairly similar over time.

- Only 48.2% learners from grade 5 in rural India are able to read grade 2 text.
- Only 25.6% learners from grade 5 in rural India are able to do basic division.

By reflecting on the reasons for the missing linkage between assessment and action, one can identify that while current assessments can be implemented at scale, and have stood the test of diversity; their focus on competencies remains a gap. Moreover, very few assessments focus on higher order skills which makes it difficult to measure learning progression and evaluate the impact of FLN on higher grades.

### Challenges impeding the assessment landscape for achieving FLN outcomes

In order to actualise the connection between assessment and interventions, the Indian education system would need to navigate through two kinds of challenges. These manifest at the classroom-level and the system-level. The classroom level challenges include factors like lack of various kinds of assessment tools, quality of assessments as well as the teacher's capacity to link assessment data to classroom planning. As important it is to deal with these micro-elements, systemic challenges of governance and accountability, barriers in implementing tech-solutions in assessment and poor budget allocations for assessments are also factors that the education ecosystem stakeholders need to deal with.

### Use Cases: Assessment tools in FLN

Among existing assessment tools across various domains in foundational literacy and numeracy, some focus on specific age-groups, for instance IDELA for early learning assessments, or specific populations such as the Assessment for All (AFA) tool which focuses on FLN skills measurement for children with disabilities.

The primer helps understand the criticality of assessments, the Indian landscape for assessments and points out specific challenge areas that impede the linkage between FLN assessments and achievement of learning outcomes and a few case studies that can be leveraged for further planning.



