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State of Foundational Literacy and Numeracy in India

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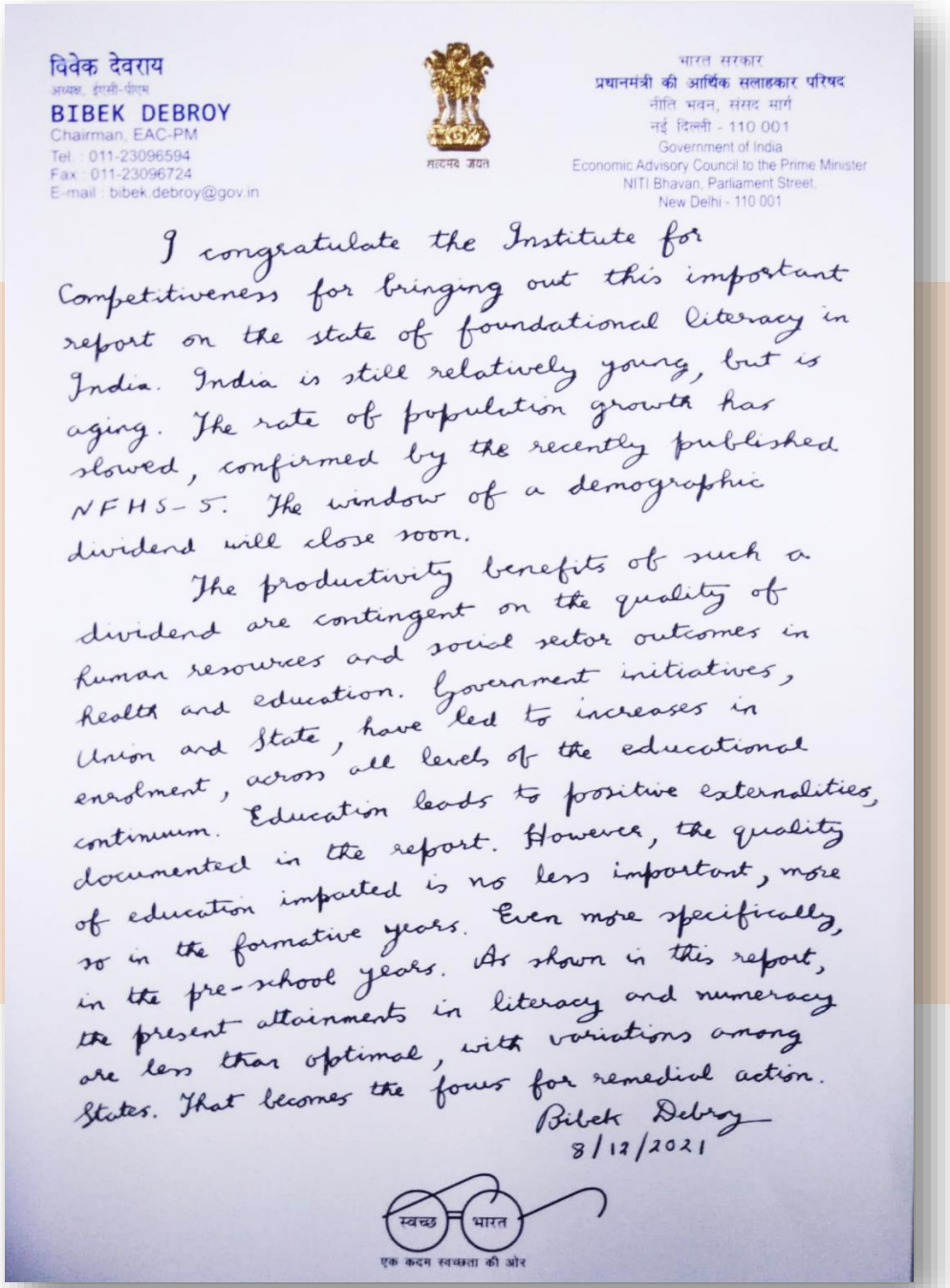

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I congratulate the Institute for Competitiveness for bringing out this important report on the state of foundational literacy in India. India is still relatively young, but is aging. The rate of population growth has slowed, confirmed by the recently published NFHS-5. The window of a demographic dividend will close soon.

The productivity benefits of such a dividend are contingent on the quality of human resources and social sector outcomes in health and education. Government initiatives, Union and State, have led to increases in enrolment, across all levels of the educational continuum. Education leads to positive externalities, documented in the report. However, the quality of education imparted is no less important, more so in the formative years. Even more specifically, in the pre-school years. As shown in this report, the present attainments in literacy and numeracy are less than optimal, with variations among States. That becomes the focus for remedial action.

Bibek Debroy
8/12/2021

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Executive Summary

Dr APJ Abdul Kalam, an ardent educationist, believed that "we must not for a moment forget, it is a birthright of every individual to receive at least the basic education without which one cannot fully discharge their duties as a citizen". Therefore, to be truly empowered citizen , one must be educated. Education is a journey that every child must embark upon to truly transform into a productive and empowered citizen in the nation, i.e. Human Capital. In this light, the role of higher education has been overlooked to foundational learning years , even though it's the quality of early education that shapes a child's overall development.

There is a fundamental challenge in early education years, which needs to be understood in the backdrop of socio-economic – psychological, and now technological hindrances that children face in India. Still, it has been underestimated in the strategy of education planning of India. The recent policy documents, including the NIPUN Bharat guidelines (2021), highlight the importance of developing Foundational Literacy and Numeracy (FLN) skills to ensure future success. In simple terms, FLN refers to basic reading, writing, and mathematics skills.

If learning in the foundational years encompassing three years of preschool followed by two years of grade 1&2 is not done well, it often leads to children falling behind, unable to ever catch up, even if supported by the so called 'remediation programmers'. It acts as the base upon which all future learning is built. It's relevance in improving not just the future learning capacities but also influencing economic, social and developmental factors over long term have been established beyond doubt.

Sadly, the state of Foundational Literacy and Numeracy in India is dismal with data from ASER surveys, National Achievement Surveys (NAS) showing poor literacy and numeracy skills across grades. What is worrisome is also that the performance of children is not just low, it is seen to be falling over the last few years. In addition to this, there also exists wide variations across the country with some states like Kerala, Himachal Pradesh and Haryana clearly outperforming states like Bihar, Madhya Pradesh and Jharkhand. Lack of focus on quality of Foundational Literacy and Numeracy and ultimately leads to generations of children unable to become productive citizens of the economy, leading to massive economic and social losses.

However, the recently released National Education Policy (2020) and the NIPUN Bharat guidelines show tremendous promise with recommended changes that have the potential to massively impact and turn around the learning levels of our children. The guidelines to ensure that child's language finds space in the classroom and is given opportunity to transition smoothly via the three month preparation module termed as 'Vidya Pravesh' are welcome steps. Additionally, recommended curricular revisions based on scientific principles of learning, revamping of the assessments with focus on competency based assessment *for* learning, focus on teacher professional development and integration of technology as recommended in the policy can ensure that proper systems focusing on ' quality with scale' are put in place to ensure maximum gains for our early graders.

The Cost-Benefit Analysis shows that an **investment in Foundational Literacy and Numeracy for each cohort in India can lead to gains in GDP by as much as 7.39 percent.** Improvement in FLN thus has the potential to be a game changer for India. If done well, it can help the economy ride new highs of development.

Additionally, there are issues that make it difficult to achieve quality learning, some of which include poor quality teaching in anganwadis, and primary grades that is partially supported by obsolete curriculum and textbooks in addition to a multilingual reality that we are unequipped to handle. Besides, low quality teacher professional development, lack of monitoring and support and inadequate research further leads to a complex cycle of low expectations, poor implementation and low quality of real teaching learning in the classroom.

In addition to the existing challenges, Covid has brought in a wake of further complication to the mix. There has been tremendous learning loss with both children and teachers probably expected to return to school with mental health issues.

While Covid forced schools to be shut for long duration, it also made us see the extent of our unpreparedness in terms of using educational technology to reach the early graders. There exists challenges in terms of access both at the household and at the school level.

A large number of schools in rural areas do not have the necessary infrastructure to support the use of technology, including computers, internet, electricity, there also exists challenges in terms of the quality of resources that have flooded the system today. Most of the resources seems to an extension of the rote learning pedagogy that exists in the classrooms.

Additionally a large number of teachers seem to be ill-equipped to use the limited ‘quality’ resources that are available on multiple platforms. With the potential that technology brings, it becomes critical to solve for both ‘access’ and ‘quality’ issues to ensure quality learning on scale at a fast pace.

Technology brings with it tremendous promise. However, it is a tool that needs to be handled with caution. There is enough evidence to show that for Foundational Literacy and Numeracy, we need resources based on scientific principles of learning and pedagogy.

If we fail to recognize these issues pertaining to foundational learning years of children , as a nation, we will betray the trust that our children repose in us and the aspirations they have for their future. Therefore, we need a futuristic approach to ensure universal access to quality levels and equity for all pre-primary and primary education children.

The Index on Foundational Literacy and Numeracy is a first step in the same direction, establishing an understanding of the overall state of Foundational Learning across children aged below ten years in Indian States and Union territories. **It provides 41 different indicators across five key domains:** Educational Infrastructure, Access to Education, Basic Health, Learning outcomes and Governance. The methodology adopted to assign weights in the index is Principal component analysis (PCA) . Given the distinct levels of development of states across India and their varying population size, States were categorized into different tiers to help bring forth better analysis. Various states across India have been classified based on their children population, i.e., those aged ten years and below.

Key findings :

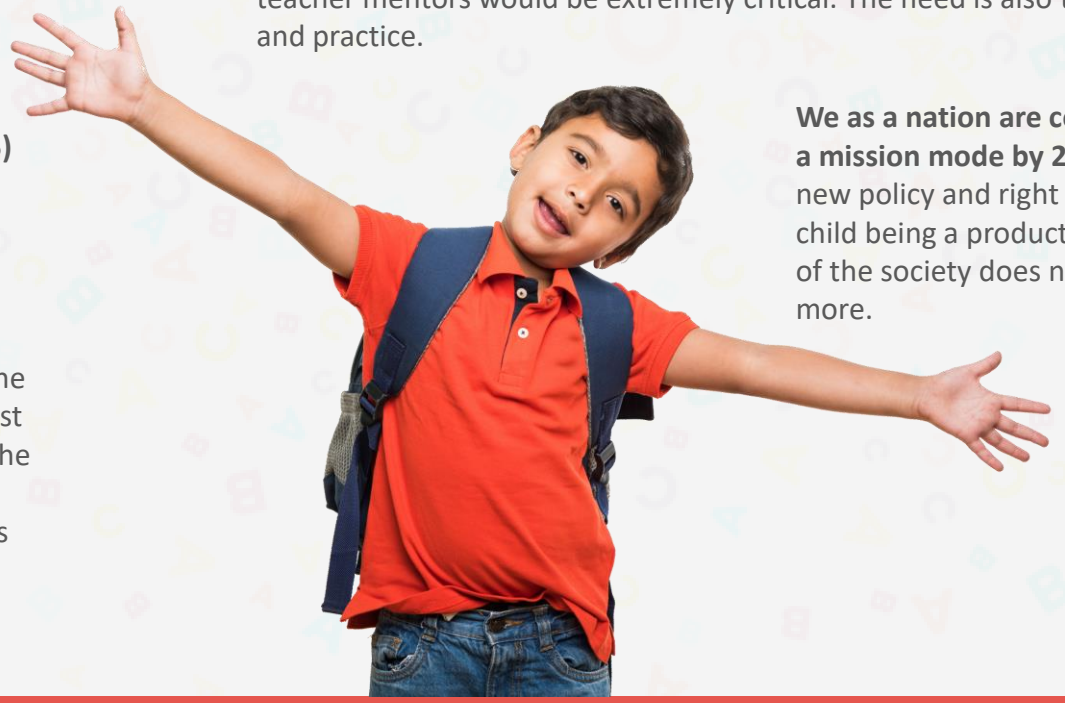
1. The top-scoring regions are **Kerala (67.95) and West Bengal (58.95)** in Small and Large states, respectively. **Lakshadweep (52.69) and Mizoram (51.64**) are top-scoring regions in Union Territory and Northeast state category.

2. **Out of the five pillars, it has been observed that states have performed particularly worse in Governance**. More than 50% of the states have scored below the national average, i.e. 28.05, the lowest across all pillars. These pillar-wise analyses will help states assess the state of the budgetary measures and steps needed to improve the status of Foundational Literacy and Numeracy identify existing gaps that obstruct their growth.

3. There is a huge gap between Kerala and the rest of the Indian States in the Index on Foundational Literacy and Numeracy scores. This vast variation is observed in the Learning outcomes and Educational Infrastructure, which necessitates immediate attention for the rest of the country.

4. This Index can help further develop policy reforms to improve in those areas where the state of Foundational Literacy and Numeracy has scope for improvement.

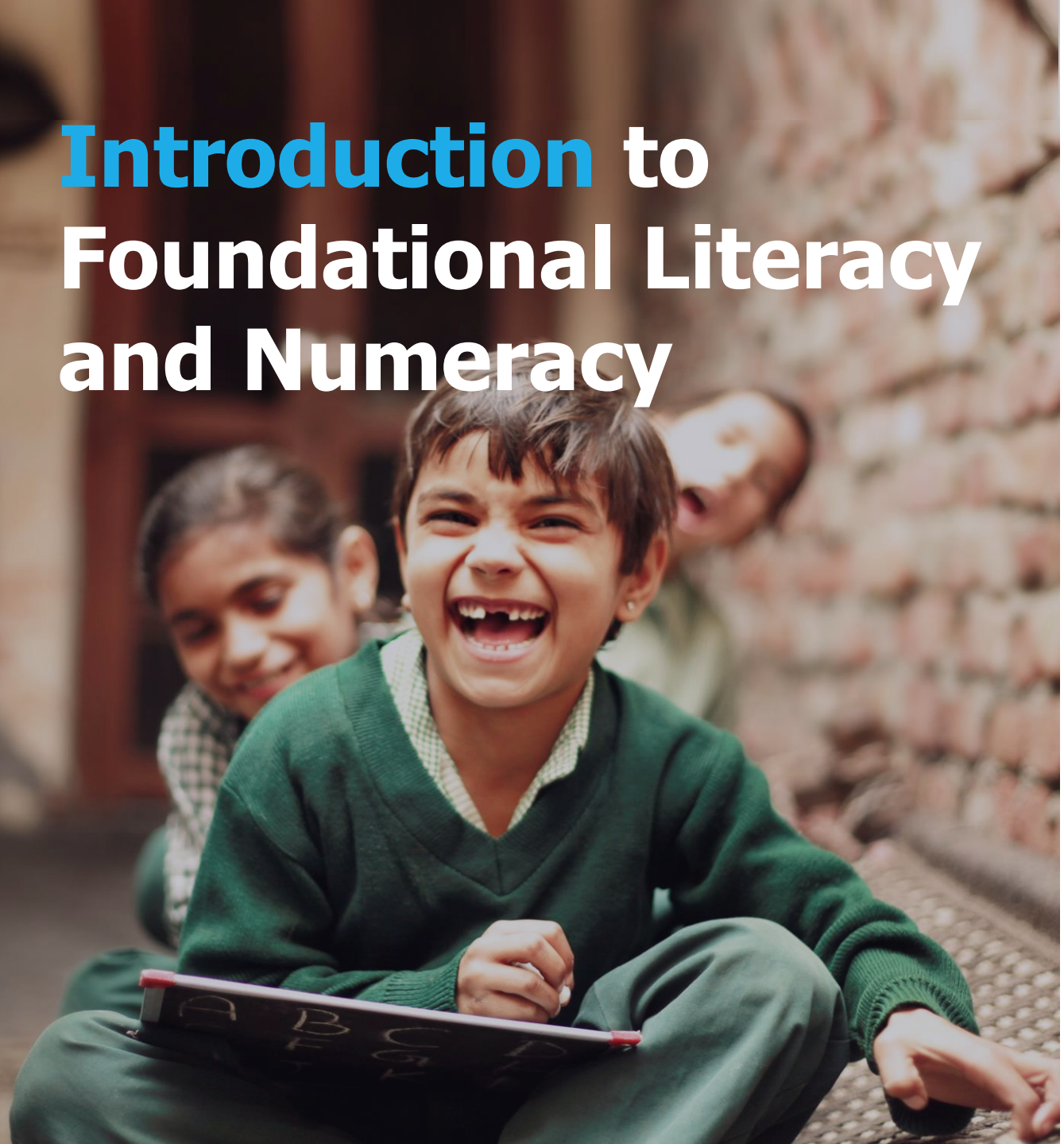
The challenge of ensuring quality Foundational Literacy and Numeracy for all is daunting, yet not impossible to achieve. This would however require sustained efforts and intention. The need of the hour is to allocate adequate budgetary resources and funds to improve quality education. To ensure success in higher grades, we would need to focus at the right 'beginning' through quality preschool education. This would require setting up a two-anganwadi worker model , with one anganwadi worker dedicated to the 'education' component, supported by adequate resources and quality training. The obsolete curriculum and textbooks for early grades need to be quickly replaced by quality material based on the Balanced Literacy approach as recommend by the NIPUN Bharat guidelines. Capacitating both teachers and teacher mentors would be extremely critical. The need is also to focus on data driven policy and practice.



We as a nation are committed to achieving FLN in a mission mode by 2026-27. Equipped with the new policy and right intentions, the vision of every child being a productive and empowered member of the society does not seem that far fetched any more.

Unit I

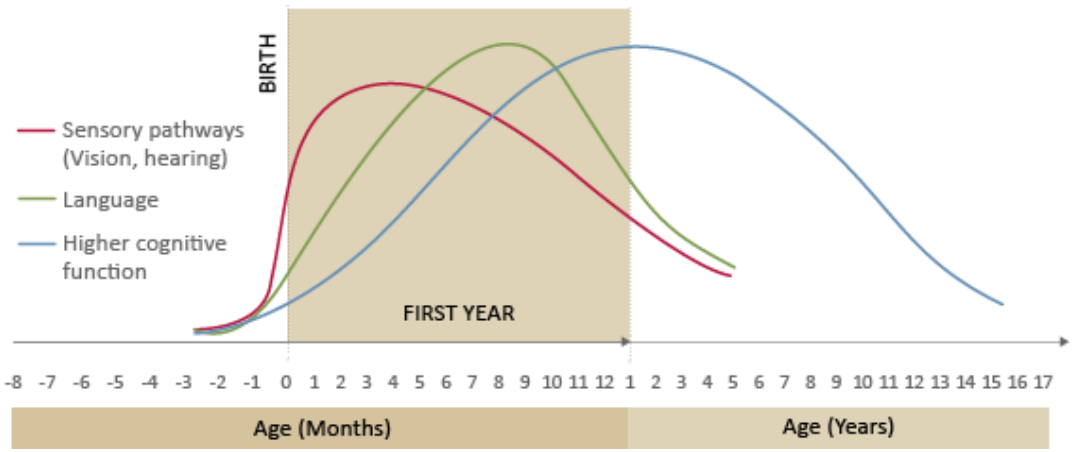
INTRODUCTION



Introduction to Foundational Literacy and Numeracy

Education is a journey that every child embarks upon for increased knowledge and skills that help develop them into Human capital and become an essential tool for economic development. This happens on a strong foundation of early education.

Human Brain Development



Source: Nelson, C. (2000). From Neurons to Neighborhoods. The Science of Early Childhood Development. Washington, DC: The National Academies Press

Research indicates that **90 percent** of a child's brain development happens by five years of age. Hence, focus on early education years becomes one of the most important indicators of productive and efficient human capital.

- Increased investment in foundational years leads to both economic and social gains. While on the one hand, it increases dividends in terms of higher income earning capacity and higher productivity; it also helps reduce the cost of health, and crime. Additionally, acting as a great equalizer, it helps reduce the differences in socio-economic background of the children and brings them at an equal footing

- **Quality of human capital can thus only be ensured on a strong foundation of Foundational Literacy and Numeracy skills.**

- In the schooling system, Foundational Literacy and Numeracy refers to education of a child between 3-8 years of age. This essentially includes the initial three years of pre school, followed by early primary education up to grade 2, as per the National Education Policy (NEP 2020). However, the NIPUN Bharat guidelines for implementation of NEP talks of four foundational years, namely one year of pre school plus formal schooling up to grade 3.

- In either case, it is clear that Foundational years refers to the literacy and numeracy development in early years of a child's life. In Indian context, it means focus on education as it happens in Anganwadis for the pre school component and the early grades under primary schools.

Foundational Literacy and Numeracy (FLN) in our policy documents, refers to basic skills in reading, writing, and mathematics. It is the ability to read and understand a basic text and perform simple mathematical calculations by end of grade 3. This becomes the foundation for all future learning upon which other skills are built. National Education Policy (2020) accords the highest importance to the achievement of Foundational Literacy and Numeracy.

> The rest of this Policy will become relevant for our students only if this most basic learning requirement (i.e., reading, writing, and arithmetic at the foundational level) is first achieved.
>
> **- National Education Policy 2020**

Key essential skills for Foundational Literacy

- In simple terms Foundational Literacy refers to the ability to read and understand an age appropriate text. However, it is critical to understand what it really means and entails.
- We read all the time, and we read everywhere - we read emails, WhatsApp messages, social media posts, bus numbers, product signages etc. But does this kind of reading alone qualify as ‘reading’. Probably it does, when we look at reading as a shallow process, where the reader skims through the text superficially and does not think about what is being read.
- However, when we look at reading as a deeper process, it involves going beyond the superficiality of the text to enter the domain of what can be called ‘**Deep Reading**’.

  ‘Deep reading’ essentially means the experience of reading where one goes through the text and engages with it, thinks about it, combines it with one’s one background knowledge and constructs meaning. It is this kind of reading that ensures development of a ‘thinking individual’, which is the larger objective of foundational literacy.
- To be able to develop a child into a thinking independent reader, it is critical that all essential skills be focused on in classroom instruction, namely oral language development, phonological awareness, phonics, vocabulary, fluency and comprehension etc.

The NIPUN Bharat guidelines talk of nine key skills to be focused on for Foundational Literacy

01	**Oral Language Development**	Language is something that a child uses to explain, enquire, reason, understand the world and connect it with her own life experiences. Language is a premise for meaning making and fundamental prerequisite for literacy learning. Oral language development opportunities in early grades help to develop the cognitive skills of thinking, reasoning, questioning, elaborating and analyzing. Unless these skills are developed, deep reading does not happen.
02	**Phonological Awareness**	Phonological awareness includes the awareness of speech sounds, syllables, and rhymes. For instance, an understanding that the word '*neelaa*'(as in blue) is made up of two component sounds, /nee/ and /laa/ shows phonological awareness. It also includes in it the ability to recognize rhyming words, like *peelaa* and *neelaa* (blue and yellow in Hindi) or the ability to play around with the sounds of a word (eg: changing the initial sound of a word) or the ability to identify the beginning, middle and ending sound of a word etc
03	**Decoding**	Decoding is the ability to apply your knowledge of letter-sound relationships, including knowledge of letter patterns, to correctly pronounce written words. For instance, if a child is able to look at the word *deewar*, identify the aksharas the word is made up of and is able to read it out, it is decoding.
04	**Concept About Print**	When children enter into grade 1, unfortunately many do so without ever having seen a book. They do not yet understand that whatever is spoken can be written down; and whatever is written can be read out. Concept of print essentially means the ability of a child to understand 'print' and its functions i.e to know how to read a book, to know how a script is written (left to right, top to bottom etc), to know that what is written has meaning etc.
05	**Writing**	Writing can be seen in two ways – one, the ability to express oneself in written form; and two, the ability to write the symbols of a script correctly and form it into words/sentences etc. For early grades, it is both these strands that are essential. While a child would need to learn the shape of various aksharas to be able to form it into correct words/sentences, it is essential that she is also given enough opportunities to express herself in various forms of writing. This includes drawing, scribbling or writing with invented spellings in the initial stages and writing in phrases, sentences or paragraphs at a later stage.

06 Culture of Reading

Cultivating an inclusive and joyful reading culture is essential to make sure that every child has opportunities to develop to their full potential. Reading helps open a window to the whole other world, makes a child aware of newer experiences, newer contexts, develops the ability to empathize with others, and improves imagination and creativity. Additionally reading is also a mirror wherein a child gets to reflect on and understand her own life better. It also helps in developing essential socio-economic skills in children. There is enough evidence to prove that reading helps improve learning outcomes and develops children into independent thinking readers. However, to ensure that children enjoy these benefits of reading, a reading culture needs to be developed. This would require giving access to quality literature and creating opportunities for a child to engage with the same, both in and out of schools. Libraries become an essential parameter for foundational literacy. Unless a 'culture' of reading is developed, we cannot expect our children to become independent readers and learners. One cannot expect to gain as much out of reading textbooks alone.

07 Vocabulary

When children come to schools, they come equipped with oral language, which includes in it their vocabulary. However, this implicit learning of words is not enough. Research by Hart and Risley shows that children who come from a privileged background tend to experience about 30 million more words by the age of four years than the children who come from disadvantaged background. To cover up this gap and to enable the children to read and understand all forms of texts, vocabulary needs to be focused on from early grades. It essentially means that the child is not only familiar with the meaning of a word, but also uses the same in her oral or written language.

08 Reading Comprehension

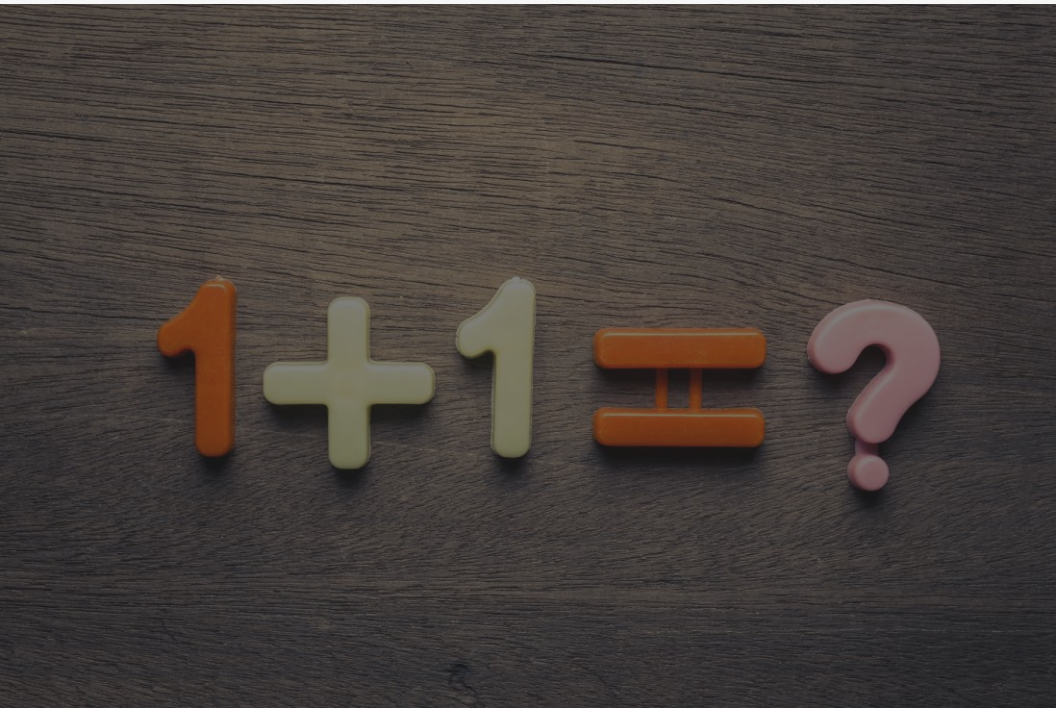
Reading comprehension means the ability to read a text with understanding. For a child to become an independent reader, it is essential that she is able to enter into the multiple layers of meaning hidden in a text and make meaning out of text. Comprehension goes beyond the surface meaning of a text. It includes the ability to read a text text, analyze it, connect it to one's life, apply it for newer learnings and form well informed opinions. Reading comprehension essentially means ability for deep reading.

09 Reading Fluency

Reading fluency is the ability to read a certain text with an essential speed, tone and prosody that helps the reader understand what is being read. However, one needs to be cautious when one talks of Reading fluency and understand that it is not 'speed' alone. Unless reading fluency leads to comprehension, it is of no use. Hence, when the honorable PM talks of importance of ensuring that children read at a minimum speed of 30-45 words per minute by end of grade 2, one must understand that it essentially means that a child should be reading a text with such an essential speed that makes it possible for her to understand what is being read.

Research indicates that an essential speed or fluency is an essential prerequisite for reading comprehension. However, one must remember that fluency is necessary but not sufficient to achieve the larger goal of comprehension.

Key essential skills to be focused on for Foundational Numeracy



Foundational Numeracy means the ability to reason and to apply simple numerical concepts in every day problem solving situations. (NIPUN Bharat guidelines 2021)

- Numeracy integrated with mathematics is a key foundational skill. Numeracy, also termed as mathematical literacy, means that children develop the ability to give meaning to numbers and numerical facts as they come across those in everyday life, and deal with the same appropriately.

- In order to attain Foundational Numeracy, it is important for children to understand the contextual meaning of numbers and operations. They also need to be equipped with appropriate skills to undertake different forms of calculations, including mental calculation, estimation, invented strategies for calculation, algorithms and their application in real life.

The NIPUN Bharat guidelines talk of five key skills to be focused on for Foundational Numeracy

01	**Pre Math Concept**	Pre math includes learning of basic vocabulary of mathematics such as smaller, bigger, between, front, behind, heavier, lighter, and so on. This is done through discussion on concrete objects, pictures as well as through hands-on experience.
02	**Numbers and Operations**	Understanding of numbers includes the understanding of symbol, sound, quantity as well as number relations. Number sense is intimately tied to operations. Ability to solve word problems becomes extremely important as it provides real life situations to a child, thereby equipping her to apply what she learns in school to the real world around her. Operations include multiple kinds of calculation strategies, including calculation with the object, invented strategies, and the standard algorithm.
03	**Measurement**	Measurement is a life skill that includes comparing the length, weight, or capacity and is developed through hands-on experience and working with nonstandard measurement instruments.
04	**Geometry**	This is about understanding basic shapes, spatial visualization and reasoning. Geometry aspects can be divided into three parts- Orienting (which involves localizing, taking a point of view, working with rotation and direction); constructing (which involves construction of different types of shape on paper or through pieces of paper) and operating with shapes (which involves making patterns).
05	**Patterns**	Mathematics is a study of patterns and development of this skill requires that children are encouraged to see and find patterns in everyday life and in their context.

Foundational Literacy and Numeracy and Pre school years

Preschool education, which comprises of the initial years of Foundational Learning, is provided through the Integrated Childhood Development Services (ICDS) scheme and aims at school readiness as well as development of positive attitude towards education for the children in the age group of 3-6 years through anganwadis. This age group has been termed as ‘preparatory stage’ by the ICDS guidelines, with focus on:

Physical development

that includes in it both gross and fine motor development through hand eye coordination, sense of balance, control and coordination of movement, awareness of space etc.

Cognitive development

which essentially is the ability to think and understand, observation, reasoning, critical thinking and problem solving

Language development

which includes the ability to express oneself and is intimately connected with thinking and perception

Socio-emotional development

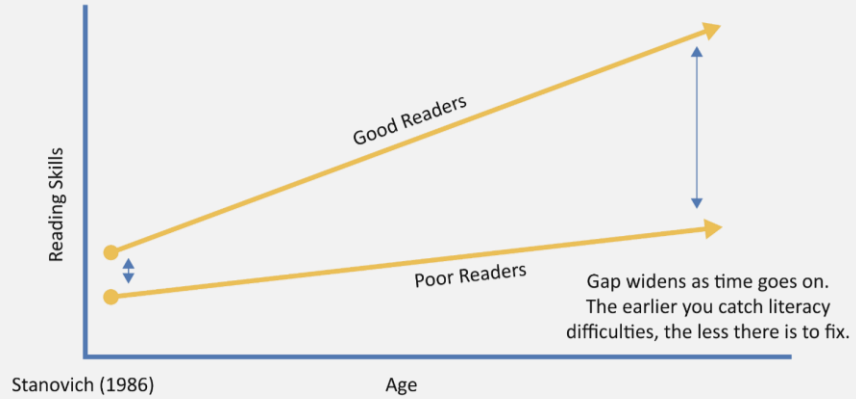
that focuses on child’s ability to cooperate and play with others, understand and control emotions and pay attention to adults and peers

The National Early Childhood Care and Education (ECCE) policy of MWCD (2012) talks of focus on holistic development and well-being of a child from prenatal to six years of age via comprehensive child care support, development of infrastructure and appropriate services.

Risk of poor Foundational Literacy and Numeracy

The importance of Foundational Literacy and Numeracy can be seen form the fact that children who do not learn to read with understanding in the foundational years find themselves unable to pick it up in the subsequent years. Popular literature uses the term '**Matthew Effect' to highlight that once children fall behind, they tend to keep falling behind**. The gap between the children who struggle with reading in the initial years with those who do not keeps getting wider and wider. This is because the children who gain foundational skills faster, feel motivated to read more and learn more. These children experience increasing gains in their reading levels. On the other hand, the children who struggle to begin with feel demotivated when they compare themselves to proficient readers and tend to not gain much as the grades level teaching continues. The grade level curriculum moves forward while the children keep falling behind. Hence, the gap between these children, the children who are proficient readers and those who struggle, continues to increase.

The Mathew Effect



Research shows that if these low learning levels in children are allowed to continue, then chances of these children ever covering up becomes close to nil. This leads to high drop out rates resulting in the creation of 'unemployable educated class' of graduates in the long run.

Status of Foundational Literacy and Numeracy in India

Today, we may pride ourselves in having achieved universalization of elementary education with near perfect enrolment rates. However, the 'quality' of learning in the early years remains elusive. Even after 74 years of independence, a huge percentage of primary grade school children are unable to read and understand a simple text or perform simple calculations by end of grade V. Annual ASER surveys since 2005 have consistently shown low learning levels in children across grades.

Children do not have grade level competencies:

What is concerning is that the learning levels being represented here are not all grade appropriate. When a grade V or a grade VII child is unable to read a grade II level text, one can safely assume that such children would be struggling with grade appropriate content and curriculum, thereby impacting their grade appropriate learning outcomes and competencies as well. This would be expected to have an impact on high drop out rates once the children move beyond grade VIII.

As the **ASER** data collected over the past decade shows, the **learning levels for Foundational Literacy have been persistently at a low level** with very marginal improvements for primary grade children.

Year	% children in Std II who can read grade appropriate text	% children in Std V who can read std II level text.	% children in Std VII who can read std II level text.
2012	10.1	46.8	69.1
2014	12.2	48.1	67.7
2016	13.4	47.8	66.1
2018	14.7	50.3	67.7

For **Foundational Numeracy**, the scenario seems worse, with signs that not only are the learning levels persistently low, they appear to be falling for some key skills. While 28.7 percent children in std V could subtract in 2012, the percentage of children being able to do the same in 2018 reduced significantly by 3.8 percent. One notices similar trends for subtraction and division skills of grade VII children.

Year	% children in Std II who can subtract	% children in Std II who can divide	% children in Std V who can subtract	% children in Std V who can divide	% children in Std VII who can subtract	% children in Std VII who can divide
2012	10.3	2.8	28.7	24.8	27.8	41.5
2014	9.9	2.8	24.5	26.1	24.4	37.8
2016	10.6	3.8	24.6	25.9	24.5	37.7
2018	10.6	3.8	24.5	27.8	24	39

Wide variations across the country:

01 Additionally, when one looks at the learning levels of children across states, one finds wide variations. As per the NSS Report (75th round), while the literacy rates in states like Kerala and Himachal Pradesh were as high as 96.2 and 86.6 percent respectively, states like Rajasthan, UP and MP showed abysmally low levels with literacy rate being 69.7, 73 and 73.7 percent respectively.

02 Similar differences in state performance have also been observed as per the ASER data. The table shows that states like Kerala, Haryana and Himachal Pradesh have performed relatively better in both literacy and numeracy skills as compared to children in Tamil Nadu, Bihar, MP and Jharkhand that are among the lowest performing states.

		% of children in Std II who can read std II level text	% of children in Std II who can do subtraction	% of children in Std V who can read std II level text	% of children in Std V who can do division	% of children in Std VII who can read std II level text	% of children in std VII who can do division
BEST	Haryana	46.2	53.7	69.1	50.9	81.2	63.2
	Kerala	52.5	47.9	77.2	43.7	89.6	51.8
	Himachal Pradesh	47.8	50.2	76.9	56.6	89.9	61
WORSE	Tamil Nadu	10.2	26	40.7	25.4	73.2	50.2
	Bihar	23.5	28.4	41.3	29.9	71.2	56.9
	MP	17.6	13.9	41.6	19.8	64.4	36.6
	Jharkhand	18.8	22.5	34.4	19	66.4	44

Source: ASER 2018

Girl child is at a double disadvantage:

The situation for the girl child is even worse, who seems to be at a noticeable disadvantage when compared to her male counterparts.

> As per the NSSO data, while for the nation as a whole, the literacy rate for males in 84.7 percent, the same for females is as low as 70.3 percent.

States like Bihar, Haryana, Jharkhand, UP and Rajasthan fall on one end of the spectrum with the difference between male-female literacy rate being more than the national average, states like Kerala are relatively well off.

State/UT	Male	Female	Difference
Rajasthan	80.70	54.10	26.60
Bihar	76.90	56.20	20.70
Madhya Pradesh	81.40	60.70	20.70
Jharkhand	79.60	59.90	19.70
Chhattisgarh	82.70	63.10	19.60
Jammu & Kashmir	83.50	64.20	19.30
Uttar Pradesh	79.20	60.10	19.10
Haryana	85.70	66.80	18.90
Telangana	76.80	58.30	18.50
Gujarat	88.40	70.80	17.60
Dadra & Nagar Haveli	87.00	69.60	17.40
Andhra Pradesh	75.40	58.20	17.20
All India	83.20	67.10	16.10
Odisha	83.20	67.80	15.40
Himachal Pradesh	92.80	77.40	15.40
Uttarakhand	92.10	77.20	14.90
Karnataka	82.50	68.60	13.90
Maharashtra	90.20	77.00	13.20
Tamil Nadu	86.90	73.70	13.20

State/UT	Male	Female	Difference
Puducherry	94.40	82.00	12.40
Punjab	84.00	73.40	10.60
Manipur	93.50	83.50	10.00
West Bengal	82.70	73.30	9.40
Goa	95.10	87.10	8.00
Delhi	93.50	86.10	7.40
Lakshadweep	96.10	88.70	7.40
Assam	89.40	82.10	7.30
Tripura	91.70	84.40	7.30
Arunachal Pradesh	78.90	73.20	5.70
Andaman & Nicobar Islands	87.20	82.90	4.30
Kerala	97.40	93.20	4.20
Nagaland	97.60	93.70	3.90
Chandigarh	96.40	92.60	3.80
Mizoram	97.40	94.80	2.60
Sikkim	90.70	88.50	2.20
Meghalaya	94.30	93.00	1.30
Daman & Diu	86.40	90.00	-3.60

Source : NSS education 71st

Dismal quality of preschool experience in anganwadis: When one looks at the quality of preschool education that exists today, the emerging picture seems dismal. India has about 1.36 million Anganwadis across the country (MWCD 2018). Despite the number, children in our country do not get real 'preschool' experience. Pre school education under the ambit of Anganwadis is more of a lip service. There is enough evidence to establish that these centers are mainly 'khichdi centers' with little or no focus on child learning. There is a huge gap between what is planned under ICDS and what is actually happening on the ground (Sinha, 2006).

The FOCUS report (2006) which studies six states, namely Chhattisgarh, Himachal Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh observed that lack of space, infrastructure and basic facilities was a common hurdle for the implementation of effective preschool education under ICDS. Also, the anganwadi worker was inadequately trained and the study material was grossly insufficient in almost every state, except Tamil Nadu. Similar results have been observed by numerous studies over the years (Kaul and Deepa, 2009; Oke, 2009; Nair and Radhakrishnan, 2004; Seth, 1996; Sinha, 2006)

A **study (IMRB, 2007)** which examined the preschool component of the ICDS program reported that the preschool activities were conducted with minimal material support, basic infrastructure or competent workers. Another field study by Ramachandran et al (2003) stated that the ICDS programme as operational in villages did not seem to play a significant role in enhancing the preparedness of children to go to school.

A **review of ICDS by Qadiri and Minhas (2009)** in Kashmir revealed that the anganwadi centres lacked almost all necessary facilities which would help to lay solid foundation for formal learning. Both the teachers and the parents do not seem to appreciate the preschool component under the ICDS scheme.

Lack of focus on quality of Foundational Literacy and Numeracy , whether it is catered to by the anganwadis for pre school or by the Ministry of Education for grade 1 and above, ultimately leads to generations of children unable to become productive citizens of the economy, leading to massive economic and social losses.

Globally, illiteracy and low levels of literacy have estimated to **cost the global economy** approximately **1.19 trillion annually**

(Source: World Literacy Foundation, 2018)

Today, India is committed to the achievement of Sustainable Development Goals (2015) by the year 2030. The education goal (Goal 4) under SDG aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. This would require that the nation strives to “facilitate a conducive learning environment through policy and programmes so that people can develop to their full potential and contribute towards the socio-economic development of the country.”[1]

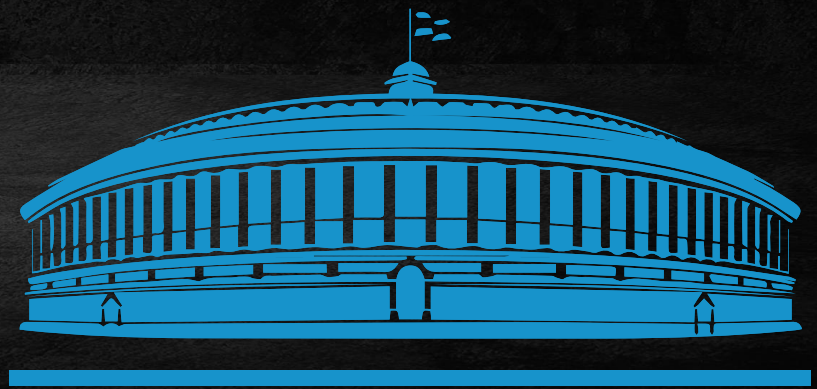
Additionally, as is well established, quality education is a critical tool to achieve health benefits, increased productivity and employment, social and emotional well being, gender equality and sustainable growth. It naturally follows that achievement of SDG4 can only positively contribute to the achievement of SDGs related to the above mentioned parameters, including;

This brings with it a certain sense of urgency. **With less than 9 years remaining for us to achieve the SDGs, focused investment on quality education needs to be prioritized to ensure overall development of the nation**

[1] https://niti.gov.in/planningcommission.gov.in/docs/plans/planrel/fiveyr/10th/volume2/v2_ch2_2.pdf

Unit II

Historical Background and Current Policies/ Programmes/ Mission



Historical Background and Current Policies

01

Less than 20 per cent of the population was literate at the time of independence. The leaders of the nation at that time realized the importance of education for all and added Article 45 in the Directive Principles of State Policy of the Indian Constitution to that effect. The said article talked of “free and compulsory education for all children till they attain the age of fourteen years”. However, by virtue of it being in the Directive Principles, it was not enforceable in the court of law.

