BaSE
Bharat Survey for EdTech
2023

CENTRAL SQUARE
FOUNDATION

Bharat Survey for EdTech (BaSE) Report

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Acknowledgements

Abbreviations

AY	Annual Year
AAY	Antyodaya Anna Yojana
APL	Above Poverty Line
BaSE	Bharat Survey for EdTech
BPL	Below Poverty Line
CSF	Central Square Foundation
CSR	Corporate Social Responsibility
EdTech	Education Technology
EVS	Environmental Science
GK	General Knowledge
INR	Indian Rupee
IRB	Institutional Review Board
NGO	Non-Governmental Organization
NSS	National Sample Survey
PHH	Priority Households
PPS	Probability Proportion to Size
TRAI	Telecom Regulatory Authority of India

Executive Summary

Purpose of the Survey

The evidence developing on the use of EdTech provides a positive outlook on its role in providing innovative and effective ways of supporting the teaching-learning process in K12 education. India's National Education Policy (NEP) places particular emphasis on the importance of technology to improve educational outcomes. State governments are leading many tech-based interventions to enhance teaching-learning and promote access to and use of high-quality Edtech solutions. Supported by conducive ecosystem conditions on improved internet and smartphone penetration, demand for EdTech has grown significantly over the past three years—making EdTech one of the highest-funded and fastest-growing sectors in the country.

However, while there is a vibrant EdTech ecosystem in India, there are very few EdTech solutions catering to and scaling in low-income segments. A key reason for this gap is the absence of knowledge regarding the needs and barriers of the end-users in low-income settings. There is a lack of comprehensive, ground-up data and reliable insights on the behaviors and needs of these users, where the need for tech-based learning is perhaps the most crucial. Consequently, both policy and EdTech solutions have not been able to address the needs and aspirations of a large section of learners.

In an endeavor to bridge this information asymmetry, Central Square Foundation (CSF) has launched the first household survey, 'BaSE: Bharat Survey for EdTech.' It aims to amplify the voice of the end-user in Bharat and provide reliable data and insights to policymakers, educators, and tech innovators for informed decision-making in the EdTech discourse.

Objective

1 Explore the extent of access to technology, understand household-level beliefs and behaviors around the child's education and look at trends around EdTech usage and adoption.

2 Provide insights that can catalyze meaningful and informed conversations regarding emerging solutions for learning.

The survey findings will serve as a common frame of reference for stakeholders to converge on the agenda of leveraging technology to improve the quality of education for all. For the purpose of the survey, EdTech or education technology has been defined as the creation, usage, and management of appropriate technological processes and digital resources (such as the internet, mobile devices, computers, social media, TV, radio, etc.). From revision of course materials to understanding concepts and topics through audio-visual content and taking exams/quizzes online—EdTech encompasses a wide range of learning activities enabled and facilitated by technical resources.

The survey was undertaken between November 2022 and January 2023, with parents and guardians of children attending government schools and affordable private schools. It covered 6030 households across 6 diverse states of India.

Survey Methodology

States were selected for the survey based on a 2x3 matrix of internet penetration and the state's population size (as a proportion of the national population). The 6 states were Gujarat, Madhya Pradesh, Mizoram, Odisha, Telangana, and Uttar Pradesh. A multi-stage sampling technique was adopted to achieve a representative sample within the states. Within these states, the survey was conducted in 6030 households, covering 9867 children.

Survey Findings

The findings from the study have been analyzed and presented thematically. In particular, the findings look at three key themes: i) access to technology, ii) user sentiment around EdTech adoption, and iii) EdTech usage.

Access to Technology

Access to technology at the household level

- **Access to electricity:** The households reported near-universal (99%) access to electricity across states, however, urban households (23 hours per day) had electricity access for a longer duration compared to rural households (19 hours per day).

- **Ownership of smartphones:** 85% of the surveyed households reported ownership of at least one smartphone[1], with nearly one-third of the households owning more than 1 smartphone. Urban households reported a per capita smartphone ownership of 1.5, compared to 1.3 smartphones within rural households.

85%
households have smartphones

48%
households have feature phones
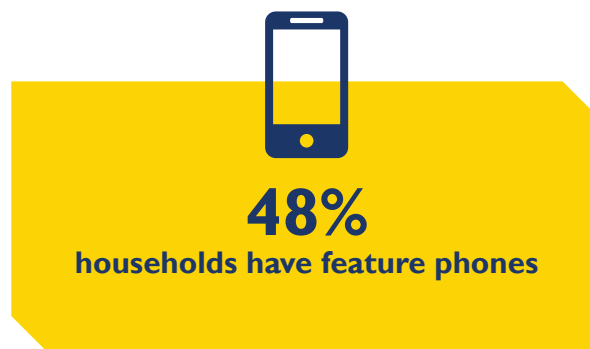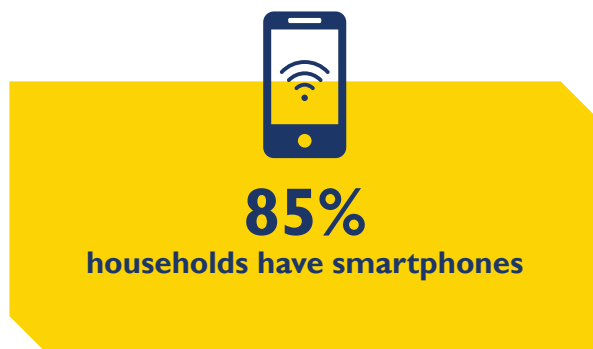
- **Possession of smartphones by the household members:** Across the surveyed households, 66% of the fathers were the primary possessors[2] of smartphones, followed by 36% of mothers and 20% of children.

- **Non-possession of smartphones:** Among the surveyed households that did not own a smartphone, 97% of the respondents reported the 'cost of the device' as the most prominent reason. It was noted that the average annual income of a family that owned a smartphone was INR 1.20 lakhs, whereas, for a family without smartphone ownership, the average annual income was INR 0.81 lakhs.

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1   Mobile phones with internet access are considered 'smartphones' and mobile phones without internet access are considered 'feature phones'.

2   The household member who possessed the smartphone for the maximum duration in a given day is referred to as 'primary possessor'.

Access to technology at the child level

- **Access to smartphones:** 72% of all children from all the surveyed households had access to smartphones[3]. 66% of the children had 'shared access' to smartphones, and 6% had 'dedicated access'[4] A higher proportion of children with 'dedicated access' were from rural households (7%) compared to urban households (3%). Further, children in secondary grades (16%) had greater 'dedicated access' to smartphones compared to middle (5%) and primary (1%) grades[5]. In households where both mothers and fathers possessed a smartphone, 86% of children used their mother's smartphone, and 23% used their father's smartphone.

28%	72%
	66% shared access

6% dedicated access

Children not using smartphones | Children using smartphones
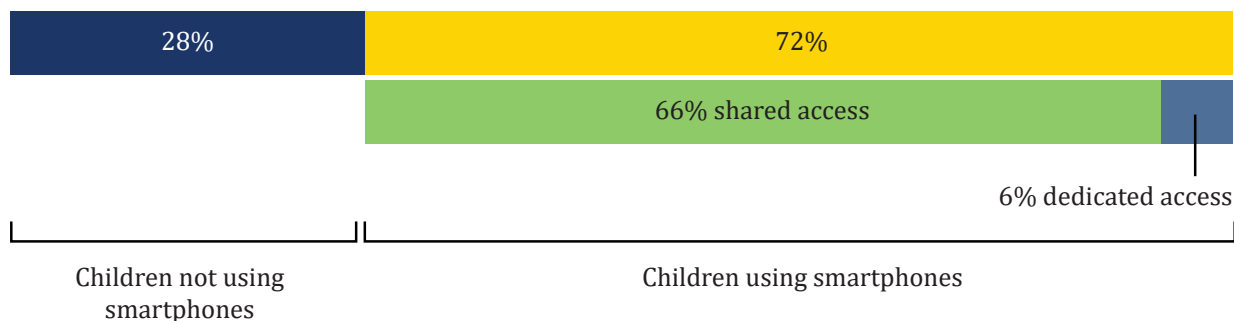
- **Non-usage of smartphones:** 16% of the children in the households with smartphones were not using smartphones. A greater proportion of non-users were children from rural households and primary graders. The absence of the 'need for smartphones' was reported as the most prominent reason for the non-usage of smartphones by children (43%). The risk of children 'navigating to unsafe content' was cited more for children in secondary grades (41%) compared to primary grades (27%).

- **Access to internet:** Internet was reported to be accessible to nearly all children within households, However, around 50% of the children had intermittent access[6] to the internet. This intermittent access was primarily due to the exhaustion of internet recharge, as reported by 93% of respondents.

- **Time spent on smartphones:** Of the children who had access to smartphones at home, more than 60% used smartphones daily. It was also found that children in secondary grades (69%) were more likely to use smartphones daily than those in primary grades (58%). Additionally, parents/guardians reported that 74% of children had more than 30 minutes of session time on smartphones on a given day, with a similar proportion of children in urban (75%) and rural (72%) households. It was also noted that children with 'dedicated access' spent more time on smartphones than children with 'shared access'—62% of children with 'dedicated access' and 24% of children with 'shared access' spent more than 1 hour on the smartphone.

- **Access to technology—at a gender level:** There were no notable variations in access between boys and girls. 68% of girls had 'shared access' to smartphones compared to 64% boys whereas 7% of boys had 'dedicated access' to smartphones compared to 3% girls. A lower proportion of boys in rural areas were non-users of smartphones (15%) compared to girls (21%). Additionally, there were no notable variations in access to the internet.

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3   For the purpose of the survey, smartphones have been considered as the primary digital device because of its ubiquitous availability and widespread usage among low-income segments.