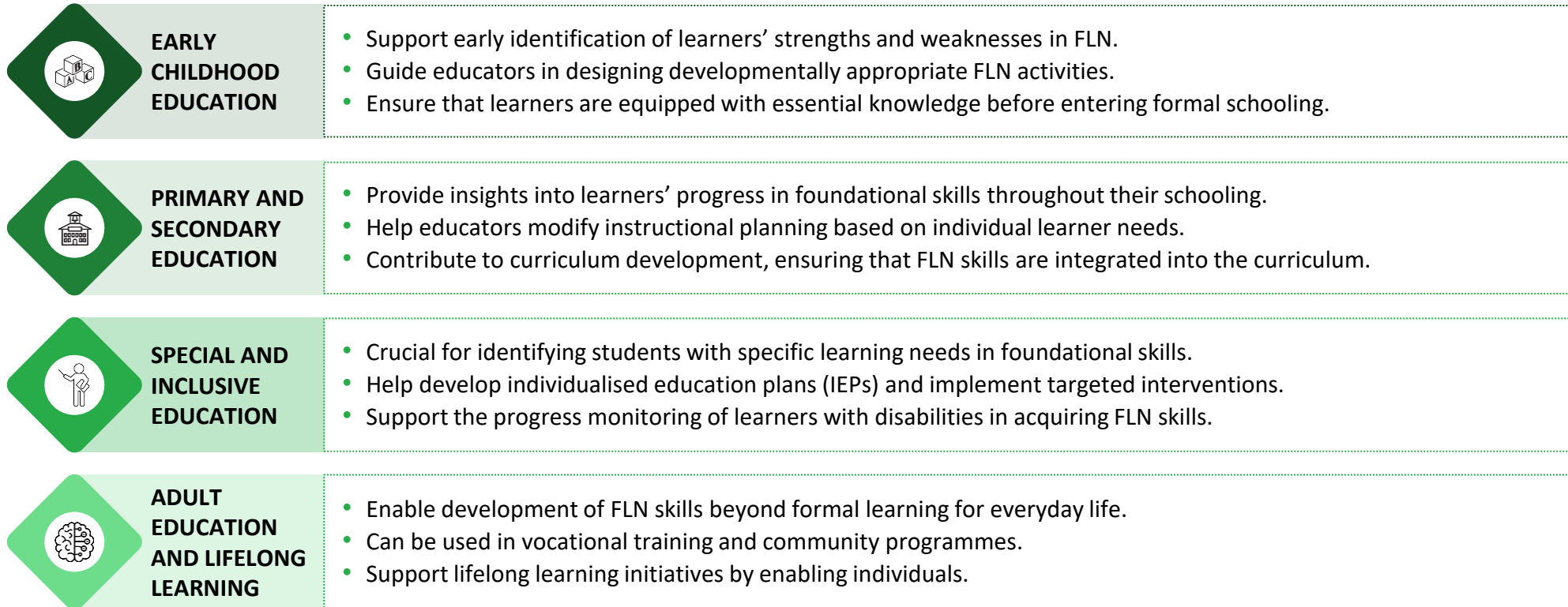
# MEANING, TYPES AND IMPORTANCE OF FLN ASSESSMENTS

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## Foundational Literacy and Numeracy (FLN) assessments are a part of pedagogical practices conducted along with specific literacy and numeracy activities or programmes.

They also enable evaluation of the overall learning process, help learners move to the next level of learning, and can be used across different learning levels.



(AFA Tool, 2019; IDELA Tool; Middletown Centre for Autism; NEP 2020 )





## FLN assessments can be of different types, depending on the purpose and nature of assessment.



### PEN-PAPER ASSESSMENTS

These assessments require learners to demonstrate their knowledge and skills through written formats and test papers.

Pen-paper assessments offer the convenience of conducting large scale assessments, and mostly focus on assessing 'knowledge'.



### PERFORMANCE BASED ASSESSMENTS

These assessments require learners to demonstrate their knowledge and skills through real-life tasks, projects, or problem-solving activities.

Performance-based assessments not only evaluate content knowledge, but also the application of that knowledge in practical situations.



### FORMATIVE ASSESSMENTS

These are ongoing and occur during the learning process. They provide immediate feedback to both learners and educators, helping them monitor progress and make adjustments to instruction as needed



### SUMMATIVE ASSESSMENTS

These are conducted at the end of a specific learning period, such as a unit, semester, or school year. They measure a learner's proficiency in FLN and are often used for grading and accountability purposes.



### STANDARDISED TESTS

In order to make these tests applicable in large population of learners across geographies and contexts, tests are standardised with clear norms and scoring criteria. This process makes the data sets comparable.

(OECD & CERI; Education Advanced, 2023)



**Assessments not only sheds light on key issues, but also provides evidence to set learning outcomes and track progress on the same.**



(SKI analysis)