02

India introduced its **flagship programme Integrated Childhood Development Services scheme** in 1975 with two-fold objectives – to provide nutrition to children and lactating mothers and to provide preschool education to children between 2-6 years of age. However, the ICDS scheme **failed to have any noticeable impact on learning of the children.** In a field study by Ramachandran et al (2003), it was found that ‘preschool education component of the ICDS programme although evident on paper was non-existent in reality. As per the Focus of Children Under Six Report (2006), preschool education component under the ICDS scheme was not just neglected, but virtually ‘abandoned’.

03

What is interesting to note is that the preschool education under the said scheme was under the purview of Ministry of Women and Child Development (MWCD) while the education of children from grade 1 and above continued to be under the Ministry of Education (MoE). Hence, there existed no linkages between preschool and formal schooling in the country.

04

Then came the National Policy of Education (1986) that stated as one of its key objectives efforts to ensure 'universal access, enrolment and retention of children in schools up to the age of fourteen years'. This policy was modified post recommendations made by the committee set up under the chairmanship of Acharya Rammurti in 1990. The revised policy was renamed as National Programme of Action 1992. This further stressed the importance of democratization of education. It stressed that the Government should commit to ensuring education for all with special focus on education of SCs/STs, minorities and women.

05

It is worth noting that the first official recommendation of including education as a fundamental right in the Constitution was made by Acharya Rammurti Committee in 1990. However, the same was not accepted at that point of time.

06

The country witnessed an **increased international focus** on its initiatives regarding free and compulsory education after its participation in the World Conference on Education for All in 1990. India also ratified the United Nations Convention on Rights of the Child in 1992.

07

The year 1993 witnessed a landmark judgment when the Supreme Court in Unnikrishnan vs the State of Andhra Pradesh, recognized right to basic education as implied in the Fundamental Right to Life and Personal Liberty.

08

District Primary Education Programme (DPEP) was launched in 1994 to revitalize the primary education system through "area specific approach" and community participation; and to achieve the objective of universalization of primary education. **DPEP made a decisive impact in further increasing the enrolment of children in schools.**

09

The Mid-Day Meal Scheme was started in India in1995 as 'National Programme of Nutritional Support to Primary Education (NP-NSPE)' and renamed as ' 'National Programme of Mid Day Meal in Schools' in 2007. The scheme is more popularly known as the **Mid-Day Meal Scheme**. The objective of the scheme was to improve enrolment, retention and attendance of primary grade children by improving their nutritional status.

10

At the international front, India became a **signatory to the Dakar Framework of Action (2000)** which added the goal of expansion of Early Childhood Care and Education (ECCE) especially for the most vulnerable and disadvantaged as one of its key commitments, besides the earlier goals incorporated in the Framework for Action to achieve Education for All.

11

In 2002, finally, after decades of debate that has its roots from the time the Constitution was being drafted, Article 21-A was added as the 86th amendment to the Constitution to make **Right to Education a fundamental right.** However, the actual implementation of the same depended on existence of an enabling legislation, that was not yet in place. The Right to Education Act only came into existence in the year 2009 and it made education a fundamental right of every child between the ages of 6 and 14 years.

12

As part of plans **to achieve universalization of Elementary Education** in a time-bound manner, the Government of India launched **Sarva Shiksha Abhiyaan** in 2002, with special focus on the educational needs of girls, SCs, STs, children with disabilities and disadvantaged children.

13

In the independent India, as is seen, for several decades, the states directed their efforts to ensure increased enrolment in schools. However, while the enrolment increased, the schools found themselves ill-equipped to be able to deal with the large number of students. Access and retention improved, while the **infrastructure, teacher training and quality continued to suffer**.

14

While the enrolment at the primary level (grades I to V) increased from 19.16 million in 1950-51 to 113.61 million in 1999-2000 [1] , the number of teachers increased from 538 thousand to 1616 thousand by 1991; and the number of primary schools increased from a little more than two lakh in 1950-51 to about 6.4 lakhs by 2000.

15

On the one hand, while the number of children in primary grades increased by six times in fifty years, the number of teachers and primary schools increased only by three times. This shows that while in 1950-51, there was one teacher for 35 children, this number has increased to double, with approximately 70 students per teacher. Also, while there were approximately 95 students per school, it has now increased to 177 students per school.

16

The numbers show that an **increase in enrolment did not correspondingly match the increase in number of schools and teachers**, which ultimately impacted the quality of learning, teacher preparedness, and created an excessive burden on the existing infrastructure.

[1] GOI, SES, 2006

Source : NITI AAYOG , UDISE+

National Education Policy (NEP, 2020) and Foundational Literacy and Numeracy

- Focus on quality learning has revived post the release of NEP (2020). The first critical change that came about was a replacement of traditional 10+2 schooling structure with a 5+3+3+4 schooling structure, which now looks at **Foundational Learning as a continuum of 5 years**, including three years of preschool and two years from Grade 1-2.

- Certain critical changes have been envisioned in the policy document, changes that have the potential to massively impact and turn around the learning levels of our children, including:

01. Introduction of Multilingual Education

India is a unique country with almost every Indian speaking multiple languages. In such a scenario, forcing a child to replace her mother tongue with the language of instruction has detrimental effects not only on the learning outcomes of a child, but also on the motivation and self-identity of the young minds. The policy recognizes this and talks of focus on multilingual education to ensure that every child's language finds space in the classroom and can be used as a resource for learning.

02. Introduction of a 3 month school preparation module:

Given the low quality of ECCE that exists, children entering into grade 1 soon fall behind their relatively well off counterparts. This results in the learning gap that begins from grade 1 itself. To avoid such a scenario, the policy makes a three month play based preparatory phase called school readiness or **'Vidya Pravesh'** mandatory. This module is expected to ensure that children transition smoothly from an informal learning environment at home to a more structured school system, while addressing the developmental and learning needs of all children. It follows a play based pedagogy and activity based learning via the use of well designed activities, appropriate material and focus on child's mother tongue.

- The play-based pedagogy is suggested to be designed and implemented for the initial three months of Grade-I which can be transacted for four hours per day. Focus is also given on learning in mother tongue or home language and allowing as many languages as children bring to the classroom, including sign language. This can however only be ensured through
    - **Creation of school readiness modules**
    - **Extensive teacher training**
- States would need to create contextualized **school readiness modules** that give space to a child's language in the classroom, gives the child sufficient opportunities for oral language development, focuses on development of pre-reading and pre-writing behaviors and facilitate socio-emotional learning in the classroom.
- Creating resources alone would not be enough. Successful implementation of Vidya Pravesh would require **intensive teacher capacity building efforts** to ensure that the schools are ready, the teachers are ready, sufficient resources are created and the child is smoothly integrated into formal learning. Since this would be needed to be done on priority for all teachers in primary grades, it would be critical to look at creative ways of reaching every last teacher effectively. It might be useful in this context for the governments to adopt multi modal teacher training strategies, including a combination of online, offline or blended training methodologies and courses

03. Curricular revision with focus on 21st century skills

The policy clearly states the need to focus on an all round development of a child, equipped with key 21st century skills including critical thinking, problem solving, reasoning, analysis, questioning and curiosity, creativity, imagination and innovation etc. along with basic literacy and numeracy skills that makes a child an independent learner. This would also require redesigning of the National and State Curriculum framework and revision of the textbooks to ensure holistic experiential learning based on scientific principles.

04. Teacher training and Continuous Professional Development

In order to achieve the goals of Foundational Literacy and Numeracy , teacher professional development has been prioritized, with promotion of courses on digital platforms like DIKSHA

[1] https://prsindia.org/policy/analytical-reports/state-state-finances-2019-20

05. Transforming assessment for student development

The policy talks of making effort to move from the summative assessment that focuses on measuring rote memorization of skills to formative assessment, that is more competency based, promotes learning in class and measures higher-order skills such as analysis, critical thinking and conceptual clarity. The focus would be on ***assessment for learning***, where teachers assessment of students would inform them of the changes required in classroom practices. The report cards are proposed to be completely redesigned to include a 'holistic, 360 degree, multidimensional report that reflects in great detail the progress as well as the uniqueness of each learner in the cognitive, affective, and psychomotor domains. These report cards would also include self and peer assessment and act as the link between home and school. An AI-based software has also been suggested to track a child's progress through school years, helping them gain insight into their strengths and interest areas, ultimately influencing their career choices more positively.

NEP also recommends setting up a national assessment centre called PARAKH (Performance, Assessment, Review, and Analysis of Knowledge for Holistic Development) as a standard-setting body to guide the State Achievement Survey (SAS) and the National Achievement Survey (NAS) towards shifting the assessment patterns. This can be a game-changer as it will not only help states offer quality standardised assessments but also aid in providing regular data for improving quality. In the long term, this could help India align with global benchmarks such as the Programme for International Student Assessment.[1]

06. Integrating Technology

NEP also emphasis **integration of technology** to improve multiple aspects of education and help transform the entire nation into a digitally empowered society and knowledge economy. Technology based on AI is proposed to be used to not only improve the quality of teaching learning in the classrooms, but also positively influence teacher professional development.

[1] https://www.financialexpress.com/opinion/nep-2020-move-to-prioritise-assessments-can-make-india-globally-competitive-in-education/2056912/

NIPUN Bharat guidelines: FLN Mission

Recognising the crucial role of Foundational skills in the national development, it was announced under the 'Atma Nirbhar Bharat' campaign that a National Foundational Literacy and Numeracy Mission will be launched, for ensuring that every child in the country necessarily attains Foundational Literacy and Numeracy by the end of Grade 3, by 2026-27 (NIPUN Bharat Guidelines, 2021).

Lakshyas:
Learning Goals of the Mission

The National Mission will declare the overall national targets in achieving learning outcomes, including year wise outcomes to be achieved by the year 2026-27 by each State/UT. The overall literacy and numeracy targets to achieve the objectives of the Mission are set in the form of Lakshya or Targets for Foundational Literacy and Numeracy starting from the Balvatika.

	Balvatika	Grade 1	Grade 2	Grade 3
	• Recognises letters and corresponding sounds • Reads simple words comprising of at least 2 to 3 alphabets.	• Reads small sentences consisting of at least 4-5 simple words in an age appropriate unknown text.	• Read with meaning • 45-60 words per minute	• Read with meaning • at least 60 words per minute
	• Recognizes and reads numerals up to 10. • Arranges numbers/ objects/shapes/ occurrence of events in a sequence	• Read and write numbers up to 99 • Perform simple addition and subtraction	• Read and write numbers up to 999 • Subtract numbers up to 99	• Read and write numbers up to 9999 • Solve simple multiplication problems

01

Post the National Education Policy 2020, the MHRD on 5th July released the NIPUN Bharat guidelines to ensure implementation of focus on Foundational Literacy and Numeracy in a 'mission mode'. These guidelines look at Foundational Learning as a 4-year continuum, with one year of Balvatika (pre-school) along with Grade 1-3 and provide the states with an essential roadmap to achieve the same.

02

The declaration of 'mission' to achieve Foundational Literacy and Numeracy has renewed focus on Foundational years of Learning. Prior to this, the entire focus of previous policies has been on 'access' and 'equity' of education.

03

The policy document has set well defined Lakshyas (targets), development goals and Learning outcomes for the four-year continuum (as given in the image)

04

NIPUN Bharat guideline talks of focus on 'Balanced Approach' to teach reading to children in early grades. This is a much-needed positive step. For a long time, experts and pedagogies have been oscillating between the two extremes of the reading wars, the phonics approach and the whole language approach. Today fortunately research in neuroscience has established beyond doubt the redundancy of these approaches.

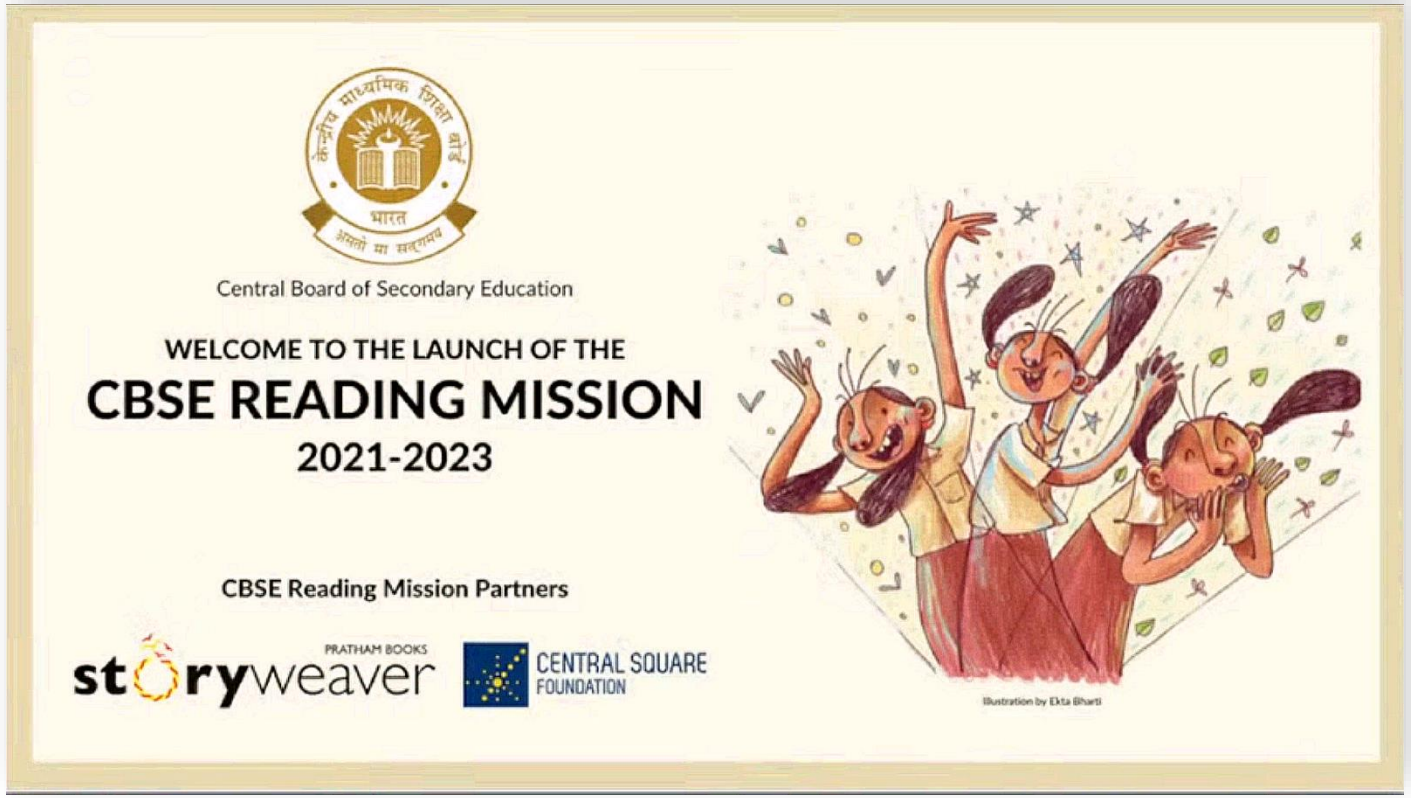
05

The document also talks of 'School Readiness' for grade 1 children, for the interim period, till pre school structures are set up and implemented. This would ensure that children who come in without preschool experience are provided opportunities to smoothly transition from a home environment to school learning. It also simultaneously focuses on ready parents and ready schools.

Reading Mission by CBSE

Central Board of Secondary Education (CBSE) in partnership with Central Square Foundation and Pratham Books' Story Weaver launched the CBSE Reading Mission in September 2021 for two years to promote book reading among its students. This project is intended to help students acquire the critical competency of reading with comprehension.

- Under this initiative, teachers of Hindi and English across the CBSE's more than 25,000 schools would be provided quality-reading material including story books and supplementary resources suited for learners of classes I-VIII.
- The objective is to help develop a reading culture and improve the reading experience for the children, through vocabulary development, connection building
- Books help develop vocabulary, enable them to build connections between what they read and their life, explore the world unknown to them, understand their own experiences, deal with their emotional issues and get exposure to newer ideas. Through such experiences, the Reading Mission intends to build a culture of reading, where books become a part of every child's every day life experiences



Expected Impact of the Policies, Programmes and Mission

- The previous policies since independence helped ensure that all children were enrolled in schools. The National Education Policy (2020) with its focus on quality education, the NIPUN Bharat guidelines with a focus on Foundational Literacy and Numeracy and a commitment to improving the same in a mission mode; and efforts like Reading Mission by institutions like CBSE are expected to now be a game changer in ensuring 'quality education'.
- Foundational Literacy and Numeracy has been an ignored area for the past several decades. However, given that the government focus is now finally on the early years of a child's education, there are a lot of expectations associated with it.
- This would require that the changes as envisaged in the policies and programmes are actually brought to fruition. For instance,

1. Vidya Pravesh would need to be actualized to ensure children transition smoothly into school, This may require the support of well designed edtech resources that provide gamified content targeted to ensure individual learning and maximized gains.
2. Curriculum and pedagogical reforms would need to be made to ensure that children experience productive learning years based on the balanced approach, as recommended under NIPUN Bharat guidelines.
3. Assessment reforms would need to be brought to ensure that it informs actual classrooms practices and promotes a child's learning
4. Focus on capacity building of the system would need to be systematically ensured for a high level of skills and capacities of all stakeholders, including officials, teachers, parents etc.

While these are critical areas where one would need to focus on, it is important to explore further and really understand the impact this improvement i.n quality could bring about, both at the macro and micro level

Unit III

The 'Why' of Foundational Literacy and Numeracy

Foundational years comprising of preschool and initial two years of formal schooling acts as the base upon which all future learning is built. It's relevance in improving not just the future learning capacities but also influencing economic, social and developmental factors over long term have been established beyond doubt.

Importance of Pre School education

Preschool education has a direct influence on the psycho-social, nutritional, health and educational development of a child. Research studies have shown that preschool education enhances literacy skills, child's ability to learn, to communicate ideas and feelings and to get along well with others. (Qadiri and Manhas, 2009). It fulfils all the physical, emotional, psychological and social needs of a child effectively. Children who receive quality preschool education are more likely to succeed in school and in life (Sander, 2003)

Good preschool education increases cognitive abilities, school achievement and improves classroom behavior among children. (Barnett S, 2004). Denton et al (2003) reported that preschool education develops early literacy skills among children and helps them gain proficiency in later grades.

In a meta **analytical study (Gorey, 2001),** it was observed that personal and social problems including drop outs, unemployment, poverty and criminal behavior were significantly lower over a ten to twenty-five year period for those who had attended preschool.

Good preschool education leads to immediate and lasting social and educational benefits for all children – especially those from disadvantaged backgrounds (Ball, 1994). In an evaluation of the ECE scheme in nine backward states, children with pre school experience scored better on various readiness parameters such as writing readiness, sound discrimination, the pairing of objects, classification etc (UNESCO, 2006). Another study by Kaul (1998) demonstrated a significant and sustained impact of a good quality ECE on later learning and clarity of concepts in mathematics (as quoted in Kaul and Deepa, 2009)

In the longer term perspective, **participation in Early Childhood Development Programs has paid dividends in terms of higher incomes, higher productivity and lower health care costs** (NCERT, 2006). Besides, evidence supports the view that investing in early childhood can bring important economic returns later in life – often greater than investment in formal education and training (World bank, 2006).

In another study on preschool education, **Janet Currie (2001) concluded that long term benefits include possible improvements in school attainment and wages, reductions in crime, reduction in teen pregnancy etc**. Further, in a cost-benefit analysis, Burr and Grunewald (2004) reported that the benefits of early childhood development programs are larger than program costs.

It is extremely critical that children are given the right start from the early childhood stage until the age of 8 years as the **foundation is laid for lifelong development during this age**. (Planning Commission Document of 11th Five Year Plan 2007-2012)

In the Indian context, there is evidence to show that **Early Childhood Care and Education contributes to the successful completion of primary education**, which is both a Millennium Development Goal and an Education for All goal, to both of which India is a signatory. (Kaul and Deepa, 2009)

Foundational Literacy and Numeracy and

Gains in Income

- Multiple studies and research across the world have established beyond doubt that people who complete their secondary or higher secondary school education earn better than those who do not. Better earning capacity of the population contributes to significant gains in the GDP of a country. A study by Hanushek et al (2008) found that an additional year of schooling can increase a person's earnings by 10% and an average GDP by 0.37% annually. Similar results related to an increase in wages were found in a cross-country study by Psacharopoulos and Patrinos in 2004.

- There have also been studies that show that children who attend preschool have a better probability of being gainfully employed and are better earners than those who do not, to the extent of 3-4 % more wages by the age of 33 years (Goodman and Sianesi, 2005).

- Generally, economic rates of return to individuals' and societies' investment in primary education have been reported to be higher in low-income countries than in high income countries and to be higher for primary education than for secondary or tertiary education (UNESCO 2010). The global rate of Return of Investment (ROI) in schooling is found to be approximately 10 percent for primary education while the social ROI of education for the world is 18.9 percent for primary education. In a recent report by IFC, it was found that the rates of return to primary education in India stands at 4.2 per cent (Amit Kapoor, IFC, 2021)

- Around the world, the impact of illiteracy on personal income varies but it is clear that earning potential is limited. Illiterate people earn 30%-42% less than their literate counterparts and do not have the literacy skills required to undertake further vocational education or training to improve their earning capacity. (Suresh Lal, 2015)

Based on UNESCO's formula to calculate the economic impact of illiteracy, the cost of illiteracy due to lost earnings and business productivity missed wealth-creation opportunities, and inadequate high-tech skills capacity stands at 2 percent of GDP for developed countries, 1.2 percent for emerging economies, and 0.5 percent for developing countries. (Suresh Lal, 2015). If this statistic is true, and we assume India to be an emerging economy, then we are potentially losing 3930 crores each year to illiteracy.*

* Calculated 1.5 percent of India's GDP (2020) as per World Bank Data

Foundational Literacy and Numeracy and

Gender Equal World

The recent **World Economic Forum's Global Gender Gap** Report 2021 shows that India has slipped 28 places to

rank **140th**

among 156 countries

thus becoming the third-worst performer in South Asia.

Some of the drivers of this decline include (but are not limited to)

Decrease in women's labour force participation rate,

from **24.8**% to **22.3** %.

Decline in the share of women in professional and technical roles

to **29.2** %

Low share of women in senior and managerial positions

only **8.9**% firms that have female top managers.

- According to the same report, the estimated earned income of women in India is only one-fifth of men's, which puts the country among the bottom 10 globally on this indicator.
- It is important to realize that even though India has attained a near perfect enrolment in primary grades and that literacy attainment is positively correlated to the future earning capacity of an individual, yet there still exists a gender divide in terms of participation in labour force and earning capacities of women. The root of this existing gender disparity may lie in the social norms and pre-defined acceptable 'gender roles in society. The low earning capacity of women could be more of a social issue, than an economic one.
- Research shows that gender stereotypes in children are formed by the time they are five years old. (Powlishta, Sen, Serbin, Poulin-Dubois, & Eichstedt, 2001). Gender norms get engrained very soon in life. This makes it critical for us to acknowledge the importance of early childhood education in bringing about not just gender sensitive but gender responsive focus. Early grade literacy is an essential tool to promote and ensure a gender equal society.

Foundational Literacy and Numeracy and Reduction in Crime

Research shows that early grade literacy helps prevent crime, thereby reducing the cost that a nation would have to incur in running the courts, prisons and managing the mounting pile of cases. Additionally, the preventative benefit of literacy helps save the intangible cost including loss of happiness, psychological distress and quality of life. Numerous studies today prove that access to preschool education contributes in reducing the likelihood of today's young children becoming tomorrow's violent adults.

A 15-years longitudinal study shows that children who did not receive preschool education were **70%** more likely to be arrested for a violent crime by the time they turned eighteen. (1)

In various nations, estimates show that **60-80%** of prisoners have reading and writing skills below basic levels. Those who are still illiterate upon release have a high probability of re-offending. This is a high cost to the economy in terms of maintaining prisons, administrating the courts and running the justice system. (Suresh Lal, 2015)

An analysis by Cohen (1998) estimates the benefits that accrue when essential programs help save a 'high-risk' youth from entering the life of crime to be as high as **$1.7 to $2.3 mn.** (2)

This clearly brings out the essential benefits and savings that could accrue if the nation focuses on Foundational Literacy and Numeracy and prevent the youth of tomorrow to fall into a life of crime. The resulting savings can naturally be diverted towards developmental programs, rather than being spent in the justice system post facto.

1) Reynolds, A.J. et al. (2001) Long-term Effects of an Early Childhood Intervention on Educational Achievement and Juvenile Arrest: a 15-Year Follow-Up of Low-income Children in Public Schools. JAMA
2) Cohen M.A (1998) The Monetary Value of Saving a High-Risk Youth, Journal of Quantitative Criminology

Foundational Literacy and Numeracy and Health Benefits

- Low literacy levels have been found to lead to poor health outcomes, both directly and indirectly, which further leads to an effect on individual wages and income of a nation. Hence, improvement in literacy levels is found to be directly associated with improved incomes via health benefits.
- Feinstein et al (2006) note that education is an important mechanism for enhancing the health and well-being of individuals because it reduces the need for health care, the associated costs of dependence, lost earnings and human suffering. It also helps promote and sustain healthy lifestyles and positive choices, supporting and nurturing human development, human relationships and personal, family and community well-being.

Calculated at the average value of GDP per capita, a study by Groot and van den Brink (2006) found the **implied health returns to education to be**

1.3–5.8%.

Spasojevic (2003) calculates that **a year of schooling is equivalent to** an increase in income of nearly

$1700 in terms of its health effect.

- In developing countries, a child born to a mother who can read is 50 percent more likely to survive past age five (Suresh Lal, 2015). Hence, literacy helps ensure health benefits not just to the person who is literate, but also to the family members by impacting child mortality and /or adoption of a healthy lifestyle.
- In a country like ours that is still struggling with high infant mortality rates, child deaths due to malnutrition and environmental or communicable diseases like diarrhoea etc, increased focus on Early Grade Literacy has the potential to positively impact the health of mother and child.

Foundational Literacy and Numeracy and

Mental Health Benefits

- Contrary to popular belief, scientific evidence shows that significant mental health problems can and do occur in young children, and the same are not very easy to diagnose. Adversity during early childhood including poverty, poor child care conditions, threatening environment, domestic violence etc. all increase the risk of mental health problems in children. If these children are not supported early on, it may lead to serious mental disorders over time.

- ECE interventions have proven to have a significant impact in preventing child and adolescent mental health problems and promoting well-being in LAMIC. High quality interventions in the early years can play an important role in preventing psychopathology in adulthood. [2]

Henningham (2013) talks of including the following elements in early childhood interventions to ensure long term impact on mental health of the children:

01

an emphasis on increasing child skills (e.g. cognition, school readiness, executive function, self control, social-emotional competence)

02

training children's caregivers in the skills required to provide a cognitively stimulating and emotionally supportive environment including training in appropriate caregiver-child interactions; and

03

attention to the mental health, motivation and self-efficacy of children's caregivers to strengthen their capacity to provide optimal care

- Focus on mental health needs to be promoted in a systematic way in the foundational years to avoid a direct and indirect loss to the economy in terms of low productivity arising out of mental issues, violent criminal behaviour and quality of life of these children in adulthood.

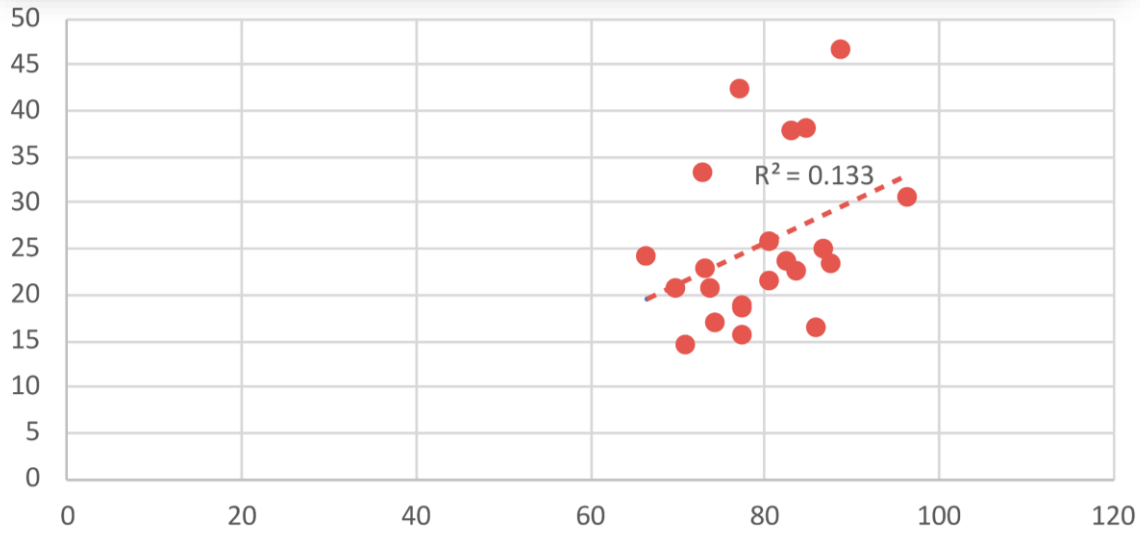
1) National Scientific Council on the Developing Child. (2008/2012). Establishing a Level Foundation for Life: Mental Health Begins in Early Childhood: Working Paper 6. Updated Edition. http://www.developingchild.harvard.edu
2) Henningham Baker (2013): The Role of ECE Programs in the promotion of child and adolescent mental health in low and middle income countries (LAMIC), International Journal of Epidemiology, Oxford University Press

Foundational Literacy and Numeracy and Innovation

- The India Innovation Index* (2020) ranks the states and UTs basis their innovation environment. It recognize opportunities and challenges and assists in tailoring government policies to foster innovation.
- This report attempted to look at the scores of the Indian states and UTs using the India Innovation Index along with the literacy data to identify the correlation between Literacy and Innovation if any.
- The analysis showed a positive correlation with an R-Square of 0.133. It essentially means that 13 percent of changes in innovation scores can be explained by literacy rates.
- Throughout history, the need to innovate has been central to economic development for any nation. In fact, it is only an innovation-driven economy that can be India's key to cementing its position as an emerging world leader. [1]

Hence, for us to emerge as world leaders, focus on literacy would have to be prioritized, to provide the much-needed push for an innovation-driven economy.

Correlation between Literacy rate & India Innovation Index scores



1) https://www.niti.gov.in/sites/default/files/2021-01/IndiaInnovationReport2020Book.pdf

Foundational Literacy and Numeracy and

Development of Socially Responsible Adults

- Social responsibility is a prosocial value orientation, rooted in democratic relationships with others and moral principles of care and justice, that motivates a range of civic actions. (Laura Wray-Lake, 2011)
- It is in the early childhood period that children develop their basic values, attitudes, skills, behaviours and habits, which may be long lasting. Studies have shown that racial stereotypes are learned early and that young children are able to pick up cultural messages about wealth and inequality. As early childhood education is about laying a sound intellectual, psychological, emotional, social and physical foundation for development and lifelong learning, it has an enormous potential in fostering values, attitudes, skills and behaviours that support sustainable development – e.g. wise use of resources, cultural diversity, gender equality and democracy. (UNESCO, 2008)

Literacy has the potential to develop our children into socially responsible adults through:

Cognitive development, through skills like reasoning, critical and analytical thinking, development of own perspectives and decision-making

Development of empathy, which is essential to fight intolerance that pervades our society; and

development of a sense of self

If done well, literacy has the force to increase tolerance and resilience in children; enables them to make more environmentally sustainable choices; leads to improved health and hygiene, and ensures greater civic participation

Foundational Literacy and Numeracy and

Reduction in Child Labour

Child labour remains a persistent problem in the world today. The latest Child Labour Global Estimates (UNICEF, 2021) indicate that 1 in 10 children worldwide are child labourers, amounting to a total of 160 million children. Nearly half of all these children are engaged in hazardous work that directly endangers their health, safety and moral development.

Once children enter the work stream, they are often unable to attend school. This even though schooling up to fourteen years of age is free and compulsory, and a fundamental right of every child. The **28 per cent of 5-11 years old who are in child labour have a very high chance of dropping out of school** even before they can complete their secondary education. This severely impacts their prospects for reasonable earning capacity in adulthood and reduces the overall quality of life.

As per Census 2011

10.1 million children

in the age group (5-14) years are working in India, either as ‘main worker’ or as ‘marginal worker’. In addition, more than 42.7 million children in India are out of school

This situation has been further exacerbated due to the Covid crisis

With parents losing their livelihoods and school closures, children have been further forced to drop out of school and contribute to the meagre earnings of the family.

Several reports have emphasized that school closures due to Covid is driving child labour up. In a survey of eight West African countries, children consistently reported working because there was no school. (1)

1) World Vision, ‘Act Now: Experiences and recommendations of girls and boys in West Africa during COVID-19’, 2020, , accessed 14 May 2021.

There are **some well-known solutions for getting and keeping children in school.** These include establishing early childhood development, childcare and pre-primary education, which increase the chance that students not only stay in school but also succeed. [1]

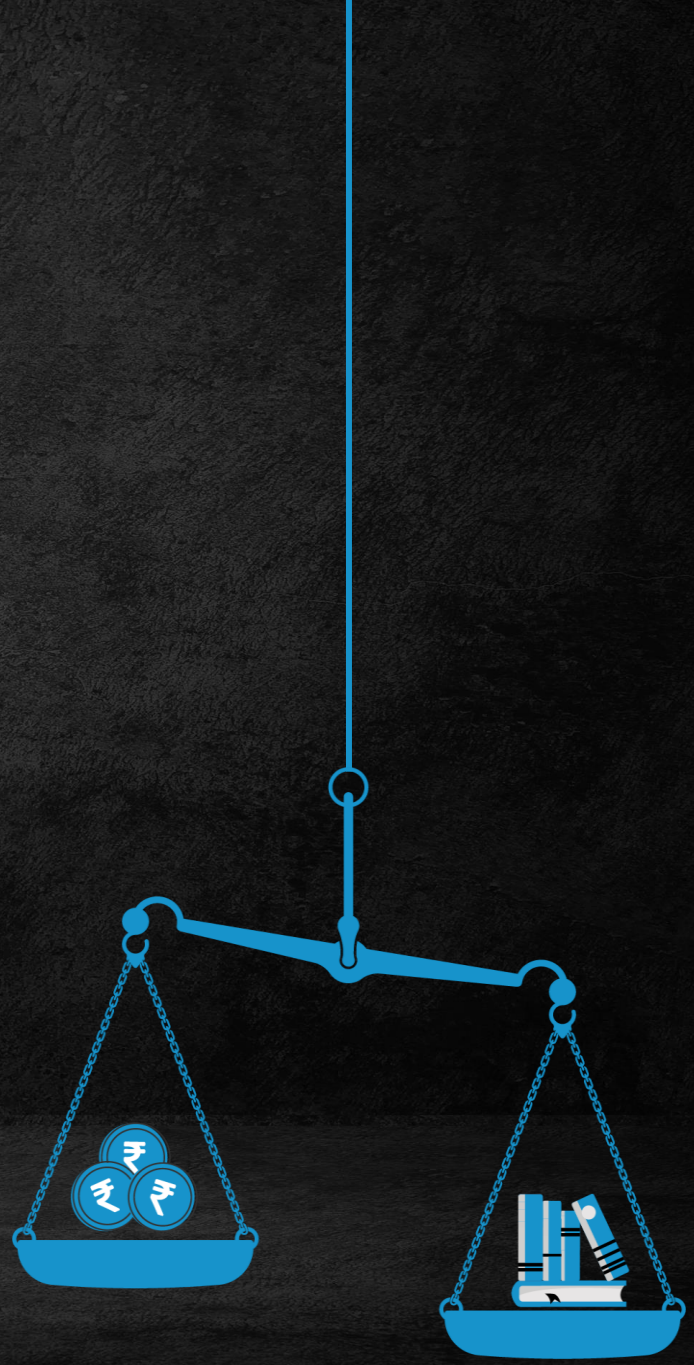
A study by the International Labour Office (ILO) says the benefits of eliminating child labour will be nearly seven times greater than the costs, or an estimated US$ 5.1 trillion in the developing and transitional economies, where most child labourers are found. The ILO/IPEC study applies a model to developing and transitional economies worldwide and says that globally, the economic benefits of the fight against child labour exceed costs by a ratio of 6.7 to 1.

The study argues that the costs are a "wise investment" as each extra year of schooling stemming from universal education to the age of 14 results in an additional 11 per cent of future earnings per year, yielding global benefits of just over US$ 5 trillion. [2]

1) Ending Child Labour by 2025; United Nations Children's Fund, Every Child Learns: UNICEF education strategy 2019- 2030, UNICEF, New York, 2019, , accessed 24 May 2021.
2) Investing in Every Child, An Economic Study of the Costs and Benefits of Eliminating Child Labour , ILO Geneva, December 2003. ISBN 92-2-115419-X.

Unit IV

Cost-Benefit Analysis



Estimating the Cost

The cost of education has been calculated on basis of the government expenditure in elementary education, using data from the Ministry of Human Resource Development for three consecutive years. This includes the total expenditure made both by the Centre and the states.

	State	Centre	Total (in crores)
2016-17 (Actual)	211694.28	59792.19	271486.47
2017-18 (Estimated)	241636.16	64572.41	306208.57
2018-19 (Budgeted)	269422.42	69699.75	339122.17

Since the expenditure by the government changes every year, an average expenditure of the three years has been taken as the representative value of Expenditure in Elementary education, which comes out to be

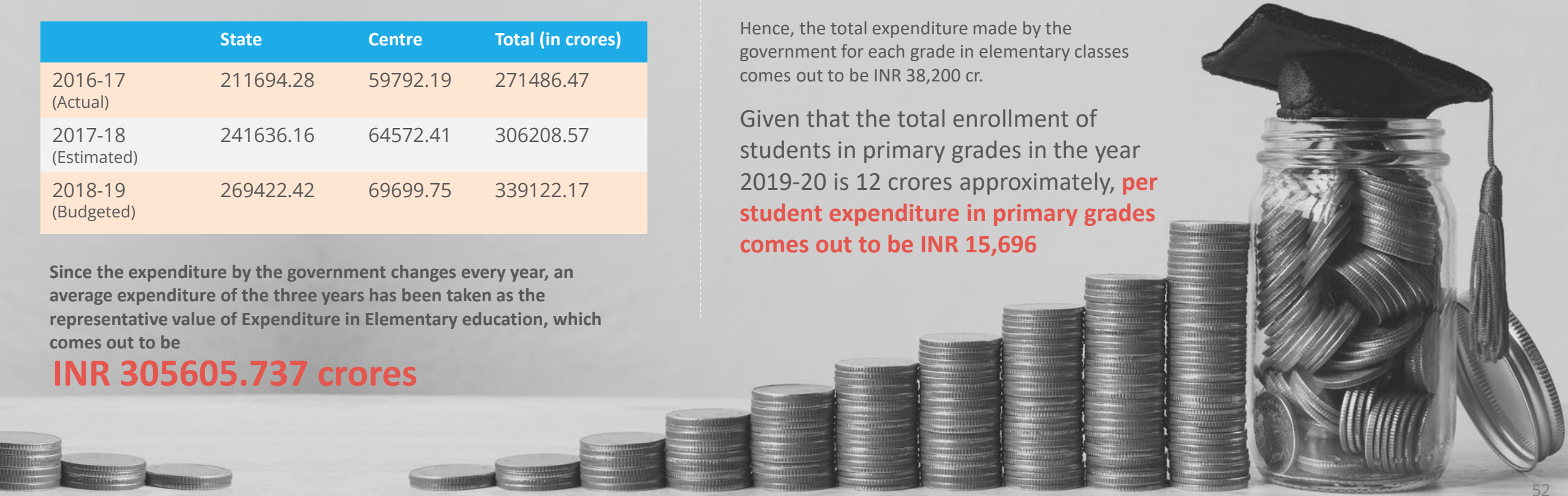
INR 305605.737 crores

To calculate expenditure per year for each grade, this amount is divided by the total number of elementary education years

305605.737 ÷ 8 = 38,200 cr

Hence, the total expenditure made by the government for each grade in elementary classes comes out to be INR 38,200 cr.

