

Status of learning during the pandemic

Evidence from 3 states in 2021

About ASER

Every year from 2005 to 2014, and then every alternate year till 2018, the Annual Status of Education Report (ASER) report has provided district, state, and national estimates of the status of children's schooling and foundational learning across rural India. Children in the age group of 3 to 16 were surveyed to find out their enrolment status in pre-school or school. Children in the age group of 5 to 16 were assessed one-on-one to understand their basic reading and arithmetic skills. In 2020, the COVID-19 crisis interrupted this alternate-year calendar, making it impossible to conduct the nationwide ASER that was due to be repeated in 2020.

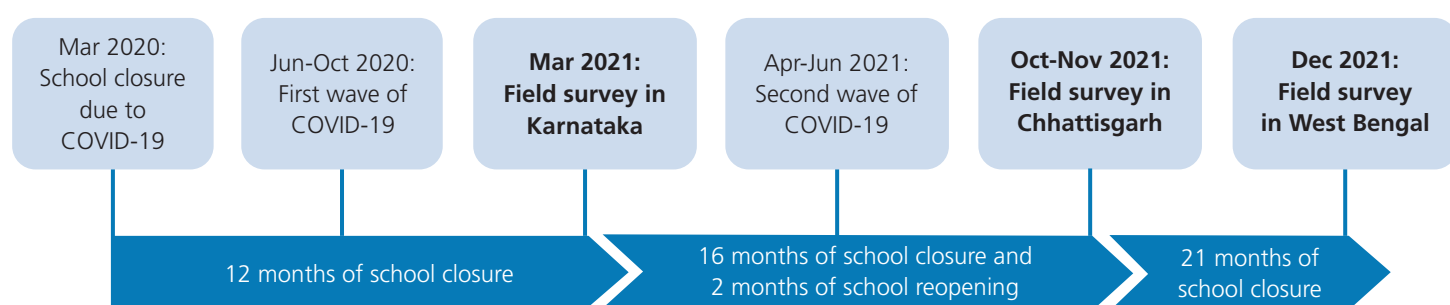
The COVID-19 pandemic also resulted in school closures across the world. India was one of the countries with the longest period of school closures. There were little to no opportunities for face-to-face teaching-learning in schools across different states, leading to a growing concern over 'learning loss' in children. Global estimates suggest that children's foundational skills suffer due to prolonged school closures and inequitable access to different forms of technology-based educational inputs. Evidence on the status of children's foundational learning can help us understand how best to support them going forward.

To address this urgent need for evidence, ASER found windows of opportunity to return to villages and communities in states where resuming field activities was possible, conducting state-wide field surveys in Karnataka in March 2021 (2020-21 school-year), in Chhattisgarh in October-November 2021 (2021-22 school-year), and in West Bengal in December 2021 (2021-22 school-year).

This document examines evidence on the effects of the pandemic on children's foundational learning in these three states, using ASER data on children's foundational reading and arithmetic levels over the last few years. The analysis focuses on children in lower primary grades (Std I-V), for several reasons. First, school closures were the longest for these grades: in many cases schools reopened earlier (or more often) for higher grades. Second, the ASER tool is pegged to grade level competencies up to Std IV, as the aim is to assess foundational skills. The most difficult reading task administered is a Std II level text, and the most difficult arithmetic task is division (usually taught in Std III/IV). Third, the data from these three states shows clearly that the drops in learning levels are the sharpest for children in early primary grades, a period when foundational skills are still being built and are therefore quite fragile.¹ These data underline the need for schools to pay urgent attention to the needs of their youngest learners in order to ensure that these foundations are firmly in place.

Standard ASER sampling procedures were used in each state. The survey is representative at state and district levels. In each district, 30 villages² were sampled from the 2011 Census Village Directory using the Probability Proportional to Size (PPS) method. 20 households were randomly selected in each village. In each household, information was collected for all children aged 3-16, and all children aged 5-16 were assessed on foundational reading and arithmetic.