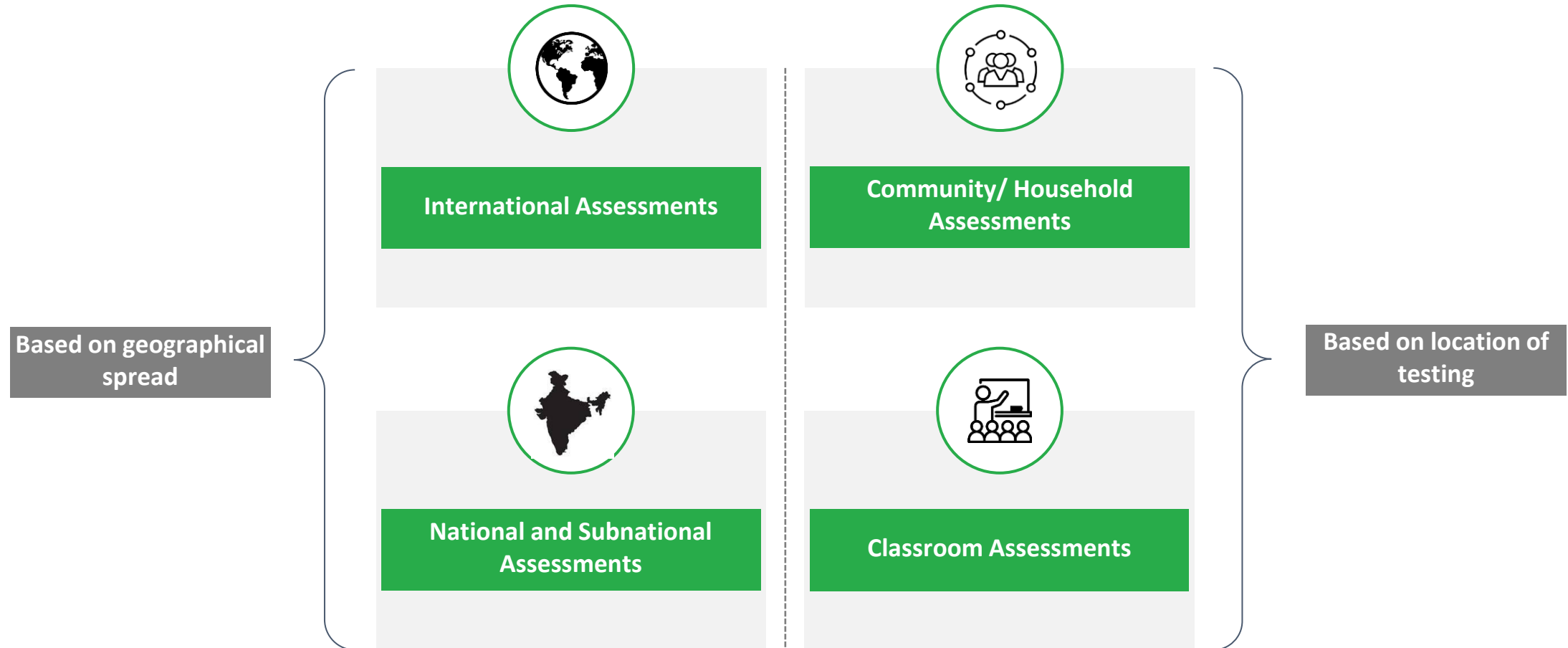


# STATUS OF LEARNING ASSESSMENTS IN INDIA

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In India, over the last two decades, four kinds of assessments have been used to measure learning outcomes at a large scale.



**International assessments allow comparisons of student achievement across countries and over time, and help indicate the needs of the country.**

## INTERNATIONAL ASSESSMENT

**Standardised tests** conducted at global scale to evaluate skills, knowledge and abilities of students across different countries.

Provides **comparative data** and insights into **educational systems worldwide**.

Typically administered to **representative samples of students** from participating countries and covers **various subjects** such as mathematics, science, and language learning.

## EXAMPLES

### Programme for International Student Assessment (PISA)



- Conducted by the Organisation for Economic Co-operation and Development (OECD).
- Assesses proficiency of 15-year-old students in reading, mathematics and science.
- Occurs every three years.

### Trends in International Mathematics and Science Study



- Administered by the International Association for the Evaluation of Educational Achievement (IEA).
- Assesses the mathematics and science achievement of students in Grades 4 and 8.
- Takes place every four years and provides comparative data on educational performance.

(CSR Report, 2018; IEA; OECD)



# School-based, group-administered standardised assessments measure students' learning levels, as well as the performance of the education system as a whole

## NATIONAL ASSESSMENTS

**Large-scale evaluations** conducted at the national level to measure the educational performance of **students across the country**.

Administered to a **representative sample of students** from different **regions within the country** to allow comparisons between them.

## SUBNATIONAL ASSESSMENTS

Also known as regional or **state-level assessments** - evaluations conducted within specific regions.

These assessments focus on assessing the educational performance and progress of students at a more **localised level**.

## EXAMPLES

### National Achievement Survey (NAS)



- Conducted in India to evaluate students' learning outcomes at the national level.
- Assesses students from Grades 3, 5, and 8 in both government and government-aided schools.

### State Achievement Survey (SLA)

**SLAs**

- Conducted across states in India to evaluate the learning outcomes of students within them.
- States determine the grade for which it should be conducted.

(UNESCO Digital Library, 2008)



## Community assessment not only assess children's learning levels, but also advocate the criticality of foundational learning with parents and other stakeholders.

### COMMUNITY/HOUSEHOLD ASSESSMENTS

Sample-based surveys or evaluations conducted in **individual households**.

Often administered by **volunteers** from the same community so that the importance of the issue is highlighted.

They measure FLN outcomes and **enable conversations** around the criticality of the issue.

### EXAMPLES

#### Annual Status of Education Report (ASER)



- Conducted by the non-profit Pratham Education Foundation.
- Measures literacy and numeracy levels for learners across ages 6-14.
- Conducted across 616 districts across all states of India.
- In addition to learning level data, ASER also provides data on school infrastructure, rate of dropouts, teacher trainings, etc.