4   'Dedicated access' refers to the type of access in which the child possessed the smartphone for the maximum duration of a day. In such cases, the respondents reported that the smartphone was primarily used by children and usage frequency was either daily or at least 4-5 days a week. The remaining use cases were referred to as 'shared access'.

5   Primary grades refer to grades 1-5, middle grades refer to grades 6-8, and secondary grades refer to grades 9-12.

6   'Intermittent access to the internet' refers to situations in which the child could access the internet sometimes due to slow speed of internet, connectivity issues, and others.

User Sentiment Around EdTech Adoption

- **Sufficiency of in-school education:** 33% of the households surveyed believed that in-school education was not sufficient for performing well in studies. However, regional and settlement-level variations were observed. Odisha reported the highest proportion of households that believed in-school education was insufficient (65%), whereas households in Telangana reported the lowest proportion (9%). Additionally, a greater proportion of households in urban areas believed that in-school education was insufficient (38%), compared to households in rural areas (32%).

- **At-home learning support:** 70% of children in the surveyed households received some learning support from household members. 40% of these children received support from their mothers. 23% of children who received learning support at home were supported by their fathers and 17% of children by their older sibling(s). Children in primary grades required relatively more at-home learning support (80% of children in the primary grades, compared to 70% of children in middle grades, and 52% of children in secondary grades). More than 75% of household members kept track of what was done in the child's school and supported them in completing their homework.

70%
children received
at-home learning
support

17%
from sibling(s)

23%
from fathers

40%
from mothers
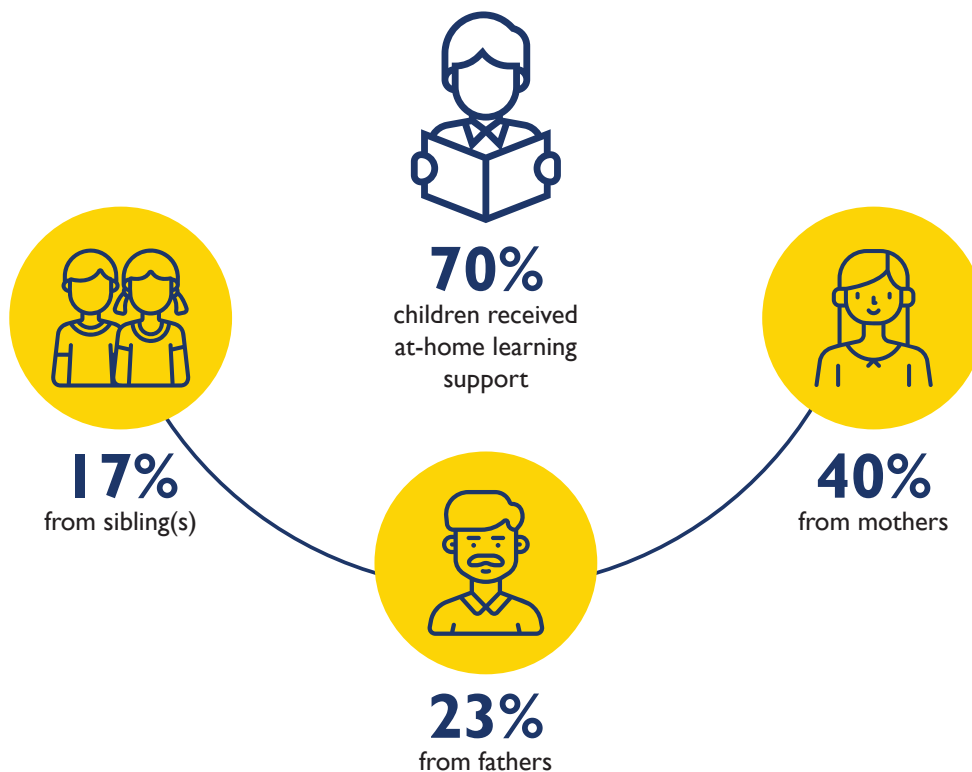
- **Paid private tuition:** Children in urban households (47%) availed paid private tuition more than rural households (34%). This avenue of learning was availed most by children in primary grades (40% 1st-5th graders; 32% 6th-8th graders, and 38% 9th-12th graders). On average, parents/guardians spent INR 355 monthly on their child's private tuition. Within urban households, parents/guardians spent INR 453, whereas rural households spent INR 300.

- **Awareness of EdTech:** Overall, 86% of the respondents reported that they were aware of technology as a medium of learning. Overall, urban households (96%) had higher awareness levels of EdTech than rural households (82%). Parents/guardians of children in secondary grades (90%) were also found to be more aware of EdTech than parents/guardians of children in primary grades (82%).

- **Willingness to advocate EdTech:** 67% of all the surveyed households were inclined to advocate for EdTech. Similar to awareness of EdTech, a higher proportion of urban households (79%) compared to rural households (62%) were noted to be advocates of EdTech solutions.

- **Intention to purchase smartphones for learning purposes:** 11% of all the household respondents stated an intention to purchase smartphones for learning purposes 'within the next 6 months' of the survey. The intention to purchase smartphones was higher among parents of children in secondary grades and parents/ guardians of boys. Smartphone ownership was also found to have a bearing on the intention to purchase smartphones. Those who did not own a smartphone at the time of the survey expressed a greater interest in buying one (26%) compared to those who owned a smartphone (8%).

- **User sentiment around EdTech adoption—at a gender level:** There were no notable differences observed in trends for the nature of educational support provided at home to girls and boys. It was observed that a greater proportion of boys (42%) availed paid private tuition compared to girls (32%).

EdTech Usage

- **EdTech users:** 51% of the children across surveyed households were 'present users' of EdTech, 41% had never used technology for learning, and 8% had discontinued using it[7]. Urban households had a higher prevalence of 'present users'. The secondary (72%) and middle (55%) grades had the highest proportion of 'present users' compared to primary grades (39%).
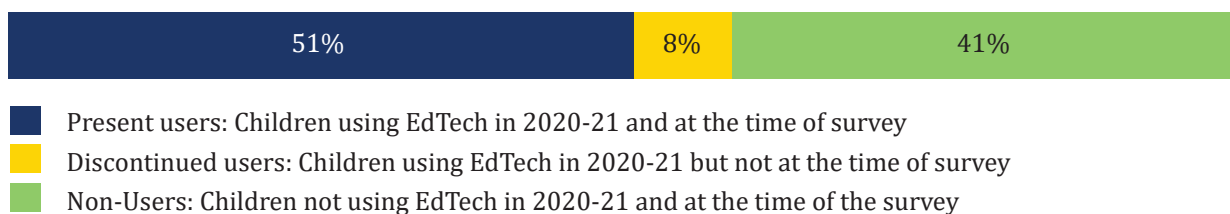
51%	8%	41%

- Present users: Children using EdTech in 2020-21 and at the time of survey
- Discontinued users: Children using EdTech in 2020-21 but not at the time of survey
- Non-Users: Children not using EdTech in 2020-21 and at the time of the survey

- **Self-learning:** Half the surveyed children reported self-learning through EdTech. Children in secondary grades (71%) were more likely to be self-learning through Edtech than children in primary grades (38%).

- **Teacher-directed learning:** About 1 in 3 children received 'teacher-directed materials' through digital mediums, with children in urban households (43%) more likely to have received these materials compared to children in rural households (28%).

- **Tools used for EdTech:** YouTube was found to be the most popular tool used for learning purposes (89%), followed by WhatsApp (62%) and Google (52%). Overall, the prevalence of low-tech tools was low, which included text messages (8%), TV (7%), and IVRS (7%).

- **Subjects studied using EdTech tools:** English (84%) and Mathematics (76%) were the most studied subjects using EdTech tools. Further, with increasing grades, higher usage of EdTech tools to study Science/ EVS, English, Language, Coding, and GK was reported.

- **Reasons for using EdTech tools:** More than half the children (53%) used EdTech because of the 'ease of understanding of complicated topics' enabled by EdTech tools. Other prominent reasons highlighted for the use of EdTech tools included 'self-paced learning using EdTech' (47%) and 'doubt clarification' (42%). At a state level, Gujarat and Madhya Pradesh found 'availability of vernacular content' most helpful (Gujarat 95%, Madhya Pradesh 59%) compared to Odisha (12%), Uttar Pradesh (8%), Telangana (5%), and Mizoram (0.3%).

- **Features appreciated on EdTech tools:** 'Speed of learning' enabled by EdTech tools was a feature that was most appreciated by the 'present users' of EdTech (54%). The other prominent features appreciated were 'explanation of wrong answers or topics that a child does not understand' (43%), 'curriculum alignment to school' (37%), and availability of 'vernacular content' (32%).

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7   Children who were using EdTech in AY 2020-21 and at the time of the survey are referred to as 'present users'; children who were using EdTech in AY 2020-21 but not at the time of the survey are referred to as 'discontinued users'; children who were not using EdTech in AY 2020-21 and at the time of the survey are referred to as 'non-users'.

- **Reasons for non-usage of EdTech:** Among children who were currently not using technology for learning, 61% of them cited 'schools reopening' after the lockdown as the most prominent reason, with rural households having cited it more (62%) compared to urban households (56%). 30% of respondents cited the availability of other learning avenues (such as tuition) as the reason for not using technology for learning. Urban respondents cited this more (47%) compared to rural respondents (24%).

- **Association of parent's behavior and child's EdTech usage:** It was found that of the children whose parents/guardians could use at least one of the three tools (Facebook/YouTube/Google), more than 60% of the children were 'present users.' Whereas, of the children whose parents/guardians did not know how to use any of the three tools, 26% were 'present users.' Moreover, EdTech usage was also found to be associated with awareness levels of EdTech amongst parents/guardians and their willingness to advocate EdTech, with 59% and 67% of children of such households, respectively, being present users.