Timeline



Coverage

Coverage	Karnataka	Chhattisgarh	West Bengal
Districts reached	24	28	17
Villages surveyed	670	1,677	510
Households surveyed	13,365	33,432	10,141
Children surveyed (age 3-16)	18,385	46,021	11,189
Children tested (age 5-16)	14,396	31,400	8,156

¹Data for other grades and learning indicators in these states is available in the respective state reports - Karnataka: http://img.asercentre.org/docs/asern3-pager_06.09.211.pdf Chhattisgarh: http://img.asercentre.org/docs/asercg2021_fullreport_11.01.2021.pdf West Bengal: <http://img.asercentre.org/docs/aservb20215-pager08.02.202211.36amfinal1.pdf>

²In the case of Chhattisgarh, at the request of the state government the district sample was doubled to 60 villages in order to generate more granular estimates at the district level.

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This Evidence Brief looks at how the foundational reading and arithmetic abilities of children in primary grades in Karnataka, Chhattisgarh and West Bengal have changed in recent years. ASER survey data from 2014, 2016, and 2018 is provided alongside the 2021 data to facilitate an examination of these trends over time.

Reading

Reading tool

Std II level text

Story

Salma is a little girl. She had a pretty doll. She loved playing with her doll. One day the doll fell from her hand to the floor. It broke into many pieces. Salma was very sad. She cried a lot. Her mother gave her another doll. Now she is happy again.

Std I level text

Para

**Ravi is a boy.
He has many friends.
He loves to draw.
He does not like to sing.**

Letters

Letter

b s o
k m
y r h
t x

Words

Word

ring bad
ball
cold king
clap foot
fan
girl crow

The ASER reading tool is a progressive tool. It has five levels – story (Std II level text), paragraph (Std I level text), words, letters, and beginner (cannot yet recognise letters). Each child is marked at the highest level that she can read comfortably. The tool displayed here is an English sample, and is available in 16 other Indian languages.¹ The assessment in the states of Karnataka, Chhattisgarh and West Bengal was carried out in Kannada, Hindi and Bangla respectively.

In all three states, the reading level of children in all primary grades either improved or stayed steady between 2014 and 2018, but shows clear drops between 2018 and 2021. For example, from 2014 to 2018, children in Std II in West Bengal showed steady improvements in their ability to read words or more (Chart 1). But between 2018 to 2021, the proportion of children in Std II who can read words or more decreased by over 12 percentage points, from 69.1% in 2018 to 56.8% in 2021 – falling below even the 2014 level. Similar drops can be seen in Karnataka and Chhattisgarh.

Table 1: % Children in Std I who can read letters or more. By state. 2014, 2016, 2018, 2021

Year	Karnataka	Chhattisgarh	West Bengal
2014	53.8	50.1	75.5
2016	53.8	54.6	73.0
2018	59.7	54.4	75.1
2021	43.2	41.8	68.0

Chart 1: % Children in Std II who can read words or more. By state. 2014, 2016, 2018, 2021

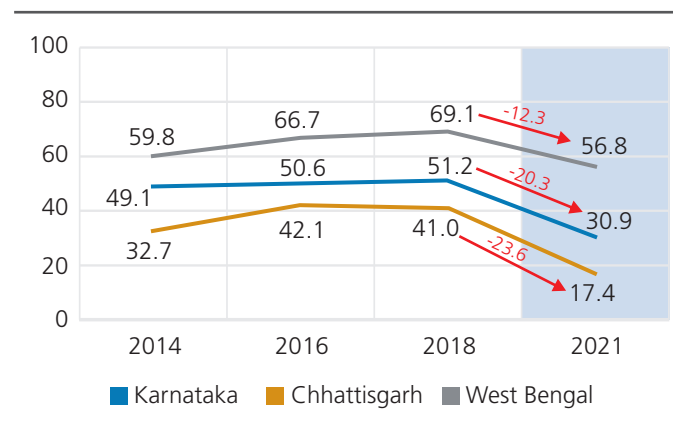


Chart 2: % Children in Std III who can read a Std II level text. By state. 2014, 2016, 2018, 2021