Given that the total enrollment of students in primary grades in the year 2019-20 is 12 crores approximately, **per student expenditure in primary grades comes out to be INR 15,696**

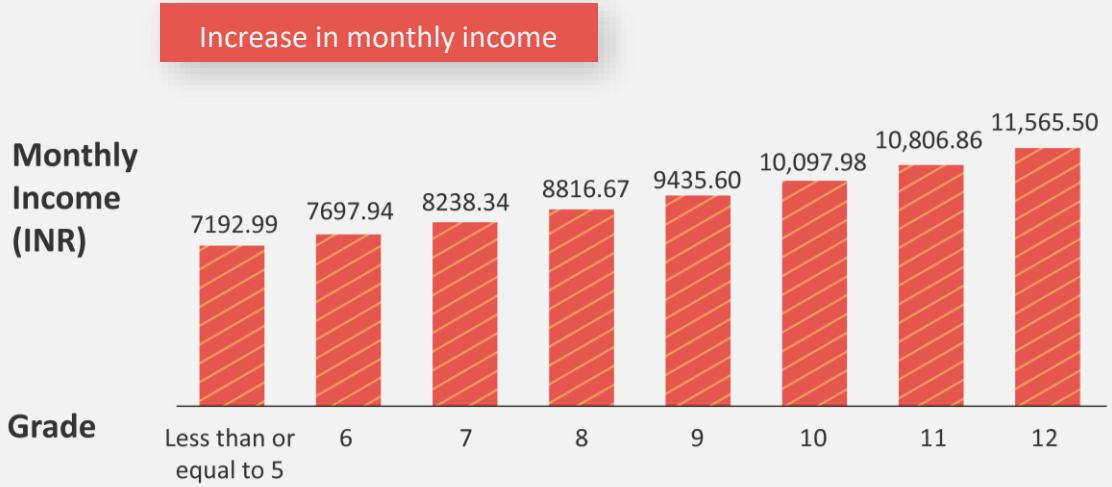


https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/budget_expenditure.pdf

Estimating the Benefits

‘Investing in Adolescent Development’ report published by Institute for Competitiveness in June 2021 used the Mincer model to calculate that one year of education leads to a 7.02 percent increase in monthly income.

The report highlighted that **one additional year of education increases the monthly income of individuals to INR 7,697**. The exhibit below shows that providing an individual with seven additional years of schooling, up to grade XII, leads to a monthly income increase of INR 11,565.



Hence, an increase in monthly income due to seven additional years of schooling amounts to INR 4,372. This means an additional income of INR 52,470 yearly per individual.

However, for such gains to accrue post secondary and higher secondary education, it is essential that the Foundational Literacy and Numeracy is attained first. In the absence of strong primary grade schooling, there is a high probability that children would drop out before they complete secondary education, and the expected benefits would be lost.

Calculating Net Present Value (NPV)

In order to understand the return on investment, the Net Present Value has been calculated. It helps understand the present value of all projected returns of an investment.

“Net Present Value is the present value of the cash flows at the required rate of return of the project compared to the initial investment”, Joe Knight

NPV has been calculated using the formula given below

$$\text{Net Present Value} = \sum \frac{\text{Year n Total Cash Flow}}{(1+\text{Discount Rate})^n}$$

where n = 20 years; r* = 5.75%

- To get the final NPV, the initial investment** is subtracted from the value thus obtained, which comes out to be INR 5,98,537.
- It essentially means that when an investment of INR 15696 per child is made, it leads to a benefit of INR 5,98,537 to that individual over a period of 20 years.
- What it also shows is that for every child that misses gaining Foundational Literacy and Numeracy skills, possible gains amounting to INR 5,98,537 are lost.
- With average enrolment in grade 1 equal to 2.43 crores, the total loss to the economy in terms of missed income gains for each cohort comes out to be 14 lakh crores approximately.
- Converting this in dollar terms (assuming 1$=75 INR), it means we lose a total of 194 billion dollars. With 2,622 billion dollars as India’s GDP, this comes out to be 7.39 percent of the GDP.

Hence, an investment in Foundational Literacy and Numeracy for each cohort leads to gains in GDP by 7.39 percent.

The NPV for this report has been calculated assuming constant benefits over a period of 20 years. However, when one assumes an increase in income at least equal to the amount of inflation in the economy, this value would rise further. Additionally, an investment in Foundational Literacy and Numeracy also leads to indirect benefits in terms of improved health, gender equality and reduced crime and child labour for which the monetary estimates have not been made. It is safe to say that these are conservative estimates of the returns to investment in Foundational Literacy and Numeracy.

Unit V

Challenges in the achievement of Foundational Literacy and Numeracy

Challenges in the achievement of Foundational Literacy and Numeracy

While it is true that Foundational Literacy and Numeracy has finally received its due recognition at the national level, there are several challenges that may make it extremely difficult to achieve the goal of Foundational Literacy and Numeracy by 2026-27, despite the best of intentions. While most of these issues have been long term and have always acted as hurdles in improving learning outcomes for children, Covid has pushed it even further and added to the existing complexities. Let us discuss these in detail

01

Systemic Challenges

- Inadequate budget
- Two ministries, one mission
- Teacher recruitment and Teacher Pupil ratio (TPR)
- Inadequate infrastructure
- Nutritional deficiencies among children
- Inadequate investment in child nutrition
- Policy and governance is not data driven
- Rigid procurement policies regarding Children's Literature

02

Quality Issues

- Poor status of anganwadis
- Poor quality of teaching-learning in primary grades
- Curriculum and textbooks not based on scientific principles of pedagogy
- Multilingual reality and lack of preparedness
- Lack of focus on comprehensive school readiness
- Teacher Professional Development issues
- Lack of monitoring and support
- Inadequate research on Foundational Literacy and Numeracy

03

Impact of Covid

- Massive learning loss
- Limited funds
- Fast paced remediation programmes
- Mental health issues
- Unpreparedness

Systemic Challenges

A Inadequate budget

The National Education Policy of 1968 recommended that India spend 6 per cent of its GDP on education. However, even today, as per the Economic Survey (2019-20), India spends only 3.1 percent of its GDP on education. A major chunk of this goes into payment of teacher salaries, with minimum funds for infrastructure, teacher training and monitoring support. This inevitably causes poor funding towards ‘quality education’ in over one million government schools that caters to half of India's nearly 248 million children. A natural result of this is the attainment of poor learning outcomes.

CASE STUDY

Delhi Government Educational Reforms (Increased budget, improved Learning outcomes)

The Delhi government dived deep into educational reforms in …… with a focus on four key areas, namely infrastructure, teacher professional development, community engagement and focus on Foundational Literacy and Numeracy to bridge the learning gap. What is noticeable is that as per the Delhi Economic Survey Report, the per student per annum expenditure incurred by the government on education comes out to Rs 78,082 in 2020-21, which is significantly higher than the national average.

As per the state wise data for the 2015-20 period, states on an average spent 16% of their budget on the education sector while the investment in Delhi has been as high as 27 percent, the highest among all the states.[1]

- Delhi government introduced **'Mission Chunauti' in 2016** seeking to check student dropout rates and improve the quality of education with a special focus on the weakest students from grades 6-9. Within the first year, on an average, there was an improvement of 20 percentage points in Foundational Literacy and Numeracy for these grades.
- This was followed by **Mission Buniyad in 2018** which was launched after the National Achievement Survey (NAS) found that majority of students between classes 3, 5 and 8 did not perform well as per their grade level assessment. A three-month long campaign was launched in April 2018. It was found that before the campaign, 52% of students from grades 3 to 9 in the schools of Directorate of Education could read their text books, after the campaign, 63% of students could do the same. [2]
- The Delhi Commission For Protection of Child Rights (DCPCR), in a report titled 'Mission Buniyaad: A case study' highlighted the significant improvement in Foundational Literacy and Numeracy of the children over the past few years. The results showed a 20 percent improvement in Foundational Numeracy and a 12 percent increase in Foundational Literacy skills for Grade 3-5 children post 2018.
- While the government was making investments and sustained efforts to improve Foundational Literacy and Numeracy skills, its impact on the 12th board results became visible. The first cohort of class 9 students who underwent focused intervention in 2016 under Mission Chunauti would have been promoted to Class XII in 2019. The pass percentage of class XII students in this cohort saw a significant increase. While 85.9 percent of students passed in grade XII in 2015-16, it increased to 97.8 in 2019-20.
- This example highlights that increased focus and spending on Foundational Literacy and Numeracy is essential to improving learning outcomes in higher grades. There is enough evidence that establishes the impact of completing higher secondary education on future income and quality of life.

[1] https://prsindia.org/policy/analytical-reports/state-state-finances-2019-20
[2] http://www.edudel.nic.in/welcome_folder/delhi_education_revolution.pdf

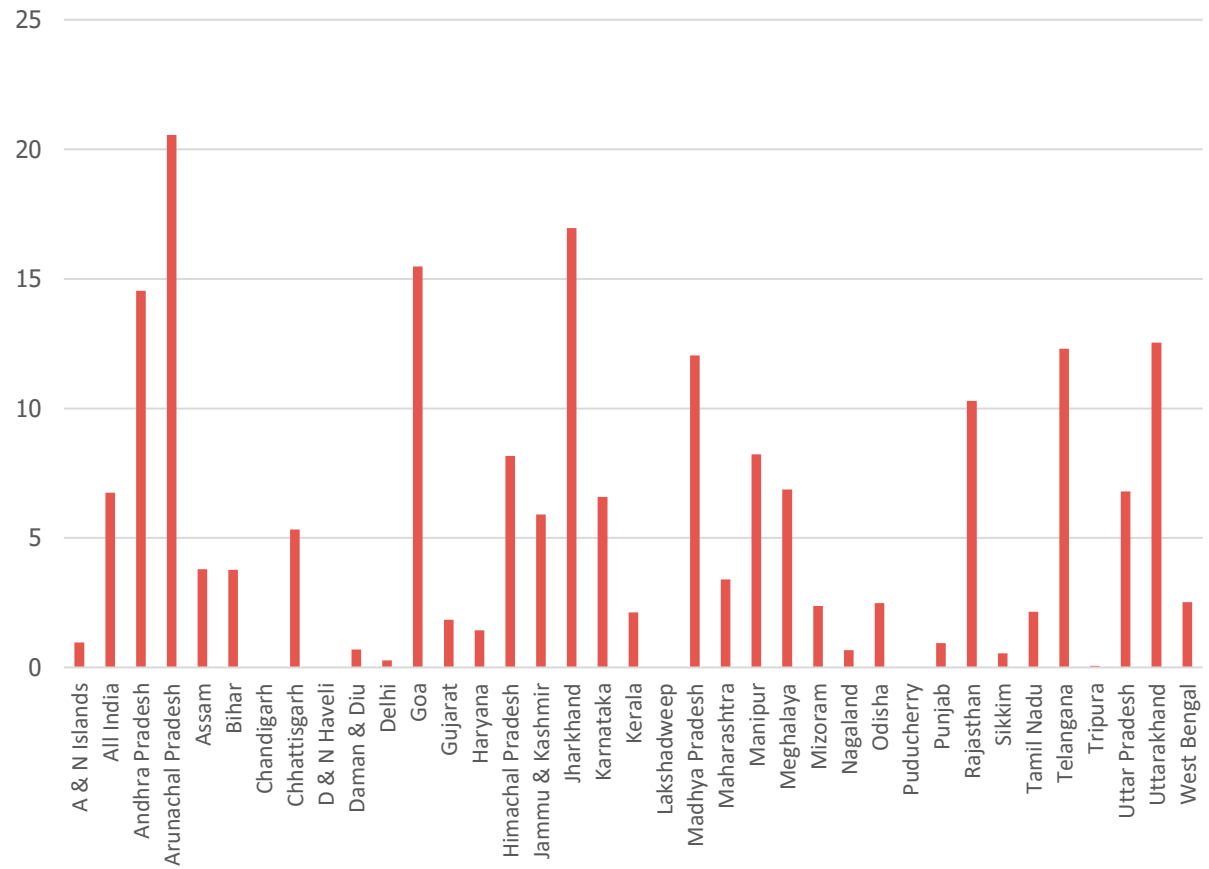
B Two Ministries, One Mission

- The current Foundational Learning continuum talks of three years of preschool and two years of grade 1&2. However, this poses unique systemic challenges.
- The preschool currently is under the Ministry of Women and Child Development (MWCD) while formal schooling is under the ambit of the Ministry of Education (MoE). At present, there exists no alignment within these departments.
- There is little clarity as to where the preschool classes would be housed. There are speculations regarding whether the same would continue to be in anganwadis, or preschool would need to be added in primary schools to ensure continuity in learning.
- Given that currently, the preschool structure is essentially non-existent, it would take a minimum of 3-4 years for the three years of preschool to be operationalized. This would involve setting up the required infrastructure, designing curriculum, creating relevant TLM, training teachers and systemic preparedness to ensure continuity in learning.

C Teacher recruitment and Teacher-Pupil Ratio (TPR)

- As per the Right to Education Act (RTE, 2009) the desired Teacher Pupil ratio (TPR) has been set to 1:35. While this does seem good on paper, its implementation causes the emergence of a large number of single/two teacher schools. Schools with low enrollment get only 1-2 teachers to teach children across all grades. Approximately 42 percent of government elementary schools have only one or two teachers for the elementary grades (NUEPA, 2016).
- While the national average for single-teacher schools is about 6.74 (2017-18) percent, several states have this figure to double digits. This includes states like Andhra Pradesh, Arunachal Pradesh, Goa, Jharkhand, Madhya Pradesh, Rajasthan, Telangana and Uttarakhand.
- A critical result of such a scenario is that there exist **no designated teachers for early grades**, where the focus needs to be maximized. This naturally results in a multi grade scenario where one teacher is expected to teach all grades simultaneously in the limited time she has during the day. This naturally results in poor quality in the teaching-learning process.
- While one of the causes of single and double teacher schools could be the TPR defined school wise, there also exists a large number of teacher vacancies across several states, notable among which are Uttar Pradesh, Bihar, Madhya Pradesh West Bengal and Maharashtra.

Percentage of single teacher schools



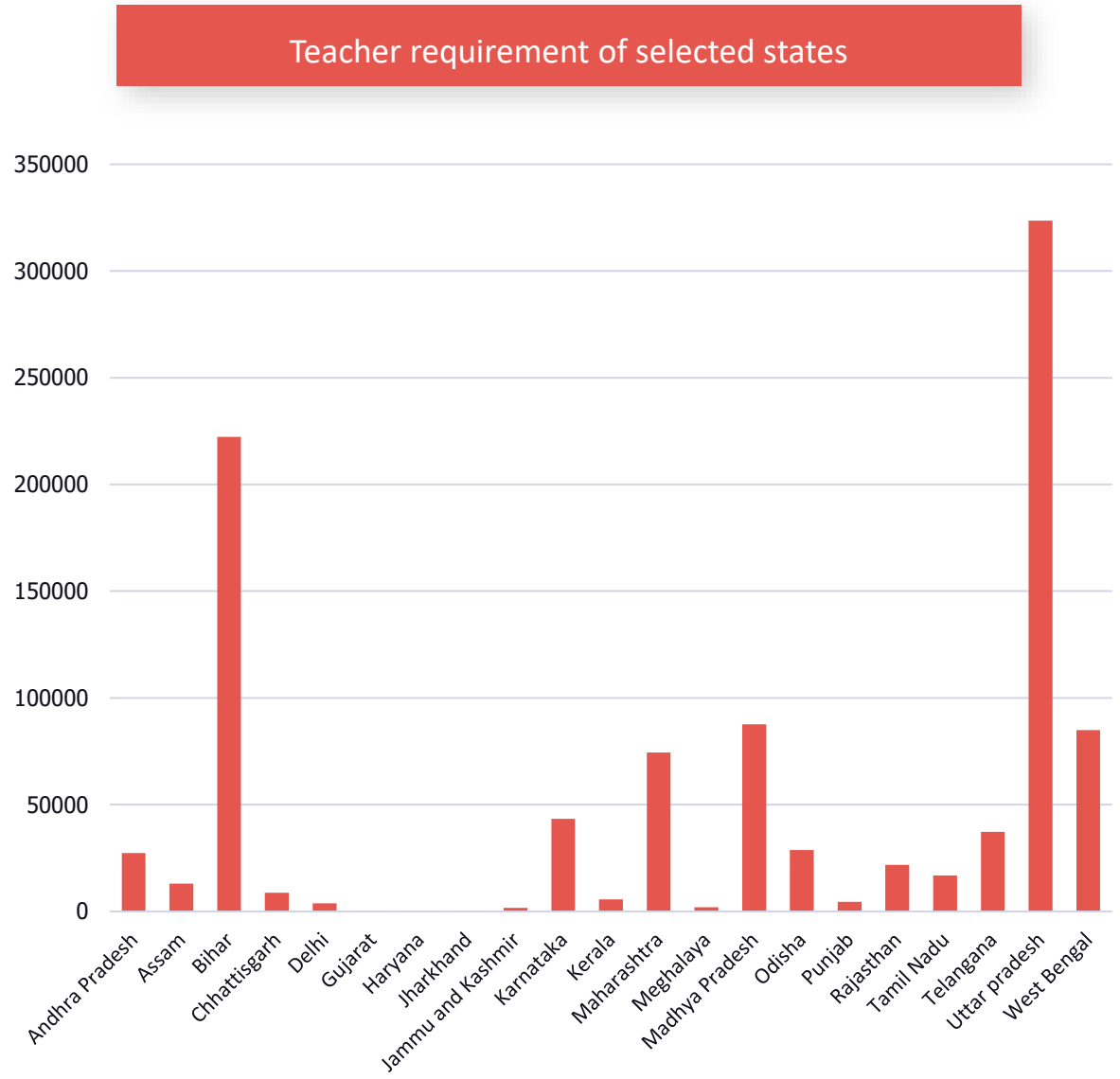
Source : State of the Education Report for India 2021

States like UP, Bihar, Madhya Pradesh, West Bengal and Maharashtra have a high level of teacher vacancies, as can be seen in the figure given here.

Additionally, teacher recruitment on a ‘contract basis’ has continued to be a massive issue. Since the 1980s, the government focused on recruiting teachers on contract in large numbers to cater to the rapidly increasing student enrolment and reduce the financial burden on oneself. However, this leads to multiple complexities.

- One, the teachers who have not been recruited on a permanent basis tend to be paid less and hence have low motivation levels to perform.
- Second, since a large number of vacancies exists, it puts undue pressure on the existing teachers who are forced to handle multiple classes and other responsibilities to make up for low manpower.

To sum it up, there is a need to recruit quality teachers on urgent basis, and have assigned teachers for foundational grades, which in an ideal world should be one teacher per grade. If the situation is allowed to continue as is, all efforts to improve quality of learning in classrooms would be left ineffective. Early grades require specialized structured pedagogy and trained teachers to implement the same. The teacher Pupil ratio of 1:35 is ideal, if done class-wise and not school wise.



D Inadequate Infrastructure

Essential infrastructure	Percentage of schools
Functional Electricity	80.16
Solar panel	9.02
Playground	74.62
Functional Boys' toilet	89.32
Functional Girls' toilet	92.40
Functional Drinking water supply	93.77
Water purifier	25.30
Ramps for accessibility	67.65
Medical check up facility	53.17
Internet	22.28
Availability of computers	38.54

New Education Policy (1986) and the Right to Education Act (2009) talks of ensuring proper infrastructure in schools, including but not limited to

At least two rooms for teaching-learning

Separate toilets for boys and girls

Safe and adequate drinking water facility for all children,

Playground

A kitchen to cook mid-day meals

- Additionally, the NEP 2020 also talks of **setting up libraries in every schools** and ensuring net access.
- However, data shows that the basics are yet to be ensured in all the schools. Unless the foundation is laid, it is difficult for quality learning to follow.
- Given that schools are struggling with quality infrastructure in the current times, any efforts to improve the same would involve time lag. Given the pace at which education has to be brought about, physical infrastructure alone would not suffice to ensure increased learning opportunities in the classroom. To promote sustained learning gains, it would be critical to focus on infrastructure that enables access and use of technology, including the internet and a device like a laptop or a tablet etc.
- Research shows that the availability of infrastructure has a noticeable impact on student motivation to learn and their academic performance. School climate appears as one of the basic factors that are crucial for predicting and increasing student achievement (Dulay et al, 2017).
- However, the state of infrastructure as it exists today leaves a lot to be desired. The table given here indicates the lack of clean water available to children, inadequate space to move around and play and as well as issues in the provision of essential facilities like medical check up.
- The issue of lack of electricity, internet and computers in schools poses additional challenges on the use of edtech resources for the development of foundational skills in children. While newer tech-based products are being increasingly created in this era of digital literacy, their use in schools seems to be limited on account of inadequate infrastructure.

Dulay, Sabiha, Karadağ, and Engin. (2017). *The Effect of School Climate on Student Achievement.* DOI: 10.1007/978-3-319-56083-0_12

E Nutritional Deficiencies among children

The relationship between nutrition, health and learning is undeniably strong: nutrition is one of the three significant factors that impact a child's development. The deficiency of nutrients early among children places them at elevated risk of physical and mental impairment and death.

Ages 0 to 5 is a critical window of opportunity for a child, with their need for nutrition and stimulation to affect cognitive enhancement at its peak. The impact of nutrition becomes apparent only through later year gains for the child in the academic, cognitive, and social context.

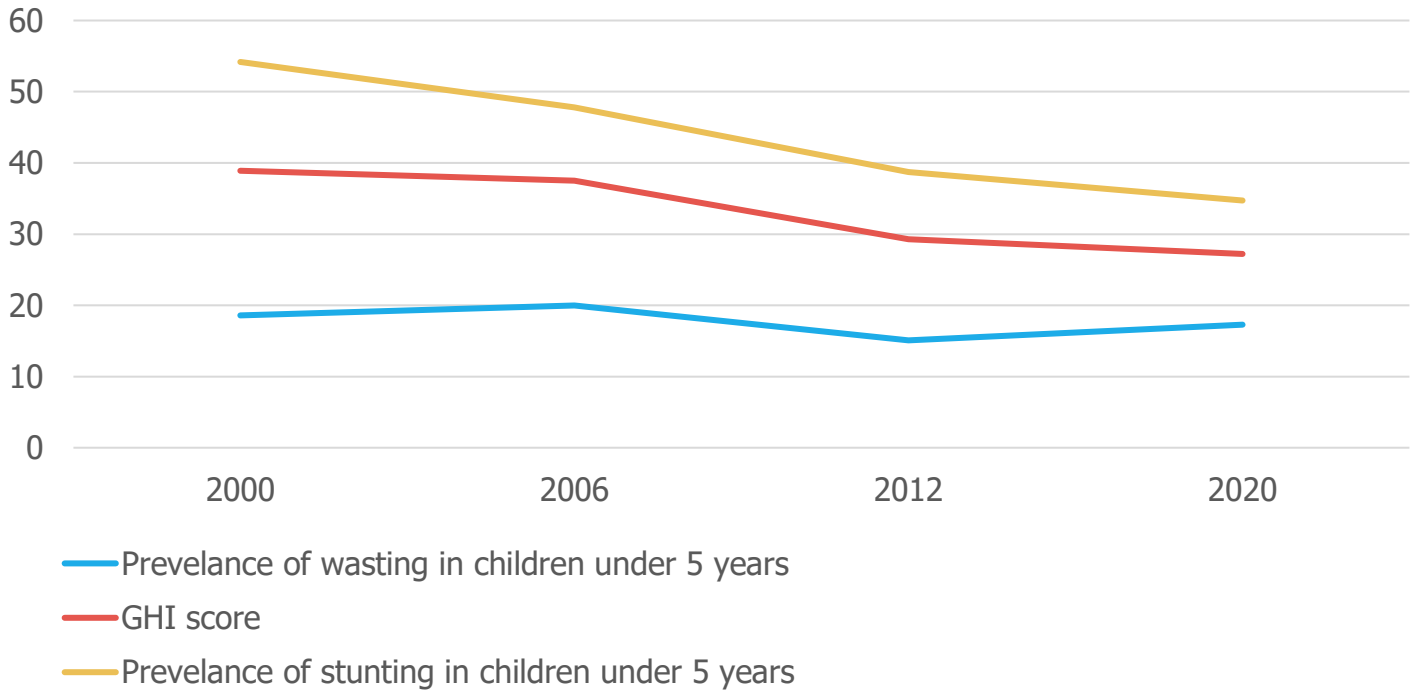
The nutritional needs of the age group have found resonance among SDG 2030 goal two in key focus ensuring access to safe, nutritious, and sufficient food for all. The need for early stimulation has been stressed in the NEP 2020.

There are deep-seated interlinkages between the health, nutrition, and educational needs of a child. Therefore, a child's development potential cannot be fully realized unless these interlinkages are incorporated in the intervention design by the government. However, real-time evidence-based data can help us understand the challenges around malnutrition, further improving learning outcomes in early childhood education.

Children's nutritional status deserves particular attention in India as the country ranked 94th out of 107 countries in the Global Hunger Index (GHI) with high child wasting (low weight for their height) and child stunting (low height for their age).

According to the latest report, India has the highest child wasting rate (17.3 per cent) of all countries covered in the GHI. This rate is slightly higher than it was in 1998–1999 when it was 17.1 per cent. While child stunting has seen a significant decrease—from 54.2 per cent in 2000 to 34.7 per cent in 2020—it is still considered exceedingly high. (Figure 1)

Trends of GHI indicators and scores of India



Indian children are among the most undernourished globally, and they are starved of protein, vitamins, iron and many other essential nutrients. One of the primary objectives behind the introduction of the Mid-Day Meal Scheme in India was to enhance children's nutritional level, thus positively impacting their health, leading to improved learning outcomes.

Besides encouraging attendance and improving nutritional levels, it also helps to arrest dropout rates. The scheme suffers from structural problems, the biggest being the lack of a proper monitoring mechanism.

> The mid-day meal scheme provides children in over 1.2 million government-run schools a hot and nutritious meal every day.

However, there are other various obstacles in the implementation of the scheme :

01 Teachers may not be keen on ensuring the quality of education as they know that many students come to school only to have one proper meal for food and not for education. If teachers are monitoring and managing food for students during mealtime, they might spend more time cooking mid-day meals than improving the reading, arithmetic and writing skills of children. Some teachers are involved in corruption too.

02 Not all Mid-day meals serve properly cooked food; either there are reports of schools providing poorly cooked food without utensils for students to eat meal or mid-day meal scheme is not properly implemented.

03 Midday meals are often criticized for their low nutritional values lacking superfoods like bananas, eggs, soya in the meals to children. There is a need to strengthen the efforts to improve equal nutritional support to children, especially those who belong to marginalized sections of society.

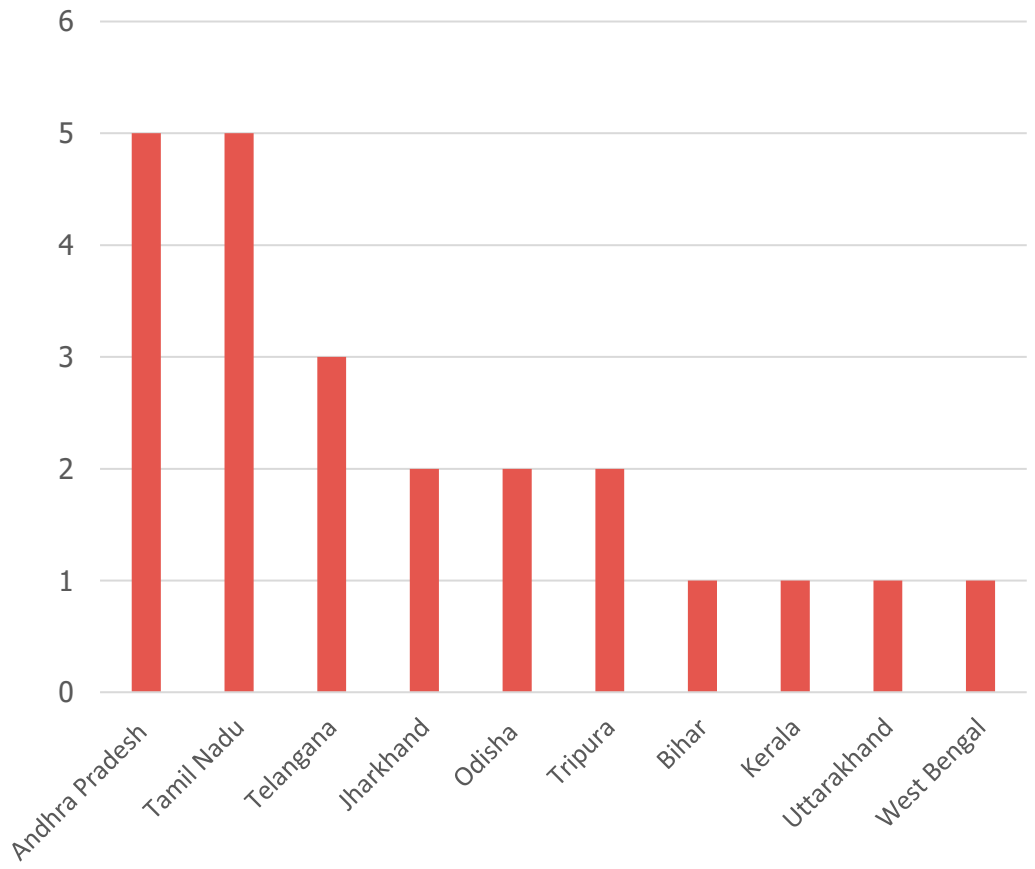
F Inadequate investment in child nutrition

Investing in child nutrition is one of the most effective entry points for children development: GOI allocations for MDM have been lower than those demanded by MHRD and declining. In FY 2014- 15, 11,051 crores had been allocated to the scheme, while MHRD had requested 12,147 crores for MDM. In FY 2020-21 BEs, 11,000 crores was allocated to MDM, an 11 per cent increase from the previous year's REs but the same as the BEs.

National Institute of Nutrition under the Union Ministry of Health and Family Welfare, made the provision of eggs compulsory in mid-day meals, as they are considered cheaper, safer, more nutritious and easier to procure than alternatives such as milk or bananas. Yet only 10 out of 29 states provided eggs weekly in mid-day meals served in 2019-20.

Inadequate nutrition leads to poor concentration and negatively impacts the learning outcomes of children. Malnourishment has been found to cause delays in the development of fine motor skills, language skills and personal-social skills (Vazir, Naidu, & Vidyasagar, 1998). Unless the nutrition battle is won, Foundational Learning would remain an elusive dream.

Only 10 out of 29 states provided eggs in mid-day meals served in schools in 2019-20



Source : Minutes of the meeting of Programme Approval Board – Mid Day Meal

G Policy and governance is not data driven

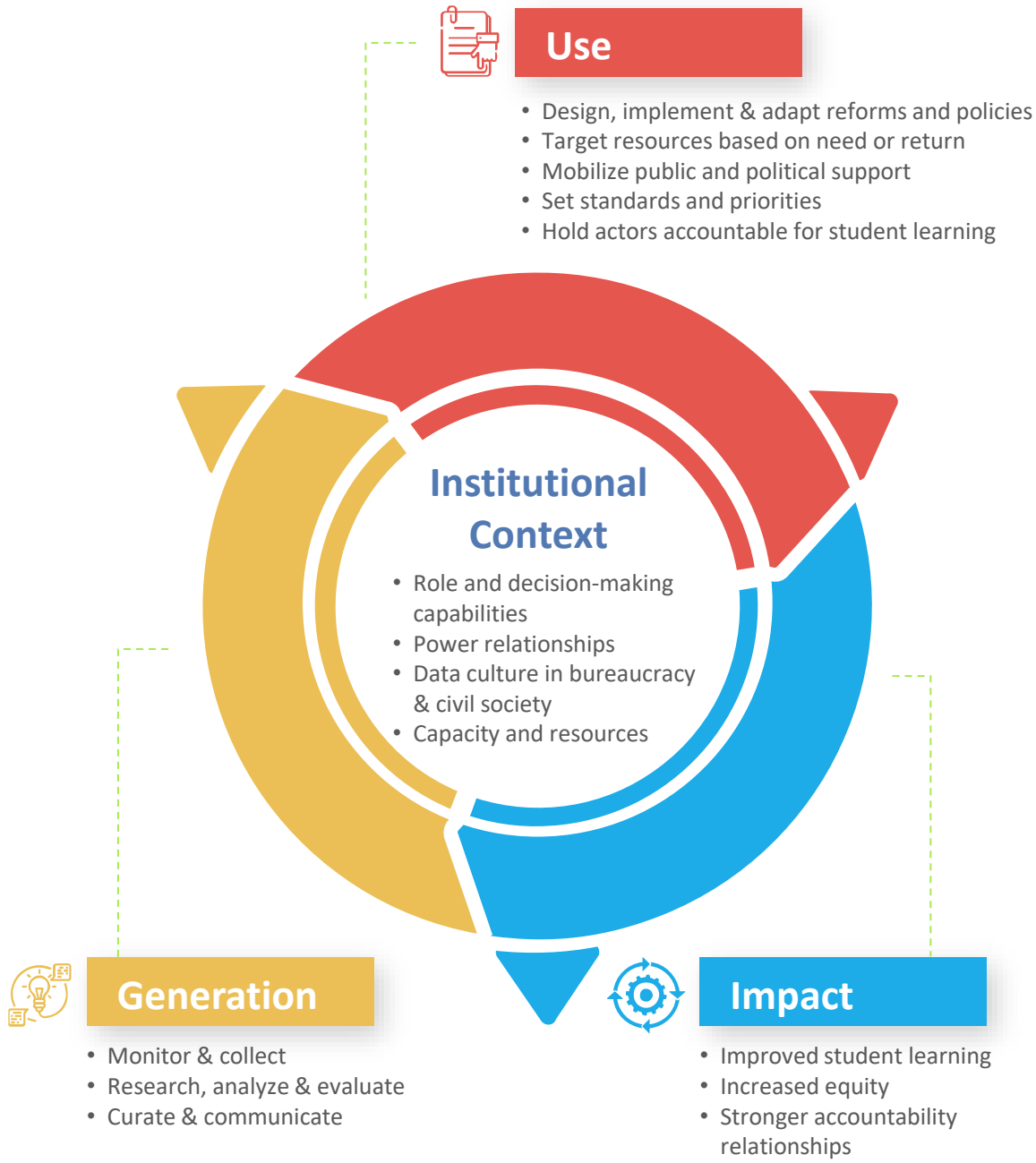
We are generally aware of the issues and problems that ail the education system today. However, there is an urgent need to use data to inform our policies, governance and classroom practices.

Parents, teachers, policymakers, and school administrators need better tools to diagnose where and why learning gaps exist and assess what strategies they can employ to turn things around. High-quality data and evidence are essential for both tasks. (Custer et al, 2018)

Setting clear priorities and high standards, collecting reliable performance data to track system and student progress, and using data to drive accountability are consistent features of the world's most improved education systems. (Barber et al, 2010, as quoted in the Learning Generation Report).

However, there exists several challenges in the access and use of data for governance, assessment and policy decisions. One, the data collected may not always be reliable or of high quality. Two, there may be technical or infrastructural issues related to the use of MIS or low capacity to use the same effectively. Three, there may be a lack of clear vision with respect to the development and use of appropriate tools for well-defined goals.

It is important to ensure that data is used well to allocate resources, plan programs, and evaluate results. However, the speed and scale at which such a system needs to be put in place can only be done via innovative tech-based solutions. Such innovative solutions need to come up and come up fast.



The given figure illustrates the complex chain from data generation to use and impact.
Source: https://www.brookings.edu/wp-content/uploads/2018/02/toward-data-driven-education-systems.pdf

H Rigid procurement policies regarding Children's literature

There are several challenges with respect to the availability of quality children's literature at the ground level.

- Firstly, there are not enough quality and age-appropriate books available for primary grade children in their own language. There exists a shortage of such books even in the language of instruction.
- Secondly, whatever books are available are being published by government publishers including National Book Trust (NBT), Children's Book Trust (CBT); by various civil society organizations including Room to Read, Pratham and other private publishers.
- However, the current availability of books in libraries is further being restricted due to the existing guidelines which clearly recommend that the states and UTs may procure or obtain copyrights and publish books by NCERT, NBT, CIIL or other government publishers alone. (Guidelines for Promoting Reading in Schools under Library Grant, MHRD, 2019). Schools do not have the independence to procure better quality books available outside the government publishers.
- The current policy hence reduces the access to whatever little quality literature is available to children. With limited exposure to books, developing Foundational Literacy and Numeracy remains allusive.

Quality Issues

A Poor status of Anganwadis

The ICDS programme even though was envisioned as a comprehensive programme focusing on the two critical components i.e. ‘health’ and ‘education’, was reduced to essentially a ‘health’ programme for young children and mothers. The learning component in most of the cases was only about rote learning the letters and numbers, or singing a few rhymes, if at all. Largely the anganwadi centres were reduced to the status of a ‘khichdi centre’.

The Anganwadi worker (AWW) seems to be overworked, with duties and responsibilities that center around her being a teacher, a nurse and a social service provider. For an AWW to be able to deliver on all counts, of which health is perceived as more important, learning as a natural consequence becomes the ‘victim’.

While on the one hand, the expectations from one AWW are immense, it does not match what she gets in terms of financial gains and status. Her salary and status are noticeably lower than a teacher in primary school.

There are severe issues with regard to an anganwadi worker’s capacity development. Most of the trainings focus on the health component alone, and the AWW is not equipped with the necessary tools to be able to engage children in learning experiences. This becomes more critical in light of the fact that the expected qualification of an AWW is only lower secondary school.

B Poor quality of teaching-learning in primary grades

Learning happens when children are given opportunities to explore the world around, make connections, think and talk about their thoughts, share their insights and evaluate things. This may happen through oral discussions, play and reading-writing. The bottom line is that children need to expand their horizons and explore the unknown

Illustration Source: Danger School by Paulo Friere

Teaching and learning in the classroom follows a set pattern where the teacher 'gives' and the children are expected to 'grasp'. More often than not, it is a one way communication which ends with assessment of children basis what they have or have not been able to memorize. The entire process is restrictive and does not encourage real learning to take place.

However, unfortunately, learning for most of the children in primary grades, whether government or low cost private schools, focuses on rote memorization and being passive recipients of 'knowledge'. The children in the garb of 'discipline' are expected to be quiet in the class, not ask questions and 'learn' the chapters from the textbook 'by heart

There is little opportunity for a child to dive into the world of books. The only written material they engage with is the textbook, which may or may not even be designed to cater to their needs and requirements.

There is excessive pressure on the teachers to finish the syllabus 'on time', irrespective of whether the children are learning anything or not. Discussions beyond the 'syllabus' are not encouraged.

It is critical to ensure that our schooling system is geared towards human development, and the same can not be achieved through the existing classroom practices.

C Curriculum and textbooks not based on scientific principles of pedagogy

The curriculum and pedagogy used in various states are not based on recent national and international researches on Foundational Literacy and Numeracy. The two popular yet obsolete approaches for the teaching of language being adopted by most of the state governments are the whole language and the phonics approach. While the whole language assumes that a child learns to read by exposure to a variety of text, the phonics approach gives importance to skills-based teaching of sounds and symbols. Unfortunately, the states depending on their priorities design the curriculum and textbooks basis the approach.

However, recent research shows that either of the two approaches in themselves is inadequate. Reading skills are best developed holistically, with a focus on skill-based teaching, meaning making and exposure to a variety of text simultaneously.

Most of the textbooks being used by the states are currently not aligned with the scientific 'Balanced' approach as suggested in NIPUN Bharat guidelines and are more skewed in nature. For instance, if one were to analyze the grade 1 textbook being used in Madhya Pradesh (MP), one would find that the textbook is extremely sequential in nature. What it means is that to teach 'reading' the initial chapters focus on orality, then there are a few chapters that attempt to teach a child all aksharas in an extremely short time frame, followed by stories/texts that the children are expected to begin reading and understanding. This sort of sequential setting of skills in the textbooks goes against the 'scientific pedagogy of reading' which states that children learn to read best when essential skill-based and comprehension-based areas are taught simultaneously, throughout the year in a planned and structured manner.

Additionally, research also shows that for akshara languages, children take approximately 2-3 years to become proficient readers (Nag, 2014) and hence the instruction should be designed appropriately. However, most of the textbooks assume that children can be taught the basic aksharas in a short time and then assume that once that is done, children would pick up reading and understanding on their own. These are 'unscientific' beliefs which unfortunately has informed the way textbooks are designed.

CASE STUDY

Room to Read India:

How a pedagogy based on scientific principles can bring about change on scale

Oral Language Development

Orthographic Expertise

Exposure to variety of text

01 Room to Read implements a Comprehensive Literacy Approach that combines the 'Science' of learning to read with the 'Magic' of loving to read in an enabling reading environment. This is done on a strong foundation of three pillars of literacy, namely orality, orthographic expertise and exposure to a variety of texts. These three pillars are neither incremental, nor causal in nature. These are in fact spirally intertwined and if early readers experience them simultaneously, it helps them to become motivated independent readers.

02 The organization works in partnership with the Government at scale. It adapts and contextualizes literacy solutions to develop literacy skills and habits in primary grade children and is supported by the provision of relevant digital and non-digital material, intensive capacity building of teacher and mid level government officials, regular monitoring and feedback along with community engagement. The focus of interventions attempt to positively guide learning in multiple ecosystems – learning in school, at home and in the community

03 One such intervention implemented by the organization in Barwani, Madhya Pradesh showed positive impact on fluency and comprehension of early graders. The data showed that the literacy intervention helped children to read as much as 21 more words per minute than their counterparts. Similarly, as an impact of literacy intervention on comprehension skill, children in project schools could answer 24% more questions than their counterpart.

04 These results seem significant, more so in the current times where the focus of FLN mission is to ensure that children read with a fluency of 45-60 words per minute and understand the text being read.

05 If we are serious about our commitment to FLN for the young adults of tomorrow, we would need to ensure that early graders get a comprehensive literacy experience today.

D Multilingual reality and lack of preparedness

The National Education Policy (2020) stresses the importance of including children's language in classrooms for maximized learning. In fact, children's language is an extremely important resource and an essential tool to promote Foundational Literacy and Numeracy .

However, while this sounds good in principle, there exists a lot of challenges at the practical level. In India we have

121
Languages
(Census, 2011)

19,500
Dialects
are spoken as mother tongue.

However, the instruction in early grades is mainly via the state language and the children are expected to jump from their mother tongue to the language of instruction in an extremely short time frame and on their own. To achieve this, a common practice on the ground is to forbid the children from speaking in their mother tongue, on the incorrect assumption that their language would act as a hindrance to learning the school language.

The most challenging reality is also that the child in school is forbidden to bring in her oral repertoire in the classroom. Teachers are ill-equipped to deal with the issues of multilinguality. Language for a child is also her identity and when the language of a child is 'forbidden', it negatively impacts the child's motivation to engage in classroom processes. This makes the teaching-learning process in early grades inadequate, resulting in low learning outcomes.