(ASER 2022; UNESCO 2017)



**Classroom assessments help in either providing details about the progress of learners, or understanding the impact of interventions across grades.**

## CLASSROOM ASSESSMENT

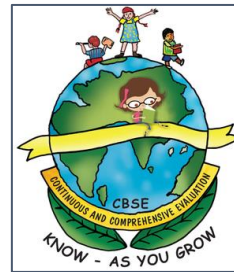
A school-based survey or an exam which is administered individually or in a group.

**Evaluation methods and strategies** used by teachers to assess students' progress in essential literacy and numeracy skills.

Aims to measure students' **proficiency levels, identify areas of improvement, and guide instructional design.**

## EXAMPLES

### Periodic tests, Continuous and Comprehensive Evaluation




















An alternative approach to traditional summative assessments that focuses on assessing students' learning continuously throughout the academic year.

- The primary goal of Continuous and Comprehensive Evaluation is to promote a more holistic and inclusive approach to assessment.
- It aims to foster students' overall development, encourage active learning, and provide a comprehensive view of their progress.



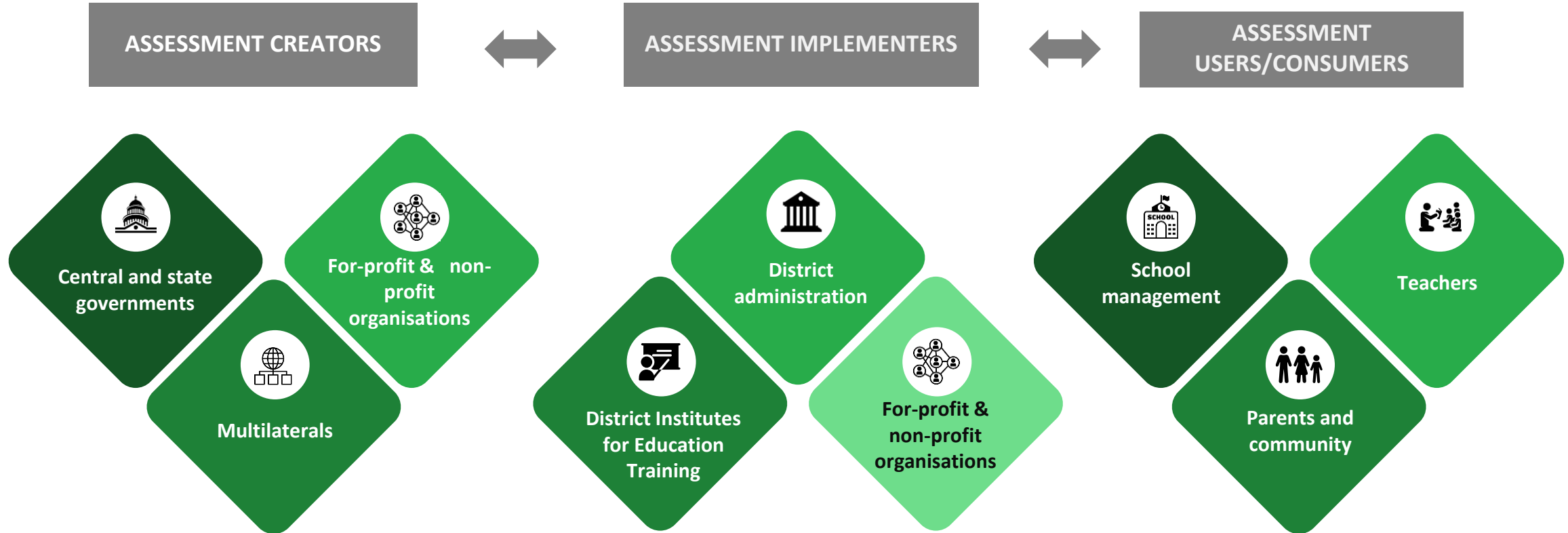


Various stakeholders have enriched the space of assessments for learning outcomes, with a focus on creation and implementation of assessments at scale.

Stakeholder	Type	Role	Description	Key players
 <p><b>5+</b> Government and Apex Bodies</p>	Public	Enabler, Funder, Policymaker, Regulator	They create assessments and implement them through the state machinery.	   
 <p><b>20+</b> For profit and non-profit organisations, networks</p>	Private	Enabler, Implementer, Expert	They create assessments, work with governments, or implement assessments in school- or community-level FLN programmes.	      
 <p><b>5+</b> Multilateral Organisations</p>	Public Private	Enabler, Expert, Funder	They work with governments and NGOs to catalyse the achievement of learning outcomes through assessments and teaching support.	  