- **EdTech usage—at a gender level:** No notable differences were observed between genders across present, discontinued, and non-user of EdTech. However, in urban areas, a greater proportion of girls (67%) than boys (45%) were likely to use EdTech for self-learning. In rural areas, a greater proportion of boys (50%) than girls (45%) were likely to use EdTech for self-learning.

Background and Context

Emerging evidence on the use of EdTech indicates its critical role in providing innovative and effective ways of supporting teaching and learning processes in K12 education. The potential of technology to play a catalytic role in democratizing the quality of education and addressing some of the constraints to quality education has gained wide recognition globally and locally. In this regard, India's National Education Policy (NEP) places special emphasis on the importance of technology for improving educational processes and outcomes[1]. With the thrust on technological interventions, many State governments are spearheading innovative EdTech initiatives and setting examples for others to follow. The spectrum of State initiatives is wide and far-reaching, from integrating technology in the classrooms to improving access through device distribution programs for promoting learning at home and encouraging parental engagement through tech-based tools.

Over the last three years, the EdTech sector has expanded exponentially, becoming one of the largest-funded and fastest-growing sectors. Bolstered by enabling ecosystem conditions with nearly 530 million internet users being added in the last 6 years[2] and a positive outlook on the smartphone penetration growing from 750 million

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1   National Education Policy 2020, Ministry of Human Resource Development, 53, https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

2   Economic Survey of India 2022, Government of India, https://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf

smartphone users in 2021 to 1 billion in 2026[3], there has been a proliferation in the supply of EdTech solutions in the country. However, while India hosts a vibrant EdTech ecosystem, limited EdTech solutions are built for and have been able to scale in the low-income segments. A key reason for this is the existing lacunae in the understanding of the needs and barriers of the end-users in the low-income segments. There is a lack of comprehensive ground-up data and reliable insights on these users, where the need for tech-based learning solutions is higher.

The lack of end-user information exaggerates the issue of limited EdTech solutions. Most surveys discussing the state of EdTech, provide stakeholder-specific information such as, the investor view of EdTech products, the company view, and the market fit of for-profit EdTech companies targeting urban users from high and middle-income households. It is also noted that while certain national-level surveys do highlight certain trends in the adoption of technology for learning, they often do not provide insights into the factors driving these trends, specifically relating to access, behaviors, and belief systems. Consequently, both policy and EdTech solutions have failed to address the needs and aspirations of a large section of learners.

Bharat Survey for EdTech (BaSE) is an effort to bridge this information asymmetry in the EdTech ecosystem and provide policymakers, educators, and tech innovators with reliable data and insights for informed decision-making on EdTech. BaSE is a first-of-its-kind household survey bringing the voice of the end-user of Bharat to the discourse on EdTech, and presents a meaningful opportunity to shape the future of EdTech for low-income India.

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3   Technology, Media, and Telecommunications - Predictions 2022, Deloitte, 6, https://www2.deloitte.com/content/dam/Deloitte/in/Documents/technology-media-telecommunications/in-TMT-predictions-2022-noexp.pdf

2 | Survey Objectives

BaSE is a household survey commissioned by Central Square Foundation (CSF) with the aim to bring out the voice of the end-user on the state of EdTech and provide critical insights to stakeholders in the EdTech ecosystem for informed decision-making. This is the first household survey focused on EdTech in low-income settings exploring trends in areas such as access to technology, usage of EdTech, and user sentiment around the adoption of EdTech.

The survey was undertaken in 6 selected states between November 2022 to January 2023 with the objective of:

1 Exploring the extent of access to technology and enabling infrastructure such as electricity, smartphones, and the internet, as well as the extent of smartphone usage by children. Additionally, understanding the sentiments of caregivers towards the adoption of technology and home ecosystem elements such as household-level beliefs and behaviors around the child's education. Further, looking at trends around EdTech usage or adopting technology for learning purposes, especially by those who presently engage with EdTech for various purposes.

2 Providing insights that can catalyze meaningful and informed conversations regarding emerging solutions for learning. With trends spanning across 6 states of the country, dialog centered around EdTech can be commonly anchored for stakeholders and can result in sustained collaboration and exchange.

3 Survey at a Glance

Coverage

Uttar Pradesh

Gujarat

Mizoram

Odisha

Telangana

Madhya Pradesh
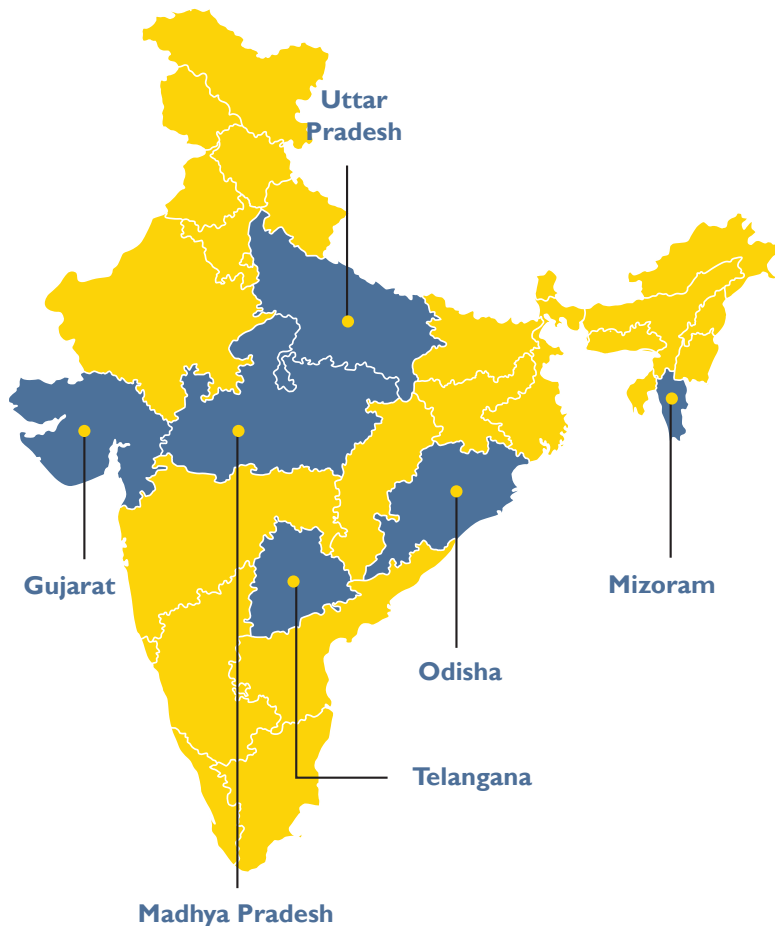
6000+
Households

9867
Children

Themes Explored

Access to Technology

Explores availability of technology infrastructure and smartphones at household level, trends around dedicated and shared access, and usage of smartphones by children.

User Sentiments around EdTech Adoption

Explores user sentiment around child's education, engagement with learning avenues outside of school and support provided by caregivers at home. Also explores barriers and enablers for tech adoption.

EdTech Usage

Explores trends around tech tools used for learning, prevalent use-cases of edtech, drivers of engagement and understand features that are valued most.

Provides Insights Across

Urban / Rural

Gender

Grades

4   Methodology

This section summarizes the process followed for the selection of states, determination of sample size, the sampling design, and approval from the Institutional Review Board (IRB).

4.1 State selection

Six states were selected for the survey based on a 2x3 matrix of internet penetration[1] and the state's population size (as a proportion of the national population).

- The data from the most recent Telecom Statistics of India 2020[2] was used to classify Indian states as 'states with greater than 70% internet penetration[3], and 'states with lower than 70% internet penetration.' Between 2019 and 2020, India added 100 million internet subscribers, with an estimated 52% of the population having access to the internet. For the purpose of the survey, it was assumed that the rate of new subscribers being added would continue to follow similar trends through 2022-23, based on which the 70% threshold was considered[4].

- Additionally, the states were classified based on the population size using the Indian Census 2011 data[5]. A proportion of the state populations relative to the national population was computed to classify states as large (>=7%), medium (4-7%), or small (<4%) (Table 1).

Table 1: State selection matrix

Internet Penetration	States		
	Large (>=7%)	**Medium (4-7%)**	**Small (<4%)**
Internet Penetration >70%		Tamil Nadu	Telangana
		Karnataka	Himachal Pradesh
		Gujarat	Punjab
		Andhra Pradesh	Kerala
Internet Penetration <70%	Maharashtra	Madhya Pradesh	Assam
	Uttar Pradesh	Rajasthan	Odisha
	Bihar		Haryana
	West Bengal		Mizoram

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1   Internet penetration refers to both fixed-line and wireless modes.

2   Department of Telecommunications. (2020). Telecom Statistics India-2020.Ministry of Communications, GoI https://dot.gov.in/sites/default/files/2022%2002%2028%20Telecom%20Stats%20STT.pdf

3   Between 2019 and 2020, India added 100 million internet subscribers with an estimated 52% of the population having access to the internet (Telecom Statistics India, 2020). It was decided to keep the cutoff at 70% with an assumption that the rate of new subscribers being added continues to follow similar trends through 2022-23.

4   There are two caveats to be noted while using the Telecom Statistics of India data:

    a)   The Telecom Statistics data classifies telecom circles based on state boundaries with a few exceptions such as the North-East telecom circle including 6 North-eastern states, Maharashtra circles being separate. Thus, to ensure information for each state, data management and data cleaning was required https://www.mapsofindia.com/maps/india/telecomnetwork.htm.

    b)   The dataset does not identify unique users of the internet (both fixed line and wireless). This is likely to lead to an overestimation of the level of internet penetration in each state.

5   The proportion of the state populations relative to the national population were conducted by using the state-wise and all India population sizes stated in the Census 2011 data here: https://rbi.org.in/Scripts/PublicationsView.aspx?id=18797

Based on the state selection matrix, 6 states were selected in consultation with CSF to enable regional, linguistic and internet penetration diversity in the survey. The finalized states for the survey were: Gujarat, Madhya Pradesh, Mizoram, Odisha, Telangana and Uttar Pradesh.