While multilingual teaching requires a massive mindset shift, it also requires creating additional resources that give these languages space in the classroom. Additionally, the teachers need to be equipped to deal with multiple possibilities in the field. For instance, teachers may face in their classroom a scenario where children come from different language backgrounds and she witnesses children speaking maybe 3-4 languages, of which she may or may not know any! Hence, teachers need to be trained appropriately to handle various aspects of multilingual scenarios via well structured training programmes.

E Lack of focus on comprehensive School Readiness

School readiness is a time of transition that requires the interface between individuals, families and systems. With respect to school readiness, the transition is defined as children moving into and adjusting to new learning environments, families learning to work with a sociocultural system (i.e. education), and schools making provisions for admitting new children into the system, representing individual and societal diversity. Multiple dimensions of school readiness include:

Ready children, focusing on children's learning and development. This includes four main parameters:

1. Physical well-being and motor development;
2. Social and emotional development (including working well with other children, following directions, engaging in learning activities etc.)
3. Pre-academic skills and knowledge (oral language, emergent reading-writing)
4. Attitude towards learning (creativity, curiosity, persistence etc)

Ready schools, focusing on the school environment along with practices that foster and support a smooth transition for children into primary school and advance and promote the learning of all children.

Ready families, focusing on parental involvement in their children's early learning and development and transition to school

However, a large majority of our children who enter school in grade 1 do so without real preschool experience. Even after having experienced anganwadis, there exists unpreparedness for all stakeholders. School readiness is largely ignored, and this impacts later learning in a formal school setting negatively.

School Readiness: Conceptual Framework, UNICEF 2012

However, a large majority of our children who enter school in grade 1 do so without real preschool experience. Even after having experienced anganwadis, there exists unpreparedness for all stakeholders. School readiness is largely ignored, and this impacts later learning in formal school setting negatively.

01 The children are unprepared to make the transition from an informal setting at home to a formal learning experience in school. A major reason for the same is the lack of focus on 'preschool' in anganwadis. More often than not, these children do not get exposure to print or a learning environment. They get little opportunity to develop emergent literacy skills including reading readiness, concept about print, phonological awareness, pretend reading, scribbling, independent writing, etc. Research shows that such pre reading and pre writing skills are extremely critical for later success in primary grades. Children who enter school ready to learn are expected to achieve more academically. (Pamela High, 2008)

02 The parents are unprepared to negotiate learning for their children. They are not aware of the expectations and hence do not hold the schools and the teachers accountable for their child's progress. They do not have experience of having conversations around their child's learning and are mainly happy with the little progress that their children make. Additionally, they are ill prepared to create a learning environment at home

03 The primary schools are ill-equipped as well to cater to the children who enter into grade 1 without much preschool experience. The classrooms are not prepared enough to give space to a child's language in the classroom, whether orally or through printed material. They are not ready with skills to ensure inclusive education and maximized learning opportunities for all. Additionally, the schools also lack in ensuring a safe and hygienic environment for children.

The NIPUN Bharat guidelines released recently talk of a three month school readiness framework. However, while this may be a short term interim measure, efforts would have to be made to strengthen the preschool component in anganwadis to ensure real readiness at all levels and for all stakeholders.

F Teacher Professional Development issues

The teachers who get recruited today are unfortunately not ready to face the day-to-day challenges of classroom instruction. One of the key reasons for the same is low quality preservice education and training, including the ones available in distance mode. The curriculum being followed in these institutes, whether it is for Bachelor in Education (B.Ed) or Diploma in Elementary Education (D.El.Ed) is obsolete and does not talk about the latest cognitive neuroscientific research and appropriate pedagogies informed by the science of reading. Content analysis of teacher training programs indicates that the curriculum mostly emphasises the history, theory, sociology, and philosophy of education and has very little focus on both pedagogy and practical training.

- Since these courses themselves are based on obsolete ideas, even the motivated teachers who pass out of these institutes face extreme amounts of frustration when their learnings do not translate to a noticeable impact on the ground.
- Additionally, the quality of in-service teacher training also is an issue that needs to be addressed soon. Historically, all states organize yearly trainings. However, these are neither participative, nor continuous. Research shows that teachers learn best when their annual trainings are strengthened with regular discussions on multiple forums and receive actual field support and mentoring on regular basis. Global evidence suggests that the most effective forms of training in professional roles involves extensive practical training/ multi-modal training and learning on the job. Teacher trainings hence need to improve in quality and the principles of ‘adult learning’ need to be effectively applied.
- Today, given the new expectations under NEP (2020), expectations from teachers have also undergone a change. The situation demands for teachers who understand the changing focus and approach, understand the scientific principles of literacy and then apply the same into everyday classroom instruction. The current training paradigm is however inadequate and needs to be thought through to ensure better learning in the classroom.

- The current Covid scenario has also brought in its wake a plethora of digital courses and videos for teacher professional development. The MOOC courses have caught the imagination of the country. However, a subtle shift that is happening in the creation of these resources is an attempt to make everything ‘easy’ for the teachers in the garb of ‘motivation’ and ‘need for successful completion of courses’.

- While the principles of digital learning are being applied to an extent, the principles of how an individual ‘learns’ are somewhere being ignored.

- This is where the concept of ‘desirable difficulty’ comes in. Desirable difficulties are conditions that make learning more challenging – tasks that make an individual work harder to grasp them better. While in the short term such challenges might slow down the progress, in the long term it has shown to improve retention and application. When instructors facilitate learning by making it easier, it may increase short-term performance, but it may decrease long-term retention. (Bye, 2011).

- When one analyses the courses that are being offered today on multiple platforms to enable teachers to develop Foundational Literacy and Numeracy skills in children, one finds that the focus of the courses is to make things too easy for the teachers. Bjork, who introduced this term states that such an approach to learning acts as a hindrance in the deeper processing of the material.

- While digital courses provide an opportunity to reach out to all the teachers at once and avoid the pitfalls of ‘cascade trainings’, we need to be careful of the way such courses are being created.

G Lack of Monitoring and Support

There exists in some states a teacher monitoring and support cadre in the government system that is ‘on paper’ expected to support the teachers in improving their classroom practices. This basically includes the BRCs (Block Resources Coordinators), CRCs (Cluster Resources Coordinators), the DIET faculty etc. However, there are two main challenges with respect to the cadre:

- One, the monitoring cadre does not exist in all states. For instance, while this cadre is a part of the system in states like Chhattisgarh and UP, it does not exist in Uttarakhand. There needs to be a uniform cadre across all states, a cadre whose primary responsibility is visiting the classrooms and mentoring the teachers on regular basis.
- Two, the states where this cadre does exist, the working style is more ‘inspectorial’. One of the reasons for the same is that they are so over-burdened with ‘non-academic’ tasks, that they tend to lose the academic focus, which in reality is their core job. This further leads to an uncomfortable equation between the cadre officials and the teachers. It also reduces teacher motivation, and they feel compelled to put on a ‘show’ when the officials visit.
- Three, the existing cadre does not have the required academic training to be able to give the ‘academic’ support to the teachers. They may not have the skills to be able to support the teachers unless their capacities are strengthened first. There does not exist in the states a planned professional development intervention for the mid-level government officials. Unless they are trained first, it is difficult to imagine a scenario where they’d be able to support the teachers effectively.

H Inadequate research on Foundational Literacy and Numeracy

Internationally, there has been a lot of research on Early Grade Learning that has helped us understand the science behind reading and numeracy. While the basic principles remain the same, and a lot of those learnings help inform us about the design of literacy interventions, it is extremely important that the same is also contextualized in the Indian scenario

However, contextualization requires research in the field and this unfortunately has been a largely ignored subject in the country. There is a need to look at research on

01

Each individual element of Foundational Literacy and Numeracy. For instance, it would be extremely critical to better understand the relationship between Fluency and comprehension; how one impacts the other and what is the fluency benchmark one needs to look at for different scripts and languages

02

Multilingual education requires focused research. Each multilingual scenario is different and there cannot be a one-stop solution for all. We need to better understand how to incorporate a child's language into the classroom and use it as a resource to develop literacy skills. Even though in India every child is a polyglot, yet there exists scarce literature that informs actual practice in the classroom.

03

Quality assessment on a scale with a focus on reading comprehension for early grades is another area that needs research.

04

There is a need to understand how we have failed to completely benefit from anganwadis and what can be done to improve the quality of preschool education

Unless there is a focus on research-based learning, it would be extremely difficult for us as a nation to achieve the targets we have set out for ourselves in term of 'Foundational Literacy and Numeracy for all by 2026-27'

Impact of Covid

One of the most worrisome impacts of Covid has been **massive Learning Loss** due to long term school closures. As per recent estimates, at the height of nationwide and local lockdowns, nearly 1.5 billion schoolchildren were affected by school closures (UNESCO). It is further estimated that as a result of Covid, over 100 million children will fall below the minimum proficiency level in reading (UNESCO Institute of Statistics).

If schools for primary grade children continue to remain closed this academic year as well, we would have an entire generation of say grade 3 students in 2022 promoted to the said grade without having acquired even the basic grade 1 skills. In such a scenario expecting the teachers to be able to teach these kids relevant grade 1&2 skills and additionally focusing on the grade 3 syllabus within one year would not only be unscientific but also extremely harmful.

While the NEP was worked on in the pre-Covid times. To be able to do that, a complete thinking of the Foundational Literacy and Numeracy curriculum and strategies to cover the learning loss would have to be planned. This would require a complete curriculum restructuring and planning for the next few years with redefined learning outcomes. In addition to that, new resources would have to be created required with focus on capacity building and system preparedness measures

> Recent study by Azim Premji University highlights that with one year of school closure, children not only missed new learning, but they also regressed back and forgot what they had learnt previously. (The Loss of Learning for Children due to Pandemic, APU, 2021).

- It is not merely the learning lost in the past 2 years that is worrisome, but the fact that inflation and diversion of state funds to covid relief has resulted in **limited education funds** as well. Given the scenario, the need of the hour is to look for solutions that are both innovative and cost effective. And this is where one would be required to look for tech-based solutions that has the potential to beat all odds and help the children and system arrive at a steady-state of consistent well-rounded learning.

- Given the nation-wide learning loss, there is a high probability that the schools would attempt to mitigate the same through the adoption of **fast-paced remediation packages**. This would predictably lead to unrealistic expectations from teachers and students, an extreme amount of cognitive load on the young learners and ultimately little gains in the achievement of Foundational Literacy and Numeracy outcomes. Such an intervention would be nothing short of a disaster.

- Given the challenges families faced due to the pandemic, teachers and children might come back to school with **severe mental health issues**. Unless these are addressed first, on priority, it would be difficult to get back the learning on track. This would require a focus on the socio-emotional skills of children when they return to school. However, while the government is seen planning to bridge the learning gap, the focus on giving children the socio-emotional support has taken a back seat. This could ultimately hinder all the planning that is happening at the implementation level. There is enough scientific evidence to show that socio-emotional learning not only promotes positive social behavior and reduces stress, it also contributes towards improving the academic performance of children.

- Covid has resulted in a situation for which the nation as a whole was unprepared. This includes **unprepared teachers** as well. The teachers in the field would probably be expected to deal with the ground realities, without being equipped with the necessary training and resources. This would ultimately have an impact on the expected gains.

Unit VI

Foundational Learning and Edtech

Edtech is being popularly considered as the one-stop solution to several issues in the sector today. Multiple resources are being created in large numbers and the expectation is that such resources will helpful overcome the challenges associated with poor teaching learning practices and access to quality resources. However, it is not as easy as it seems.

There exists massive digital divide, both at the household and at the school level for a child.

Digital Divide at the Household level:

As per the recent Remote Learning Reachability Report by UNICEF (2020), approximately only a quarter of households (24 per cent) in India have access to the internet and there also exists large rural-urban and gender divide. While the country attempted to reduce the impact of Covid on learning through creation and provision of multitude digital resources, the digital divide ensured that all children did not benefit from the same. According to the national sample survey by ICRIER and LIRNEAsia, among children aged 5-18 years, 80 percent of those who were enrolled in schools prior to the pandemic did not receive any educational services at all during school closures

The digital divide has many dimensions and can be categorized as global, regional and national. At the national level, there is no single divide, but multiple divides: for instance; within countries, between men and women, young and elderly, rich and poor and most importantly rural and urban. (Singh, 2010).

For Foundational Literacy and Numeracy, it is important that children whose family members have access to tech resources support a child in using digital resources for learning. However, it is largely observed that in such households, the child by virtue of being ‘too young’ faces an additional disadvantage. Since Covid forced all the students to access education through digital content, the elder sibling tends to get priority and the one phone that the household has goes to the elder sibling. In case the child in question is a girl child, she faces a double disadvantage. In a large number of cases where there is a single device, it is the male child who gets to use the same, more often than a girl child. Besides, these children may also struggle with a lack of a conducive reading learning environment at home, owing to single room houses and large families.

Digital Divide at the School level:

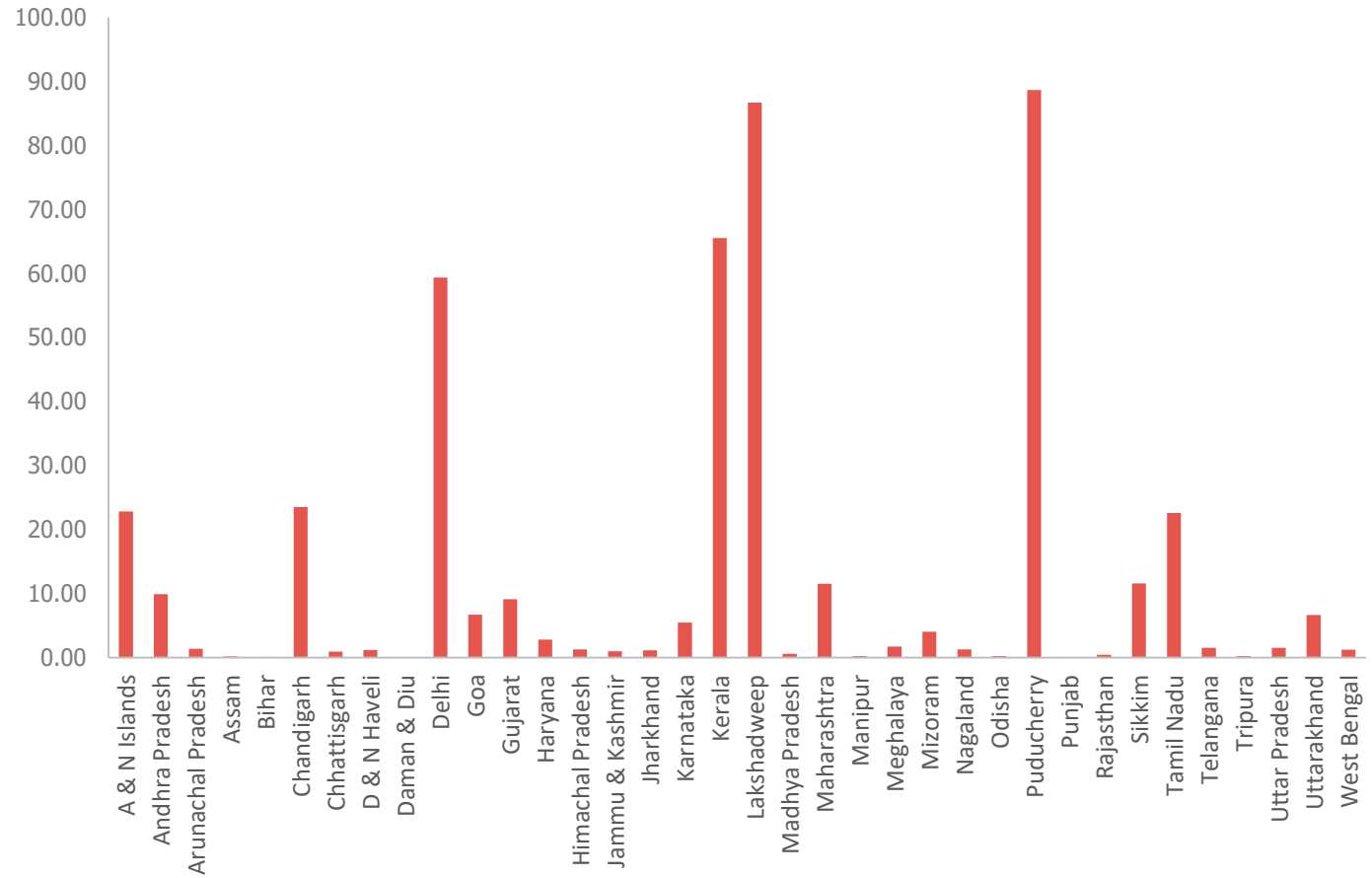
Even once the schools reopen, one cannot assume that the children would get greater access to the available digital resources. There is a huge percentage of schools who do not have either have a digital device or have no access to internet facility.

01 Lack of access to computer in a working condition:

While the access to a computer in working condition is unsatisfactory for all grades, primary school children are the worst off in this regard.

There are only a handful of states/UTs that are outliers with more than 50 percent primary schools with the requisite infrastructure, including Lakshadweep, Kerala, Puducherry and Delhi.

Percentage of Primary Schools with computers in working condition



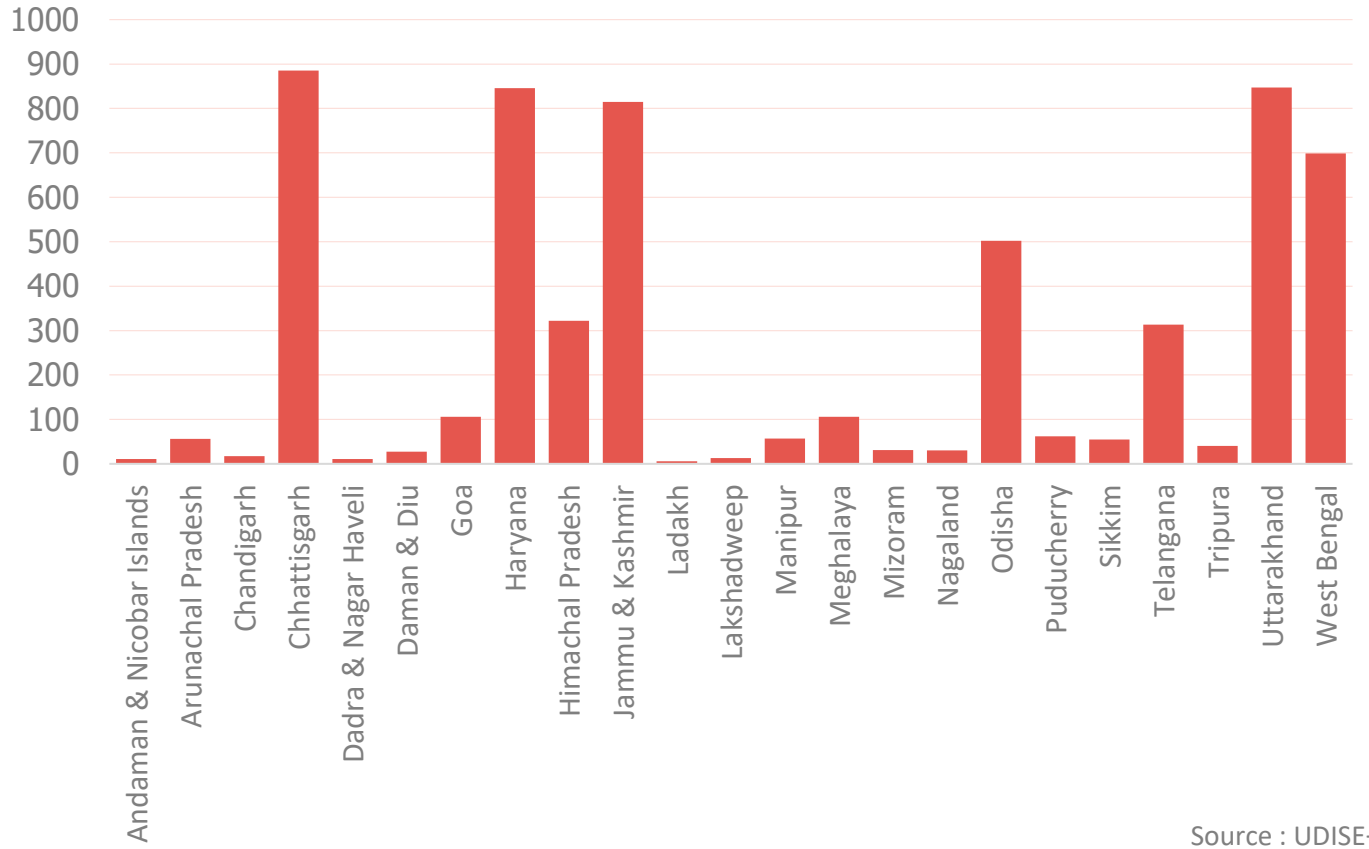
Source : UDISE+

02 Lack of internet facility

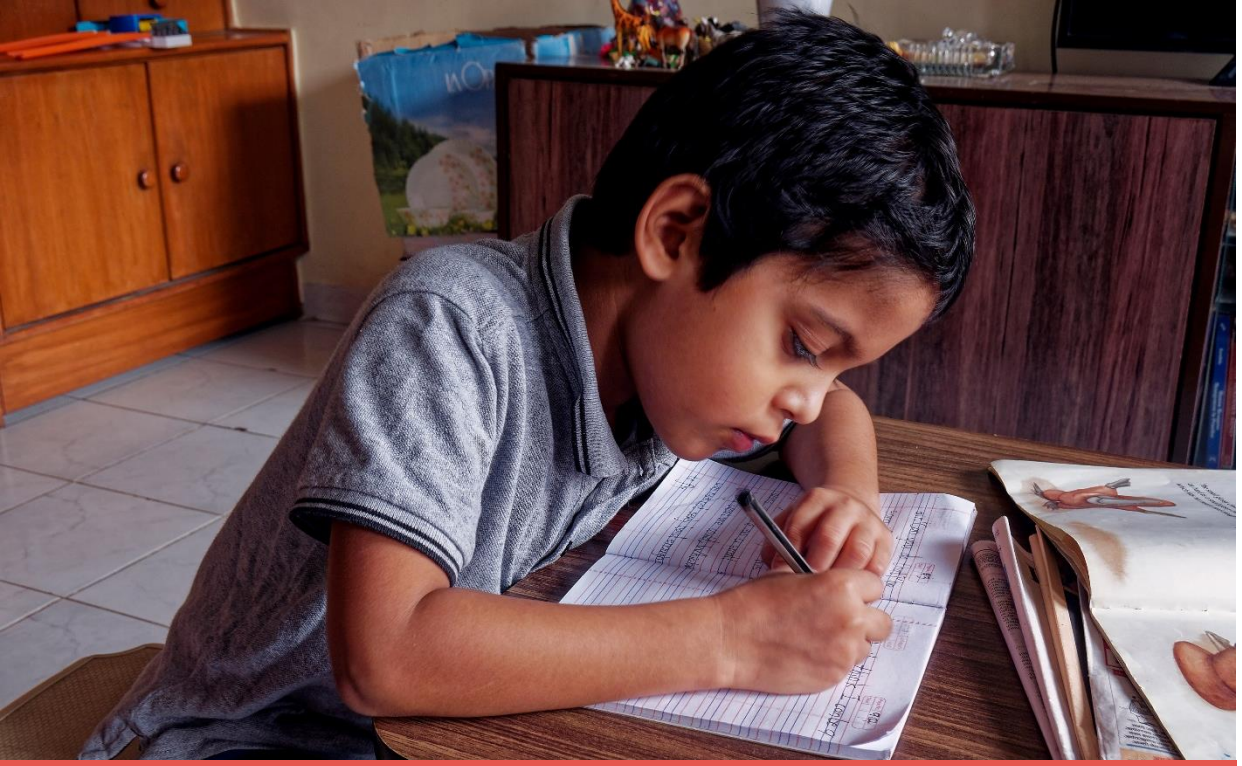
While the availability of a device is scarce, at the same time **access to an internet facility is another major challenge.** As is clear from the chart below, while several states and UTs have less than a thousand primary schools with internet facilities, Arunachal Pradesh, Manipur, Mizoram, Sikkim, Tripura, Andamans, Dadra & Nagar Haveli, Daman & Diu, Ladakh etc. fall at the lower end of the spectrum with internet facility being available in less than 200 schools.

To complicate the matters further, even the schools that do have access to both computers and net connectivity face challenges associated with **regular power cuts for long duration and broken or obsolete computers**, which makes actual use of these resources extremely difficult

States and UTs having internet facility



Source : UDISE+



Learning goes beyond acquiring certain ‘skills’ alone. It requires critical thinking, problem-solving, the ability to see connections and make linkages, the ability to articulate thoughts in both written and oral form etc. Any solution, including edtech, that does not take into consideration the higher-order skills and focuses on repetition of tasks alone is not likely to lead to any meaningful sustained gains and improvement in learning outcomes.

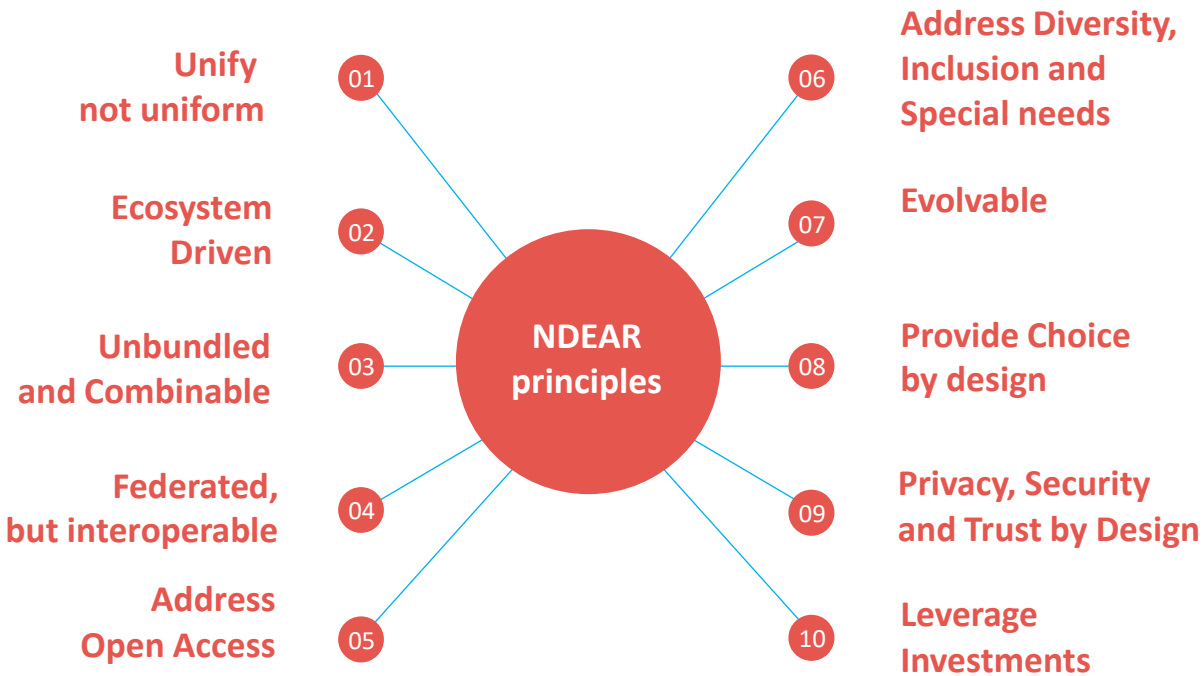
03 Lack of appropriate content for digital learning:

While on one end basic infrastructure is grossly inadequate, appropriate and relevant content for primary grade children in state languages also is tremendously scarce. While one may argue that recent times has seen a wave of digital content is available for children on multiple platforms, however, there does exist doubts regarding its appropriateness and quality. A large percentage of resources being created either are not grade appropriate, or do not use appropriate pedagogical tools. Additionally, most of the resources are a one-sided transmission of information and do not encourage interactivity, thinking, reasoning and problem-solving. The resources seem to be an extension of the rote learning pedagogy used in classrooms on a digital platform.

04 Challenges in the use of available content:

Finally, how the available resources are being used is another factor that needs to be considered. There exists multiple challenges at the teacher’s end, where they are not themselves technologically literate to be able to use these resources effectively. Lack of teacher training on effective use of technology to enhance learning outcomes in the classroom needs to be tacked with on an urgent basis. For resources available to children for learning at home, a similar challenge exists at the parental level, where most of the parents find themselves lost in the face of technology. Hence, in addition to the teachers, it would be critical for parents as well to gain skills related to the use of technology.

National Digital Education Architecture (NDEAR)



Source: https://www.ndear.gov.in/

Despite the challenges that exist today in the access and use of technology, one cannot undermine the potential that technology brings with it to impact quality learning at scale.

The Education Ministry announced setting up a National Digital Education Architecture (NDEAR) to promote a "digital first" approach, support teaching and learning activities, and facilitate educational planning as well as governance and administrative activities. Union Budget 2021-22 has also laid a major emphasis on strengthening the country's digital infrastructure for education.

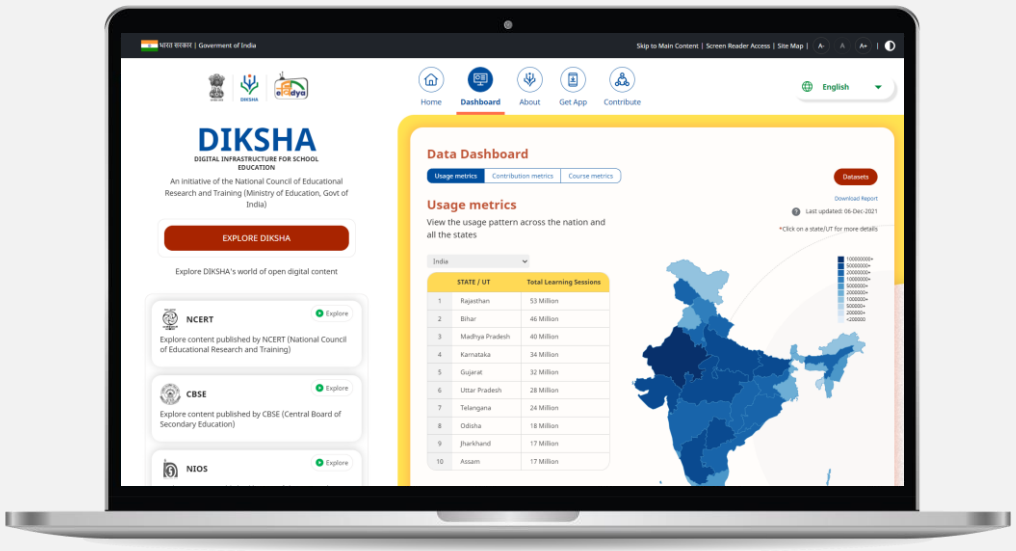
NDEAR is envisioned to be an architectural blueprint for an education ecosystem that defines a set of principles, standards, specifications, guidelines and policies for an ecosystem of actors to build, develop and innovate applications in the form of solutions, platforms, tools and assets to enable the achievement of policy goals through SSA, FLN Mission etc.

It aims to help build up a new education ecosystem that will create a digital foundation, leading to the self-governance of states and the Centre through digitized planning, administering and governing school education. One of the key objectives is to provide schools, teachers, students with a seamless digital learning experience.

It aims to promote a multi-channel, multi-modal learning continuum with structured curated content shared across multiple platforms, in both digital and non-digital formats.

NDEAR with its focus on integrating edtech into the system can be a massive push to help overcome the learning crisis of current times.

Diksha: The Government Initiative



- Diksha has been set up by the Ministry of Education to support teachers, students and parents by providing them with engaging teaching-learning material.
- It provides children with multiple resources including worksheets, activities, audiovisual material etc. to help them learn both in school and at home.
- Teachers have access to relevant lesson plans that help them structure their instruction in a blended model. Additionally, the teachers also enjoy the benefits of a multitude of online courses that have been uploaded by the government. The advantage is that teachers can complete these courses at their pace and choose the ones they feel are most relevant for their professional development.

It is a user friendly platform that can be easily accessed using a phone. The data shows that the number of times learning activities were undertaken using Diksha infrastructure by learners is as high as 3,66,16,97,325 [1]

- Additionally, the platform has a lot of resources that have been created and uploaded not just by the government but by other organizations as well. This has resulted in excess content availability and a lot of confusion in the mind of the stakeholders regarding which content to use on priority. It is extremely difficult for the users to weed out the 'low-quality content from the high-quality one. It has caused the issue of 'surplus'. According to Miller (1956), a consumer when faced with excess choice uses a coping mechanism that may also involve not making any choice at all! The same principle can be applied in this scenario, where it is possible that excessive content is causing the children and teachers to access nothing.

[1] accessed on 6th Oct 2021 https://diksha.gov.in/

Edtech and Early Grade Learning

A major impact of digital learning due to its very nature is that children are not developing the habit of ‘deep reading’. The fast-changing content on screen unfortunately does not demand ‘thinking’.

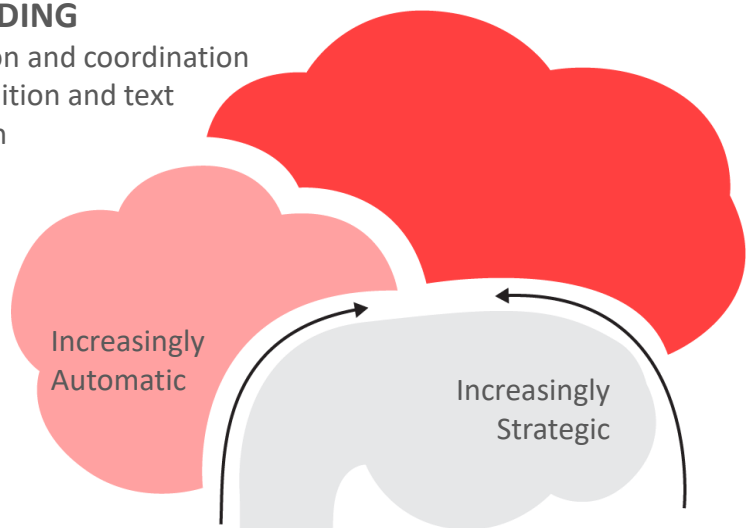
‘Deep reading’ essentially means the experience of reading where the reader goes through the text and engages with it, thinks about it, combines it with one’s one background knowledge and constructs meaning. Also, the reader is able to critically analyze the text and form an informed opinion. It also helps a reader understand multiple perspectives and develop empathy. Deep requires the reader to engage with the text and not just skim and scan and for surface level understanding

> In the words of Dr Maryanne Wolf (2009), “With digital text, the potential for creativity, learning, and discovery that encourage deep thought is immense. However, this great gift of easily accessible, readily available, rich information has the potential to form a more passive and an even more easily "deluded" learner. Although this is possible within any medium, online reading presents an extreme of sorts with its uncensored, unedited maelstrom of anything and everything that is always available and capable of diverting one's attention.”

It is important to note that human beings were never biologically meant to read. Reading happened after the script was developed. Unlike language acquisition that happens naturally when children are exposed to language, learning to read requires explicit teaching for many years. The skills that a child needs not just to decode a text but to understand it holistically. It can be taught through appropriate pedagogy and strategies in early grade classrooms.

What does Neuroscience tell us about Foundational Learning?

SKILLED READING
Fluent execution and coordination of word recognition and text comprehension



LANGUAGE COMPREHENSION
- Background knowledge
- Vocabulary Knowledge
- Language Structures
- Verbal Reasoning
- Literacy Knowledge

WORD RECOGNITION
- Phonological Awareness
- Decoding (and spelling)
- Sight Recognition

- Reading is a parallel process where the reader on the one hand focuses on identifying letters and decodes what is written; while simultaneously making meaning out of what is being read. A skilled reader needs to employ strategies of comprehension and word recognition simultaneously. Hence any approach or any medium of instruction that focuses on a limited set of skills is incomplete.
- One cannot function without the other, and comprehension is the larger umbrella under which all the other skills are subsumed. Hence, if a child is to develop into an independent reader, she must be taught the nuances of script and the ability to go beyond the text and think about what she is reading while she is reading it. This can be best achieved by implementing the balanced approach, as talked about in the policy document.
- LSRW (Listening Speaking Reading Writing) skills are developed simultaneously and need to be focused on together. These are not sequential skills, as was believed earlier.
- Unfortunately**, the most common skills that gets focused on for development via digital resources are the drill-based skills**. For instance, the identification of a letter and its accompanying sound. One would find various games for children that focus on the said skill. However, the other set of skills that encourages a child to focus on meaning making, inferring, questioning, analyzing and critically evaluating are the skills that get ignored.
- One of the key reasons is that the makers of digital resources focus on ‘self learning’ material. However, for such young learners, self learning is not the best solution. Till the time the child becomes a skilled reader, she needs the support of an adult.
- Neuroscience informs us that children learn best when they are given multiple exposures and opportunities to develop their skills in multiple contexts. This may require giving multi-sensorial experiences to all.

The Failed Experiment – One Laptop Per Child (OLPC) and some important learnings

Image Source: From https://www.flickr.com/photos/olpc/3080618518, under CC 2.0 (https://creativecommons.org/licenses/by/2.0/)

- However, the government buy-in of the said technology was extremely low and the initiative got implemented in very selective areas. There were a few pilots that were undertaken in places like Maharashtra and Manipur.
- OLPC was expected to bring about a revolution in education. An intervention supported by millions of dollars in funding was expected to be the low-cost tech-based solution that would help transform education in developing countries.
- A study on the use and effectiveness of the laptops revealed that less than half of the children had working laptops; of those barely half used it. Of those children who used the laptop, most engaged in wasteful activities like watching videos and playing games.
- The expectation was that once children get the laptop, they would learn on their own. In fact, they would even be able to teach the adults. However, the ground realities of children from the disadvantaged background were ignored**. While the technology was worked on, the 'education' component was ignored.**
- There was no evidence of any gains in Math or Language skills. The programme had no impact on attendance or time allocated to homework.

Today science informs us as to how a young learner learns to read. We need to apply those universal literacy principles and use technology as an enabler to ensure learning.

Edtech as a solution: Key considerations basis learnings from cognitive neuroscience

A brief look at the edtech solutions or products shows that a critical mistake that is made is that the product is thought of as something that can replace a teacher. The products are so designed that it expects children to be passive recipients of information and knowledge that they are expected to digest and basis that responds to certain questions as part of ‘assessment’ to then progress further. Such technology interventions despite all good will may not in a true sense be as effective as desired.

A study by M. Dynarski et al (2007) analyzed reading software products that used the tutorial-practice-assessment structure and found that none of these products led to any significant gains in children’s learning and performance. Similar results have been found in other studies as well. (Borman et al, 2009)

Research today informs us that there are three important variables that help ensure success of edtech products with at-risk students who are learning new skills:

Interactive learning

use of technology to explore and create rather than to “drill and kill”

the right blend of teachers and technology. (Hammond, . Zielezinski, and Goldman, 2014)

Hence, while India is slowly moving towards edtech solutions, one needs to ensure that we pick up these essential learnings and ensure tech products that support a teacher and help bridge the learning gap for the disadvantaged, strengthened with strong pedagogical principles. It would make little sense to come out with products that aim to make a primary grade child an independent reader by ‘self learning’ alone. At this age, children learn better when supported by an adult. This is mainly due to opportunities to explore, analyze, discuss, articulate in own words, respond and ask questions are created in an interaction with an adult. These are skills that are non-negotiable for Foundational Literacy and Numeracy to develop and we need products that support it.

It is not the ‘digital resources’ that are problematic per se, it is essentially the lack of comprehensive experience to a child via these resources that is an issue. The digital resources for children are created with a focus on independent pieces of skills being developed. The result is that the development of some essential skills in children gets ignored, resulting in a reader who cannot make meaning of the text.

For Foundational Literacy and Numeracy , it is essential that edtech resources are provided as tools in the hands of a trained teacher.

The tech-based solutions need to be designed to support the teachers, not replace them.

M. Dynarski et al., Effectiveness of Reading and Mathematics Software Products: Findings from the First Student Cohort (Washington, DC: U.S. Department of Education, Institute of Education Sciences, 2007). https://edpolicy.stanford.edu/sites/default/files/scope-pub-using-technology-report.pdf

https://edpolicy.stanford.edu/sites/default/files/scope-pub-using-technology-report.pdf

Unit VII

Index on Foundational Literacy and Numeracy

What is Index on Foundational Literacy and Numeracy ?

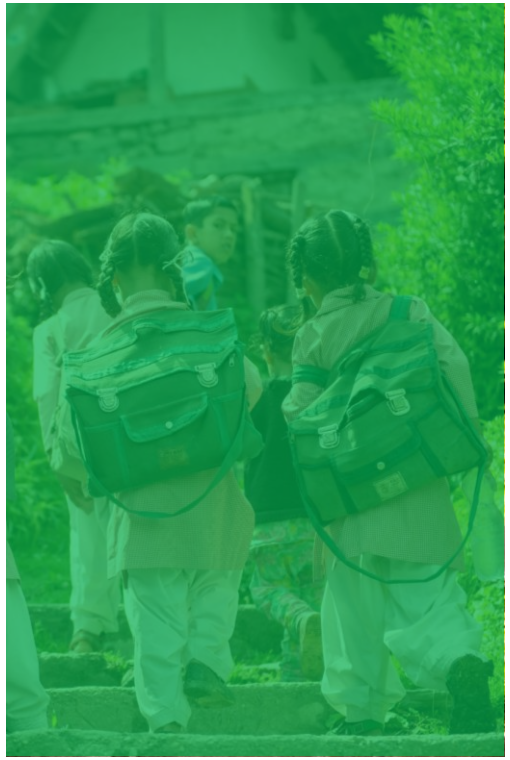
One of the most significant challenges for India in education planning is to incorporate primary education into the formal education sector while retaining the distinctive elements of quality education for young children. Ensuring access to quality pre-primary and primary education is a crucial strategy for improving learning and education outcomes as well as the efficiency of education systems. Learning outcomes continue to remain low in India. The first step to improving future attempts is to understand why this problem exists.