(National Health Authority, 2022)

It is critical to understand the interdependence of these stakeholders to generate rich quality data is generated and make informed decisions.



*It is important that stakeholders creating and planning assessments fathom the challenges of the institutions anchoring assessment implementation. Moreover, understanding the capability and limitations of teachers and parents in utilising the assessment is critical. By understanding these interconnections amongst stakeholders, one can develop tools that can be easily linked to classroom practices.*

# CHALLENGES IMPEDING THE FLN ASSESSMENT LANDSCAPE

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## The National Education Policy (NEP 2020) emphasises the criticality of assessments.

It states that India can achieve universal foundational skills by moving towards competency-based assessments, focusing on higher order skills and mandating testing at critical stages of the learner's life.



### Ensure competency-linked assessments

Across grades, assessment techniques should move away from measuring rote learning and memory, to measuring skills and competencies.



### Focus on higher order skills

All assessments done at a large scale need to capture learners' performance on transferrable skills like problem-solving and critical thinking.



### Assess at the learner's milestone stages

Key stages of a learner's life need to have mandated assessments, which would provide an opportunity for course corrections.



For actualising the above recommendations and strengthening assessments, **PARAKH**, a national assessment centre would be set up to guide states to conduct their own census-based, high quality, standardised assessments. It will also incentivise regular and frequent collection of data on learning outcomes.

(NEP 2020)



**While there are a number of FLN assessments and a strong policy push, the connection between assessment and achievement of literacy and numeracy outcomes remains dismal.**

Several assessments measure FLN outcomes in various forms...

Assessment	Description
<b>National Achievement Survey (NAS)</b>	NAS is a central government-led large scale assessment administered since 2001. It is conducted once in three years by teachers in schools
<b>Annual Status of Education Report (ASER)</b>	It is being conducted annually since 2005.
<b>State Level Achievement Survey (SLAS)</b>	Similar to NAS, states like Rajasthan, Haryana, Maharashtra, and more use state-level assessments designed to test specific competencies. By 2017, 27 states had conducted state level assessments.

(ASER 2022; Ministry of Education [MoE] 2021)

...despite which, severe learning poverty has continued to exist.



**More than 75%** of the children in Class 3 do not have basic reading and numeracy skills required for their grade.



Only **48.2%** of all Class 5 children in rural India are able to read Class 2-level textbooks with fluency and understanding.



Only **25.6%** of all Class 5 children in rural India are able to do basic mathematical division.

**61.8%**  
in Language

**56.8%**  
in Mathematics

were the average performance scores of Class 5 students surveyed by the National Achievement Survey (NAS).

These trends have remained consistent over time.



**While most large-scale assessments can be used across settings, the extent to which they are competency-linked is a challenge.**

**STRENGTHS**

Quick and easy to administer at large scale

Have withstood the test of diversity, having been implemented across India

Have been used both in schools and community settings

Have been implemented over a decade, encouraging a dialogue on the importance of learning outcomes nationally.

**GAPS**

Not all assessments are competency-linked

Lack testing of complex/higher order thinking

Cannot be linked to classroom practices easily as grade-level competency connections are missing