4.2 Sample size

To ensure representative survey findings[6] Cochran's Sample Size formula was used to determine the sample size. This is illustrated below:

$$Sample\ Size = \frac{z^2 pq}{d^2} * deff$$

Where, z is the standard normal deviation for 95% (1.96), p is the prevalence of smartphones, q= (1-p), and d is the absolute precision (or margin of error) that is tolerable for said prevalence. The required sample size based on the above formula has been outlined at various thresholds. Design effect of 1.5 was assumed (as a multiplier to account for sampling strategy deviation from simple random sampling to multi-stage sampling) (Table A1, Annexure A). The degree of prevalence was assumed to be 60%[7].

Based on the sample size calculations, a sample of 553 households was estimated to ensure representative findings at the state level. Further, to achieve representativeness of findings within a state, as well as for urban-rural settlements, a sample size of 1000 respondents per state was estimated. Thus, overall, 6000 household surveys were conducted across the 6 states.

4.3 Sampling design

A multi-stage sampling technique was adopted to achieve a representation of the sample within the states. The stages are described below:

Stage 1	The first step involved the use of K-means clustering within each state. K-means clustering is a process to partition n observations (randomly generated spatial markers) into k clusters (regions). This technique helped generate 10,000 random spatial markers, which were further clustered into 4 distinct regions based on the proximity of these spatial markers. This technique helped classify all the districts within a state into 4 clusters, barring Mizoram, given the small size of the state.
Stage 2	A proportion of districts were thereafter randomly selected from each cluster within these states, based on Probability Proportion to Size (PPS)[8]. The proportion of districts selected was as follows: 10% for Uttar Pradesh[9], 15% for Madhya Pradesh, and 20% for Gujarat, Odisha, and Telangana. Given the size of Mizoram, we did not cluster the state into 4 regions and randomly selected 50% of the districts.

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6   **Note for the reader:** The purpose of BaSE is to have the first-of-its-kind, large-scale survey specifically capturing EdTech trends, attitudes, and usage in low-income settings across six states of India. BaSE does not intend to show any statistically significant variances across dimensions of settlement, gender, or grade within a state.

7   As per ASER 2021, 68% of rural households owned a smartphone. We adapted this data to our survey objectives to assume 60% as the degree of prevalence (http://img.asercentre.org/galleries/fullreport_2021.pdf)

8   PPS sampling is a method of sampling from a finite population in which a size measure is available for each population unit before sampling and where the probability of selecting a unit is proportional to its size.

9   Differential rates for district sampling was used in Uttar Pradesh and Madhya Pradesh due to the large number of districts in the states—75 and 50 districts respectively.

Stage 3	Within each district, tehsils were randomly sampled using simple random sampling. The number of tehsils selected in each district from Uttar Pradesh, Madhya Pradesh, and Gujarat was the average number of tehsils in each selected district. The maximum number of tehsils selected in Odisha and Telangana were 6 and 8, respectively, given the presence of a large number of tehsils in these states. In Mizoram, 4 tehsils were selected from each district.
Stage 4	The settlements were then randomly selected within these tehsils. This was to ensure that these settlements were proportionally divided between urban and rural settlements based on the proportion of settlements in each state[10]. A maximum of 167 settlements were surveyed, with a minimum of 6 households per settlement being surveyed (Census 2011 data was used to identify households within each settlement).
Stage 5	Within a settlement, a household was selected using the right-hand rule, where a pre-defined number of households were skipped in each settlement, before surveying a household based on the eligibility criteria.

Based on 2020 Telecom Regulatory Authority of India (TRAI) data, internet penetration rates in rural and urban areas in these 6 states were found to be very different. Except for Telangana, the other 5 states had almost 25-35% of internet prevalence across rural areas and more than 100%[11] prevalence in urban areas. As a result, the sample size estimates for each state were biased. To overcome the biases and ensure an accurate representation of the urban-rural population in each state, the urban and rural sample targets were derived based on probability proportional to the size of the urban and rural population within a state (Table A2, Annexure A). To comment on the trends at the state level, sampling weights were used (Annexure B).

4.4 Respondent identification strategy

The survey was conducted with parents and guardians within the 6000 households. Only parents and guardians whose children satisfied the following conditions were interviewed:

1. The children were enrolled in a school and studying between grades 1-12 at the time of the survey.

2. For students enrolled in private schools, only children whose monthly school fee was within the 75th percentile of education-related expenses for each state were considered. Whereas for those studying in government schools, the survey had assumed the school fees to be negligible.

   - As the focus of the survey was on the low-income context, attempts were made to exclude the high- and middle-income. This was ensured by defining tuition fee cut-offs based on the education expense data published in the 75th National Sample Survey (NSS) Round and this methodology was adopted from Kingdon (2020)[12]. The NSS data helped calculate the average tuition fee for children enrolled in private unaided schools for each region (urban/rural) in a state[13]. Children who didn't satisfy these cut-offs were excluded from the survey. (Table A3, Annexure A)

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10 The Census 2011 data was used to understand the proportion of settlements within each state.

11 TRAI data, 2020 doesn't collect data for individual unique users. In the sense that, if an individual has 2 Wi-Fi connections under their name, they will count this as 2 users. Because of this multiple counting, the internet penetration in some urban regions of some states is more than their population.

12 Kingdon, G. G. (2020). The private schooling phenomenon in India: A review. The Journal of Development Studies, 56(10), 1795-1817.' https://doi.org/10.1080/00220388.2020.1715943

13 To set the survey eligibility cut-off on monthly expenditure, only tuition fees was considered and it did not include expenditures on transport, books, and school uniform, among others.

3. The children had been residing in the household with the parents/guardians for the last 6 months and resided in the household at the time of the survey.

The parents/guardians were also allowed to take support from the children and other household members to respond to the survey questions. However, it was ensured that the response of the parent/ guardian was recorded in all instances.

The survey ensured that only one family's responses were recorded across households[14]. When there were multiple families present in the same household, the first one to respond was surveyed. Further, the survey was limited to 3 children per family. After taking the names of all the children in the family being surveyed, the 3 children were selected at random.

4.4.1 Limitations of the respondent identification strategy

The eligibility criteria did not include a specific strategy to exclude ultra-poor households. Therefore, some of the ultra-poor households may have been included in the survey[15].

4.5 Institutional Review Board (IRB) approval

The Institutional Review Board (IRB) at Development Solutions issued a certificate of exemption to guarantee the following:

- The respondent selection was equitable

- Informed verbal consent was sought at the beginning of the survey

- No sensitive questions were asked as part of the survey

- Stakeholders interviewed for the survey were parents or guardians of school-going children and were more than 18 years of age. They were prone to no risks or benefits of any kind

- Only a random proportion of respondent contact numbers were shared with the CSF team to undertake quality checks, which was informed to the respondent while seeking their consent; data anonymity was ensured thoroughly

- While publishing the data, privacy, and confidentiality of each respondent would be protected

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14 It is important for the reader to understand the distinction between household and family in this survey:
    Household: A household includes all the members of the house who live together under one roof, and who consume food from the same stove/*chulha,* whether they have a blood relation or not.
    Family: Family includes a group of parents and their children living together as a unit. This could also mean guardian living with their children.

15 The initial respondent identification strategy was to exclude ultra-poor households from the survey, by excluding respondents who possessed BPL and/or AAY and/or PHH ration cards. However, this eligibility criterion was dropped after 6 days of initiating data collection, in consultation with CSF. This was so because a very high proportion of households in MP and Odisha possessed BPL and PHH cards respectively. Given the risk of high exclusion errors due to respondent filtering based on possession of the BPL/AAY/PHH cards, it was decided to drop this criterion (Asri, V. (2019). Targeting of social transfers: are India's poor older people left behind?. World Development, 115, 46-63. https://www.sciencedirect.com/science/article/abs/pii/S0305750X18303991?via%3Dihub

5   Household and Children Profile

This section presents the profile of the surveyed households and of the children whose data were collected from these households. Additionally, the section provides an overview of the demographic characteristics of children in the surveyed households, including gender, age, and grade of the children, as well as the type of schools they are enrolled in, the respondent's relationship with the children, and the education level of the parents/guardians of the children[1]. It also presents an overview of the availability of ration cards within these households, the income levels of the households, and annual expenditure on a child's education.

5.1 Respondent profile

Overall, 6030 households were surveyed. Their demographic details are given below.

In 65% of surveyed households, the mother was the respondent and in 33% of households, the father was the respondent.

65% of the interactions were conducted with mothers of school-going children and 33% were conducted with fathers of these children. 2% of the interactions were conducted with the legal guardians (Table 1).

Table 1: Relationship of the respondent with the children

Relationship of the respondent with the children	Urban	Rural	Total
Mother	69.3	63	64.9
Father	27.6	35.1	32.9
Legal Guardian	3.1	1.8	2.2
Total	**100**	**100**	**100**

5.2 Household profile

More than half of the households possessed an Above Poverty Line (APL) card. Uttar Pradesh had the highest proportion of APL cardholders.

53% of all the surveyed households possessed an APL card[2] followed by 23% of households who possessed a 'Below Poverty Line' (BPL[3]) card. A lesser proportion of households possessed a Priority Household (PHH[4]) card (13%). At a state level, it was found that 87% of the households in Uttar Pradesh possessed an APL card, whereas 96% of households in Telangana had a BPL card, and 94% of surveyed households in Odisha reported possession of a PHH

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1   Some of the surveyed households had only 1 child. However, to ensure consistency, the report mentions children throughout, unless specifically commenting on 1 child.

2   APL card is issued to those families who are living above the poverty line and receive 10-20 Kgs of foodgrains by the respective state governments at 100% of the economic cost.