Index on Foundational Literacy and Numeracy presents a comprehensive evidence backed view of factors driving India's low learning outcomes in early grades and outlines pathways for improvement. It goes far beyond teacher absenteeism and other factors, which, though critical, often narrows policy thinking and debate about the needs of this age group. It measures the core domains of education, health, and governance of children ten years and below and can help states identify areas that need to be addressed. Such an index will identify regional differences across states and assess the overall state of education for primary and pre-primary levels in India.

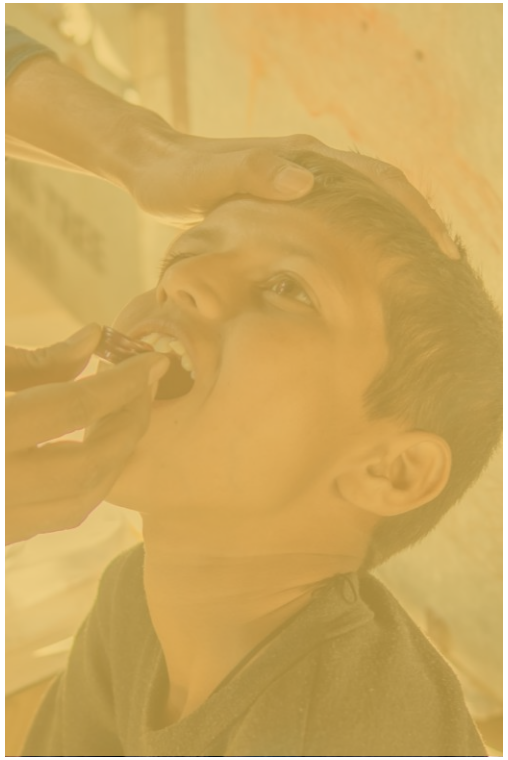
As States and UT's gear up to design and implement effective programs to raise learning outcomes, they must look at the evidence on breakdowns occurring in their systems. Policies and programs designed to tackle these critical challenges will have the greatest chance of improving learning outcomes for children in India.

Total 41 Indicators

Educational Infrastructure

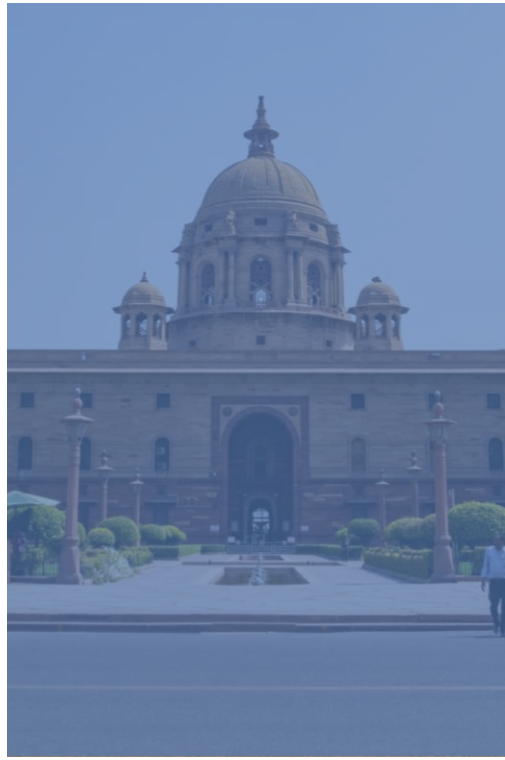


Access to Education



Basic Health

Learning Outcomes



Governance

Framework

Educational Infrastructure

- Percentage of schools with functional drinking water
- Percentage of schools with hand wash facility
- Percentage of schools with library facility
- Percentage of schools with medical checkups
- Percentage of schools with functional toilets
- Percentage of schools with functional computer facility
- Percentage of schools with internet facility available
- Percentage of Schools with functional CWSN friendly toilet
- Percentage of schools with Electricity connection
- Percentage of households 1 km from school having primary classes

Access to Education

- Primary level schools per lakh population
- Percentage of Teacher for Primary level education
- Pupil Teacher Ratio (PTR) - Primary
- Percentage of Children With Special Needs enrolled (CWSN)
- Gross Enrollment ratio (GER) - Primary
- Percentage of all minority group's enrolment to total enrolment - Primary
- Pre school education - Percentage
- Dropout Rate - Primary

Basic Health

- Percentage of fully immunized children in the age-group 0-5years for each State/UT
- Children under 5 years who are stunted
- Children under 5 years who are severely wasted
- Children under 5 years who are underweight
- Infant mortality rate (IMR)
- Under-five mortality rate (U5MR)

Learning outcomes

- NAS Average scores : class 3
- NAS Average scores : class 5
- Transition Rate - Primary
- Promotion Rate - Primary
- Adjusted(NER) - Primary level for girls
- Gender Parity Index (GPI) - Primary
- Percentage of Enrolled children with selected assets available at home-smartphone
- Percentage of Enrolled children who received learning materials/activities for class I-V
- Percentage of Enrolled children who received learning materials/activities via WhatsApp

Governance

- Expenditure on Education - As Ratio to Aggregate Expenditure
- Percentage to total expenditure on primary education for Govt schools
- Percentage of expenditure on teacher training (BE)
- Percentage of total assistance to non govt primary schools
- Percentage of expenditure -Mid day meal state share
- Percentage to total expenditure on primary education under SSA revenue account
- Central fund utilization under poshan scheme
- AWC roll out Percentage

Dimension	Rationale
Educational Infrastructure	Educational infrastructure captures how well states are performing in improving suitable learning spaces in the school, as they are the essential elements to ensure education throughout children's lives. While learning is important, however, whether schools are structured and designed to provide basic amenities for the safety and comfort of children is equally important. Having a better-shared understanding of how the design of school infrastructure affects vocational learning outcomes is very useful for states. It will increase the efficiency of the resources invested in school infrastructure projects and lead to more effective cooperation between stakeholders involved in the development of school infrastructure.
Access to Education	The Access to Education component measures the fundamental element of a child's life, i.e. Early and Elementary education. To learn and grow is the basic requirement for a child as schools shape their lives from an early age as they spend up to the age of 18 years majority of their time away from home learning at schools. Elementary education is the first and most crucial step for every child towards becoming a human resource. They learn basic knowledge and are equipped with interpersonal, problem-solving and other essential life skills critical for well-rounded development. Along with teachers guiding the children academically, schools need to promote inclusive and equitable for all children, especially for children with special needs and belonging to minority groups. This dimension will help states better understand and meet the specific needs of all the children and teachers in elementary education, with positive impacts on vocational learning outcome

Dimension	Rationale
Basic Health	A child's health is rooted in everyday life; it directly impacts learning outcomes for the children and future or realizing their true potential. It influences associated outcomes that shape their overall well-being. The health and education of a child go together. Thus, it becomes crucial to measure Basic Health as a part of the index. This component specifically talks about the health conditions of a child. It focuses on indicators that reflect how health can be a major part of an individual's participation in education throughout their lives. Health deficiencies like stunting and wasting impede physical development and learning abilities, thus preventing them from becoming functioning members of society. To realize the full potential in the future, a child needs to have nutritious food, timely immunization, and other services that impact a child's holistic growth and can have huge bearings on their productivity as an adult.
Learning Outcomes	Learning Outcomes includes those indicators that show the current levels of learning states have achieved with a focus on primary and pre-primary children. This Dimension can be used as a checkpoint to assess learning as it paints a picture of the many factors that lead to poor learning outcomes in the state. States making Foundational Literacy and Numeracy a priority benefits the individual child and improves the learning levels of the country as a whole. This will help them achieve learning outcomes for all children in primary education, especially for children's reading, mathematical and numerical abilities, and essential life skills are crucial. Investing in early grades is also cost-effective as most of the learning takes place with groups of children -with the highest rate of economic return coming from the earliest investments in children.
Governance	The role of good governance in raising education provision is vital in the context of improving vocational learning programmes, and its implementation across states. The governance dimension tracks the budget credibility, transparency and assesses the effectiveness of public education investments by central and state governments. These indicators provide a starting point, drawing on existing data relevant to the education sector, which can be adopted to measure the role of governance in education systems across all states. However, the challenge of translating those allocations into functioning and effective education systems is a more challenging step.

Mapping of SDG goals with Index on Foundational Literacy and Numeracy Indicators

Basic Health

- Children under 5 years who are stunted
- Children under 5 years who are underweight
  Children under 5 years who are severely wasted

Basic Health

- Percentage of fully immunized children in the age-group 0-5 years for each State/UT
- Under-five mortality rate (USMR)

Access to Education

- Gross Enrollment Ratio (GER) – Primary
- Pupil Teacher Ratio (PTR) - Primary

Educational Infrastructure

- Percentage of schools with functional drinking water
- Percentage of schools with hand wash facility
- Percentage of schools with library facility
- Percentage of schools with medical checkups
- Percentage of schools with functional toilets
- Percentage of schools with functional computer facility
- Percentage of schools with internet facility available
- Percentage of schools with functional CWSN friendly toilet
- Percentage of schools with electricity connection

Learning Outcomes

- Gender Parity Index (GPI)– Primary

Category wise Ranking - Index on Foundational Literacy and Numeracy

Large State	Score	Rank
West Bengal	58.95	1
Tamil Nadu	55.49	2
Maharashtra	53.11	3
Karnataka	50.16	4
Gujarat	49.84	5
Rajasthan	47.02	6
Madhya Pradesh	38.69	7
Uttar Pradesh	38.46	8
Bihar	36.81	9

Small State	Score	Rank
Kerala	67.95	1
Himachal Pradesh	57.36	2
Punjab	56.19	3
Uttarakhand	55.60	4
Haryana	52.59	5
Goa	51.41	6
Chhattisgarh	50.47	7
Andhra Pradesh	49.85	8
Telangana	46.02	9
Odisha	45.58	10
Jharkhand	45.28	11

Union Territory	Score	Rank
Lakshadweep	52.69	1
Delhi	50.74	2
Puducherry	50.08	3
Chandigarh	49.89	4
Jammu and Kashmir	49.16	5
Andaman and Nicobar Islands	47.04	6
Dadra and Nagar Haveli	46.83	7
Daman and Diu	43.30	8
Ladakh	35.21	9

North Eastern States	Score	Rank
Mizoram	51.64	1
Sikkim	51.14	2
Manipur	50.95	3
Assam	46.55	4
Nagaland	42.47	5
Meghalaya	41.37	6
Tripura	37.18	7
Arunachal Pradesh	36.88	8

Note: Large states have above 10 million children Population aged ten years and below. Small states have below 10 million Population of age ten years and below. Northeast states and Union territories are two separate categories as they remain distinct from other states considering their geography. Also, it is in line with the view that the central government controls the development of Union territories and considers Northeast regions development imperative.

*Ladakh has been assessed as a separate Union Territory owing to the lack of data available at the union territory level. For analysis, where data for Ladakh is not available, its performance has been assessed with Jammu and Kashmir.

Foundational Literacy and Numeracy Scores

The overall Index of Foundational Literacy and Numeracy scores reflect a commendable performance from states like

Kerala	67.95
West Bengal	58.95
Himachal Pradesh	57.36

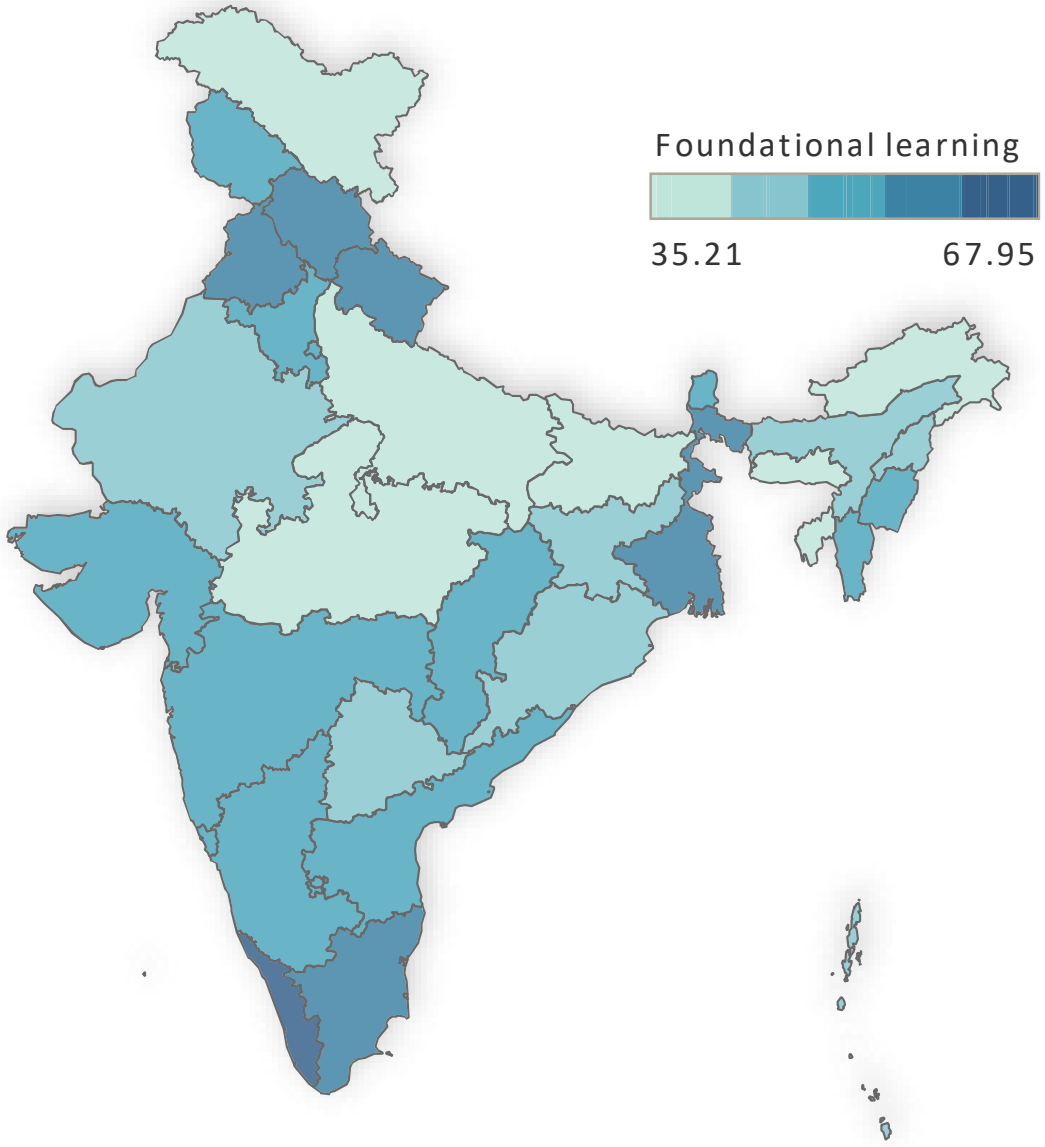
Other UTs include

Lakshadweep	52.69
Delhi	50.74

Some of the poor-performing states in the overall index rankings emerge from Jharkhand(45.28) and Odisha(45.58), Madhya Pradesh(38.69), Uttar Pradesh(38.46) and Bihar(36.81),

Only 17 states and 4 union territories have scored above the national average of 48.38.

Most of the states have shown satisfactory performance in Educational Infrastructure and Learning outcomes pillar. In contrast, states have scored lowest in governance and access to education pillars.



Educational Infrastructure Scores

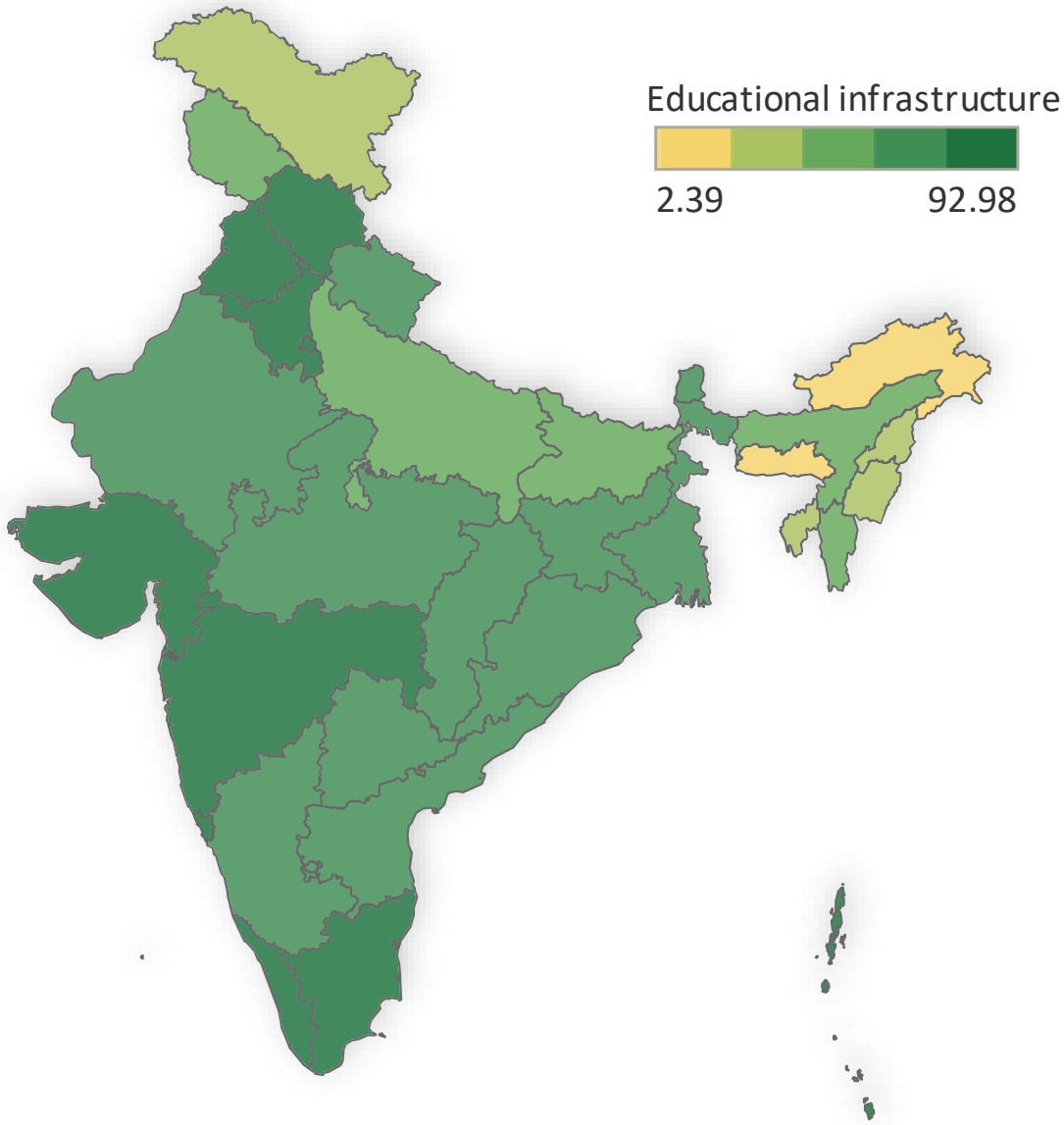
The top-performing scores are led by union-territories in the Educational Infrastructure pillar with

Delhi	92.98
Chandigarh	92.97
Daman and Diu	91.24

Small states like Kerala, Punjab, Haryana have performed better than other states. **Their scores range between 56.97 and 86.93**

Interestingly, states that have not performed well in the overall index scores, have performed reasonably well in this pillar (states such as Gujarat, Maharashtra and Haryana)

Only 14 states have performed lower than the national average under this pillar, with Large states like Uttar Pradesh, Madhya Pradesh, Bihar and Andhra Pradesh scoring low.



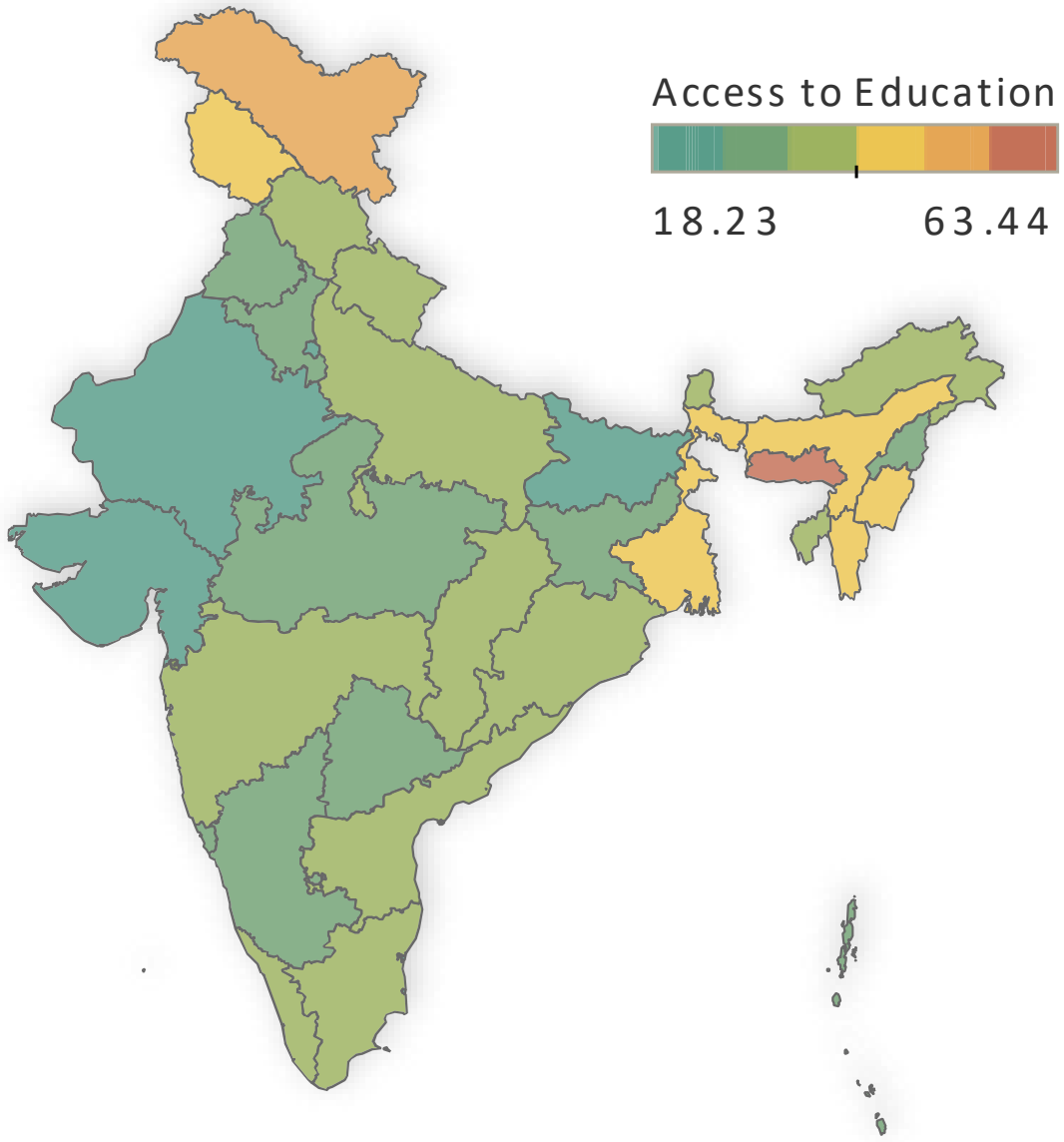
Access To Education Scores

The top-performing scores are led by North Eastern territories in the Access to Education pillar with

Meghalaya	63.44
Assam	47.96
Mizoram	45.39

And states like **West Bengal (47.90)** and **Uttarakhand (39.94)** with high scores compared to their peers.

40% of the states have performed above national average of 37. Rest of the states like Bihar , Chandigarh , Rajasthan , Gujarat and Delhi are lowest performers due to factors like High Pupil Teacher ratio. These states need to pay attention to factors affecting learning in their schools.



Basic Health Scores

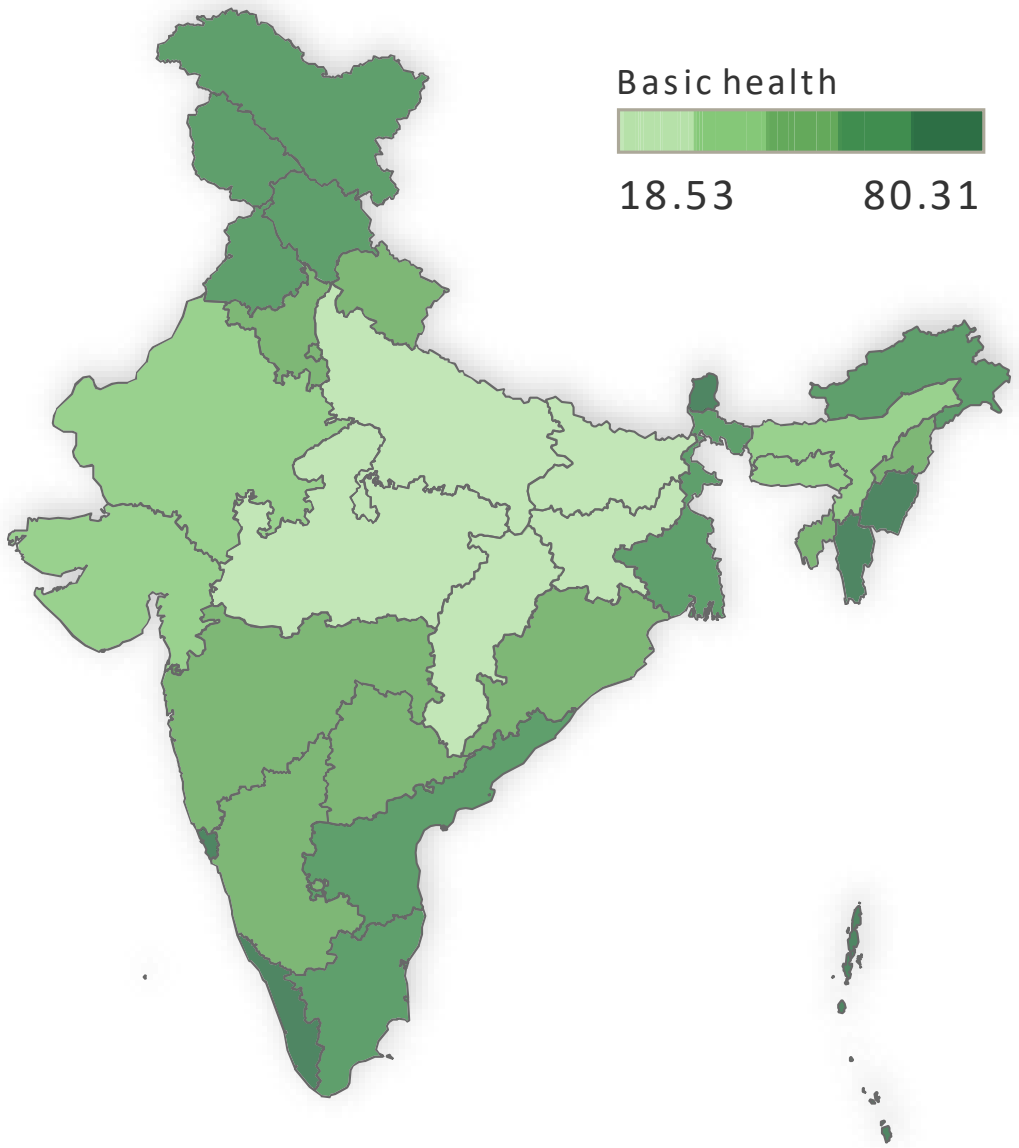
The Basic Health pillar observes a relatively higher performance across north-eastern states and union territories than other pillars in this index. North-eastern states have performed better than other states and union territories, and their scores range between 41.48 and 80.31

Sikkim	80.31
Manipur	77.62
Mizoram	76.04

These states are leading in the Northeast category.

States like Kerala(80.18), Goa(71.05), Tamil Nadu(60.09) and West Bengal (67.68) have scored high due to improvement in Infant mortality rates and reduction in stunting and wasting for children under five years.

States like Uttar Pradesh(18.53), Bihar(24.99), which have scored lower than the national average of 53.18, need to pay attention to the basic health of children.

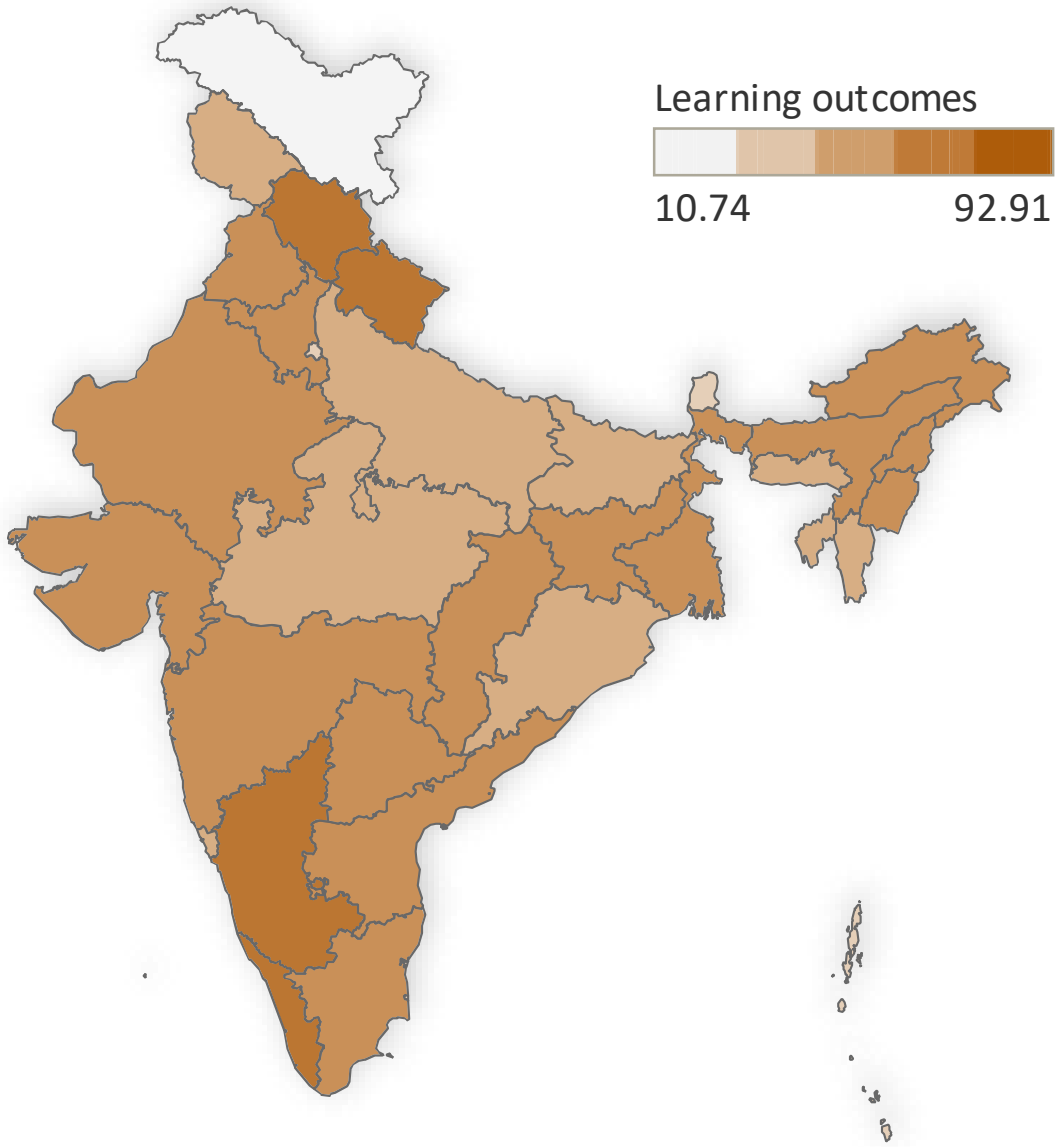


Learning Outcomes Scores

Most states that have performed poorly in the overall index of Foundational Literacy and Numeracy have scored low on this pillar, with the low-scorer being :

Madhya Pradesh	59.72
Bihar	56.05
Uttar Pradesh	56.21

Interestingly, all union territories have scored low under this pillar. **This drastic difference in union territories like Delhi is due to the lack of ASER data which only focuses on rural districts of states.** This has lowered Delhi's score, even though it has scored high on all other indicators except ASER indicators like percentage of children with a smartphone and Percentage of Enrolled children who received learning materials/activities using WhatsApp. We accept this limitation, **but ASER indicators are important as they help us understand the impact on digital education due to the pandemic and provide states with the opportunity to keep track of schools not adapting the system.**



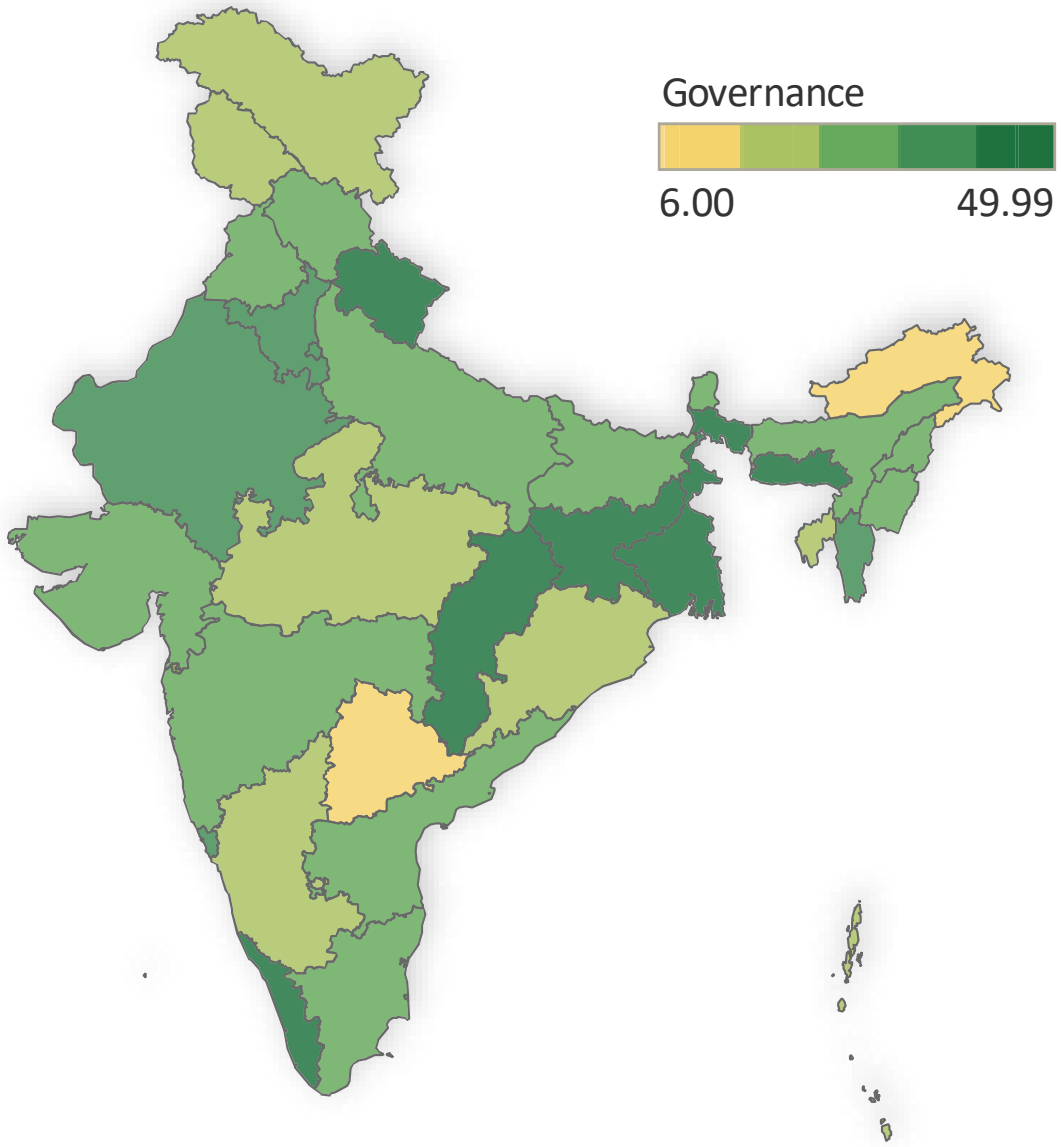
Governance Scores

Most states have performed poorly in the Governance pillar, with the top-scorer being :

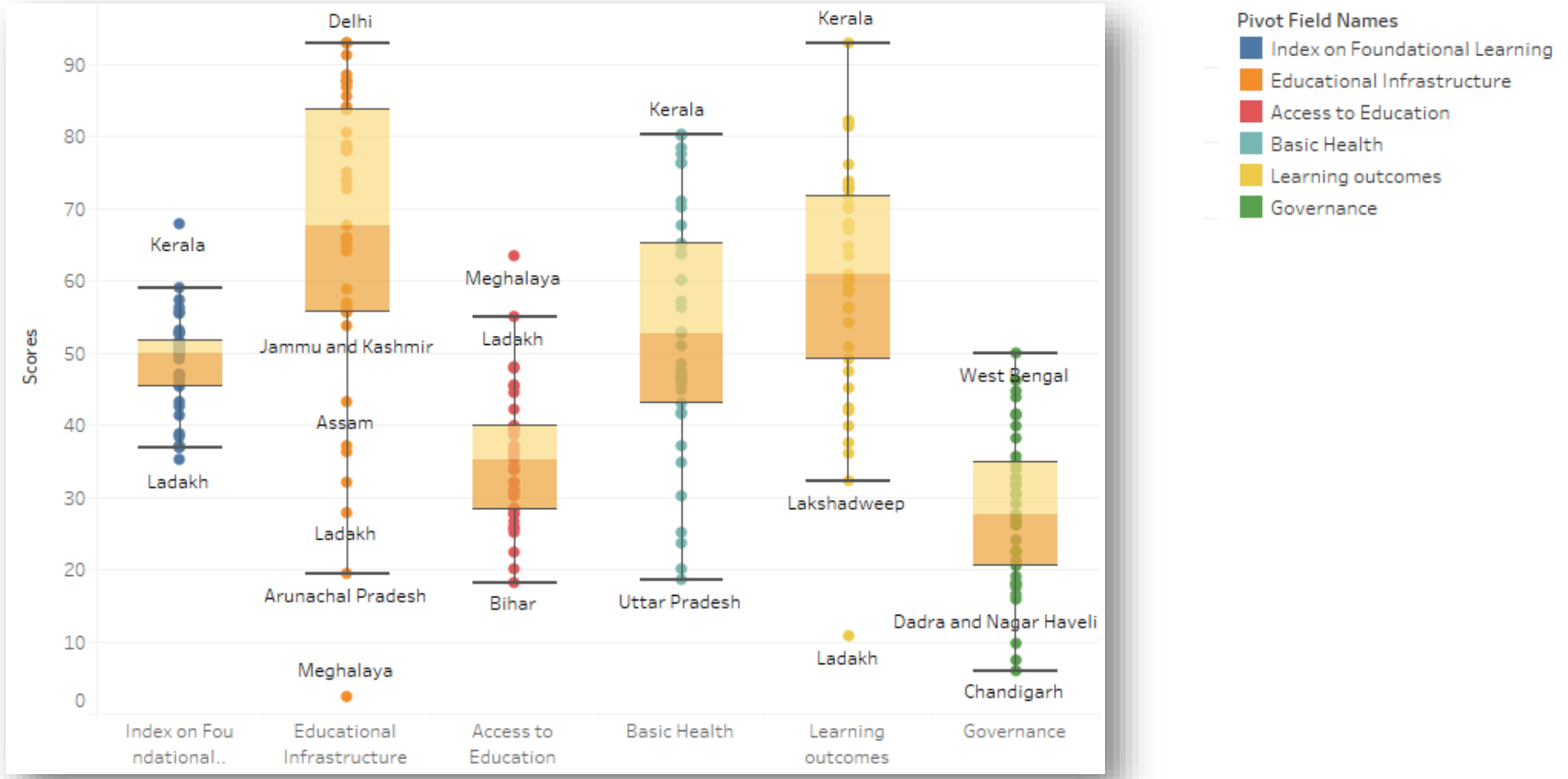
West Bengal	49.99
Kerala	46.09
Uttarakhand	44.61

Interestingly, only 7 states and one union territory **Delhi(39.79)** have scored above national average i.e. 37.