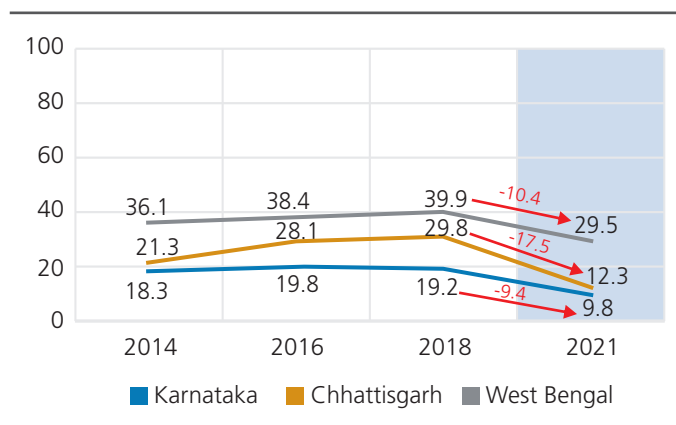


Table 2: % Children in Std V who can read a Std II level text. By state. 2014, 2016, 2018, 2021

Year	Karnataka	Chhattisgarh	West Bengal
2014	47.2	52.4	53.2
2016	42.1	56.0	50.4
2018	46.0	59.5	50.7
2021	33.6	44.6	48.5

¹To access the ASER reading and arithmetic tools in different languages, drop a request on contact@asercentre.org

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Arithmetic

Arithmetic tool

Number recognition 1-9	Number recognition 11-99	Subtraction	Division
1 4	51 83	$\begin{array}{r} 46 \\ -29 \\ \hline \end{array}$ $\begin{array}{r} 63 \\ -39 \\ \hline \end{array}$	$7 \overline{)879}$
7 3	37 65	$\begin{array}{r} 47 \\ -28 \\ \hline \end{array}$ $\begin{array}{r} 45 \\ -17 \\ \hline \end{array}$	$6 \overline{)824}$
6 9	55 26	$\begin{array}{r} 92 \\ -76 \\ \hline \end{array}$ $\begin{array}{r} 84 \\ -57 \\ \hline \end{array}$	$8 \overline{)985}$
5 2	91 43	$\begin{array}{r} 52 \\ -14 \\ \hline \end{array}$ $\begin{array}{r} 66 \\ -48 \\ \hline \end{array}$	$4 \overline{)517}$
	36 27		

Ask the child to recognize any 5 numbers, At least 4 must be correct. Ask the child to recognize any 5 numbers, At least 4 must be correct. Ask the child to do any 2 subtraction problems, Both must be correct. Ask the child to do any 1 division problem, It must be correct.

The ASER arithmetic tool is a progressive tool. It has five levels – division (3-digit by 1-digit), subtraction (2-digit with borrowing), double-digit number recognition (11-99), single-digit number recognition (1-9), and beginner (cannot yet recognise single-digit numbers). Each child is marked at the highest level that she can do comfortably.

In each primary grade in these states, the arithmetic level of children either improved or stayed steady between 2014 and 2018, but shows clear drops between 2018 and 2021. For example, Table 3 shows the proportion of children in Std II who can recognise double-digit numbers or more. In Chhattisgarh, this proportion improved steadily between 2014 and 2018, but then dropped sharply by over 17 percentage points – from 38% in 2018 to 20.9% in 2021, which is below even the 2014 level. Similar drops can be seen in Karnataka and West Bengal.