3   BPL card is issued to those families who have been identified by different state governments for the issue of foodgrains at subsidized rates adopting the estimates of poverty given by the central government.

4   PHH card is issued to households that meet eligibility criteria set by different state governments to receive 5 Kgs of foodgrains per person per month.

card. Most households in Mizoram (62%) and Madhya Pradesh (40%) were BPL cardholders whereas Gujarat had a majority of APL cardholders (58%) (Table 2).

Table 2: Ownership of the ration cards across the states

Type of ration card	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
AAY[5] (Antyodaya Anna Yojana)	1	3	9	1	0	1	1.2
BPL (Below Poverty Line)	39	40	62	0	96	0	22.8
APL (Above Poverty Line)	58	40	22	0	0	87	53.3
PHH (Priority Household)	0	0	6	94	0	0	12.5
Don't know	0	0	1	0	0	0	0.1
None of the above	1	17	0	5	4	12	10.1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

At a settlement level, a higher proportion of urban households possessed an APL (58%) and BPL (27%) card compared to rural households, whereas the prevalence of PHH cards was higher in rural households (17%) compared to urban households (2%) (Table A1, Annexure C).

44% of households had 1 child who was in school. 14% of rural households had 3 or more children enrolled in schools, which is nearly twice as many as children in urban households.

44% of the households had 1 school-going child and 40% of surveyed households had 2 children currently enrolled in school. Across all the states, Uttar Pradesh and Madhya Pradesh had the highest proportion of 3 or 4 school-going children (18%). 5% of households in Uttar Pradesh and 1% of households in Madhya Pradesh reported more than 3 school-going children (Table A2, Annexure C). When compared to urban households (8%), nearly twice as many rural households (14%) had 3 school-going children. A smaller proportion of households had 4 or 5 children (4%) (Table 3).

Table 3: Number of children that go to school across urban and rural households

Number of school-going children	Urban	Rural	Total
1	47.5	42.6	44
2	42.7	39	40.1
3	7.5	13.9	12
4	1	3.4	2.6
5	0.9	1.1	1.1
6	0.4	0	0.1
Total	**100**	**100**	**100**
Median	**2 children**	**2 children**	**2 children**
Average	**2 children**	**2 children**	**2 children**

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5 Antyodaya cards are issued to those poorest families from amongst Below Poverty Line (BPL) families identified by the State Governments and entitled to receive foodgrains under the Antyodaya Anna Yojana.

5.3 Educational background of the parents/guardians

27% of mothers in the surveyed households reported grades 9-12 as their highest level of education. Secondary education levels among mothers were more prevalent in urban households than in rural households.

27% of mothers in the surveyed households had completed education between grades 9–12. A major proportion of mothers could not read and write (23%). While the prevalence of illiteracy was higher in rural households (27%) than in urban households (14%), the prevalence of high school completion was greater in urban households (33%) than in rural households (24%) (Table 5).

Table 5: Highest level of education completed by the mothers across the surveyed urban and rural households

Highest level of education of the mothers in the surveyed households	Urban	Rural	Total
Cannot read and write	13.8	27.1	23.2
Did not attend school, but can read and write	2.1	4.9	4
Grades 1-5	10.1	17.4	15.2
Grades 6-8	21.1	21.3	21.2
Grades 9-12	33.1	24.2	26.8
Polytechnic	0.1	0	0
Vocational education	0.1	0.1	0.1
Graduation (BA, B.com, B.Sc., etc.)	14	3.6	6.7
Post-graduation (MA, M.Com, M.Sc., etc.)	5.3	0.8	2.2
Mother is deceased	0.1	0.8	0.6
Madrassa	0.3	0	0.1
Don't know	0	0	0
Total	**100**	**100**	**100**

38% of fathers in the surveyed households reported grades 9-12 as their highest level of education.

38% of fathers in the surveyed households had completed education between grades 9-12. Additionally, it was reported that 11% of the fathers had completed graduation, and 3% of fathers completed post-graduation (Table 6).

Table 6: Highest level of education completed by fathers across the surveyed urban and rural households

Highest level of education of the fathers in the surveyed households	Urban	Rural	Total
Cannot read and write	12	9.6	10.3
Did not attend school, but can read and write	0.8	3.4	2.6
Grades 1-5	9.8	16.4	14.4
Grades 6-8	9.8	20.3	17.2
Grades 9-12	41.6	36	37.7
Polytechnic	0.2	0.1	0.2
Vocational education	0.2	0.6	0.4
Graduation (BA, B.com, B.Sc., etc.)	14.5	9.5	11
Post-graduation (MA, M.Com, M.Sc., etc.)	7.5	1.4	3.2
Father is deceased	3.6	1.9	2.4
Don't know	0	0.9	0.6
Total	**100**	**100**	**100**

Compared to parents, it was found that guardians were more educated. 42% of guardians had completed graduation. This proportion was found to be higher in urban households (84%) compared to rural households (12%) (Table 7).

Table 7: Highest level of education completed by the guardians across urban and rural households

Highest level of education of the guardian in the surveyed households	Urban	Rural	Total
Cannot read and write	2.1	36.1	21.7
Did not attend school, but can read and write	0.7	6.9	4.3
Grades 1-5	1.4	12	7.5
Grades 6-8	6.9	13.6	10.8
Grades 9-12	3.6	18.7	12.3
Vocational education	1.6	0	0.7
Graduation (BA, B.com, B.Sc., etc.)	83.7	11.9	42.2
Post-graduation (MA, M.Com, M.Sc., etc.)	0	0.4	0.2
Don't know	0	0.4	0.2
Total	**100**	**100**	**100**

5.4 Profile of the children in the surveyed households

Across the survey, information about 9867 children was gathered. Their demographic information is presented below.

Nearly an equal proportion of boys and girls were present in the surveyed households.

52% of the children across the surveyed households were boys whereas 48% of the children were girls (Table 8).

Table 8: Gender of the children across the urban and rural households

Gender	Urban	Rural	Total
Male	50.4	52.5	51.9
Female	49.6	47.5	48.1
Transgender	0	0	0
Prefer not to say	0	0	0
Total	**100**	**100**	**100**

More than half the children in the surveyed households were enrolled in primary grades.

58% of children in the surveyed households were enrolled in primary grades (1st-5th grades), followed by 27% of children enrolled in secondary grades (6th-8th grades), and 23% enrolled in secondary grades (9th-12th grades). In contrast to urban households, rural households had a higher prevalence of children enrolled in secondary and secondary grades, whereas urban households had a higher number of children enrolled in primary grades (Table 9).

Table 9: Grades in which children were enrolled across urban and rural households

Grades	Urban	Rural	Total
1st–5th	58.3	46.3	49.7
6th–8th	22.2	28.4	26.7
9th–12th	19.5	25.3	23.6
Total	**100**	**100**	**100**

65% of the children studied in government schools. More boys than girls were enrolled in private schools.

It was found that 65% of the children were studying in government schools, followed by 34% of the children studying in private schools. No major enrollment in madrassas or Anganwadi centers was reported. Within rural households, a majority of the children were enrolled in government schools (73%), whereas, within urban households, the majority of the children were enrolled in private schools (53%) (Table 10).

It was additionally noted that a greater proportion of girls (69%) than boys (62%) were enrolled in government schools (Table 11).

Table 10: Proportion of children in urban and rural households enrolled in different types of school

Type of school	Urban	Rural	Total
Government School	46.7	72.7	65.3
Private School	53.3	27.2	34.6
Madrassa	0.2	0.2	0.2
Anganwadi centers	0	0.1	0.1
Total	**100**	**100**	**100**

Table 11: Proportion of boys and girls enrolled in different types of school

Type of school	Boys	Girls	Total
Government School	61.9	69	65.3
Private School	38	30.9	34.6
Madrassa	0.2	0.2	0.2
Anganwadi centers	0.2	0	0.1
Total	**100**	**100**	**100**

Nearly 60% households spent less than INR 500 per month on their child's monthly school fee.

For children enrolled in private schools, 32% of the households spent INR 250-500 on their child's school fee and 29% of households spent between INR 500-1000, followed by 28% of households who spent less than INR 250. A relatively lesser proportion (6%) of households spent more than INR 1000 on education expenses (Table 12).

Telangana had the highest proportion of households who spent more than INR 1000 on monthly school fees for their child (30%) and least proportion of households who spent less than INR 250 (0.1%). There were no households in Mizoram that spent more than INR 1000. Gujarat, on the other hand, also had 22% of households that spent more than INR 1000; however, it also had households that spent less than INR 250 (15%). In Odisha, most households spent between INR 250-500 (81%) (Table A3, Annexure C).

Table 12: Monthly education fee incurred by households for children in private schools across urban and rural households

Monthly education fee	Urban	Rural	Total
No fees/admission under RTE	5.3	4.8	5.1
Less than INR 250	8.4	42.8	27.8
INR 250 to 500	26.7	35.4	31.6
INR 500 to 1000	46.4	16.1	29.3
More than INR 1000	13.2	0.9	6.2
Total	**100**	**100**	**100**
Average	**INR 666**	**INR 334**	**INR 479**
Median	**INR 650**	**INR 280**	**INR 320**

6 Survey Findings

This section discusses insights from the survey on key themes of access to technology, user sentiment around the adoption of EdTech, and EdTech usage. EdTech has been defined as the use of mobile devices/computer/laptop/TV/radio/social media/mobile applications/internet to undertake various learning activities such as revision of course materials, watching videos to understand concepts, taking exams/quizzes online, assignment of work by teachers, etc. For the purpose of the survey, smartphones have been considered the primary digital device because of their ubiquitous availability and widespread usage among the respondents. The availability and accessibility of the technology are discussed in sub-section 6.1, followed by the awareness, beliefs, and behaviors of parents and guardians regarding the adoption of technology in 6.2, and finally a discussion on EdTech usage by children in section 6.3.