All the states need to improve when it comes to budgetary measures when it comes to expenditure on primary education **especially under Mid day meal(MDM) and Sarva Shiksha Abhiyan(SSA) schemes.**



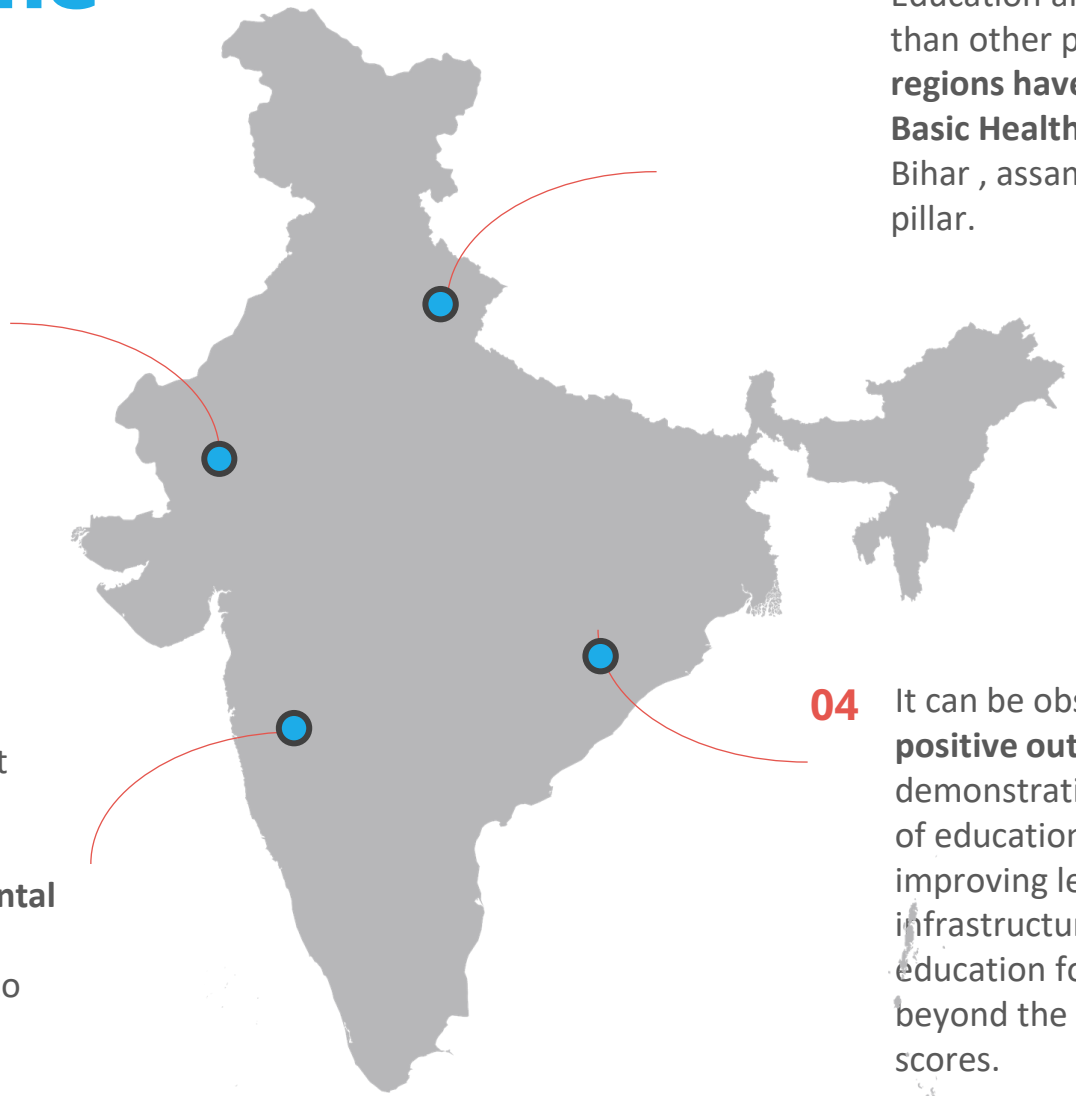
Variation of index scores
across all States and UTs



Variation of index scores across all the States and UTs

01 There appears a **lack of consistency in states** across different pillars. Many states have fared high in Educational infrastructure. Most states and union territories have a below-par performance in sub-pillars of Basic Health and Governance.

02 The variance not only showcases an overall score but also helps us to identify areas that should be regional priorities by providing scores for areas ranging from learning outcomes to good governance. **Developmental issues are often unique to their regional location**, and it, therefore, remains critical to address challenges based on their distinct properties.

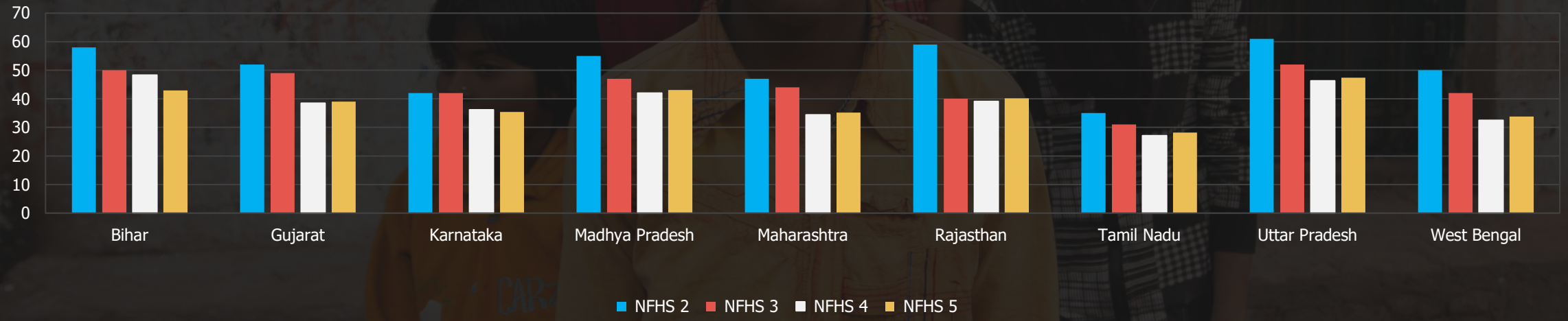


03 The median scores for the Access to Education and Governance are much lower than other pillars. **More than 50% of regions have less than median scores in Basic Health.** Uttar Pradesh , Jharkhand , Bihar , assam are at the bottom of this pillar.

04 It can be observed **that Kerala features as a positive outlier in Education index scores**, thus demonstrating its robust performance in the area of education due to the state's emphasis on improving learning outcomes, education infrastructure and focus on the quality of education for all. However, has not permeated beyond the rest of the country as reflected from scores.

State of Health: Did stunting for children under 5 years reduce in last 20 years?

Children under 5 years who are stunted- falling marginally from last 2 NFHS rounds

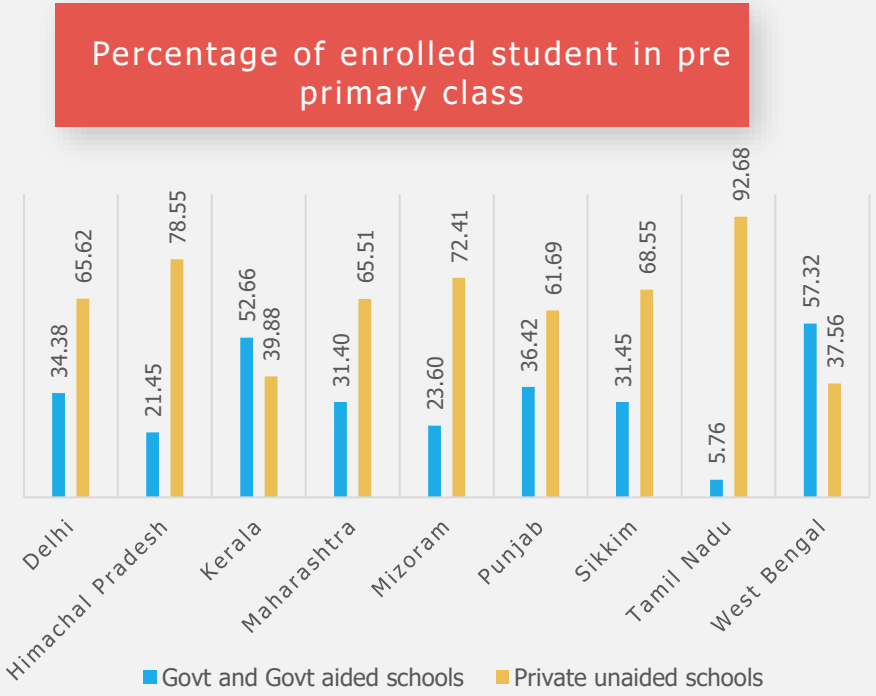


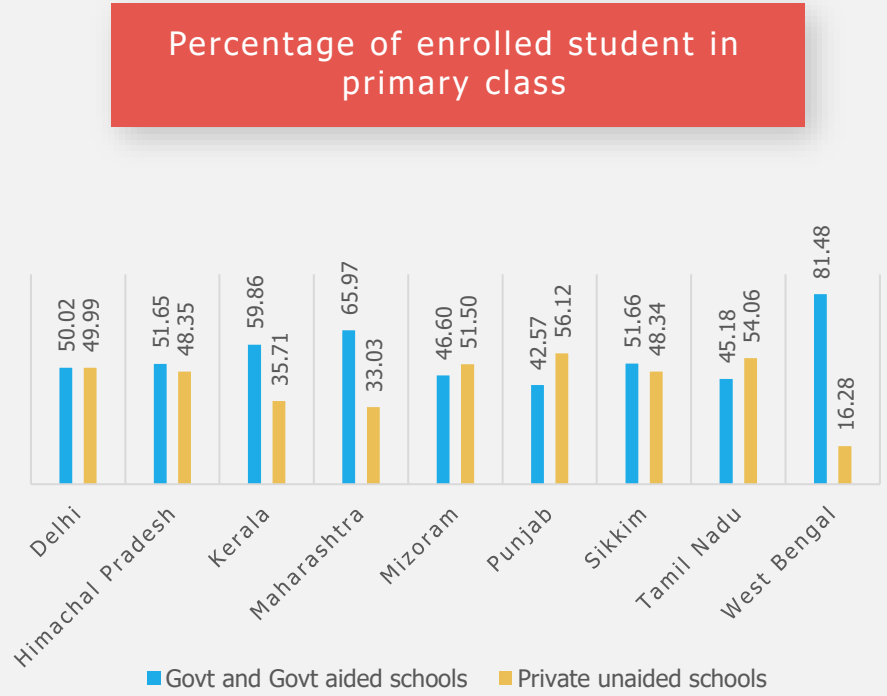
It has been observed that although stunting reduced significantly for children under 5 years during NFHS 2 and NFHS 3. However, post-NFHS 3, the fall in stunting is marginal. The SDG 2030 target for Reducing stunting for children is 6, and we have only eight years left to meet this target.

Note : NFHS 5 data is available for only 22 states , we have projected NFHS 5 values based on NFHS 4 survey.

Does high enrollment in private schools play an important role in better learning outcomes of state?

It has been observed that states which have scored higher on the index of Foundational Literacy and Numeracy have a high percentage of enrolled students for pre-primary classes in private schools. In contrast, this trend is reversed for primary classes as more students are enrolled in government and government-aided schools, with **Delhi as an exception with an ideal 50:50 ratio.** Other states need to achieve at least a 60:40 ratio for enrollment in government and government-aided to private enrollment in schools to ensure that there are no differences across learning outcomes within the same classes.

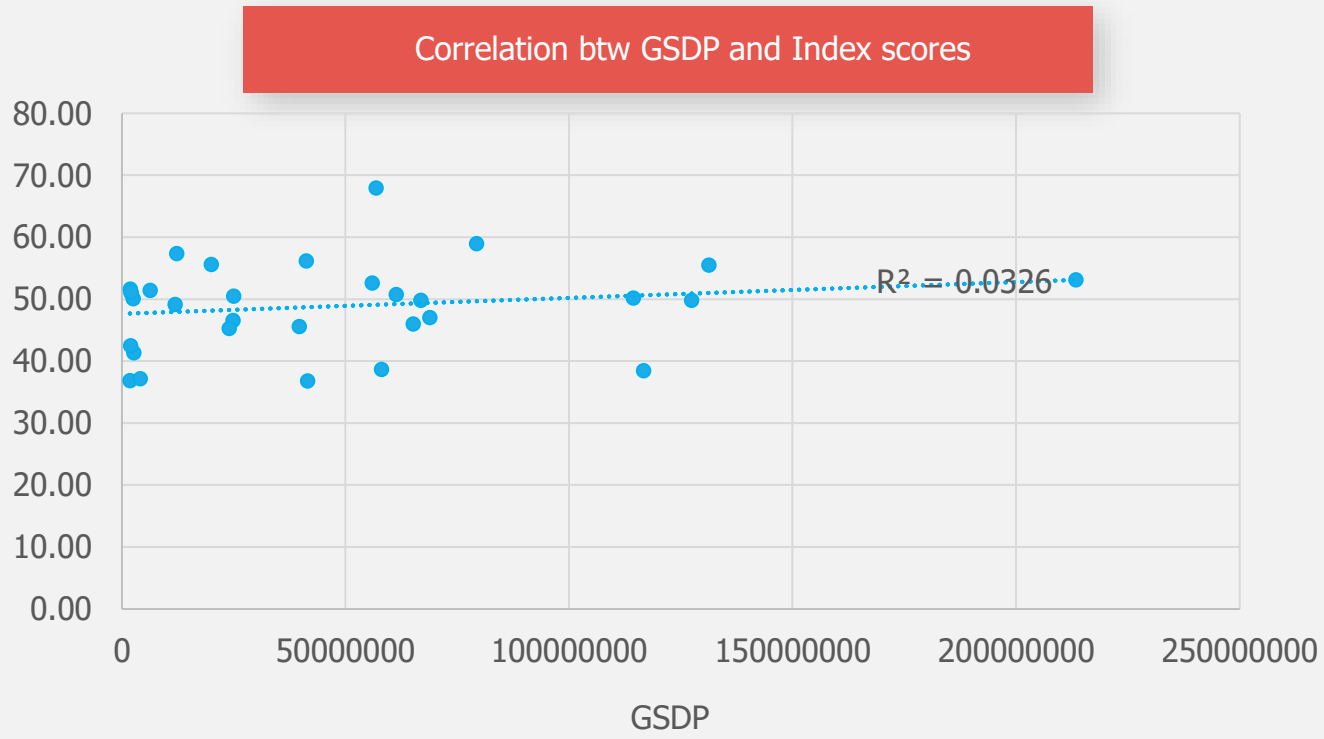




Source : UDISE 2019-20

Did states with higher GSDP perform well on this Index?

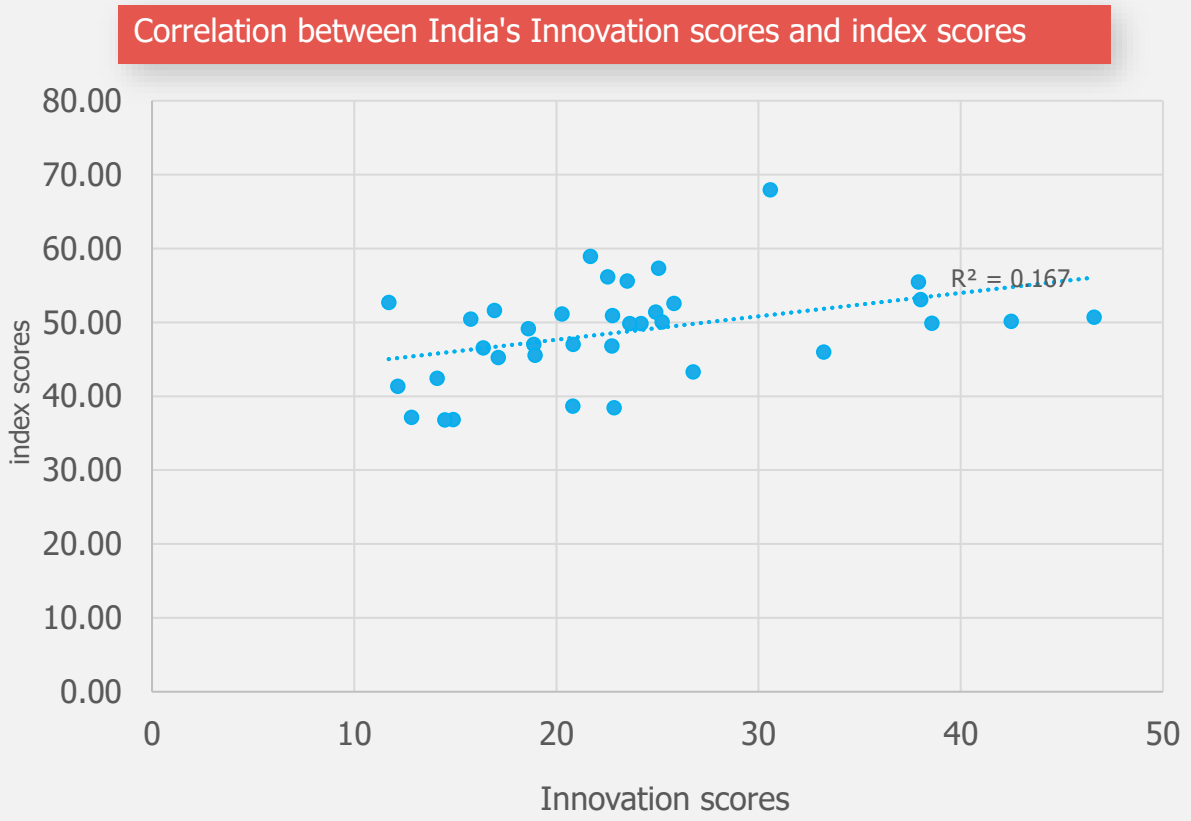
- The actual evidence on the association between Gross State Domestic Product and Index on Foundational Literacy and Numeracy scores do not point to any uniform conclusion. This is because they share a weak positive correlation i.e. 0.18
- It is possible that the effect of GSDP isn't reflected in the state's education system due to various factors or simply states are overlooking the importance of education in their systems.
- E.g. Maharashtra has the highest GSDP, but it hasn't been reflected in the overall index score, which is only 53.11.
- Whereas states like Kerala, which has GSDP lower, ranks first with high education score for 67.95



Source : RBI GSDP 2019-20

India Innovation Index scores share a positive relationship with Index scores

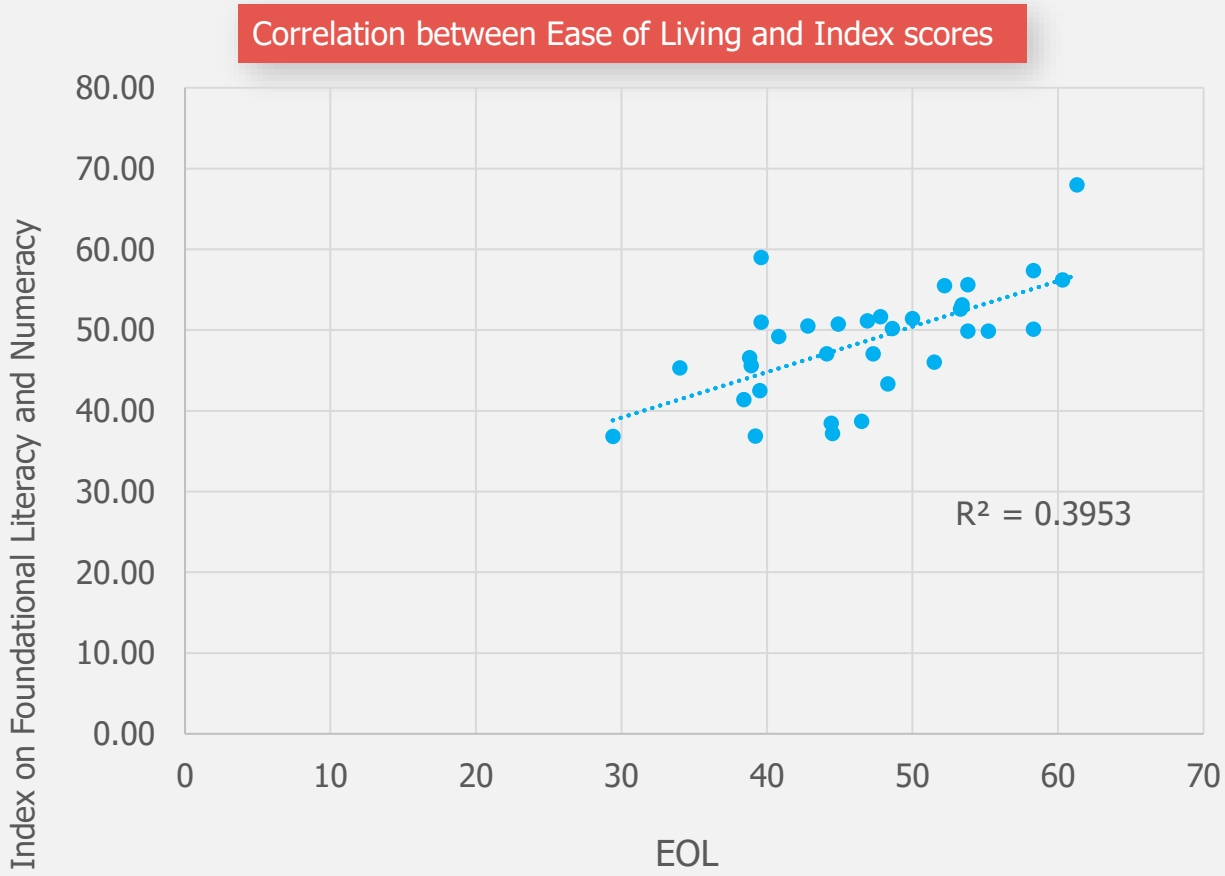
- There is a positive correlation between the innovation Index and Index on Foundational Literacy and Numeracy scores. The model has an R-squared value of 0.45, i.e. only 45% of the changes in Innovation scores can be explained by Foundational Literacy and Numeracy index scores.
- For e.g. : States which rank above in the Innovation index like Karnataka , Delhi, Kerala also rank higher in the Index on Foundational Literacy and Numeracy.
- Whereas Bihar and Chhattisgarh which are the least innovating states have performed poorly in the Index on Foundational Literacy and Numeracy.
- The role of innovation in the economy is determined by its human capital and the benefits of investing in early education would only improve the quality of human capital across India.



Association between Ease of Living and Index scores

There is a positive correlation between Ease of living & Index on Foundational literacy and numeracy scores. The model has an R-squared value of 0.62, i.e. 62% of the changes in the index on Foundational Literacy and Numeracy scores can be explained by Ease of living scores.

Ease of living is a broader concept which measures all the crucial aspects that make a region livable. Therefore, improvement in Ease of living scores will impact learning outcomes of states and in turn improve the state of education.



Key Findings

- **Kerala (67.95)** and **West Bengal (58.95**) are top-scoring regions in small and Large states, respectively. **Lakshadweep (52.69)** and **Mizoram (51.64)** are top-scoring regions in Union Territory and Northeast state category.
- States have performed particularly worse in the Governance pillar because **over half of the states have a score below the national average, i.e., 28.05**, the lowest across all pillars. These pillar-wise analyses help states assess the state of the budgetary measures and steps needed to improve the state of education and identify existing gaps that obstruct their growth.
- As highlighted earlier, the **challenge of access to education** is a component that requires immediate attention within the states. The large states like **Rajasthan(25.67), Gujarat(22.28)** and **Bihar(18.23)** notably lags on this front, whereas the north-eastern states show the highest scores due to their better performance.
- Furthermore, best practices can be adopted from the highest-scoring states/UTs. Kerala, West Bengal and Himachal Pradesh to further develop policy reforms to improve in those areas where the state of education has scope for improvement.
- **Some states may serve as role models for others in certain aspects, but they too need to learn from other districts while tackling their challenges.** This holds not only for high performers but also for low performing states. For instance, while Kerala has the best performance in the small state, it can also learn from some lower-scoring regions, such as Andhra Pradesh (38.50), which outperforms Kerala (36.55) with respect to access to education.
- **There is a huge gap between Kerala and the rest of the states of India in Index on Foundational Literacy and Numeracy scores.** This vast variation is observed in the Learning outcomes and Educational Infrastructure , which necessitates immediate attention for rest of the country.

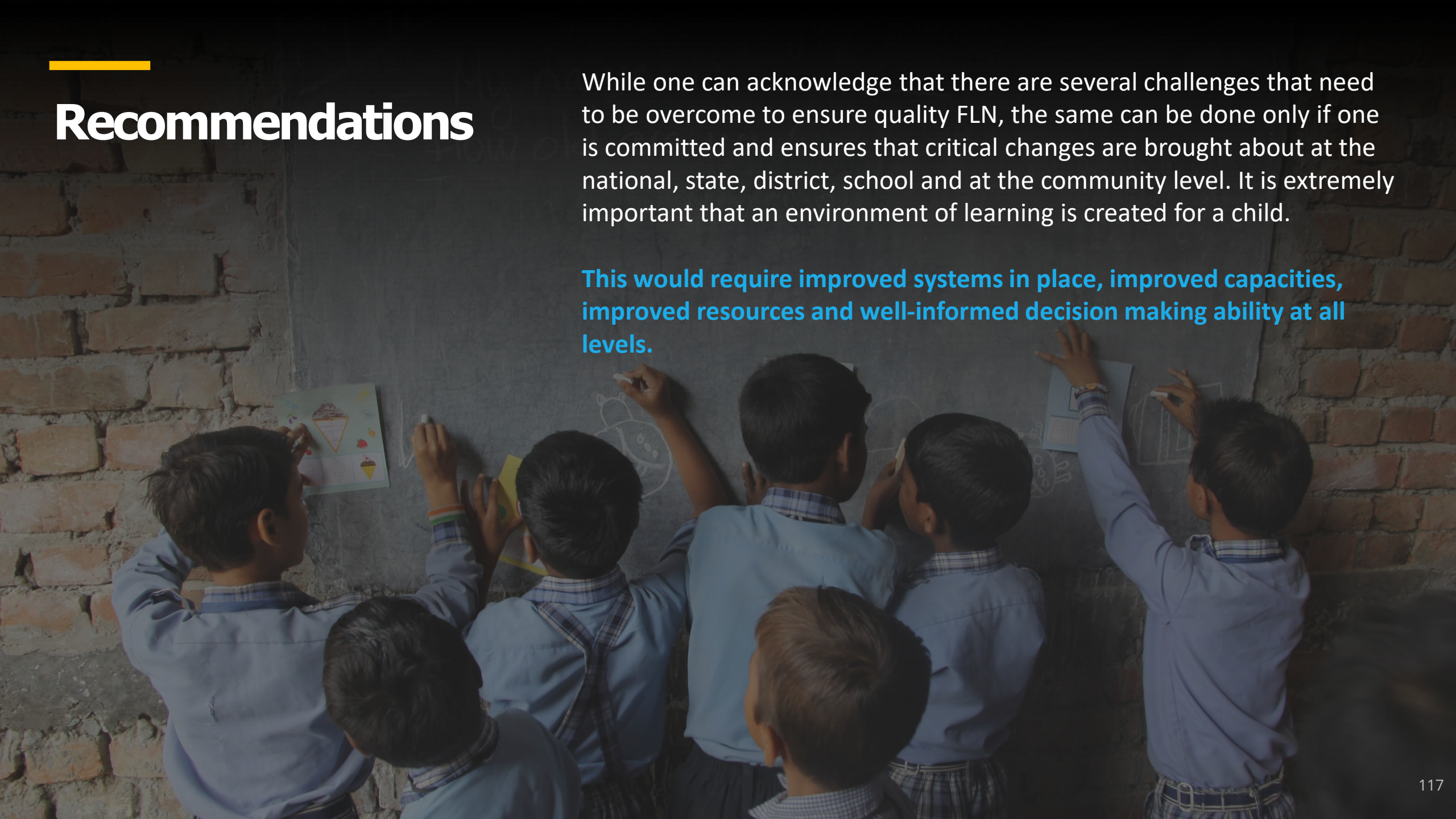
Unit VIII

Recommendations

Recommendations

While one can acknowledge that there are several challenges that need to be overcome to ensure quality FLN, the same can be done only if one is committed and ensures that critical changes are brought about at the national, state, district, school and at the community level. It is extremely important that an environment of learning is created for a child.

This would require improved systems in place, improved capacities, improved resources and well-informed decision making ability at all levels.



A Increase budget allocation, with focused investment on Foundational Literacy and Numeracy

The **percentage of GDP that goes into education needs to be increased** on an urgent basis. The current chunk is 3.1 percent. This needs to at least be doubled or more to ensure the wide-scale establishment of necessary prerequisites and implementation of 'quality' Foundational Literacy and Numeracy across the continuum.

Increased money needs to be pumped into

Provision of necessary infrastructure , including school buildings and classrooms, drinking water and sanitation facilities, electricity, internet, digital device etc.

Child nutrition through Mid Day Meal Programmes to ensure that both short term and long-term nutrition issues get resolved.

Teacher recruitment to ensure one teacher per grade for primary grades.

Research and development to ensure curriculum and pedagogy reforms across the continuum

Setting up of functional libraries and ensuring provision of quality children's literature and necessary Teaching Learning Material (TLM) etc

Efforts would need to be made to **ensure basic infrastructural facilities** for a child – including drinking water and sanitation facilities as well as healthy nutritious food. Additionally, adequate internet facilities and basic tech resources need to be provided in all the schools to ensure access and use of the newer digital learning opportunities, along with offline reading materials and libraries. These form the backbone of all efforts directed towards the achievement of Foundational Literacy and Numeracy

B Alignment of synergies between MWCD and MoE

Given that Foundational Learning is now seen as a continuum that includes preschool and early grades, there needs to be an **alignment of synergies between the two respective ministries, the Ministry of Women and Child Development (MWCD) and the Ministry of Education (MoE).** While MWCD looks at the informal pre school component, MoE takes care of the formal schooling from Grade 1 onwards

To ensure that learning is smooth and in a continuum for all foundational years, alignment at multiple levels would be needed. This includes

- designing **appropriate curriculum** for continuous holistic development of a child,
- Setting up of **appropriate classrooms**, and this may mean either strengthening the Anganwadis or adding Balvatika classrooms in schools
- Focus on continuous **teacher capacity building** interventions for primary grade teachers in schools and for the Anganwadi workers (AWW) in anganwadis.

The current challenge is that for MWCD, the focus has always been mainly on ‘health and nutrition’ while ‘quality education’ always took a back seat. For them to prioritize and focus on education will take conscious efforts in planning and implementation. Similarly, the MoE has always focused on Grade 1 and above and they would have unique challenges in trying to focus on preschool education. Some of these may include assigning teachers to Balvatika, teacher capacity building, assigning an additional room in the schools for Balvatika where there is insufficient space even for the existing classes etc. Alignment between these department and ensuring that the basics are in place would need to be prioritized to ensure continuity in learning.

C Two Anganwadi Worker (AWW) model

For Anganwadis under the ICDS, focusing on preschool education would require increased efforts on part of the anganwadi worker. In addition to her existing long list of duties that focus on the health and nutrition component, she would be expected to give significant time in capacitating herself, creating relevant resources for children and conducting a two-hour interactive teaching-learning class every day.

Various studies have pointed out that the AWW even now seem to be over worked. If we want quality education done well, we would need to be more creative in finding solutions.

Since nutrition and education are both equally important and require significant time and effort, it may be worthwhile to consider having **two AWWs per *anganwadi***. While one of them may be trained and specialized in the health component, including providing supplementary nutrition, the other can focus on ensuring non-formal education to children. (N. Vinayak, 2015).

a. Based on very recent research in Tamil Nadu on the impact of adding an extra worker to Anganwadis to focus on early childhood education, it was estimated that the present discounted value of the policy was around Rs. 16,000 – 20,000 per month. Thus, the investment in the extra worker would be cost effective at a monthly salary under this range but not above.

b. At present costs, it would be cost effective to add an Anganwadi worker to focus on early childhood education (since average monthly Anganwadi worker salaries range from Rs. 4,000 – 10,000). But given regular teacher salaries of Rs. 30,000 – 60,000, the school-based model would not be cost-effective. readiness.

In addition to this, efforts would need to be made towards designing appropriate curriculum, setting up of classrooms, providing teaching learning materials, training of teachers and using data to inform practice.

Given the fiscal constraints in expanding early childhood education, it is important to use Anganwadi set ups as the road to initial preschool and scalable school readiness.

D Provide and capacitate 'academic cadre' in the system; Focus on Teacher Professional Development

There is a need to relook at an **academic cadre in the government system** that can provide mentoring and support to teachers. Such a cadre does exist, under various titles including Block Resource Coordinators (BRCs)/ Block Resource Persons (BRPs) or Cluster Resource Coordinators (CRCs) etc. in some states. However, this may not be true for some states, like Uttarakhand where it was assumed that the academic support to teachers would be provided by the DIET (District Institute for Education and Training) faculty.

While this cadre needs to be placed in all the states, efforts would also be required to ensure that the cadre focuses more on the 'academic support' aspect of their job and less on the 'administrative tasks'. This would require a massive mindset shift from being the 'inspectors' to being the 'mentors'.

To be able to support the teachers well, the said cadre would also need to be equipped with relevant knowledge and skills. This would require intensive focus on a continuous training programme for them, using a blend of digital and non-digital resources and face to face trainings with a focus on both, understanding of pedagogy and the art of mentorship.

Teacher Professional Development needs to be focused on to ensure teachers are equipped with a theoretical understanding of pedagogical principles to ensure Foundational Literacy and Numeracy, implement the same in the classroom, use edtech resources appropriately and adapt their teaching to contextual challenges. This would have to be done via a blended mode of training using both online and offline resources and ensuring a continuous support to teachers in the field.

E Increase focus on Research & Development

Foundational Literacy and Numeracy is a relatively newer area for us. The new policy and Covid challenges require that we look at the possible solutions based on scientific understanding. While there does exist a lot of research-based learning from international studies, the same would need to be contextualized for India. We need to make intensive efforts to **focus on research-based practices** and the existing bodies including NCERT, SCERT and DIETs need to be trained in such.

As stated in the NIPUN Bharat guidelines, achievement of Foundational Literacy and Numeracy requires strategic planning with respect to

- Goal Setting
- Pedagogy and curriculum
- Capacity building
- Learning Assessment
- Stakeholder Engagement
- Robust IT system
- Teaching Learning Material and Processes

Each of the above stated parameter requires research to help answer critical questions. Below are given just a few examples:

What is the relationship between fluency and comprehension? How best to design large scale assessments tor these?

What is the essential fluency benchmarking for Indian scripts and languages?

What is the relationship between fluency and comprehension? How best to design large scale assessments tor these?

What is the role of parents in ensuring child's learning at home? What kind of strategies help maximize gains, especially when the child is a first-generation learner.

These and many more such critical questions can only be answered with development of a scientific temperament.

F Ensure provision of quality children's literature in every school

Even though libraries today exist in a large number of schools, at least on paper, the same need to be filled in **with quality age and grade-appropriate children's literature in multiple languages.**

While one does find a lot of good books in English, the same are very limited in Indian state languages (eg: Hindi, Marathi, Telugu) and even more so, if the child comes from a local or a minority language background (eg: Adivasi Garasia, Marwadi, etc). In addition to improving the procurement policies that would improve the supply of books in state languages, it is also important to capacitate teachers to create relevant material in local languages.

This would require a relook at the existing procurement policies that limit the government school to buy books from certain government publishing houses alone, including National Book Trust (NBT) and Children's Book Trust (CBT). Such a limited procurement policy acts as a barrier between good books and the child for whom these books are being made.

Efforts also need to be made towards translating quality literature from one language to the other to ensure increased variety and access to all.

G Ensure minimum instruction time in schools and learning at home

- The Right to Education Act (2009) requires that children from grade I-V spend 200 days involving 800 instruction hours in school. This requires focused four hours of instruction per day for early graders. While the same does exist on paper, ensuring that systematic language and numeracy instruction blocks are embedded in the time-table would be essential.
- Currently, different states are seen allocating the different amount of time for literacy instruction, which ranges from 35 min in some states to about 90 minutes in some others. There needs to be a standard block of time ranging from 90-120 min for literacy and an equal amount for numeracy chalked out for structured interventions to build basic foundational skills in children.
- Time for independent reading, either as part of the school library or classroom library needs to be ensured on regular basis. Independent reading opportunities right from the very beginning go a long way in developing independent readers.
- For our not-so-advantaged children, most of whom are first-generation learners, school is assumed to be the single most important and probably the only learning space. It is assumed that the basic skills and sub-skills that Foundational Literacy and Numeracy focuses on are best done only by the teacher. While it cannot be negated that schools are an extremely important space for learning and would continue to be so, **home as a space for learning also needs to be acknowledged and promoted**, not just in the Covid times but in the post-Covid world as well. This would require besides the creation of resources, a massive mindset change and strengthened school-community linkages, where parents are not the recipients of 'support' but 'equal partners' in their child's learning.

H Make sustainable efforts to reach stable state post Covid

Given the massive learning loss across the grades due to Covid **expanding the scope of FLN to include all primary grades** in its ambit is recommended.

The **curriculum for early grades would need a complete restructuring in the current Covid scenario**. While doing so, it would be extremely critical to be cautious against the so called 'fast-paced remediation packages'. Nothing would be more harmful than expecting a child entering grade 3 in 2022 to be able to cover up both the lost grades and at the same time achieve grade level competencies within one academic year. Mitigating the learning loss and developing basic foundational skills in children would need intensive structured interventions over the next two to three years for children at least up to grade 5.

The **set lakshayas and Learning Outcomes in the NIPUN Bharat guidelines would need to be re-examined and re-calibrated** from medium term to long term, based on the current learning gaps. Additionally, the fluency target of 45-60 correct words per minute as the defined lakshya by end of grade 2 seems to have been defined as a benchmark for all scripts and languages. While the policy acknowledges the relevance of and promotes including a child's home language into the classroom; the learning outcomes and fluency benchmarks so defined ignores the complexity that this reality brings in. Additionally, the pandemic with its massive learning loss has made achieving these even more difficult. Hence, there is a need to reassess the *lakshyas* basis a strong foundation of research and understanding

I Undertake curricular reforms and textbook revision

- Complete **revision of the textbooks** and other resources used, aligned to the balanced approach to literacy as recommended by NIPUN Bharat guidelines is an urgent need. There are two reasons for the same.
- One, the NIPUN Bharat guideline talks of a balanced approach, while textbooks traditionally have been prepared using either one of the ‘extreme’ approaches i.e. the whole language or the phonics approach. Now that as a nation we are committed to ensuring scientifically informed pedagogy in the classroom, we would need to ensure alignment of the essential resources with it. One cannot look at pedagogy and material like textbooks with a different lens.
- Second, one cannot expect to achieve the new learning outcomes as defined in the NIPUN Bharat guidelines using old tools. Textbooks would have to be revised not just for the benefit of the child, but also for the teachers who are the practitioners, the implementors and would require all the support to implement the newer pedagogy into the classroom.

J

Ensure quality data for governance and to track progress

- Data on learning outcomes is vital in finding solutions. **Large-scale well-defined assessment tools** that focus on measuring reading comprehension needs to be created and used for multiple scripts and languages. Pritchett (2015) argues that data on learning outcomes is key to ensuring that education systems are "coherent" for learning outcomes, i.e. the elements of the system are aligned around the objective of improving learning.

- The national learning outcomes data are increasingly used to estimate "learning profiles" and assess inequality in education systems worldwide. Learning profiles depict the progress in average learning outcomes by age or grade in an education system to better understand where an education system succeeds and where it falls short (Kaffenberger, 2019). Assessments of learning equality compare average learning outcomes between groups, such as wealth quintiles, or analyze the overall distribution of learning in a population (Akmal and Pritchett, 2019). Therefore, in this light, it becomes vital to understand better the accuracy and reliability of India's two nationally representative surveys on learning outcomes, ASER (Annual Status of Education Report) and NAS (National Achievement Survey).

*The Index on foundation learning has relied on the latest NAS learning scores and ASER data for analysis; however, they should be used with caution to construct learning profiles or assess learning outcomes while comparing states and districts.

The ASER survey since 2005 has played a pivotal role in raising awareness regarding India's low learning levels. It represents all rural households and seeks to measure basic Foundational Literacy and Numeracy skills in children. On the other hand, NAS has been conducted once in 2017 and measures grade level learning outcomes for grades 3, 5 and 8. **There exists literature that argues on the reliability of these surveys. In their paper, Doug and Andres Parrado** (Johnson, 2021) **highlight after comparing the two datasets** that NAS state averages are significantly higher than ASER state averages. The presence of severe bias in the NAS data suggests that this data should be used carefully or not for comparisons between states, constructing learning profiles, or any other purpose. Whereas ASER data is most reliable for comparing state averages, it is less reliable for looking at district averages or changes in district and state averages over time.

We need to look at newer ways of collecting appropriate data to measure the learning outcomes and thereby ensure data-driven policy for maximized impact.

In addition to appropriate data related to evaluation, monitoring data would need to be embedded within the system. This requires a comprehensive education management information system that includes well-defined administrative and pedagogical indicators.

It would be critical to ensure that data so collected from the field should be appropriate enough to be used by the states to design their plans, and data collected from the states should have the push to influence policy at the Centre. Simultaneously, it will be important to have data with the teachers that help them improve their classroom practices and make well-informed decisions.

K Focus on the 'right kind' of edtech solutions

Edtech resources are the answer to several challenges being faced today, including school closures due to Covid and low-quality literacy experience in classrooms, particularly for the disadvantaged. However, it would be critical to ensure the following while upscaling edtech interventions:

- Ensure the provision of basic infrastructure including electricity, high-speed internet connectivity and digital devices in schools.
- Create the digital resources not to replace the teacher but the support them. Today technology equipped with artificial intelligence has the potential to ensure that each child learns at her own pace. This can be a powerful tool in the hands of a teacher who today struggles to provide individual attention to each child.
- Create products that rely on the principle of gamification to ensure hands-on activity based learning. The fun based engagement ensures that a task that may be otherwise 'boring' to child becomes exciting and enjoyable. The child learns while she plays.
- Create products that are interactive and encourage a child not only to practice key skills through repetition and drills but also push them to observe, explore and engage with the world around.
- Create products that are based on the principles of neuroscience and learning; products that ensure a multi-sensorial experience for maximized learning.

Conclusion

While it is true that the status of Foundational Literacy and Numeracy as it exists today leaves a lot to be desired. Yet, a beginning in the shape of newer policy and newer focus has been made. The focus on quality, and intention to achieve it in a mission mode means that the nation as a whole now needs to get together to tide over the obvious challenges and ensure 'quality learning' for each child. This may require intensive sustained efforts to relook at the existing resources for all stakeholders, curriculum, system capacity building, appropriate use of data to inform both policy and practice, edtech as well as quality governance.

The change has begun. And we can only move up from here. The dream of every child learning well is not impossible, if only we remember to focus on the things that 'matter'.