Chart 3: % Children in Std I who can recognise single-digit numbers or more. By state. 2014, 2016, 2018, 2021

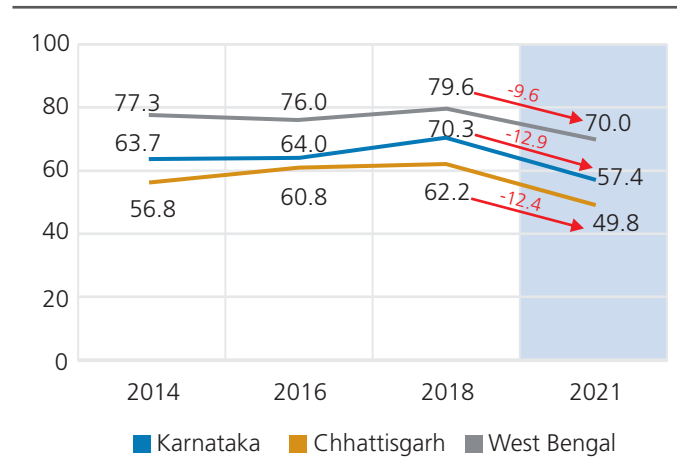


Table 3: % Children in Std II who can recognise double-digit numbers or more. By state. 2014, 2016, 2018, 2021

Year	Karnataka	Chhattisgarh	West Bengal
2014	60.4	27.7	53.6
2016	64.0	36.9	60.4
2018	64.6	38.0	60.1
2021	42.5	20.9	53.2

Chart 4: % Children in Std III who can do subtraction or more. By state. 2014, 2016, 2018, 2021

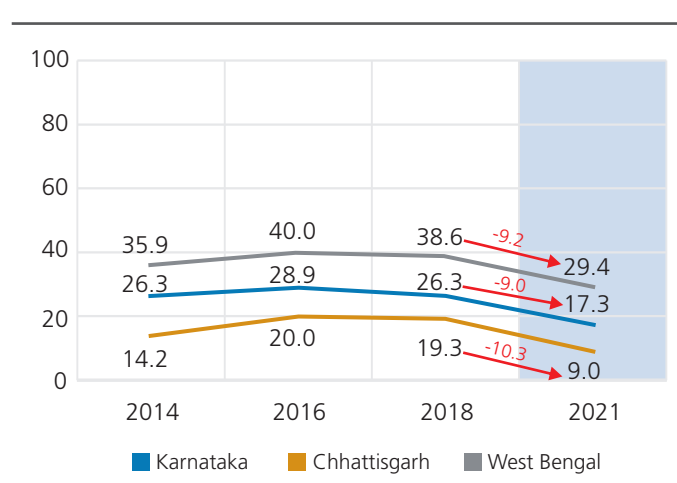


Table 4: % Children in Std V who can do division. By state. 2014, 2016, 2018, 2021

Year	Karnataka	Chhattisgarh	West Bengal
2014	20.1	18.0	32.5
2016	19.7	23.0	29.3
2018	20.5	26.8	29.7
2021	12.1	13.0	26.2

Tracking cohorts

Using ASER data over time, cohorts can be tracked as they move year on year through the primary school stage. Such data can be used to understand how much children gain in terms of basic learning in a typical year versus what has been the learning trajectory in the pandemic years. ASER has been collecting data on children’s foundational learning levels since its inception in 2005. But even if we focus on recent years, learning trajectories based on ASER data from 2014, 2016 and 2018 can be compared with levels reached in selected states in 2021 (in Karnataka in March 2021, i.e. school year 2020-21; and in Chhattisgarh and West Bengal in September and December 2021 respectively, i.e. school year 2021-22). This section compares the progress of cohorts starting in Std II through the pre-pandemic and pandemic years, providing an estimate of the ‘learning loss’ that children have suffered in the last few years due to COVID.