6.1 Access to Technology

In this section, findings on access to technology including enabling infrastructure such as electricity, smartphone[1] availability, and the internet is presented. The variations in these findings were examined at three levels: (i) the level of the entire household sample, (ii) between urban-rural households, and (iii) state level.

Additionally, the extent of smartphone usage by children, reasons for non-availability and non-usage of smartphones, and overall usage trends are also reported in this section. These findings were examined at the level of individual children across households, followed by an examination at the urban-rural level. Trends were also explored based on the enrolled grades, and the gender of the children.

Access to technology at the child level was classified based on the type of access to smartphones and was used as a basis for analysis of certain trends: (i) dedicated access to smartphones, (ii) shared access to smartphones[2], and (iii) no access to smartphones.

6.1.1 Access to technology at the household level

Near-universal access to electricity was reported across states, however, urban households had electricity access for a longer duration compared to rural households.

In both urban and rural households, more than 99% of respondents reported access to electricity. Electricity was available for an average of 23 hours per day in urban households compared to 19 hours per day in rural households (Figure 1).

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1 Mobile phones with internet access are considered 'smartphones' and mobile phones without internet access are considered 'feature phones'.

2 'Dedicated access' refers to the type of access in which the child possessed the smartphone for the maximum duration of a day. In such cases, the respondents reported that the smartphone was primarily used by children and usage frequency was either daily or at least 4-5 days a week. The remaining use cases were referred to as 'shared access'.

Figure 1: Accessibility of electricity within urban and rural households

		Average availability of electricity
Urban	99.8 — 0.2	23 hours
Total	99.6 — 0.4	19 hours
Rural	99.6 — 0.4	20 hours

■ Yes   ■ No
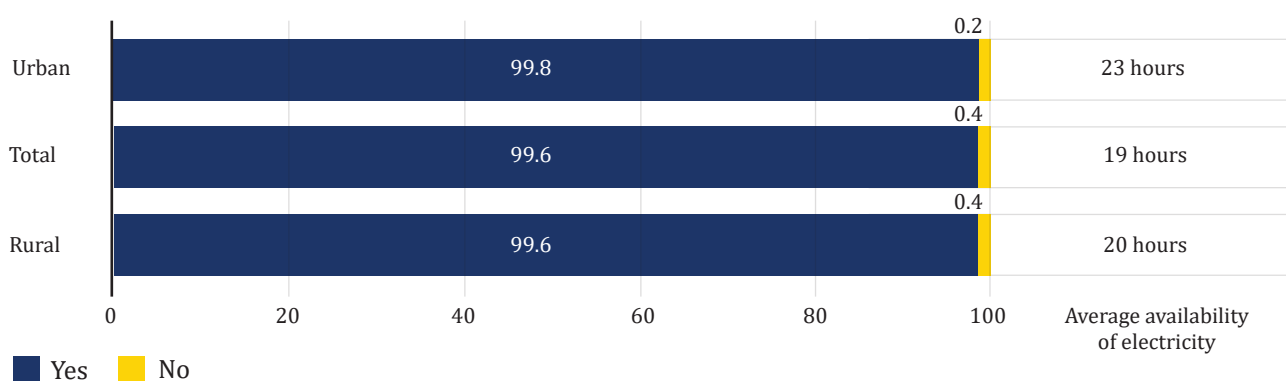
85% of the households owned one or more smartphones. Telangana reported the highest percentage of smartphone ownership.

Overall, 85% of households reported smartphone ownership (Figure 2). Telangana reported the highest percentage of smartphone ownership where 97% of households owned smartphones (Table A4, Annexure C). In 5 out of the 6 states, smartphone ownership was reported to be higher among urban households compared to rural households, with Uttar Pradesh being the exception. In Uttar Pradesh, 87% of rural households reported ownership of smartphones, compared to 83% of urban households that owned a smartphone (Table A5, Annexure C).

Further, out of all households surveyed almost 1 in 2 had access to feature phones (phones without internet access).

Figure 2: Availability of smartphones and feature phones within urban and rural households [3]

	Smartphones	Feature phones
Urban	87.6	42.4
Rural	83.6	50.9
Total	84.8	48.3

■ Smartphones (Touch-screen + internet + YouTube + WhatsApp)
■ Feature phones (phones without internet access)
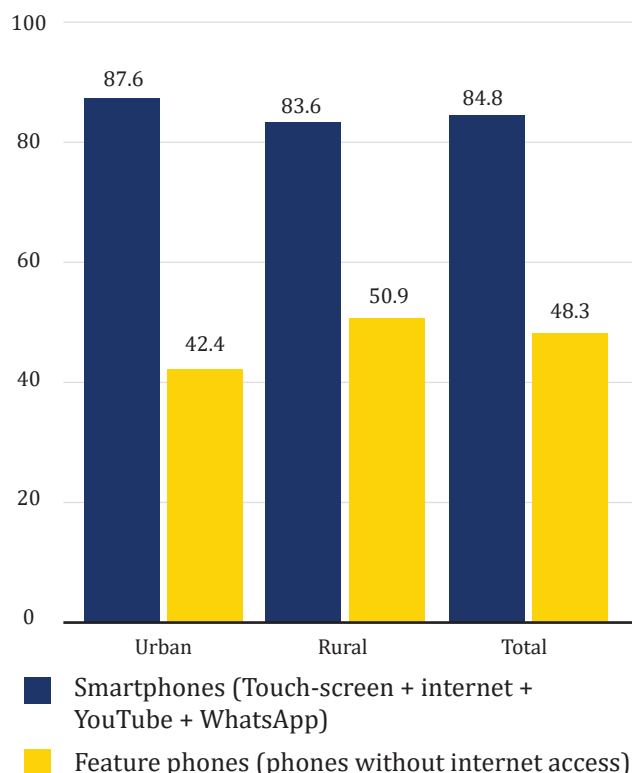
Nearly 1/3rd households owned more than 1 smartphone. Urban households had a higher per capita smartphone availability than rural households.

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3   The survey contains multiple response questions, in which each respondent selected more than one option for the question asked. In the tables generated for such questions, the percentage will always exceed 100%. Therefore, for ease of the reader's understanding, the rows with the 'total' for such tables have been removed. This rule has been uniformly followed in the entire report.

32% of households had access to more than 1 smartphone. It was also found that on average, households owned 1.4 smartphones (Figure 3). Households in Mizoram owned 2.3 smartphones followed by 1.7 smartphones in Telangana (Table A6, Annexure C). It was also noted that, on average, urban households owned 1.5 smartphones and rural households owned 1.3 smartphones[4].

Figure 3: Number of smartphones owned by the urban and rural households
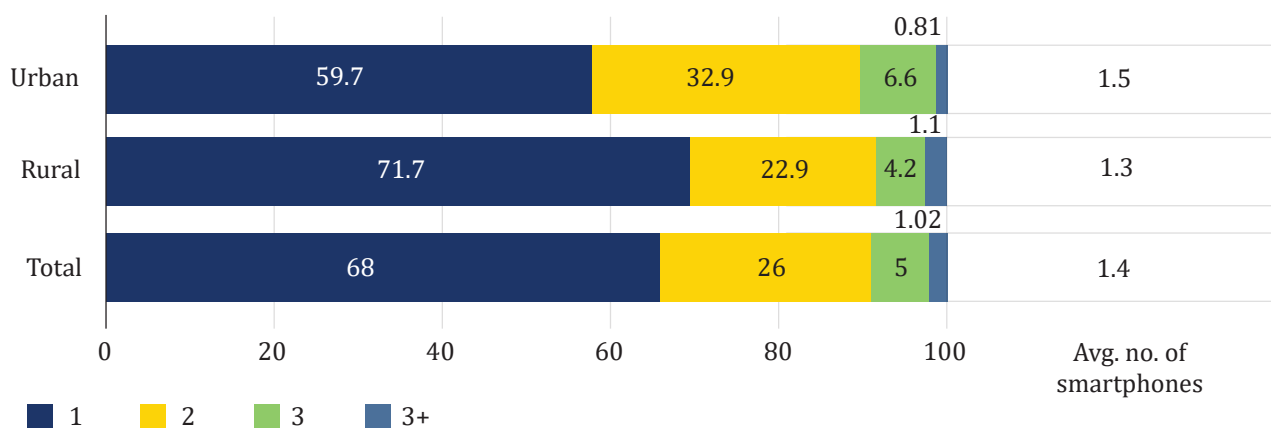
Fathers were more likely to be the primary possessors of smartphones within a household.

66% of the fathers, from all the surveyed households, were reported to be the primary possessors[5] of smartphones followed by 36% of mothers and 20% of children. In rural households, the disparity was found to be relatively larger, with 30% of mothers being the primary possessor of a smartphone compared to 66% of fathers (Figure 4). In 19% of households, smartphones were owned by both fathers and mothers. This dual possession of smartphones was more prevalent in urban households (27%) compared to rural households (16%) (Table A7, Annexure C). Additionally, a higher proportion of rural households reported children as the primary possessor of a smartphone (23%), compared to urban households (13%).