Appendix I

SCORECARDS

Andaman & Nicobar Islands

Category: Union Territory

47.04

Rank: 6

Educational Infrastructure — 78.30

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	90.22
Percentage of schools with functional computer facility	54.78
Percentage of Schools with functional CWSN friendly toilet	19.50
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	100
Percentage of schools with internet facility available	24.78
Percentage of schools with medical check-ups	96.93

Access to Education — 28.48

Primary level schools per lakh population	16.69
Dropout Rate - Primary	94.32
Gross enrollment ratio (GER) - Primary	2.06
Percentage of all minority group's enrolment	9.23
Percentage of teacher for primary level education	27.94
Pre school education - Percentage	47.46
Pupil teacher ratio (PTR) - Primary	87.47
Percentage of Children With Special Needs enrolled (CWSN)	16.97

Basic Health — 70.18

Children under 5 years who are stunted	99.20
Infant mortality rate (IMR)	43.48
Percentage of fully immunised children in the age-group 0-5 years	80.90
Under-five mortality rate (U5MR)	65.89
Underweight children (under 5 yrs)	70.58

Learning Outcomes — 41.84

Adjusted (NER) - Primary level for girls	9.26
Gender parity index (GPI) - Primary	100
NAS scores class III	42.77
NAS scores class V	36.42
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	99.50
Transition Rate - Primary	95.88

Governance — 16.37

AWC roll out percentage	99.14
Central fund utilization under poshan scheme	42.61
Expenditure on education - as ratio to aggregate expenditure	0.00
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	89.87
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming · Performing within expected range · Underperforming

Strength and Weakness are relative to 10 states of similar population: Daman and Diu, Sikkim, Ladakh, Lakshadweep, Chandigarh, Puducherry, Goa, Mizoram, Arunachal Pradesh, Dadra and Nagar Haveli

Andhra Pradesh

Category: Small State

49.85

Rank: 8

Educational Infrastructure — 56.97

Percentage of households 1 km from school having primary classes	100
Percentage of schools with electricity connection	92.30
Percentage of schools with functional computer facility	25.88
Percentage of Schools with functional CWSN friendly toilet	3.94
Percentage of schools with functional drinking water	82.59
Percentage of schools with functional toilets	0.87
Percentage of schools with hand wash facility	77.29
Percentage of schools with internet facility available	20.20
Percentage of schools with library facility	87.51
Percentage of schools with medical check-ups	67.15

Access to Education — 38.50

Primary level schools per lakh population	22.89
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	25.92
Percentage of all minority group's enrolment	7.94
Percentage of teacher for primary level education	56.30
Pre school education - Percentage	66.05
Pupil teacher ratio (PTR) - Primary	63.66
Percentage of Children With Special Needs enrolled (CWSN)	44.50

Basic Health — 56.37

Children under 5 years who are stunted	64.50
Infant mortality rate (IMR)	32.33
Percentage of fully immunised children in the age-group 0-5 years	97.59
Under-five mortality rate (U5MR)	51.00
Underweight children (under 5 yrs)	54.80

Learning Outcomes — 73.27

Adjusted (NER) - Primary level for girls	84.81
Gender parity index (GPI) - Primary	3.88
NAS scores class III	95.38
NAS scores class V	80.97
Percentage of enrolled children who received learning materials/activities for class I-V	23.11
Percentage of enrolled children who received learning materials/activities via WhatsApp	65.87
Percentage of enrolled children with selected assets available at home - smartphone	52.04
Promotion rate - Primary	100
Transition Rate - Primary	95.92

Governance — 24.13

AWC roll out percentage	99.95
Central fund utilization under poshan scheme	48.92
Expenditure on education - as ratio to aggregate expenditure	49.14
Percentage of expenditure - mid day meal state share	11.07
Percentage of expenditure on teacher training	0.97
Percentage of total assistance to non-govt primary schools	5.82
Percentage to total expenditure on primary education for govt schools	2.29
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Odisha, Assam, Karnataka, Telangana, Chhattisgarh, Tamil Nadu, Kerela, Haryana, Gujarat, Jharkhand

Arunachal Pradesh

Category: North Eastern State

36.88

Rank: 8

Educational Infrastructure — 19.40

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	32.33
Percentage of schools with functional computer facility	12.67
Percentage of Schools with functional CWSN friendly toilet	5.37
Percentage of schools with functional drinking water	42.16
Percentage of schools with functional toilets	21.18
Percentage of schools with hand wash facility	10.58
Percentage of schools with internet facility available	4.83
Percentage of schools with library facility	34.47
Percentage of schools with medical check-ups	0.00

Access to Education — 39.61

Primary level schools per lakh population	40.55
Dropout Rate - Primary	29.55
Gross enrollment ratio (GER) - Primary	45.53
Percentage of all minority group's enrolment	0.96
Percentage of teacher for primary level education	35.57
Pre school education - Percentage	4.57
Pupil teacher ratio (PTR) - Primary	87.47
Percentage of Children With Special Needs enrolled (CWSN)	27.98

Basic Health — 57.02

Children under 5 years who are stunted	67.41
Infant mortality rate (IMR)	47.13
Percentage of fully immunised children in the age-group 0-5 years	45.75
Under-five mortality rate (U5MR)	62.65
Underweight children (under 5 yrs)	75.96

Learning Outcomes — 60.88

Adjusted (NER) - Primary level for girls	96.67
Gender parity index (GPI) - Primary	9.71
NAS scores class III	0.00
NAS scores class V	0.00
Percentage of enrolled children who received learning materials/activities for class I-V	42.07
Percentage of enrolled children who received learning materials/activities via WhatsApp	97.50
Percentage of enrolled children with selected assets available at home - smartphone	70.83
Promotion rate - Primary	89.40
Transition Rate - Primary	99.98

Governance — 7.47

AWC roll out percentage	0.21
Central fund utilization under poshan scheme	10.64
Expenditure on education - as ratio to aggregate expenditure	40.52
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	1.13
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Goa, Nagaland, Puducherry, Chandigarh, Sikkim, Manipur, Dadra and Nagar Haveli, Andaman and Nicobar Islands, Daman and Diu, Mizoram

Assam

Category: North Eastern State

46.55

Rank: 4

Educational Infrastructure — 43.30

Percentage of households 1 km from school having primary classes	84.07
Percentage of schools with electricity connection	22.71
Percentage of schools with functional computer facility	0.00
Percentage of Schools with functional CWSN friendly toilet	13.67
Percentage of schools with functional drinking water	79.26
Percentage of schools with functional toilets	35.85
Percentage of schools with hand wash facility	73.33
Percentage of schools with internet facility available	2.11
Percentage of schools with library facility	76.19
Percentage of schools with medical check-ups	39.12

Access to Education — 47.96

Primary level schools per lakh population	41.30
Dropout Rate - Primary	51.14
Gross enrollment ratio (GER) - Primary	42.32
Percentage of all minority group's enrolment	43.22
Percentage of teacher for primary level education	61.13
Pre school education - Percentage	0.32
Pupil teacher ratio (PTR) - Primary	69.40
Percentage of Children With Special Needs enrolled (CWSN)	36.70

Basic Health — 41.71

Children under 5 years who are stunted	48.15
Infant mortality rate (IMR)	30.49
Percentage of fully immunised children in the age-group 0-5 years	53.45
Under-five mortality rate (U5MR)	45.57
Underweight children (under 5 yrs)	46.24

Learning Outcomes — 72.78

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	11.65
NAS scores class III	79.59
NAS scores class V	73.36
Percentage of enrolled children who received learning materials/activities for class I-V	24.90
Percentage of enrolled children who received learning materials/activities via WhatsApp	84.70
Percentage of enrolled children with selected assets available at home - smartphone	44.62
Promotion rate - Primary	95.50
Transition Rate - Primary	95.66

Governance — 27.01

AWC roll out percentage	78.12
Central fund utilization under poshan scheme	50.62
Expenditure on education - as ratio to aggregate expenditure	80.60
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.02
Percentage of total assistance to non-govt primary schools	1.87
Percentage to total expenditure on primary education for govt schools	65.01
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Goa, Nagaland, Puducherry, Chandigarh, Sikkim, Manipur, Dadra and Nagar Haveli, Andaman and Nicobar Islands, Daman and Diu, Mizoram

Bihar

Category: Large State

36.81

Rank: 9

Educational Infrastructure — 55.64

Percentage of households 1 km from school having primary classes	97.72
Percentage of schools with electricity connection	78.74
Percentage of schools with functional computer facility	1.31
Percentage of Schools with functional CWSN friendly toilet	11.50
Percentage of schools with functional drinking water	98.90
Percentage of schools with functional toilets	98.37
Percentage of schools with hand wash facility	77.55
Percentage of schools with internet facility available	4.97
Percentage of schools with library facility	56.43
Percentage of schools with medical check-ups	21.19

Access to Education — 18.23

Primary level schools per lakh population	11.57
Dropout Rate - Primary	73.86
Gross enrollment ratio (GER) - Primary	16.86
Percentage of all minority group's enrolment	15.11
Percentage of teacher for primary level education	41.91
Pre school education - Percentage	16.83
Pupil teacher ratio (PTR) - Primary	0.00
Percentage of Children With Special Needs enrolled (CWSN)	20.64

Basic Health — 24.99

Children under 5 years who are stunted	17.83
Infant mortality rate (IMR)	13.37
Percentage of fully immunised children in the age-group 0-5 years	56.66
Under-five mortality rate (U5MR)	21.48
Underweight children (under 5 yrs)	24.31

Learning Outcomes — 56.05

Adjusted (NER) - Primary level for girls	66.67
Gender parity index (GPI) - Primary	11.65
NAS scores class III	48.69
NAS scores class V	48.37
Percentage of enrolled children who received learning materials/activities for class I-V	8.17
Percentage of enrolled children who received learning materials/activities via WhatsApp	76.27
Percentage of enrolled children with selected assets available at home - smartphone	33.62
Promotion rate - Primary	97.60
Transition Rate - Primary	76.41

Governance — 29.12

AWC roll out percentage	100.00
Central fund utilization under poshan scheme	49.62
Expenditure on education - as ratio to aggregate expenditure	80.17
Percentage of expenditure - mid day meal state share	0.74
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	1.58
Percentage to total expenditure on primary education for govt schools	62.11
Percentage to total expenditure on primary education under SSA revenue account	3.08

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: MadhyaPradesh, WestBengal, Rajasthan, Gujarat, Tamil Nadu, Uttar Pradesh, Karnataka, Andhra Pradesh, Jharkhand, Maharashtra

Chandigarh

Category: Union Territory

49.89

Rank: 4

Educational Infrastructure — 92.97

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	100
Percentage of schools with functional computer facility	100
Percentage of Schools with functional CWSN friendly toilet	63.71
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	100
Percentage of schools with internet facility available	100
Percentage of schools with library facility	97.02
Percentage of schools with medical check-ups	89.93

Access to Education — 20.07

Primary level schools per lakh population	0.00
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	9.29
Percentage of all minority group's enrolment	5.25
Percentage of teacher for primary level education	0.00
Pre school education - Percentage	43.08
Pupil teacher ratio (PTR) - Primary	62.22
Percentage of Children With Special Needs enrolled (CWSN)	52.75

Basic Health — 76.24

Children under 5 years who are stunted	70.20
Infant mortality rate (IMR)	67.16
Percentage of fully immunised children in the age-group 0-5 years	83.63
Under-five mortality rate (U5MR)	100
Underweight children (under 5 yrs)	62.32

Learning Outcomes — 54.17

Adjusted (NER) - Primary level for girls	32.96
Gender parity index (GPI) - Primary	18.45
NAS scores class III	91.43
NAS scores class V	91.85
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	100
Transition Rate - Primary	100

Governance — 6.00

AWC roll out percentage	0.00
Central fund utilization under poshan scheme	45.93
Expenditure on education - as ratio to aggregate expenditure	0.00
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	7.40
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Goa, Puducherry, Lakshadweep, Ladakh, Arunachal Pradesh, Sikkim, Dadra and Nagar Haveli, Andaman and Nicobar Islands, Daman and Diu, Mizoram

Chhattisgarh

Category: Small State

50.47

Rank: 7

Educational Infrastructure — 73.71

Percentage of households 1 km from school having primary classes	93.90
Percentage of schools with electricity connection	81.91
Percentage of schools with functional computer facility	81.34
Percentage of Schools with functional CWSN friendly toilet	43.24
Percentage of schools with functional drinking water	65.84
Percentage of schools with functional toilets	86.27
Percentage of schools with hand wash facility	94.10
Percentage of schools with internet facility available	5.17
Percentage of schools with library facility	90.49
Percentage of schools with medical check-ups	90.01

Access to Education — 39.57

Primary level schools per lakh population	37.31
Dropout Rate - Primary	88.64
Gross enrollment ratio (GER) - Primary	20.99
Percentage of all minority group's enrolment	1.24
Percentage of teacher for primary level education	63.10
Pre school education - Percentage	58.81
Pupil teacher ratio (PTR) - Primary	74.13
Percentage of Children With Special Needs enrolled (CWSN)	19.72

Basic Health — 30.08

Children under 5 years who are stunted	34.10
Infant mortality rate (IMR)	11.49
Percentage of fully immunised children in the age-group 0-5 years	84.11
Under-five mortality rate (U5MR)	19.49
Underweight children (under 5 yrs)	27.01

Learning Outcomes — 67.55

Adjusted (NER) - Primary level for girls	71.11
Gender parity index (GPI) - Primary	7.77
NAS scores class III	44.07
NAS scores class V	36.42
Percentage of enrolled children who received learning materials/activities for class I-V	40.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	76.38
Percentage of enrolled children with selected assets available at home - smartphone	89.86
Promotion rate - Primary	97.30
Transition Rate - Primary	91.62

Governance — 41.45

AWC roll out percentage	100
Central fund utilization under poshan scheme	53.22
Expenditure on education - as ratio to aggregate expenditure	81.03
Percentage of expenditure - mid day meal state share	40.10
Percentage of expenditure on teacher training	0.74
Percentage of total assistance to non-govt primary schools	2.33
Percentage to total expenditure on primary education for govt schools	40.80
Percentage to total expenditure on primary education under SSA revenue account	44.21

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Telangana, Haryana, Punjab, Assam, Delhi, Odisha, Jammu and Kashmir, Jharkhand

Dadra and Nagar Haveli

Category: Union Territory

46.83

Rank: 7

Educational Infrastructure — 87.74

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	100
Percentage of schools with functional computer facility	82.29
Percentage of Schools with functional CWSN friendly toilet	89.46
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	100
Percentage of schools with internet facility available	22.46
Percentage of schools with library facility	98.35
Percentage of schools with medical check-ups	99.26

Access to Education — 33.80

Primary level schools per lakh population	5.12
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	25.23
Percentage of all minority group's enrolment	3.47
Percentage of teacher for primary level education	22.89
Pre school education - Percentage	94.63
Pupil teacher ratio (PTR) - Primary	57.08
Percentage of Children With Special Needs enrolled (CWSN)	100

Basic Health — 45.91

Children under 5 years who are stunted	31.79
Infant mortality rate (IMR)	30.61
Percentage of fully immunised children in the age-group 0-5 years	78.97
Under-five mortality rate (U5MR)	48.49
Underweight children (under 5 yrs)	30.46

Learning Outcomes — 50.86

Adjusted (NER) - Primary level for girls	54.81
Gender parity index (GPI) - Primary	11.65
NAS scores class III	67.10
NAS scores class V	74.99
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	99.40
Transition Rate - Primary	97.09

Governance — 15.83

AWC roll out percentage	94.17
Central fund utilization under poshan scheme	37.49
Expenditure on education - as ratio to aggregate expenditure	0.00
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.25
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	100
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming · Performing within expected range · Underperforming

Strength and Weakness are relative to 10 states of similar population: Sikkim, Daman and Diu, Ladakh, Lakshadweep, Chandigarh, Puducherry, Goa, Mizoram, Arunachal Pradesh, Andaman and Nicobar Islands

Daman and Diu

Category: Union Territory

43.30

Rank: 8

Educational Infrastructure — 91.24

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	100
Percentage of schools with functional computer facility	97.63
Percentage of Schools with functional CWSN friendly toilet	56.35
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	98.94
Percentage of schools with internet facility available	75.48
Percentage of schools with library facility	100
Percentage of schools with medical check-ups	100

Access to Education — 26.56

Primary level schools per lakh population	5.40
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	14.79
Percentage of all minority group's enrolment	10.88
Percentage of teacher for primary level education	38.20
Pre school education - Percentage	100
Pupil teacher ratio (PTR) - Primary	52.77
Percentage of Children With Special Needs enrolled (CWSN)	11.01

Basic Health — 43.04

Children under 5 years who are stunted	31.79
Infant mortality rate (IMR)	30.61
Percentage of fully immunised children in the age-group 0-5 years	52.17
Under-five mortality rate (U5MR)	48.49
Underweight children (under 5 yrs)	30.46

Learning Outcomes — 37.48

Adjusted (NER) - Primary level for girls	25.19
Gender parity index (GPI) - Primary	10.68
NAS scores class III	37.50
NAS scores class V	16.86
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	100
Transition Rate - Primary	95.45

Governance — 18.20

AWC roll out percentage	89.53
Central fund utilization under poshan scheme	100
Expenditure on education - as ratio to aggregate expenditure	0.00
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Andaman and Nicobar Islands, Lakshadweep, Dadra and Nagar Haveli, Sikkim, Chandigarh, Puducherry, Goa, Mizoram, Arunachal Pradesh, Ladakh

Delhi

Category: Union Territory

50.74

Rank: 2

Educational Infrastructure — 92.98

Percentage of households 1 km from school having primary classes	94.11
Percentage of schools with electricity connection	100
Percentage of schools with functional computer facility	93.93
Percentage of Schools with functional CWSN friendly toilet	100
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	99.84
Percentage of schools with internet facility available	87.50
Percentage of schools with library facility	100
Percentage of schools with medical check-ups	50.68

Access to Education — 25.63

Primary level schools per lakh population	4.12
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	47.71
Percentage of all minority group's enrolment	15.32
Percentage of teacher for primary level education	27.63
Pre school education - Percentage	0.04
Pupil teacher ratio (PTR) - Primary	46.61
Percentage of Children With Special Needs enrolled (CWSN)	12.84

Basic Health — 52.91

Children under 5 years who are stunted	57.44
Infant mortality rate (IMR)	37.93
Percentage of fully immunised children in the age-group 0-5 years	56.18
Under-five mortality rate (U5MR)	50.12
Underweight children (under 5 yrs)	55.63

Learning Outcomes — 42.39

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	11.65
NAS scores class III	13.81
NAS scores class V	19.03
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	100
Transition Rate - Primary	93.40

Governance — 39.79

AWC roll out percentage	63.79
Central fund utilization under poshan scheme	64.41
Expenditure on education - as ratio to aggregate expenditure	100
Percentage of expenditure - mid day meal state share	54.61
Percentage of expenditure on teacher training	1.74
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	5.65
Percentage to total expenditure on primary education under SSA revenue account	20.30

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Uttarakhand, Punjab, Himachal Pradesh, Haryana, Kerala, Meghalaya, Tripura

Goa

Category: Small State

51.41

Rank: 6

Educational Infrastructure — 77.90

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	100.00
Percentage of schools with functional computer facility	43.01
Percentage of Schools with functional CWSN friendly toilet	2.21
Percentage of schools with functional drinking water	100.00
Percentage of schools with functional toilets	100.00
Percentage of schools with hand wash facility	100.00
Percentage of schools with internet facility available	37.37
Percentage of schools with library facility	98.85
Percentage of schools with medical check-ups	95.67

Access to Education — 27.52

Primary level schools per lakh population	17.70
Dropout Rate - Primary	96.59
Gross enrollment ratio (GER) - Primary	23.39
Percentage of all minority group's enrolment	12.29
Percentage of teacher for primary level education	37.39
Pre school education - Percentage	0.00
Pupil teacher ratio (PTR) - Primary	57.70
Percentage of Children With Special Needs enrolled (CWSN)	15.14

Basic Health — 71.05

Children under 5 years who are stunted	86.04
Infant mortality rate (IMR)	60.72
Percentage of fully immunised children in the age-group 0-5 years	75.28
Under-five mortality rate (U5MR)	84.96
Underweight children (under 5 yrs)	69.78

Learning Outcomes — 45.06

Adjusted (NER) - Primary level for girls	78.15
Gender parity index (GPI) - Primary	11.65
NAS scores class III	42.10
NAS scores class V	28.81
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	99.70
Transition Rate - Primary	96.61

Governance — 35.53

AWC roll out percentage	95.35
Central fund utilization under poshan scheme	49.50
Expenditure on education - as ratio to aggregate expenditure	62.93
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	36.12
Percentage to total expenditure on primary education for govt schools	46.08
Percentage to total expenditure on primary education under SSA revenue account	36.43

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population Mizoram, Chandigarh, Sikkim, Arunachal Pradesh, Dadra and Nagar Haveli, Andaman and Nicobar Islands, Daman and Diu, Ladakh, Lakshadweep Puducherry

Gujarat

Category: Large State

49.84

Rank: 5

Educational Infrastructure — 85.66

Percentage of households 1 km from school having primary classes	91.62
Percentage of schools with electricity connection	99.92
Percentage of schools with functional computer facility	70.87
Percentage of Schools with functional CWSN friendly toilet	25.38
Percentage of schools with functional drinking water	99.98
Percentage of schools with functional toilets	98.60
Percentage of schools with hand wash facility	92.62
Percentage of schools with internet facility available	71.54
Percentage of schools with library facility	94.92
Percentage of schools with medical check-ups	90.96

Access to Education — 22.28

Primary level schools per lakh population	5.54
Dropout Rate - Primary	88.64
Gross enrollment ratio (GER) - Primary	20.18
Percentage of all minority group's enrolment	8.82
Percentage of teacher for primary level education	11.67
Pre school education - Percentage	68.24
Pupil teacher ratio (PTR) - Primary	52.57
Percentage of Children With Special Needs enrolled (CWSN)	25.23

Basic Health — 37.13

Children under 5 years who are stunted	33.39
Infant mortality rate (IMR)	34.25
Percentage of fully immunised children in the age-group 0-5 years	75.12
Under-five mortality rate (U5MR)	48.03
Underweight children (under 5 yrs)	22.73

Learning Outcomes — 73.81

Adjusted (NER) - Primary level for girls	64.07
Gender parity index (GPI) - Primary	11.65
NAS scores class III	68.42
NAS scores class V	60.87
Percentage of enrolled children who received learning materials/activities for class I-V	87.52
Percentage of enrolled children who received learning materials/activities via WhatsApp	68.05
Percentage of enrolled children with selected assets available at home - smartphone	55.25
Promotion rate - Primary	99.00
Transition Rate - Primary	94.65

Governance — 30.34

AWC roll out percentage	99.95
Central fund utilization under poshan scheme	55.21
Expenditure on education - as ratio to aggregate expenditure	56.03
Percentage of expenditure - mid day meal state share	34.19
Percentage of expenditure on teacher training	0.12
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	0.52
Percentage to total expenditure on primary education under SSA revenue account	12.59

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Karnataka, Andhra Pradesh, Jharkhand, Odisha, Rajasthan, West Bengal, Assam, Madhya Pradesh, Telangana, Tamil Nadu

Haryana

Category: Small State

52.59

Rank: 5

Educational Infrastructure — 80.60

Percentage of households 1 km from school having primary classes	98.55
Percentage of schools with electricity connection	97.09
Percentage of schools with functional computer facility	45.71
Percentage of Schools with functional CWSN friendly toilet	35.81
Percentage of schools with functional drinking water	99.14
Percentage of schools with functional toilets	97.35
Percentage of schools with hand wash facility	98.85
Percentage of schools with internet facility available	41.77
Percentage of schools with library facility	95.30
Percentage of schools with medical check-ups	77.25

Access to Education — 27.61

Primary level schools per lakh population	10.89
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	30.28
Percentage of all minority group's enrolment	8.57
Percentage of teacher for primary level education	28.32
Pre school education - Percentage	34.93
Pupil teacher ratio (PTR) - Primary	65.91
Percentage of Children With Special Needs enrolled (CWSN)	11.93

Basic Health — 48.38

Children under 5 years who are stunted	49.06
Infant mortality rate (IMR)	35.63
Percentage of fully immunised children in the age-group 0-5 years	95.18
Under-five mortality rate (U5MR)	51.51
Underweight children (under 5 yrs)	49.21

Learning Outcomes — 71.61

Adjusted (NER) - Primary level for girls	85.56
Gender parity index (GPI) - Primary	7.77
NAS scores class III	34.20
NAS scores class V	29.90
Percentage of enrolled children who received learning materials/activities for class I-V	73.46
Percentage of enrolled children who received learning materials/activities via WhatsApp	98.13
Percentage of enrolled children with selected assets available at home - smartphone	70.83
Promotion rate - Primary	99.90
Transition Rate - Primary	94.81

Governance — 34.74

AWC roll out percentage	79.96
Central fund utilization under poshan scheme	57.14
Expenditure on education - as ratio to aggregate expenditure	68.53
Percentage of expenditure - mid day meal state share	32.84
Percentage of expenditure on teacher training	3.25
Percentage of total assistance to non-govt primary schools	0.77
Percentage to total expenditure on primary education for govt schools	82.85
Percentage to total expenditure on primary education under SSA revenue account	16.19

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Punjab, Chhattisgarh, Telangana, Assam, Delhi, Jammu and Kashmir, Uttarakhand.

Himachal Pradesh

Category: Small State

57.36

Rank: 2

Educational Infrastructure — 75.09

Percentage of households 1 km from school having primary classes	76.84
Percentage of schools with electricity connection	95.24
Percentage of schools with functional computer facility	23.72
Percentage of Schools with functional CWSN friendly toilet	21.28
Percentage of schools with functional drinking water	99.62
Percentage of schools with functional toilets	96.48
Percentage of schools with hand wash facility	98.57
Percentage of schools with internet facility available	20.26
Percentage of schools with library facility	93.52
Percentage of schools with medical check-ups	83.60

Access to Education — 39.91

Primary level schools per lakh population	47.66
Dropout Rate - Primary	89.77
Gross enrollment ratio (GER) - Primary	34.06
Percentage of all minority group's enrolment	1.58
Percentage of teacher for primary level education	42.17
Pre school education - Percentage	32.63
Pupil teacher ratio (PTR) - Primary	82.34
Percentage of Children With Special Needs enrolled (CWSN)	17.43

Basic Health — 60.04

Children under 5 years who are stunted	66.09
Infant mortality rate (IMR)	37.74
Percentage of fully immunised children in the age-group 0-5 years	95.02
Under-five mortality rate (U5MR)	59.77
Underweight children (under 5 yrs)	65.77

Learning Outcomes — 81.42

Adjusted (NER) - Primary level for girls	100.00
Gender parity index (GPI) - Primary	8.74
NAS scores class III	56.58
NAS scores class V	52.17
Percentage of enrolled children who received learning materials/activities for class I-V	100.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	99.58
Percentage of enrolled children with selected assets available at home - smartphone	71.69
Promotion rate - Primary	98.30
Transition Rate - Primary	94.14

Governance — 30.34

AWC roll out percentage	99.63
Central fund utilization under poshan scheme	60.30
Expenditure on education - as ratio to aggregate expenditure	72.84
Percentage of expenditure - mid day meal state share	1.85
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	0.01
Percentage to total expenditure on primary education for govt schools	92.63
Percentage to total expenditure on primary education under SSA revenue account	4.12

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Tripura, Manipur, Nagaland, Arunachal Pradesh, Uttarakhand, Mizoram, Goa, Puducherry, Chandigarh, Meghalaya

Jammu and Kashmir

Category: Union Territory

49.16

Rank: 5

Educational Infrastructure — 53.84

Percentage of households 1 km from school having primary classes	89.35
Percentage of schools with electricity connection	59.37
Percentage of schools with functional computer facility	12.70
Percentage of Schools with functional CWSN friendly toilet	2.09
Percentage of schools with functional drinking water	91.51
Percentage of schools with functional toilets	66.34
Percentage of schools with hand wash facility	91.03
Percentage of schools with internet facility available	8.70
Percentage of schools with library facility	61.55
Percentage of schools with medical check-ups	41.20

Access to Education — 44.45

Primary level schools per lakh population	34.69
Dropout Rate - Primary	55.68
Gross enrollment ratio (GER) - Primary	16.51
Percentage of all minority group's enrolment	63.96
Percentage of teacher for primary level education	35.04
Pre school education - Percentage	41.43
Pupil teacher ratio (PTR) - Primary	82.14
Percentage of Children With Special Needs enrolled (CWSN)	38.99

Basic Health — 64.91

Children under 5 years who are stunted	81.65
Infant mortality rate (IMR)	48.43
Percentage of fully immunised children in the age-group 0-5 years	82.99
Under-five mortality rate (U5MR)	74.24
Underweight children (under 5 yrs)	77.80

Learning Outcomes — 59.99

Adjusted (NER) - Primary level for girls	45.19
Gender parity index (GPI) - Primary	10.68
NAS scores class III	41.44
NAS scores class V	46.20
Percentage of enrolled children who received learning materials/activities for class I-V	39.27
Percentage of enrolled children who received learning materials/activities via WhatsApp	60.04
Percentage of enrolled children with selected assets available at home - smartphone	62.92
Promotion rate - Primary	95.60
Transition Rate - Primary	88.06

Governance — 22.64

AWC roll out percentage	11.47
Central fund utilization under poshan scheme	49.61
Expenditure on education - as ratio to aggregate expenditure	68.53
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.58
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	41.10

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Uttarakhand, Himachal Pradesh, Punjab, Meghalaya, Haryana, Tripura, Kerala, Manipur, Nagaland,Delhi

Jharkhand

Category: Small State

45.28

Rank: 11

Educational Infrastructure — 67.75

Percentage of households 1 km from school having primary classes	99.38
Percentage of schools with electricity connection	86.15
Percentage of schools with functional computer facility	70.22
Percentage of Schools with functional CWSN friendly toilet	1.37
Percentage of schools with functional drinking water	93.59
Percentage of schools with functional toilets	90.89
Percentage of schools with hand wash facility	80.57
Percentage of schools with internet facility available	31.06
Percentage of schools with library facility	91.32
Percentage of schools with medical check-ups	23.14

Access to Education — 30.09

Primary level schools per lakh population	21.14
Dropout Rate - Primary	28.41
Gross enrollment ratio (GER) - Primary	27.29
Percentage of all minority group's enrolment	13.17
Percentage of teacher for primary level education	42.76
Pre school education - Percentage	11.47
Pupil teacher ratio (PTR) - Primary	50.92
Percentage of Children With Special Needs enrolled (CWSN)	26.15

Basic Health — 20.02

Children under 5 years who are stunted	3.99
Infant mortality rate (IMR)	22.99
Percentage of fully immunised children in the age-group 0-5 years	73.19
Under-five mortality rate (U5MR)	33.41
Underweight children (under 5 yrs)	0.00

Learning Outcomes — 64.70

Adjusted (NER) - Primary level for girls	85.93
Gender parity index (GPI) - Primary	7.77
NAS scores class III	65.13
NAS scores class V	68.47
Percentage of enrolled children who received learning materials/activities for class I-V	27.63
Percentage of enrolled children who received learning materials/activities via WhatsApp	85.02
Percentage of enrolled children with selected assets available at home - smartphone	25.46
Promotion rate - Primary	93.30
Transition Rate - Primary	83.38

Governance — 43.84

AWC roll out percentage	79.96
Central fund utilization under poshan scheme	47.78
Expenditure on education - as ratio to aggregate expenditure	67.24
Percentage of expenditure - mid day meal state share	95.20
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	4.31
Percentage to total expenditure on primary education for govt schools	76.06
Percentage to total expenditure on primary education under SSA revenue account	18.16

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Andhra Pradesh, Assam, Telangana, Karnataka, Chhattisgarh, Kerala, Tamil Nadu, Haryana, Punjab, Odisha

Karnataka

Category: Large State

50.16

Rank: 4

Educational Infrastructure — 72.68

Percentage of households 1 km from school having primary classes	96.17
Percentage of schools with electricity connection	97.04
Percentage of schools with functional computer facility	38.92
Percentage of Schools with functional CWSN friendly toilet	12.49
Percentage of schools with functional drinking water	94.78
Percentage of schools with functional toilets	98.45
Percentage of schools with hand wash facility	73.65
Percentage of schools with internet facility available	22.24
Percentage of schools with library facility	91.88
Percentage of schools with medical check-ups	82.01

Access to Education — 28.33

Primary level schools per lakh population	11.45
Dropout Rate - Primary	86.36
Gross enrollment ratio (GER) - Primary	32.80
Percentage of all minority group's enrolment	15.82
Percentage of teacher for primary level education	18.08
Pre school education - Percentage	0.00
Pupil teacher ratio (PTR) - Primary	70.84
Percentage of Children With Special Needs enrolled (CWSN)	29.36

Basic Health — 46.63

Children under 5 years who are stunted	47.75
Infant mortality rate (IMR)	37.97
Percentage of fully immunised children in the age-group 0-5 years	78.49
Under-five mortality rate (U5MR)	58.93
Underweight children (under 5 yrs)	45.97

Learning Outcomes — 81.99

Adjusted (NER) - Primary level for girls	100.00
Gender parity index (GPI) - Primary	6.80
NAS scores class III	100.00
NAS scores class V	100.00
Percentage of enrolled children who received learning materials/activities for class I-V	73.84
Percentage of enrolled children who received learning materials/activities via WhatsApp	51.30
Percentage of enrolled children with selected assets available at home - smartphone	53.28
Promotion rate - Primary	98.50
Transition Rate - Primary	94.34

Governance — 21.16

AWC roll out percentage	99.23
Central fund utilization under poshan scheme	33.45
Expenditure on education - as ratio to aggregate expenditure	52.59
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	1.94
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	5.90

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Daman and Diu, Andaman and Nicobar Islands, Dadra and Nagar Haveli, Sikkim, Chandigarh, Puducherry, Goa, Mizoram, Arunachal Pradesh, Lakshadweep

Kerala

Category: Small State

67.95

Rank: 1

Educational Infrastructure — 67.95

Percentage of households 1 km from school having primary classes	55.43
Percentage of schools with electricity connection	98.80
Percentage of schools with functional computer facility	92.26
Percentage of Schools with functional CWSN friendly toilet	13.28
Percentage of schools with functional drinking water	98.40
Percentage of schools with functional toilets	98.71
Percentage of schools with hand wash facility	97.02
Percentage of schools with internet facility available	89.80
Percentage of schools with library facility	95.98
Percentage of schools with medical check-ups	56.70

Access to Education — 36.55

Primary level schools per lakh population	5.70
Dropout Rate - Primary	100.00
Gross enrollment ratio (GER) - Primary	24.54
Percentage of all minority group's enrolment	36.03
Percentage of teacher for primary level education	26.27
Pre school education - Percentage	34.93
Pupil teacher ratio (PTR) - Primary	60.57
Percentage of Children With Special Needs enrolled (CWSN)	93.12

Basic Health — 80.18

Children under 5 years who are stunted	95.16
Infant mortality rate (IMR)	62.10
Percentage of fully immunised children in the age-group 0-5 years	96.31
Under-five mortality rate (U5MR)	92.76
Underweight children (under 5 yrs)	81.28

Learning Outcomes — 92.91

Adjusted (NER) - Primary level for girls	84.81
Gender parity index (GPI) - Primary	7.77
NAS scores class III	90.78
NAS scores class V	100.00
Percentage of enrolled children who received learning materials/activities for class I-V	94.17
Percentage of enrolled children who received learning materials/activities via WhatsApp	100.00
Percentage of enrolled children with selected assets available at home - smartphone	100.00
Promotion rate - Primary	100.00
Transition Rate - Primary	97.62

Governance — 46.09

AWC roll out percentage	79.96
Central fund utilization under poshan scheme	64.72
Expenditure on education - as ratio to aggregate expenditure	58.62
Percentage of expenditure - mid day meal state share	62.36
Percentage of expenditure on teacher training	0.23
Percentage of total assistance to non-govt primary schools	77.32
Percentage to total expenditure on primary education for govt schools	32.78
Percentage to total expenditure on primary education under SSA revenue account	0.52

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Chhattisgarh, Punjab, Telangana, Assam, Delhi, Jammu and Kashmir, Odisha, Jharkhand, Uttarakhand, Haryana

Ladakh

Category: Union Territory

35.21

Rank: 9

Educational Infrastructure — 27.90

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	25.74
Percentage of schools with functional computer facility	21.53
Percentage of Schools with functional CWSN friendly toilet	0.00
Percentage of schools with functional drinking water	41.20
Percentage of schools with functional toilets	75.95
Percentage of schools with hand wash facility	22.11
Percentage of schools with internet facility available	1.67
Percentage of schools with library facility	40.75
Percentage of schools with medical check-ups	15.40

Access to Education — 54.93

Primary level schools per lakh population	100.00
Dropout Rate - Primary	100.00
Gross enrollment ratio (GER) - Primary	4.83
Percentage of all minority group's enrolment	56.41
Percentage of teacher for primary level education	24.84
Pre school education - Percentage	41.43
Pupil teacher ratio (PTR) - Primary	92.61
Percentage of Children With Special Needs enrolled (CWSN)	50.00

Basic Health — 65.07

Children under 5 years who are stunted	67.29
Infant mortality rate (IMR)	44.17
Percentage of fully immunised children in the age-group 0-5 years	82.99
Under-five mortality rate (U5MR)	58.93
Underweight children (under 5 yrs)	79.41

Learning Outcomes — 10.74

Adjusted (NER) - Primary level for girls	0.00
Gender parity index (GPI) - Primary	15.53
NAS scores class III	41.44
NAS scores class V	46.20
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	0.00
Transition Rate - Primary	0.00

Governance — 17.42

AWC roll out percentage	11.47
Central fund utilization under poshan scheme	0.00
Expenditure on education - as ratio to aggregate expenditure	68.53
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.58
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	41.10

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Daman and Diu, Andaman and Nicobar Islands, Dadra and Nagar Haveli, Sikkim, Chandigarh, Puducherry, Goa, Mizoram, Arunachal Pradesh, Lakshadweep

Lakshadweep

Category: Union Territory

52.69

Rank: 1

Educational Infrastructure — 88.48

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	100.00
Percentage of schools with functional computer facility	98.44
Percentage of Schools with functional CWSN friendly toilet	21.17
Percentage of schools with functional drinking water	100.00
Percentage of schools with functional toilets	100.00
Percentage of schools with hand wash facility	100.00
Percentage of schools with internet facility available	95.67
Percentage of schools with library facility	100.00
Percentage of schools with medical check-ups	82.91

Access to Education — 45.46

Primary level schools per lakh population	6.32
Dropout Rate - Primary	100.00
Gross enrollment ratio (GER) - Primary	0.00
Percentage of all minority group's enrolment	100.00
Percentage of teacher for primary level education	27.47
Pre school education - Percentage	0.00
Pupil teacher ratio (PTR) - Primary	94.25
Percentage of Children With Special Needs enrolled (CWSN)	87.61

Basic Health — 78.41

Children under 5 years who are stunted	61.31
Infant mortality rate (IMR)	67.16
Percentage of fully immunised children in the age-group 0-5 years	92.13
Under-five mortality rate (U5MR)	100.00
Underweight children (under 5 yrs)	64.96

Learning Outcomes — 32.19

Adjusted (NER) - Primary level for girls	12.59
Gender parity index (GPI) - Primary	5.83
NAS scores class III	16.45
NAS scores class V	17.93
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	99.30
Transition Rate - Primary	86.69

Governance — 18.93

AWC roll out percentage	53.30
Central fund utilization under poshan scheme	72.67
Expenditure on education - as ratio to aggregate expenditure	0.00
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	100.00
Percentage to total expenditure on primary education under SSA revenue account	20.30

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Rajasthan, Maharashtra, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh, Jharkhand, Odisha, Assam, West Bengal

Madhya Pradesh

Category: Large State

38.69

Rank: 7

Educational Infrastructure — 58.70

Percentage of households 1 km from school having primary classes	98.55
Percentage of schools with electricity connection	52.02
Percentage of schools with functional computer facility	0.67
Percentage of Schools with functional CWSN friendly toilet	3.91
Percentage of schools with functional drinking water	87.01
Percentage of schools with functional toilets	90.39
Percentage of schools with hand wash facility	84.69
Percentage of schools with internet facility available	10.96
Percentage of schools with library facility	91.87
Percentage of schools with medical check-ups	53.63

Access to Education — 31.00

Primary level schools per lakh population	27.21
Dropout Rate - Primary	90.91
Gross enrollment ratio (GER) - Primary	16.17
Percentage of all minority group's enrolment	4.47
Percentage of teacher for primary level education	44.15
Pre school education - Percentage	58.34
Pupil teacher ratio (PTR) - Primary	57.29
Percentage of Children With Special Needs enrolled (CWSN)	19.72

Basic Health — 23.63

Children under 5 years who are stunted	17.15
Infant mortality rate (IMR)	14.94
Percentage of fully immunised children in the age-group 0-5 years	80.26
Under-five mortality rate (U5MR)	18.10
Underweight children (under 5 yrs)	13.37

Learning Outcomes — 59.72

Adjusted (NER) - Primary level for girls	45.56
Gender parity index (GPI) - Primary	6.80
NAS scores class III	51.96
NAS scores class V	40.22
Percentage of enrolled children who received learning materials/activities for class I-V	45.12
Percentage of enrolled children who received learning materials/activities via WhatsApp	79.81
Percentage of enrolled children with selected assets available at home - smartphone	28.80
Promotion rate - Primary	98.30
Transition Rate - Primary	92.29

Governance — 20.40

AWC roll out percentage	10.83
Central fund utilization under poshan scheme	42.09
Expenditure on education - as ratio to aggregate expenditure	73.28
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.39
Percentage of total assistance to non-govt primary schools	6.24
Percentage to total expenditure on primary education for govt schools	76.35
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Rajasthan, Maharashtra, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh, Jharkhand, Odisha, Assam, West Bengal

Maharashtra

Category: Large State

53.11

Rank: 3

Educational Infrastructure — 78.85

Percentage of households 1 km from school having primary classes	92.76
Percentage of schools with electricity connection	82.25
Percentage of schools with functional computer facility	67.53
Percentage of Schools with functional CWSN friendly toilet	36.79
Percentage of schools with functional drinking water	95.82
Percentage of schools with functional toilets	85.02
Percentage of schools with hand wash facility	96.17
Percentage of schools with internet facility available	33.72
Percentage of schools with library facility	96.38
Percentage of schools with medical check-ups	84.60

Access to Education — 37.00

Primary level schools per lakh population	13.15
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	31.54
Percentage of all minority group's enrolment	13.75
Percentage of teacher for primary level education	34.09
Pre school education - Percentage	99.21
Pupil teacher ratio (PTR) - Primary	60.99
Percentage of Children With Special Needs enrolled (CWSN)	62.39