How to read the tables

Each row in the table allows us to compare the learning levels of different cohorts of children in the same grade. For example, in Table 5, the top row shows that 5.9% of the children who were in Std II in Karnataka in 2014-15 could read a Std II level text; in 2016-17, 7.2% of the children in Std II could do so; and in 2018-19, this figure was around 7.6%. But in the 2020-21 school year, only 3.3% of children could read at Std II level. In other words, between 2014 and 2018, schools in Karnataka were more successful in enabling Std II children to learn to read. But 2020-21, the first year of the COVID-19 pandemic, wiped out these gains.

The similarly-coloured cells running diagonally down each table allow us to track specific cohorts of children as they move from one grade to the next. For instance, children who were in Std II in 2014 would be in Std IV in 2016 (cells in blue colour). If we compare the cohort of children in Std II in 2014 with those who were in Std IV two years later in 2016, we can see the gains that this cohort of children made in these two years. Using the same example of Table 5, 5.9% of the children who were in Std II in Karnataka in 2014-15 could read a Std II level text. Two years later, when they were in Std IV, 30.1% of this cohort could do so.

Reading

Karnataka

Table 5: % Children who can read a Std II level text in Karnataka

Std	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Std II	5.9		7.2		7.6		3.3
Std III	18.3		19.8		19.2		9.8
Std IV	32.8		30.1		33.2		18.3
Std V	47.2		42.1		46.0		33.6

In Karnataka, the latest ASER field survey was conducted in March 2021 (2020-21 school year) (Table 5). In 2014-15, 5.9% of children in Std II in Karnataka could read a Std II level text. By the time this cohort had progressed to Std IV in 2016-17, 30.1% children could read a Std II level text – an improvement of 24 percentage points, or about 12 percentage points per year. A similar improvement of almost 26 percentage points is visible for children who moved from Std II to Std IV between 2016-17 and 2018-19, a gain of about 13 percentage points per year.

However, the cohort that went from Std II to Std IV between 2018-19 and 2020-21 was able to make far less progress. In 2018-19, 7.6% children in Std II could read a Std II level text; but two years later in Std IV, 18.3% children could do so – an improvement of 10.6 percentage points over two years (or an average of 5.3 percentage points each year). In other words, in this two year period they had achieved less than earlier cohorts had been able to achieve in a single year, pointing to a ‘learning loss’ of more than one year for this cohort of children.

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Chhattisgarh and West Bengal

In Chhattisgarh and West Bengal, the ASER survey was conducted in the 2021-22 school year (September and December 2021 respectively). Thus, the analysis for these two states compares the progress made by a Std II cohort over two years in the pre-pandemic period, and over three years for the cohort of children in Std II in 2018-19.

Chhattisgarh

Table 6: % Children who can read a Std II level text in Chhattisgarh

Std	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Std II	9.0		11.7		11.3			3.9
Std III	21.3		28.1		29.8			12.3
Std IV	37.5		43.1		46.6			27.6
Std V	52.4		56.0		59.5			44.6

9% of the cohort of children in Std II in 2014-15 could read a Std II level text. By the time this cohort reached Std IV in 2016-17, 43.1% children could do so – an increase of 34.1 percentage points over two years or 17.1 percentage points per year. The cohort in Std II in 2016-17 also showed similar gains (34.9 percentage points over two years or 17.5 percentage points each year) on reaching Std IV in 2018-19.

The cohort that was in Std II in 2018-19 shows a different trend. In 2018-19, 11.3% children in Std II could read a Std II level text. Three years later in 2021-22, when these children were in Std V, 44.5% children could read at this level. In other words, the reading skills of this cohort had improved by 33.3 percentage points over a three-year period (or 10.1 percentage points per year). The increase in reading level that Chhattisgarh's children achieved in two years in the pre-pandemic period was greater than what they could do in almost three years including the pandemic years. Again, this indicates a 'learning loss' of about one year.