Figure 4: Primary possessor of smartphones across urban and rural households

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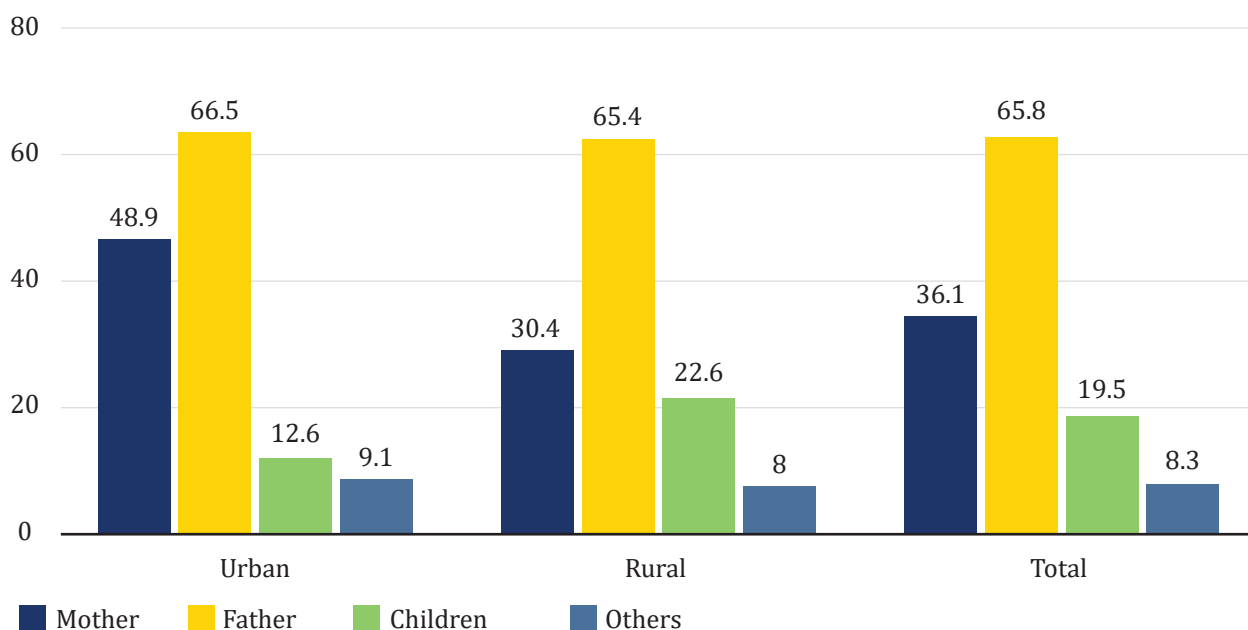
4   Urban families were found to have 4.33 members and rural families were found to have 4.56 members.

5   The household member who possessed the smartphone for the maximum duration in a given day is referred to as 'primary possessor'.

Further, while in most states a greater proportion of fathers than mothers possessed smartphones, in Mizoram, a greater proportion of mothers (62%) as compared to fathers (55%) were the primary possessors of smartphones. UP reported a higher proportion of smartphone possession by children (24%) compared to other states (Table A8, Annexure C).

'Cost of the device' was reported to be the key barrier to smartphone ownership.

Amongst those respondents who did not possess a smartphone, 97% reported 'cost of the device' as the prominent reason for not owning a smartphone, followed by 11% stating 'high mobile recharge cost' (Figure 5).

Figure 5: Reasons for households not owning a smartphone
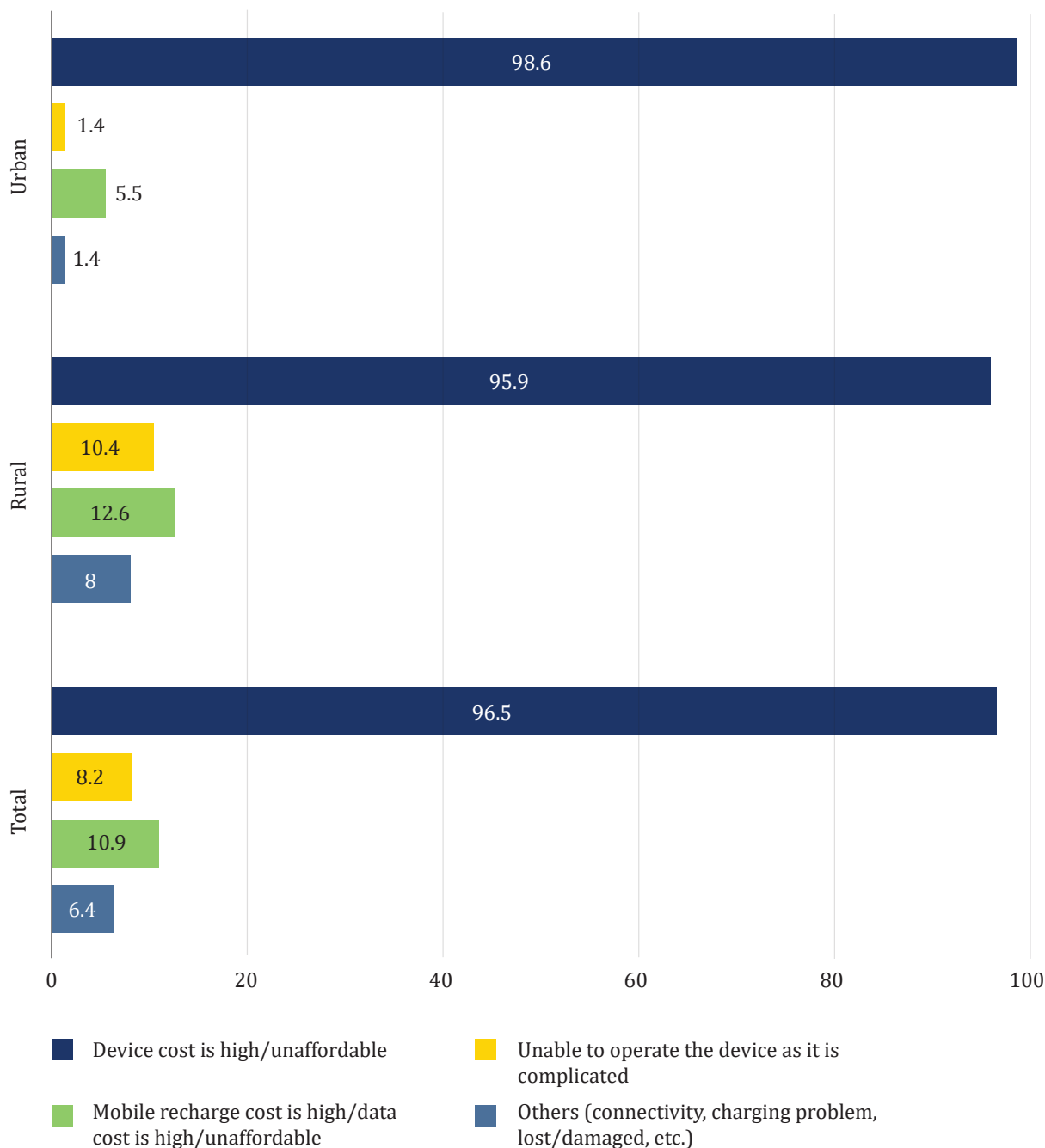
It was additionally noted that the average annual income of a family that owned a smartphone was INR 1.20 lakhs, whereas, for a family without smartphone ownership, the average annual income was INR 0.81 lakhs (Table A9, Annexure C).

6.1.2 Access to technology at the child level

6.1.2.1 Access to smartphones

72% of the children from all the surveyed households had access to smartphones. 66% of the children had 'shared access' to smartphones. A higher proportion of children with 'dedicated access' were from rural households[6].

Across all the households surveyed, 66% of the children had shared access to smartphones, whereas 6% of children had dedicated access to smartphones, and 29% did not have access to smartphones. In both urban and rural households, shared access to smartphones was greater than dedicated access. Dedicated access was however found to be greater in rural households (7%) compared to urban households (3%) (Figure 6).
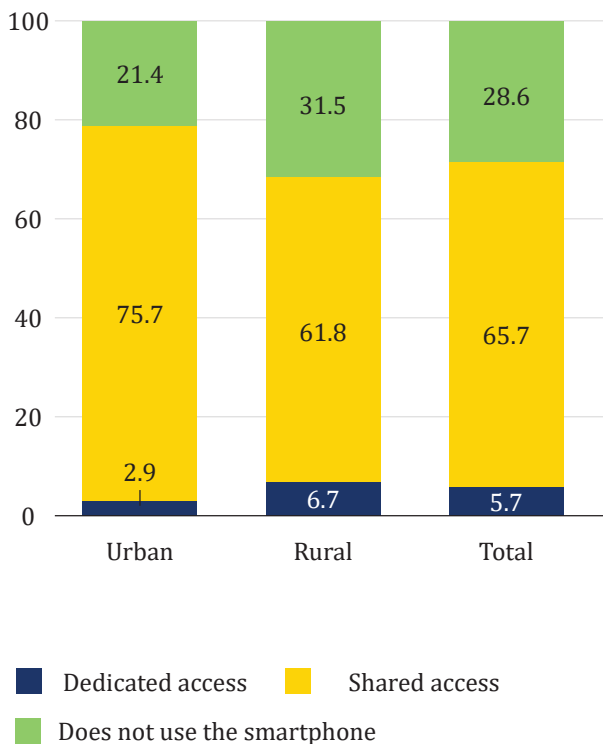
At a state level, Odisha (8%) had the most dedicated smartphone users, whereas Telangana (2%) had the lowest dedicated smartphone users (Table A10, Annexure C).

Children in secondary grades had greater 'dedicated access' to smartphones.

16% of the children studying in grades 9-12 had dedicated access to smartphones, whereas only 5% of 6th-8th graders and 1% of 1st-5th graders had dedicated access. (Figure 7) Compared to urban households (10%), rural households had a higher proportion of dedicated users in secondary grades (18%) (Table A11, Annexure C). No other notable urban-rural difference was stated across other grades.