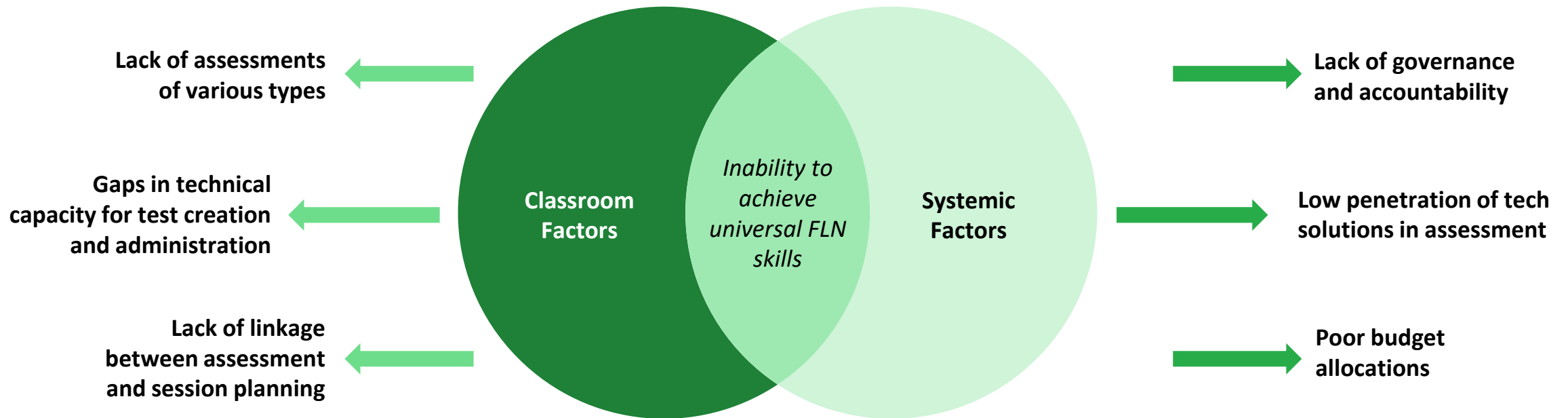
Rigorous analysis of assessment data and feedback loops are absent



## The assessment landscape for FLN faces challenges on two fronts.

**Classroom Factors:** These variables play out at the tool-creation or implementation stages.

**Systemic Factors:** These barriers impact the utilisation of the data into actionable steps for enabling change in learning outcomes.



# Types of Assessments

## 1

India lacks different types of assessment tools at various stages, that can not only help understand the aggregate picture but also help make course corrections formatively.



### Large-scale assessment are missing in early years programming

- 57% of children who enter the school system have low levels of readiness.
- Despite this concerning state, tools for assessing school readiness of Grade 1 learners do not exist.
- While efforts are being made to define “school readiness”, the lack of a framework of outcomes hinders assessment creation.

(ASER 2018; ASER 2019; Central Square Foundation 2021)



### Competency-based assessments/ formative tools have low presence

- While the NCF has outlined competencies across foundational years, a census study of ten states showed that the assessments therein are focused on testing memory for grade-specific content.
- The data is impacted by floor effects, where if a child is not grade-level proficient, it does not help the teacher identify the learning gaps of the child. Mandated by RTE, the child moves ahead but the learning gaps continue.
- Tests are conducted mid-year or end of the year, providing the teacher only a summative view with very little scope for course corrections in classroom planning.



### Studies involving longitudinal assessments are missing

- ASER 2019 highlighted the criticality of looking at ages 4-8 as a continuum. Despite that, the continuity in terms of outcomes, instructional procedures and assessment across these ages is missing.
- Long-term assessment tools and studies that would help understand the retention of learning levels and those that capture the extent to which children are able to grasp grade-appropriate curriculum are needed.



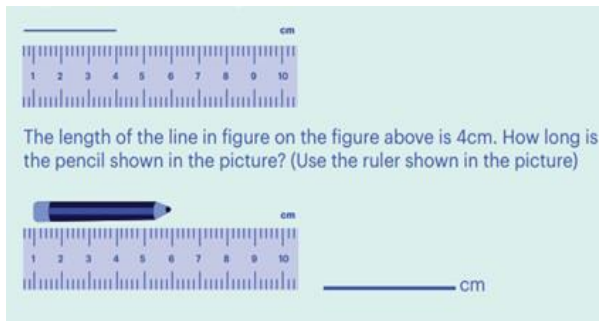


## Technical Capacity

### 2

Gaps in creation and curation of effective test items, and the teacher's capacity to understand learners, administering tools and making course corrections impede quality data collection.

Test items need to be robust, need to have good differentiators and suit the context of the learner.



Test administrators need a thorough understanding of the purpose of assessments.