Basic Health — 47.10

Children under 5 years who are stunted	48.54
Infant mortality rate (IMR)	40.49
Percentage of fully immunised children in the age-group 0-5 years	73.52
Under-five mortality rate (U5MR)	61.02
Underweight children (under 5 yrs)	37.42

Learning Outcomes — 76.08

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	8.74
NAS scores class III	67.10
NAS scores class V	46.20
Percentage of enrolled children who received learning materials/activities for class I-V	70.03
Percentage of enrolled children who received learning materials/activities via WhatsApp	95.11
Percentage of enrolled children with selected assets available at home - smartphone	52.29
Promotion rate - Primary	100
Transition Rate - Primary	95.81

Governance — 26.52

AWC roll out percentage	99.04
Central fund utilization under poshan scheme	63.42
Expenditure on education - as ratio to aggregate expenditure	72.41
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.89
Percentage of total assistance to non-govt primary schools	0.54
Percentage to total expenditure on primary education for govt schools	0.00
Percentage to total expenditure on primary education under SSA revenue account	0.94

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: West Bengal, Rajasthan, Gujarat, Tamil Nadu, Karnataka, Bihar, Andhra Pradesh, Jharkhand, Odisha, Madhya Pradesh

Manipur

Category: North Eastern State

50.95

Rank: 3

Educational Infrastructure — 37.06

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	39.13
Percentage of schools with functional computer facility	19.65
Percentage of Schools with functional CWSN friendly toilet	5.52
Percentage of schools with functional drinking water	82.08
Percentage of schools with functional toilets	18.00
Percentage of schools with hand wash facility	71.78
Percentage of schools with internet facility available	12.37
Percentage of schools with library facility	14.45
Percentage of schools with medical check-ups	52.75

Access to Education — 42.06

Primary level schools per lakh population	24.61
Dropout Rate - Primary	0.00
Gross enrollment ratio (GER) - Primary	65.83
Percentage of all minority group's enrolment	9.84
Percentage of teacher for primary level education	37.83
Pre school education - Percentage	14.30
Pupil teacher ratio (PTR) - Primary	86.65
Percentage of Children With Special Needs enrolled (CWSN)	30.28

Basic Health — 77.62

Children under 5 years who are stunted	95.61
Infant mortality rate (IMR)	38.43
Percentage of fully immunised children in the age-group 0-5 years	100
Under-five mortality rate (U5MR)	58.23
Underweight children (under 5 yrs)	98.40

Learning Outcomes — 70.44

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	10.68
NAS scores class III	68.42
NAS scores class V	59.78
Percentage of enrolled children who received learning materials/activities for class I-V	28.28
Percentage of enrolled children who received learning materials/activities via WhatsApp	78.36
Percentage of enrolled children with selected assets available at home - smartphone	66.01
Promotion rate - Primary	90.60
Transition Rate - Primary	87.34

Governance — 27.57

AWC roll out percentage	70.44
Central fund utilization under poshan scheme	56.98
Expenditure on education - as ratio to aggregate expenditure	51.29
Percentage of expenditure - mid day meal state share	5.78
Percentage of expenditure on teacher training	0.56
Percentage of total assistance to non-govt primary schools	7.78
Percentage to total expenditure on primary education for govt schools	85.20
Percentage to total expenditure on primary education under SSA revenue account	15.86

Overperforming · Performing within expected range · Underperforming

Strength and Weakness are relative to 10 states of similar population: Nagaland, Arunachal Pradesh, Meghalaya, Mizoram, Goa, Puducherry, Chandigarh, Sikkim, Dadra and Nagar Haveli, Tripura

Meghalaya

Category: Union Territory

41.37

Rank: 6

Educational Infrastructure — 2.39

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	0.00
Percentage of schools with functional computer facility	0.66
Percentage of Schools with functional CWSN friendly toilet	0.56
Percentage of schools with functional drinking water	0.00
Percentage of schools with functional toilets	0.00
Percentage of schools with hand wash facility	0.00
Percentage of schools with internet facility available	0.03
Percentage of schools with library facility	0.00
Percentage of schools with medical check-ups	21.70

Access to Education — 63.44

Primary level schools per lakh population	92.66
Dropout Rate - Primary	20.45
Gross enrollment ratio (GER) - Primary	100
Percentage of all minority group's enrolment	3.81
Percentage of teacher for primary level education	80.49
Pre school education - Percentage	3.38
Pupil teacher ratio (PTR) - Primary	73.72
Percentage of Children With Special Needs enrolled (CWSN)	10.55

Basic Health — 41.48

Children under 5 years who are stunted	3.47
Infant mortality rate (IMR)	30.03
Percentage of fully immunised children in the age-group 0-5 years	62.92
Under-five mortality rate (U5MR)	44.31
Underweight children (under 5 yrs)	62.82

Learning Outcomes — 58.29

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	10.68
NAS scores class III	31.58
NAS scores class V	8.71
Percentage of enrolled children who received learning materials/activities for class I-V	28.99
Percentage of enrolled children who received learning materials/activities via WhatsApp	61.91
Percentage of enrolled children with selected assets available at home - smartphone	51.05
Promotion rate - Primary	89.40
Transition Rate - Primary	97.88

Governance — 41.24

AWC roll out percentage	98.63
Central fund utilization under poshan scheme	87.41
Expenditure on education - as ratio to aggregate expenditure	72.84
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.91
Percentage of total assistance to non-govt primary schools	69.36
Percentage to total expenditure on primary education for govt schools	43.62
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Manipur, Himachal Pradesh, Nagaland, Arunachal Pradesh, Mizoram, Goa, Puducherry

Mizoram

Category: North Eastern State

51.64

Rank: 1

Educational Infrastructure — 56.38

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	71.86
Percentage of schools with functional computer facility	40.89
Percentage of Schools with functional CWSN friendly toilet	13.22
Percentage of schools with functional drinking water	82.74
Percentage of schools with functional toilets	79.58
Percentage of schools with hand wash facility	58.60
Percentage of schools with internet facility available	3.57
Percentage of schools with library facility	77.62
Percentage of schools with medical check-ups	60.95

Access to Education — 45.39

Primary level schools per lakh population	39.86
Dropout Rate - Primary	11.36
Gross enrollment ratio (GER) - Primary	68.92
Percentage of all minority group's enrolment	0.00
Percentage of teacher for primary level education	42.72
Pre school education - Percentage	4.87
Pupil teacher ratio (PTR) - Primary	80.70
Percentage of Children With Special Needs enrolled (CWSN)	47.25

Basic Health — 76.40

Children under 5 years who are stunted	73.67
Infant mortality rate (IMR)	42.68
Percentage of fully immunised children in the age-group 0-5 years	97.27
Under-five mortality rate (U5MR)	66.59
Underweight children (under 5 yrs)	100

Learning Outcomes — 47.37

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	6.80
NAS scores class III	56.58
NAS scores class V	26.64
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	91.50
Transition Rate - Primary	95.64

Governance — 32.68

AWC roll out percentage	100
Central fund utilization under poshan scheme	75.35
Expenditure on education - as ratio to aggregate expenditure	75.43
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	1.26
Percentage of total assistance to non-govt primary schools	6.48
Percentage to total expenditure on primary education for govt schools	93.25
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Puducherry, Chandigarh, Arunachal Pradesh, Sikkim, Dadra and Nagar Haveli, Andaman and Nicobar Islands, Nagaland, Daman and Diu, Ladakh, Goa

Nagaland

Category: North Eastern State

42.47

Rank: 5

Educational Infrastructure — 32.03

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	57.78
Percentage of schools with functional computer facility	34.35
Percentage of Schools with functional CWSN friendly toilet	2.54
Percentage of schools with functional drinking water	38.69
Percentage of schools with functional toilets	72.31
Percentage of schools with hand wash facility	24.47
Percentage of schools with internet facility available	12.71
Percentage of schools with library facility	30.84
Percentage of schools with medical check-ups	11.56

Access to Education — 30.81

Primary level schools per lakh population	17.18
Dropout Rate - Primary	52.27
Gross enrollment ratio (GER) - Primary	17.78
Percentage of all minority group's enrolment	6.40
Percentage of teacher for primary level education	37.89
Pre school education - Percentage	4.57
Pupil teacher ratio (PTR) - Primary	88.09
Percentage of Children With Special Needs enrolled (CWSN)	16.97

Basic Health — 50.95

Children under 5 years who are stunted	58.52
Infant mortality rate (IMR)	40.26
Percentage of fully immunised children in the age-group 0-5 years	0.00
Under-five mortality rate (U5MR)	54.06
Underweight children (under 5 yrs)	62.02

Learning Outcomes — 66.97

Adjusted (NER) - Primary level for girls	27.04
Gender parity index (GPI) - Primary	11.65
NAS scores class III	69.07
NAS scores class V	36.42
Percentage of enrolled children who received learning materials/activities for class I-V	74.55
Percentage of enrolled children who received learning materials/activities via WhatsApp	88.35
Percentage of enrolled children with selected assets available at home - smartphone	61.80
Promotion rate - Primary	91.40
Transition Rate - Primary	91.47

Governance — 31.59

AWC roll out percentage	92.15
Central fund utilization under poshan scheme	97.22
Expenditure on education - as ratio to aggregate expenditure	55.17
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	8.54
Percentage of total assistance to non-govt primary schools	0.08
Percentage to total expenditure on primary education for govt schools	98.76
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Manipur, Mizoram, Tripura, Goa, Puducherry, Chandigarh, Sikkim, Meghalaya, Dadra and Nagar Haveli, Arunachal Pradesh

Odisha

Category: Small State

45.58

Rank: 10

Educational Infrastructure — 65.88

Percentage of households 1 km from school having primary classes	96.28
Percentage of schools with electricity connection	56.61
Percentage of schools with functional computer facility	14.76
Percentage of Schools with functional CWSN friendly toilet	56.17
Percentage of schools with functional drinking water	95.18
Percentage of schools with functional toilets	52.38
Percentage of schools with hand wash facility	97.99
Percentage of schools with internet facility available	2.79
Percentage of schools with library facility	93.88
Percentage of schools with medical check-ups	78.43

Access to Education — 36.15

Primary level schools per lakh population	22.93
Dropout Rate - Primary	90.91
Gross enrollment ratio (GER) - Primary	20.64
Percentage of all minority group's enrolment	1.55
Percentage of teacher for primary level education	44.21
Pre school education - Percentage	34.93
Pupil teacher ratio (PTR) - Primary	80.90
Percentage of Children With Special Needs enrolled (CWSN)	46.79

Basic Health — 44.82

Children under 5 years who are stunted	48.66
Infant mortality rate (IMR)	27.59
Percentage of fully immunised children in the age-group 0-5 years	86.68
Under-five mortality rate (U5MR)	41.77
Underweight children (under 5 yrs)	35.84

Learning Outcomes — 58.74

Adjusted (NER) - Primary level for girls	61.85
Gender parity index (GPI) - Primary	6.80
NAS scores class III	36.85
NAS scores class V	48.37
Percentage of enrolled children who received learning materials/activities for class I-V	26.05
Percentage of enrolled children who received learning materials/activities via WhatsApp	79.40
Percentage of enrolled children with selected assets available at home - smartphone	32.26
Promotion rate - Primary	99.00
Transition Rate - Primary	92.26

Governance — 22.30

AWC roll out percentage	70.44
Central fund utilization under poshan scheme	8.88
Expenditure on education - as ratio to aggregate expenditure	59.48
Percentage of expenditure - mid day meal state share	10.09
Percentage of expenditure on teacher training	2.15
Percentage of total assistance to non-govt primary schools	3.71
Percentage to total expenditure on primary education for govt schools	89.15
Percentage to total expenditure on primary education under SSA revenue account	2.59

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Andhra Pradesh, Assam, Telangana, Chhattisgarh, Karnataka, Kerela, Haryana, Tamil Nadu, Punjab, Jharkhand

Puducherry

Category: Union Territory

50.08

Rank: 3

Educational Infrastructure — 87.58

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	100
Percentage of schools with functional computer facility	87.74
Percentage of Schools with functional CWSN friendly toilet	35.99
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	98.43
Percentage of schools with internet facility available	65.72
Percentage of schools with library facility	100
Percentage of schools with medical check-ups	98.98

Access to Education — 25.15

Primary level schools per lakh population	6.00
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	7.45
Percentage of all minority group's enrolment	7.66
Percentage of teacher for primary level education	21.50
Pre school education - Percentage	4.78
Pupil teacher ratio (PTR) - Primary	78.44
Percentage of Children With Special Needs enrolled (CWSN)	40.83

Basic Health — 63.88

Children under 5 years who are stunted	88.95
Infant mortality rate (IMR)	55.17
Percentage of fully immunised children in the age-group 0-5 years	34.19
Under-five mortality rate (U5MR)	84.92
Underweight children (under 5 yrs)	67.13

Learning Outcomes — 39.82

Adjusted (NER) - Primary level for girls	44.07
Gender parity index (GPI) - Primary	9.71
NAS scores class III	28.28
NAS scores class V	27.71
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	100
Transition Rate - Primary	97.44

Governance — 33.97

AWC roll out percentage	98.98
Central fund utilization under poshan scheme	24.43
Expenditure on education - as ratio to aggregate expenditure	46.98
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	100
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	3.76
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming · Performing within expected range · Underperforming

Strength and Weakness are relative to 10 states of similar population: Chandigarh, Mizoram, Sikkim, Dadra and Nagar Haveli, Arunachal Pradesh, Andaman and Nicobar Islands, Lakshadweep, Daman and Diu, Goa

Punjab

Category: Small State

56.19

Rank: 3

Educational Infrastructure — 86.93

Percentage of households 1 km from school having primary classes	93.80
Percentage of schools with electricity connection	99.89
Percentage of schools with functional computer facility	51.13
Percentage of Schools with functional CWSN friendly toilet	94.45
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	100
Percentage of schools with internet facility available	48.23
Percentage of schools with library facility	100
Percentage of schools with medical check-ups	67.38

Access to Education — 32.00

Primary level schools per lakh population	14.23
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	37.16
Percentage of all minority group's enrolment	2.48
Percentage of teacher for primary level education	29.83
Pre school education - Percentage	34.93
Pupil teacher ratio (PTR) - Primary	62.42
Percentage of Children With Special Needs enrolled (CWSN)	49.08

Basic Health — 63.70

Children under 5 years who are stunted	82.17
Infant mortality rate (IMR)	40.23
Percentage of fully immunised children in the age-group 0-5 years	78.65
Under-five mortality rate (U5MR)	62.65
Underweight children (under 5 yrs)	70.07

Learning Outcomes — 67.76

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	9.71
NAS scores class III	30.93
NAS scores class V	31.53
Percentage of enrolled children who received learning materials/activities for class I-V	19.07
Percentage of enrolled children who received learning materials/activities via WhatsApp	98.23
Percentage of enrolled children with selected assets available at home - smartphone	79.48
Promotion rate - Primary	100
Transition Rate - Primary	95.67

Governance — 30.58

AWC roll out percentage	79.96
Central fund utilization under poshan scheme	25.06
Expenditure on education - as ratio to aggregate expenditure	47.41
Percentage of expenditure - mid day meal state share	41.21
Percentage of expenditure on teacher training	0.02
Percentage of total assistance to non-govt primary schools	0.26
Percentage to total expenditure on primary education for govt schools	65.67
Percentage to total expenditure on primary education under SSA revenue account	31.98

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Kerela, Chhattisgarh, Telangana, Delhi, Jammu and Kashmir, Assam, Uttarakhand, Odisha, Jharkhand, Haryana

Rajasthan

Category: Large State

47.02

Rank: 6

Educational Infrastructure — 64.00

Percentage of households 1 km from school having primary classes	96.48
Percentage of schools with electricity connection	70.76
Percentage of schools with functional computer facility	36.46
Percentage of Schools with functional CWSN friendly toilet	15.32
Percentage of schools with functional drinking water	85.94
Percentage of schools with functional toilets	70.12
Percentage of schools with hand wash facility	93.60
Percentage of schools with internet facility available	34.69
Percentage of schools with library facility	70.88
Percentage of schools with medical check-ups	59.24

Access to Education — 25.67

Primary level schools per lakh population	16.17
Dropout Rate - Primary	67.05
Gross enrollment ratio (GER) - Primary	31.31
Percentage of all minority group's enrolment	9.57
Percentage of teacher for primary level education	15.88
Pre school education - Percentage	20.69
Pupil teacher ratio (PTR) - Primary	62.83
Percentage of Children With Special Needs enrolled (CWSN)	15.14

Basic Health — 34.71

Children under 5 years who are stunted	28.72
Infant mortality rate (IMR)	26.44
Percentage of fully immunised children in the age-group 0-5 years	71.43
Under-five mortality rate (U5MR)	37.59
Underweight children (under 5 yrs)	29.69

Learning Outcomes — 72.68

Adjusted (NER) - Primary level for girls	71.48
Gender parity index (GPI) - Primary	8.74
NAS scores class III	90.13
NAS scores class V	94.55
Percentage of enrolled children who received learning materials/activities for class I-V	19.07
Percentage of enrolled children who received learning materials/activities via WhatsApp	83.04
Percentage of enrolled children with selected assets available at home - smartphone	49.07
Promotion rate - Primary	96.20
Transition Rate - Primary	92.38

Governance — 38.07

AWC roll out percentage	17.35
Central fund utilization under poshan scheme	35.92
Expenditure on education - as ratio to aggregate expenditure	76.29
Percentage of expenditure - mid day meal state share	40.34
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	4.06
Percentage to total expenditure on primary education under SSA revenue account	100

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Madhya Pradesh, Maharashtra, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh, Jharkhand, Odisha, Assam, West Bengal

Sikkim

Category: North Eastern State

51.14

Rank: 2

Educational Infrastructure — 73.98

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	97.80
Percentage of schools with functional computer facility	55.17
Percentage of Schools with functional CWSN friendly toilet	7.70
Percentage of schools with functional drinking water	99.87
Percentage of schools with functional toilets	99.70
Percentage of schools with hand wash facility	94.41
Percentage of schools with internet facility available	16.56
Percentage of schools with library facility	87.89
Percentage of schools with medical check-ups	84.35

Access to Education — 39.29

Primary level schools per lakh population	33.34
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	23.74
Percentage of all minority group's enrolment	1.53
Percentage of teacher for primary level education	45.04
Pre school education - Percentage	0.00
Pupil teacher ratio (PTR) - Primary	100
Percentage of Children With Special Needs enrolled (CWSN)	34.40

Basic Health — 80.31

Children under 5 years who are stunted	100
Infant mortality rate (IMR)	54.29
Percentage of fully immunised children in the age-group 0-5 years	83.95
Under-five mortality rate (U5MR)	84.41
Underweight children (under 5 yrs)	98.93

Learning Outcomes — 35.95

Adjusted (NER) - Primary level for girls	38.89
Gender parity index (GPI) - Primary	0.00
NAS scores class III	28.28
NAS scores class V	7.08
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	99.90
Transition Rate - Primary	93.05

Governance — 26.18

AWC roll out percentage	53.49
Central fund utilization under poshan scheme	79.94
Expenditure on education - as ratio to aggregate expenditure	70.69
Percentage of expenditure - mid day meal state share	8.00
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	0.00
Percentage to total expenditure on primary education for govt schools	1.94
Percentage to total expenditure on primary education under SSA revenue account	7.33

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Andaman and Nicobar Islands, Daman and Diu, Chandigarh, Ladakh, Lakshadweep, Puducherry, Goa, Mizoram, Arunachal Pradesh, Dadra and Nagar Haveli

Tamil Nadu

Category: Large State

55.49

Rank: 2

Educational Infrastructure — 83.59

Percentage of households 1 km from school having primary classes	88.83
Percentage of schools with electricity connection	100
Percentage of schools with functional computer facility	73.87
Percentage of Schools with functional CWSN friendly toilet	26.29
Percentage of schools with functional drinking water	100
Percentage of schools with functional toilets	100
Percentage of schools with hand wash facility	100
Percentage of schools with internet facility available	30.04
Percentage of schools with library facility	100
Percentage of schools with medical check-ups	87.96

Access to Education — 34.21

Primary level schools per lakh population	14.04
Dropout Rate - Primary	87.50
Gross enrollment ratio (GER) - Primary	23.50
Percentage of all minority group's enrolment	6.57
Percentage of teacher for primary level education	40.85
Pre school education - Percentage	34.50
Pupil teacher ratio (PTR) - Primary	72.48
Percentage of Children With Special Needs enrolled (CWSN)	53.21

Basic Health — 60.09

Children under 5 years who are stunted	76.59
Infant mortality rate (IMR)	42.94
Percentage of fully immunised children in the age-group 0-5 years	71.75
Under-five mortality rate (U5MR)	71.00
Underweight children (under 5 yrs)	64.19

Learning Outcomes — 67.76

Adjusted (NER) - Primary level for girls	98.52
Gender parity index (GPI) - Primary	8.74
NAS scores class III	42.77
NAS scores class V	40.22
Percentage of enrolled children who received learning materials/activities for class I-V	46.21
Percentage of enrolled children who received learning materials/activities via WhatsApp	83.56
Percentage of enrolled children with selected assets available at home - smartphone	49.69
Promotion rate - Primary	98.90
Transition Rate - Primary	94.79

Governance — 31.83

AWC roll out percentage	99.94
Central fund utilization under poshan scheme	63.26
Expenditure on education - as ratio to aggregate expenditure	59.91
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.23
Percentage of total assistance to non-govt primary schools	31.46
Percentage to total expenditure on primary education for govt schools	68.90
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Karnataka, Andhra Pradesh, Jharkhand, Odisha, Assam, Rajasthan, West Bengal, Madhya Pradesh, Telangana, Gujarat

Telangana

Category: Small State

46.02

Rank: 9

Educational Infrastructure — 65.82

Percentage of households 1 km from school having primary classes	96.07
Percentage of schools with electricity connection	90.49
Percentage of schools with functional computer facility	26.19
Percentage of Schools with functional CWSN friendly toilet	1.12
Percentage of schools with functional drinking water	87.91
Percentage of schools with functional toilets	79.69
Percentage of schools with hand wash facility	82.72
Percentage of schools with internet facility available	18.13
Percentage of schools with library facility	91.47
Percentage of schools with medical check-ups	64.34

Access to Education — 32.10

Primary level schools per lakh population	16.88
Dropout Rate - Primary	100
Gross enrollment ratio (GER) - Primary	37.96
Percentage of all minority group's enrolment	15.86
Percentage of teacher for primary level education	28.53
Pre school education - Percentage	37.71
Pupil teacher ratio (PTR) - Primary	67.15
Percentage of Children With Special Needs enrolled (CWSN)	18.35

Basic Health — 52.62

Children under 5 years who are stunted	56.92
Infant mortality rate (IMR)	36.82
Percentage of fully immunised children in the age-group 0-5 years	91.97
Under-five mortality rate (U5MR)	59.07
Underweight children (under 5 yrs)	48.92

Learning Outcomes — 69.89

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	7.77
NAS scores class III	67.10
NAS scores class V	46.74
Percentage of enrolled children who received learning materials/activities for class I-V	50.90
Percentage of enrolled children who received learning materials/activities via WhatsApp	49.22
Percentage of enrolled children with selected assets available at home - smartphone	56.61
Promotion rate - Primary	100
Transition Rate - Primary	95.07

Governance — 9.66

AWC roll out percentage	14.11
Central fund utilization under poshan scheme	29.75
Expenditure on education - as ratio to aggregate expenditure	28.02
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	1.92
Percentage of total assistance to non-govt primary schools	3.20
Percentage to total expenditure on primary education for govt schools	7.14
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Kerela, Haryana, Assam, Punjab, Odisha, Jharkhand, Andhra Pradesh, Delhi, Jammu and Kashmir, Chhattisgarh

Tripura

Category: North Eastern state

37.18

Rank: 7

Educational Infrastructure — 36.27

Percentage of households 1 km from school having primary classes	0.00
Percentage of schools with electricity connection	20.44
Percentage of schools with functional computer facility	2.75
Percentage of Schools with functional CWSN friendly toilet	4.46
Percentage of schools with functional drinking water	56.51
Percentage of schools with functional toilets	38.50
Percentage of schools with hand wash facility	73.10
Percentage of schools with internet facility available	0.00
Percentage of schools with library facility	55.40
Percentage of schools with medical check-ups	53.88

Access to Education — 35.29

Primary level schools per lakh population	20.06
Dropout Rate - Primary	77.27
Gross enrollment ratio (GER) - Primary	43.81
Percentage of all minority group's enrolment	10.09
Percentage of teacher for primary level education	36.06
Pre school education - Percentage	4.57
Pupil teacher ratio (PTR) - Primary	83.57
Percentage of Children With Special Needs enrolled (CWSN)	16.51

Basic Health — 47.32

Children under 5 years who are stunted	60.11
Infant mortality rate (IMR)	23.94
Percentage of fully immunised children in the age-group 0-5 years	43.02
Under-five mortality rate (U5MR)	39.72
Underweight children (under 5 yrs)	65.50

Learning Outcomes — 49.02

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	10.68
NAS scores class III	52.63
NAS scores class V	44.02
Percentage of enrolled children who received learning materials/activities for class I-V	0.00
Percentage of enrolled children who received learning materials/activities via WhatsApp	0.00
Percentage of enrolled children with selected assets available at home - smartphone	0.00
Promotion rate - Primary	97.20
Transition Rate - Primary	90.53

Governance — 18.01

AWC roll out percentage	70.44
Central fund utilization under poshan scheme	17.87
Expenditure on education - as ratio to aggregate expenditure	60.34
Percentage of expenditure - mid day meal state share	0.37
Percentage of expenditure on teacher training	0.02
Percentage of total assistance to non-govt primary schools	1.20
Percentage to total expenditure on primary education for govt schools	18.13
Percentage to total expenditure on primary education under SSA revenue account	0.00

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Meghalaya, Nagaland, Arunachal Pradesh, Mizoram, Goa, Puducherry, Himachal Pradesh, Chandigarh, Sikkim, Manipur

Uttar Pradesh

Category: Large State

38.46

Rank: 8

Educational Infrastructure — 55.55

Percentage of households 1 km from school having primary classes	98.55
Percentage of schools with electricity connection	65.72
Percentage of schools with functional computer facility	5.79
Percentage of Schools with functional CWSN friendly toilet	12.21
Percentage of schools with functional drinking water	91.99
Percentage of schools with functional toilets	89.98
Percentage of schools with hand wash facility	80.41
Percentage of schools with internet facility available	10.45
Percentage of schools with library facility	69.43
Percentage of schools with medical check-ups	24.24

Access to Education — 35.88

Primary level schools per lakh population	19.87
Dropout Rate - Primary	69.32
Gross enrollment ratio (GER) - Primary	27.64
Percentage of all minority group's enrolment	17.00
Percentage of teacher for primary level education	70.90
Pre school education - Percentage	3.10
Pupil teacher ratio (PTR) - Primary	50.92
Percentage of Children With Special Needs enrolled (CWSN)	28.90

Basic Health — 18.53

Children under 5 years who are stunted	0.00
Infant mortality rate (IMR)	0.00
Percentage of fully immunised children in the age-group 0-5 years	67.09
Under-five mortality rate (U5MR)	0.00
Underweight children (under 5 yrs)	22.20

Learning Outcomes — 56.21

Adjusted (NER) - Primary level for girls	94.07
Gender parity index (GPI) - Primary	12.62
NAS scores class III	19.08
NAS scores class V	29.34
Percentage of enrolled children who received learning materials/activities for class I-V	22.51
Percentage of enrolled children who received learning materials/activities via WhatsApp	75.23
Percentage of enrolled children with selected assets available at home - smartphone	37.58
Promotion rate - Primary	96.70
Transition Rate - Primary	83.15

Governance — 26.12

AWC roll out percentage	9.13
Central fund utilization under poshan scheme	37.79
Expenditure on education - as ratio to aggregate expenditure	55.60
Percentage of expenditure - mid day meal state share	0.00
Percentage of expenditure on teacher training	0.10
Percentage of total assistance to non-govt primary schools	9.23
Percentage to total expenditure on primary education for govt schools	88.85
Percentage to total expenditure on primary education under SSA revenue account	56.11

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Maharashtra, Madhya Pradesh, West Bengal, Rajasthan, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh, Jharkhand, Bihar

Uttarakhand

Category: Small State

55.60

Rank: 4

Educational Infrastructure — 64.89

Percentage of households 1 km from school having primary classes	86.56
Percentage of schools with electricity connection	79.18
Percentage of schools with functional computer facility	25.40
Percentage of Schools with functional CWSN friendly toilet	2.91
Percentage of schools with functional drinking water	85.51
Percentage of schools with functional toilets	81.01
Percentage of schools with hand wash facility	91.06
Percentage of schools with internet facility available	13.71
Percentage of schools with library facility	85.44
Percentage of schools with medical check-ups	73.15

Access to Education — 39.94

Primary level schools per lakh population	40.50
Dropout Rate - Primary	71.59
Gross enrollment ratio (GER) - Primary	41.74
Percentage of all minority group's enrolment	16.33
Percentage of teacher for primary level education	52.86
Pre school education - Percentage	5.42
Pupil teacher ratio (PTR) - Primary	75.77
Percentage of Children With Special Needs enrolled (CWSN)	0.00

Basic Health — 46.44

Children under 5 years who are stunted	51.06
Infant mortality rate (IMR)	27.59
Percentage of fully immunised children in the age-group 0-5 years	92.62
Under-five mortality rate (U5MR)	43.16
Underweight children (under 5 yrs)	56.70

Learning Outcomes — 82.12

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	10.68
NAS scores class III	74.34
NAS scores class V	78.25
Percentage of enrolled children who received learning materials/activities for class I-V	81.85
Percentage of enrolled children who received learning materials/activities via WhatsApp	96.36
Percentage of enrolled children with selected assets available at home - smartphone	59.21
Promotion rate - Primary	97.30
Transition Rate - Primary	92.33

Governance — 44.61

AWC roll out percentage	96.90
Central fund utilization under poshan scheme	44.40
Expenditure on education - as ratio to aggregate expenditure	77.16
Percentage of expenditure - mid day meal state share	22.26
Percentage of expenditure on teacher training	0.00
Percentage of total assistance to non-govt primary schools	100
Percentage to total expenditure on primary education for govt schools	0.04
Percentage to total expenditure on primary education under SSA revenue account	5.48

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Himachal Pradesh, Delhi, Meghalaya, Tripura, Manipur, Nagaland, Arunachal Pradesh, Mizoram, Goa, Jammu and Kashmir

West Bengal

Category: Large State

58.95

Rank: 1

Educational Infrastructure — 65.83

Percentage of households 1 km from school having primary classes	96.79
Percentage of schools with electricity connection	93.42
Percentage of schools with functional computer facility	1.11
Percentage of Schools with functional CWSN friendly toilet	28.46
Percentage of schools with functional drinking water	98.78
Percentage of schools with functional toilets	99.47
Percentage of schools with hand wash facility	95.33
Percentage of schools with internet facility available	6.60
Percentage of schools with library facility	83.53
Percentage of schools with medical check-ups	31.95

Access to Education — 47.90

Primary level schools per lakh population	24.15
Dropout Rate - Primary	93.18
Gross enrollment ratio (GER) - Primary	39.56
Percentage of all minority group's enrolment	31.20
Percentage of teacher for primary level education	100
Pre school education - Percentage	34.93
Pupil teacher ratio (PTR) - Primary	53.18
Percentage of Children With Special Needs enrolled (CWSN)	27.98

Basic Health — 67.68

Children under 5 years who are stunted	54.13
Infant mortality rate (IMR)	100
Percentage of fully immunised children in the age-group 0-5 years	85.71
Under-five mortality rate (U5MR)	64.64
Underweight children (under 5 yrs)	47.85

Learning Outcomes — 63.35

Adjusted (NER) - Primary level for girls	100
Gender parity index (GPI) - Primary	8.74
NAS scores class III	86.84
NAS scores class V	40.76
Percentage of enrolled children who received learning materials/activities for class I-V	32.59
Percentage of enrolled children who received learning materials/activities via WhatsApp	32.05
Percentage of enrolled children with selected assets available at home - smartphone	33.13
Promotion rate - Primary	96.10
Transition Rate - Primary	88.55

Governance — 49.99

AWC roll out percentage	79.96
Central fund utilization under poshan scheme	0.00
Expenditure on education - as ratio to aggregate expenditure	69.40
Percentage of expenditure - mid day meal state share	100
Percentage of expenditure on teacher training	0.04
Percentage of total assistance to non-govt primary schools	83.78
Percentage to total expenditure on primary education for govt schools	0.06
Percentage to total expenditure on primary education under SSA revenue account	22.58

Overperforming Performing within expected range Underperforming

Strength and Weakness are relative to 10 states of similar population: Rajasthan, Maharashtra, Gujarat, Tamil Nadu, Karnataka, Odisha, Assam, Madhya Pradesh, Andhra Pradesh, Jharkhand

Appendix II

METHODOLOGY

Assigning weights to Various Indicators:

The indicators are assigned weights after being categorized under specific heads used to make the index more robust. For calculating the weights of indicators within a component, we used Principal Component Analysis (PCA). Parameters were then run through PCA to check for a fit between the indicators.
Note: ASER Indicators related to learning outcomes capture – pandemic impact. Since there is no alternative to that data, it has been considered for the index. Similarly, due to the lack of data availability, Anganwadi's role isn't fully captured in the index.

	Indicators	Weights	weight out of 1
Access to Education	Pre school education – Percentage	0.08354	0.0536
	Pupil Teacher Ratio (PTR) – Primary	0.23188	0.1488
	Primary level schools per lakh population	0.30799	0.1976
	Percentage of Teacher for Primary level education	0.27182	0.1744
	Dropout Rate - Primary	0.01052	0.0068
	Percentage of all minority group's enrolment to total enrolment - Primary	0.23	0.1476
	Gross Enrollment ratio (GER) - Primary	0.25196	0.1617
	Enrolment of Children With Special Needs (CWSN) by Gender and Level of school education, 2019-20	0.17063	0.1095
Educational Infrastructure	Percentage of schools with functional drinking water	0.14192	0.1153
	Percentage of schools with hand wash facility	0.14469	0.1329
	Percentage of schools with library facility	0.14843	0.1572
	Percentage of schools with Electricity connection	0.14801	0.1860
	Percentage of schools with medical checkups	0.12948	0.1999
	Percentage of schools with functional toilets	0.13074	0.2522
	Percentage of schools with functional computer facility	0.12374	0.0770
	Percentage of schools with internet facility available	0.11509	0.0775
	Percentage of Schools with functional CWSN friendly toilet	0.10113	0.0739
	Per 1000 distribution of households by distance from school having primary classes for each State/UT	0.04764	0.0376
Basic Health	Percentage of fully immunised children in the age-group 0-5years	0.1249	0.1024
	Children under 5 years who are stunted (height-for-age)	0.23345	0.1913
	Children under 5 years who are severely wasted (weight-for-height) (%)	0.1732	0.1419
	Children under 5 years who are underweight (weight-for-age)(%)	0.2325	0.1905
	Infant mortality rate (IMR)	0.21906	0.1795
	Under-five mortality rate (U5MR)	0.23716	0.1944

	Indicators	weights	weight out of 1
Learning outcomes	NAS Average scores : class 3	0.16207	0.1137
	NAS Average scores : class 5	0.15687	0.1101
	Transition Rate - Primary	0.15816	0.1110
	Promotion Rate - Primary	0.15305	0.1074
	Adjusted(NER) - Primary level for girls	0.17037	0.1195
	Gender Parity Index (GPI) - Primary	0.03664	0.0257
	Percentage of Enrolled children at home with- smartphone	0.20044	0.1406
	Percentage of Enrolled children who received learning materials/activities for class I-V	0.1942	0.1363
	Percentage of Enrolled children who received learning materials/activities via WhatsApp	0.19338	0.1357
Governance	Expenditure on Education - As Ratio to Aggregate Expenditure	0.7169	0.1454
	Percentage of expenditure -Mid day meal state share	0.6509	0.1320
	Percentage to total expenditure on primary education under SSA revenue account	0.4793	0.0972
	Percentage of expenditure on teacher training (BE)	0.6762	0.1372
	Percentage of total assistance to non govt primary schools	0.7287	0.1478
	AWC rolll out Percentage	0.4867	0.0987
	Central fund utilization under poshan scheme	0.6304	0.1279
	Percentage to total expenditure on primary education for Govt schools	0.5612	0.1138

Standardization and Evaluating the fit:

Standardized data is essential for running accurate analysis. The process allows one to compare scores between different types of variables.

For Principal Component Analysis (PCA) , the output can only be interpreted correctly when first data has been centered around their means. Standardization solves the problem by making indicators unitless as it rescales them with a mean of zero and a standard deviation of one.

The indicator selection process entails including the indicators that describe the concept of the Dimension in the best possible way and are conceptually linked to each other. In this process, the indicators that are statistically incompatible are removed. The Index on Foundational Literacy and Numeracy involves evaluating the fit between the individual indicators. To determine how closely indicators describe the component, we calculate Cronbach's alpha for each component in Table 1.

In 1951, Lee Cronbach developed Alpha to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1 (Tavakol & Dennick 2011). Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test. An applied practitioner's rule of thumb is that the alpha value should be above 0.7 for any logical grouping of variables (Cortina, 1993). It has been observed that Cronbach's alpha values are less than 0.7. We acknowledge this shortcoming but it is important to include these indicators as they reflect the underlying idea of the Pillar in the best possible manner.

Table 1

Dimension	Alpha values
Educational Infrastructure	0.9246
Access to Education	0.6252
Basic Health	0.8797
Learning outcomes	0.8327
Governance	0.6730

Aggregation:

Index on Foundational Literacy and Numeracy is based on two elements i.e. indicators, and dimensions. the Principal Component Analysis (PCA) for calculating the weights of indicators within a component.

After calculating each component, the goodness of fit is evaluated using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO index ranges from 0 to 1, as a rule of thumb, KMO scores should be above 0.5 (Williams, Onsman, & Brown 2010). The results of this analysis are shown in the **Table 2**.

The KMO values are well above the set standards for most of the components.

Note : NFHS 5 data is available for only 22 states , we have projected NFHS 5 values based on NFHS 4 survey.

Source : Exploratory factor analysis: A five-step guide for novices. Australasian Journal of Paramedicine (Williams . Osnsman , & brown 2010)

Table 2

Dimension	Kmo values
Educational Infrastructure	0.8315
Access to Education	0.5734
Basic Health	0.7835
Learning outcomes	0.6864
Governance	0.6050

Data Source

Indicators	Source	Year	Link
Number of Primary level schools	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Number of Teacher for Primary level education	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Pupil Teacher Ratio (PTR) - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of Schools with functional CWSN friendly toilet	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Enrolment of Children With Special Needs (CWSN) by Gender and Level of school education, 2019-20	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Gross Enrollment ratio (GER) - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Gender Parity Index (GPI) - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of all minority group's enrolment to total enrolment - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Promotion Rate - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Dropout Rate - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Transition Rate - Primary	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with availability of drinking water and functional drinking water	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with functional toilets	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with hand wash facility	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with library facility	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with medical checkups	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with Electricity connection	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with functional computer facility	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage of schools with internet facility available	UDISE+	2019-20	https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2019_20_Booklet.pdf
Percentage to total expenditure on primary education for Govt schools	MHRD	2018-19	https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/budget_expenditure.pdf
Percentage of expenditure on teacher training (BE)	MHRD	2018-19	https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/budget_expenditure.pdf
Percentage of total assistance to non govt primary schools	MHRD	2018-19	https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/budget_expenditure.pdf
Mid day meal state share	MHRD	2018-19	https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/budget_expenditure.pdf
Percentage to total expenditure on primary education under SSA revenue account	MHRD	2018-19	https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/budget_expenditure.pdf
NAS Average scores : class 3	NAS	2017-18	https://ncert.nic.in/pdf/NAS/WithReleaseDate_NPPTL.pdf
NAS Average scores : class 5	NAS	2017-18	https://ncert.nic.in/pdf/NAS/WithReleaseDate_NPPTL.pdf
Expenditure on Education - As Ratio to Aggregate Expenditure	RBI	2020-21	https://m.rbi.org.in/Scripts/PublicationsView.aspx?id=20194
Pre school education - Percentage	NFHS-5	2019-20	http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
Children under 5 years who are stunted (height-for-age)	NFHS-5	2019-20	http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
Children under 5 years who are severely wasted (weight-for-height) (%)	NFHS-5	2019-20	http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
Children under 5 years who are underweight (weight-for-age)(%)	NFHS-5	2019-20	http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
Infant mortality rate (IMR)	NFHS-5	2019-20	http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
Under-five mortality rate (U5MR)	NFHS-5	2019-20	http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
Percentage of Enrolled children with selected assets available at home(govt&private)- smartphone	ASER	2020	http://img.asercentre.org/docs/ASER%202021/ASER%202020%20wave%201%20-%20v2/aser2020wave1report_feb1.pdf
Percentage of Enrolled children who received learning materials/activities (govt and private) for class I-V	ASER	2020	http://img.asercentre.org/docs/ASER%202021/ASER%202020%20wave%201%20-%20v2/aser2020wave1report_feb1.pdf
Percentage of Enrolled children who received learning materials/activities using whatsapp (govt and private)	ASER	2020	http://img.asercentre.org/docs/ASER%202021/ASER%202020%20wave%201%20-%20v2/aser2020wave1report_feb1.pdf
Per 1000 distribution of households by distance from school having primary classes for each State/UT	NSSO - 75th	2017-18	http://www.mospi.nic.in/sites/default/files/publication_reports/Report_585_75th_round_Education_final_1507_0.pdf
Percentage of fully immunised children in the age-group 0-5years for each State/UT	NSSO - 75th	2017-18	http://www.mospi.nic.in/download-reports?main_cat=NzIy&cat=All&sub_category=All
Central fund utilization under poshan scheme	NITI AAYOG	2020	https://www.niti.gov.in/sites/default/files/2020-10/POSHAN-Abhiyaan-Monitoring-Report22July2020.pdf
AWC roll out Percentage	NITI AAYOG	2020	https://www.niti.gov.in/sites/default/files/2020-10/POSHAN-Abhiyaan-Monitoring-Report22July2020.pdf

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