West Bengal

Table 7: % Children who can read a Std II level text in West Bengal

Std	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Std II	20.3		25.4		23.5			18.8
Std III	36.1		38.4		39.9			29.5
Std IV	44.8		37.0		42.0			39.2
Std V	53.2		50.4		50.7			48.5

Children's learning pathways seem to be different in West Bengal. The cohorts of children who were enrolled in Std II in 2014-15 and 2016-17 each achieved gains of nearly 17 percentage points over the next two years in the proportion of children who could read a Std II level text – about 8 percentage points per year. Among the cohort of children who were in Std II in 2018-19 and reached Std V in 2021-22, this increase was 25 percentage points over the three year period – again, about 8 percentage points each year. In other words, these data suggest that primary school students in West Bengal did not suffer 'learning loss', instead made similar progress to earlier cohorts of children in the state.

Arithmetic

Karnataka

Table 8: % Children who can do subtraction or more in Karnataka

Std	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Std II	10.6		13.7		9.9		5.8
Std III	26.3		28.9		26.3		17.3
Std IV	40.0		43.2		41.7		28.4
Std V	53.7		57.8		54.6		44.2

In 2014-15, 10.6% of children in Std II in Karnataka could do subtraction or more. By the time this cohort had progressed to Std IV in 2016-17, 43.2% children could do subtraction or more – an improvement of 32.6 percentage points, or about 16.3 percentage points per year. A similar improvement of almost 28 percentage points is visible for children who moved from Std II to Std IV between 2016-17 and 2018-19, a gain of about 14 percentage points per year.

However, the cohort that went from Std II to Std IV between 2018-19 and 2020-21 was able to make far less progress. In 2018-19, 9.9% children in Std II could do subtraction or more; but two years later in Std IV, 28.4% children could do so – an improvement of 18.4 percentage points over two years (or an average of 9.2 percentage points each year). In other words, in this two year period they had achieved what earlier cohorts had been able to achieve in a little more than a single year, pointing to a 'learning loss' of almost one year for this cohort of children.

Chhattisgarh

Table 9: % Children who can do subtraction or more in Chhattisgarh

Std	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Std II	3.4		5.5		4.6			3.7
Std III	14.2		20.0		19.3			9.0
Std IV	25.5		35.1		35.2			22.0
Std V	39.3		45.5		48.4			39.7

3.4% of the cohort of children in Std II in 2014-15 could do subtraction or more. By the time this cohort reached Std IV in 2016-17, 35.1% children could do so – an increase of 31.7 percentage points over two years or 15.9 percentage points per year. The cohort in Std II in 2016-17 also showed similar gains (29.7 percentage points over two years or 14.9 percentage points each year) on reaching Std IV in 2018-19.

The cohort that was in Std II in 2018-19 shows a different trend. In 2018-19, 4.6% children in Std II could do subtraction or more. Three years later in 2021-22, when these children were in Std V, 39.7% children could perform subtraction or more. In other words, the arithmetic skills of this cohort had improved by 35.1 percentage points over a three-year period (or 11.7 percentage points per year). The increase in arithmetic level that Chhattisgarh's children achieved in two years in the pre-pandemic period was now only visible in three years, including the pandemic years. Again, this indicates a 'learning loss' of about one year.

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West Bengal

Table 10: % Children who can do subtraction or more in West Bengal

Std	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Std II	23.1		28.5		26.9			23.1
Std III	35.9		40.0		38.6			29.4
Std IV	44.3		41.7		42.7			39.9
Std V	56.1		48.4		49.1			49.5

Children's learning pathways seem to be different in West Bengal. The cohorts of children who were enrolled in Std II in 2014-15 and 2016-17 achieved gains of 18.6 and 14.2 percentage points respectively over the next two years in the proportion of children who could do subtraction or more – 9.3 and 7.1 percentage points per year respectively. Among the cohort of children who were in Std II in 2018-19 and reached Std V in 2021-22, this increase was 22.6 percentage points over the three year period – again, about 7.5 percentage points each year. In other words, these data suggest that primary school students in West Bengal did not suffer 'learning loss', instead made similar progress to earlier cohorts of children in the state.