- **Regular pilots during tool development are a critical step but not paid much attention.**  
For example, field testing is a critical part of training for administering the ASER Tool. Test administrators conduct field pilots and tools are revised on the basis of their feedback. ASER hence goes through multiple rounds of revision to suit the diverse settings of India; which is seldom done in most other assessments.
- **40% of learners across the globe are not taught and tested in their mother tongue.** In India, this issue is aggravated and needs to be tackled by our tools.  
For example, a recent FLS study conducted by UNICEF and NCERT attempted to overcome this barrier, where language learning levels were compared in twenty languages.
- **Strong differentiators and test items that can help identify the learners who can perform and those who cannot are absent.**  
For example, in a tool created by Ei as seen in the figure, a differentiator that merely shifted the base pointer helped gauge if students were able to understand the concept. As the pencil was shifted from 0 to 1, only 11% students were able to answer the question correctly, whereas at 0, 95% were able to answer.

- There is an urgent need to enable teachers to understand the purpose of assessments and implement them. **Assessments are mostly seen as mandates or indicators for evaluating the teacher's performance** and hence, not implemented with understanding.
- **Learning level assessment is not done before session planning.**

(ASER 2018; Kapoor et al. 2022)

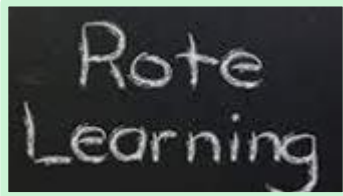


## Assessment and session linkage

3

With paucity of formative tools, intermittent assessment and gaps in capacity, the classroom sessions are planned in isolation with little or no connection to learning level assessments.

Test items need to be robust, need to have good differentiators and suit the context of the learner.



- **70% of teaching time** goes into traditional teaching and rote learning.
- **Activity-based learning is absent**, and teaching is not outcome-oriented, but aligned to completing the syllabus. In terms of teaching-learning material (TLM) for FLN, most teachers rely on textbooks. Other TLM for hands-on learning is absent.
- **Multigrade or multi-level classrooms** further aggravate the situation for the teachers.
- The proportion of Grade 2 students observed to be sitting with children from other grade(s) was **54.8% in 2010, 61.6% in 2014, 62.4% in 2018, and stands at 65.5% in 2022.**
- **Assessment solutions to meet these needs are missing**, due to which teachers rely on one-way methods without cognisance of the child's learning.

## Governance and Accountability

4

Despite India having implemented large scale assessments in more than 20 states along with several evaluations, poor governance as well as lack of ownership impedes absorption of data into action.

Across states, linkage to competencies is weak, right from the assessment design stage.

Only 3 out of 20 states designed standardised assessments that were competency-linked with high quality questions aligned to learning objectives.

Accountability gaps hinder the process of formulating action backed by data.

70% of the states from the same study did not have appropriate data usage and dissemination mechanisms in place for converting the data in action.

- Results are aggregated in a manner that is not actionable.
- Mechanisms for establishing strong channels of communication for enabling data usage in classroom planning are missing.
- Results are not disseminated through channels at state, district, block, school and community levels, which impacts the utilisation of data.
- Parents, who are critical stakeholders in the process, are not included in the system.
- Organisations like Saajha, Pratham and Samagra are working towards making these connections stronger. v

(CSSI et al. 2021; Foundational Literacy and Numeracy Report 2022)



## Technology Penetration

5

Despite smartphones being accessible to 46% of Indians, their distribution not equitable for the use of digital solutions for assessments. Investments are also needed for developing tools that are sensitive to contextual differences.



### 25%

students in India have access to digital learning.



### 65%

teachers say that **parents are reluctant** in giving technological access to girls.



### 16%

students from low-income communities had **access to quality EdTech solutions** during the pandemic.



### 24%

households have **access to internet** (as of 2020)



### 42%

Girls are allowed access to a mobile phone for **less than an hour** a day.



### 58%

students in rural and low-income communities do **not have access to their own study space**.

- Collaboratives like Bharat Edtech Initiative and multiple partners like EI-Mindspark, IPrep, and more are striving towards creation of tools as well as digital infrastructure that can cater to this structural challenges.
- Organisations across India have tried various tools like tablets, Raspberry Pi, smartphones, computers and others to enable access.
- However, this remains an area that needs investments for providing access and quality for affordable assessment solutions at scale.

(Oxfam; UNICEF; World Bank 2020; ASER Report 2021)



## Budget allocations

6

India spends only about 0.2% of the Education Budget on assessments. With the paucity of funds, states have to rely on different funding sources, which at times impact continuity of testing.

Assessment as a line item does not receive much attention.

**In the context of the scale and diversity of the country**, 0.2% of the education budget is not enough to create robust assessment tools. Tool creation, standardisation, implementation, training, analysis and utilising the data needs a larger allocation.

External funding sources are needed, but these affect sustainability.

**Many states use external funding for implementing assessments, affecting their continuity.** For example, Rajasthan and Andhra Pradesh have received funding from partners like World Bank. However, once this funding is stopped, the regularity of assessments suffers.

- While donor support is needed for assessments, enabling funds through state mechanisms is critical so that all states receive necessary funds. Presently, states like Jharkhand and Mizoram are behind in conducting assessments.
- Moreover, support is also lacking in conducting longitudinal assessments in specific regions to see the impact of FLN interventions over time, which can be enabled through public-private partnerships.

# USE CASES: ASSESSMENT TOOLS IN FLN

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## Case Study 1 | Tool for Early Childhood Education

Save the Children and its partners designed IDELA (International Development and Early Learning Assessment) in 2011, based on its experience of early years programming and evaluation of existing tools. It is a tool focused on measuring learning and development between age 3.5 to 6. Due to its comprehensiveness, open access and easy-to-administer nature, IDELA informs programming in early childhood education globally across 60+ countries.



While the tool captures the four domains – motor development, emergent literacy, emergent math and socio-emotional development – add-on items on IDELA measure the following:

- INHIBITORY CONTROL
- MEMORY
- LEARNING APPROACHES



The tool can be used for:

- Programme evaluations
- Measurement of school readiness
- National monitoring of ECD

The tool can be used by:

- Donors
- Practitioners (government and private)
- Parents and community

The tool stands the test of standardisation and simplicity – it was trimmed down from 60 items to 24 items after validating across 11 countries. Its present form can be easily translated and can be used in low-resource settings with high reliability and validity.

(IDELA Tool )



## Case Study 2 | Tool for Primary Grades

RTI international created the EGRA (Early Grade Reading Assessment), developed and validated between 2006 and 2014. It was approached by USAID to create EGMA (Early Grade Mathematics Assessment) between 2008 and 2011. These tools offer simple and low-cost measures indicating literacy and numeracy skills for learners between the ages of 6-11.

EGRA and EGMA hold the promise to be used as formative as well as summative assessments.

### EGRA components include

- Listening comprehension
- Letter identification
- Non-word reading
- Oral reading fluency with comprehension
- Sound identification

### EGMA components include

- Addition and subtraction (level 1 and 2)
- Quantity discrimination
- Missing numbers
- Word problems



The **diagnostic nature** as well as cross-cultural utility allows various stakeholders like governments, organisations and community actors to take informed decisions for children's learning.

The tools have the potential to recommend changes in the **child's learning environment by identifying the learning gaps.**

In 2022, RTI along with the Jacob's Foundational also published the **self-directed EGRA and EGMA**, which further enhances the utilisation of the tool.

EGRA is adopted in 120+ languages and used across 70+ countries. EGMA is adopted in 24+ languages and used across 22+ countries.

(EGRA Tool; EGMA Tool)





## Case Study 3 | Tool for measuring FLN in Children with Disabilities

Pratham and ASER designed the Assessment for All (AFA) Tool in 2019, in collaboration with the CMB Trust. It focuses on measuring literacy and numeracy outcomes for children with disabilities between ages 5-16. With an extensive pilot across 49 schools in four cities the AFA tool was designed to understand the learning levels for children with disabilities.

The AFA tool employs the principles of **Universal Design** to make **accommodations** and **ensure equitable opportunities** for learners.

### The tool has:

- 8 tasks in the language section
- 13 tasks in the numeracy section
- 4 tasks on practical math
- 1 task on writing
- 1 task on visuo-spatial recognition



The tool is available in **14 Indian languages**, and hence is first of its kind to cater to **2,095,969 children with disabilities**, creating an inclusive space for assessments.

AFA provides an elaborate toolkit, detailed guidelines for adaptation, data collection formats in all languages, cards and tools. It is easy to scale up and use in multiple contexts.

(AFA Tool)



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