Figure 6: Proportion of children who were dedicated and shared smartphone users across urban and rural households

Figure 7: Proportion of children who had dedicated and shared access to smartphones, examined based on the grades of the children

Legend:
- Dedicated access
- Shared access
- Does not use the smartphone

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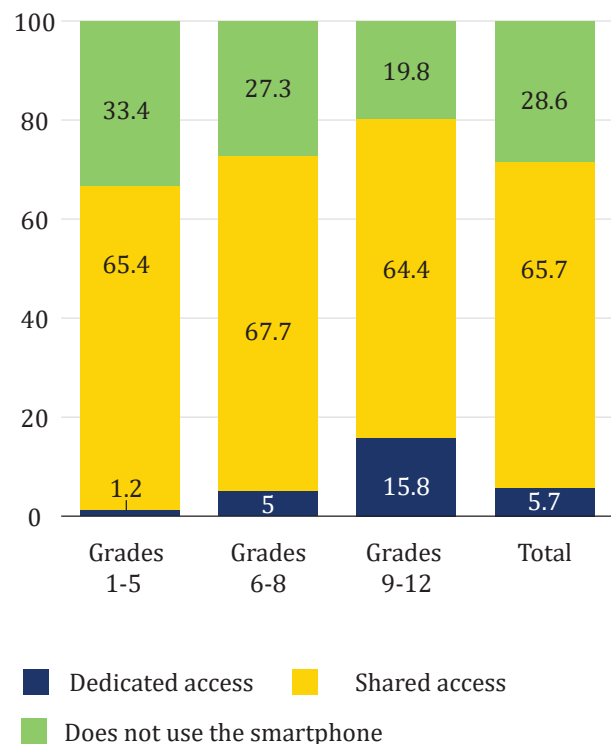
6 'Dedicated access' refers to the type of access in which the child possessed the smartphone for the maximum duration of a day. In such cases, the respondents reported that the smartphone was primarily used by children and usage frequency was either daily or at least 4-5 days a week. The remaining use cases were referred to as 'shared access'.

No notable variations were observed at a gender level for the type of smartphone access.

Overall, 68% girls reported shared access to smartphones, compared to 64% boys. Additionally, a higher proportion of boys (8%) compared to girls (4%) had dedicated smartphone access (Figure 8). This was true across urban-rural households as well, with a greater difference in rural households. In rural households, 9% of boys had dedicated access compared to 4% of girls (Table A12, Annexure C).

Figure 8: Proportion of boys and girls who were dedicated and shared smartphone users
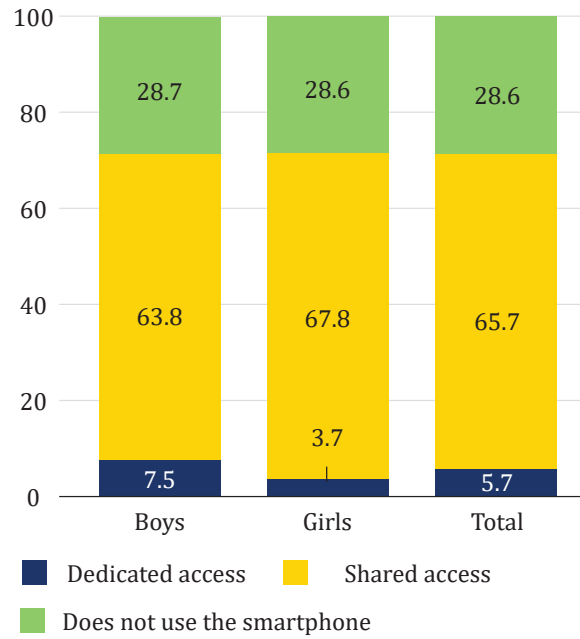
In households with smartphone availability, 84% of children had some form of access to smartphones. Usage was higher amongst children in urban households in comparison to rural households.

84% of the children residing in households that owned one or more smartphones used them (Figure 9). However, with 78% and 79% respectively, Madhya Pradesh and Uttar Pradesh reported lower-than-average smartphone usage among children (Table A13, Annexure C). Further, smartphone usage was higher among children in urban households (90%) compared to rural households (82%).

Figure 9: Proportion of children who use smartphones and the household members whose device was used across urban and rural households
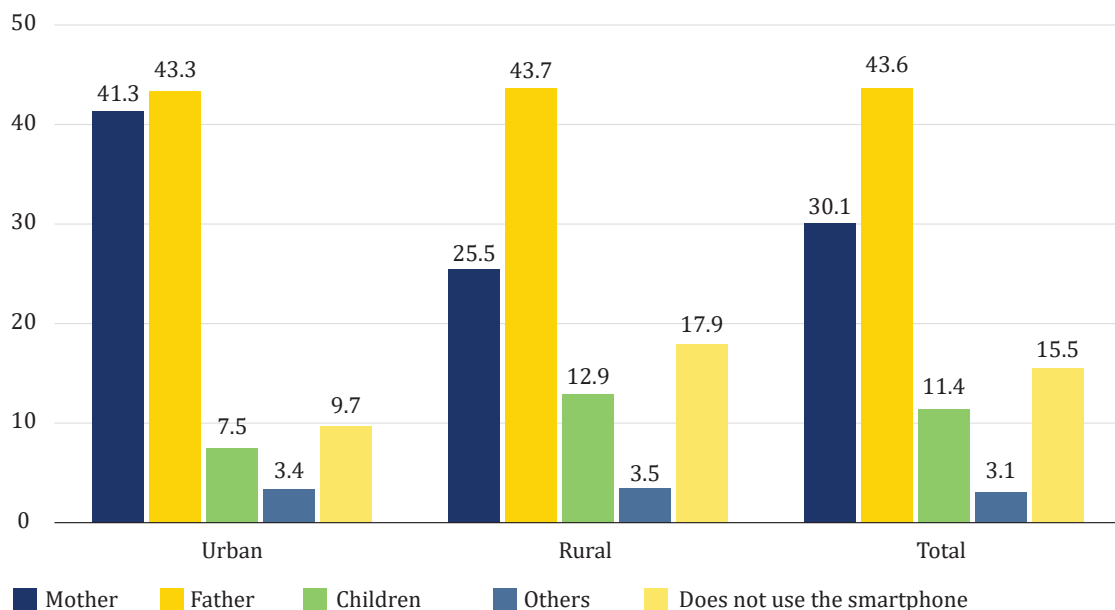
In households where both mother and father used smartphones, children were more likely to use their mother's smartphones than their father's.

While fathers were the primary possessor more often (66%) than mothers (36%) (Figure 4, Section 6.1.1), the absolute proportion of children using the father's smartphone (44%) was higher compared to children using the mother's smartphone (30%) (Figure 9). Additionally, of those children whose mothers were the primary possessors of smartphones, 88% used their mother's phone. Whereas of those children whose fathers were the primary possessors of smartphones, 65% used their father's phone (Figure 10). More specifically, in households where both mothers and fathers possessed a smartphone, 86% of children used their mother's smartphone and 23% used their father's smartphone (Table A14 & Table A15, Annexure C).

Figure 10: Proportion of children who use their mother's/father's phone when their mother/father is the primary possessor of the smartphone
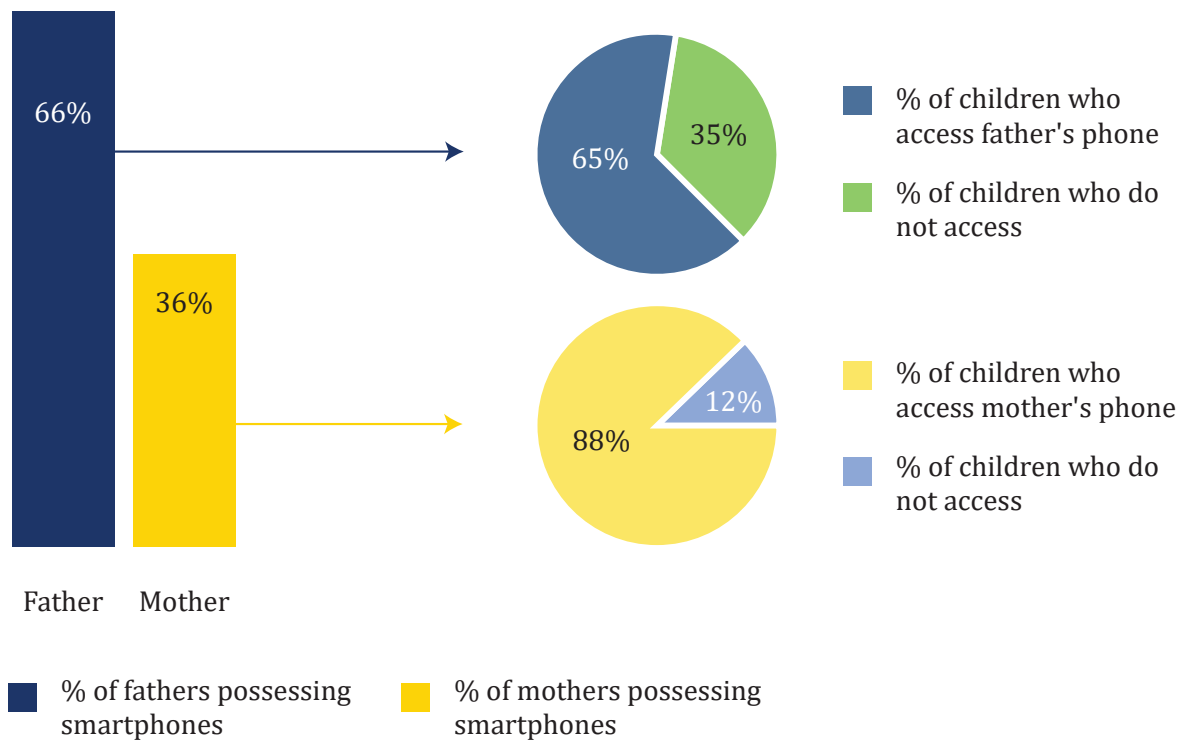
Non-usage of smartphones was higher in rural households than urban households. Twice as many boys (13%) were smartphone non-users in urban households, compared to girls (7%).

Of the households that had access to smartphones, 16% of children in these households did not use smartphones. The non-usage of smartphones among children was higher in rural households (18%) compared to urban households (10%) (Table 11). In urban households, twice as many boys were smartphone non-users (13%), compared to girls (7%). Whereas in rural households, 21% of girls were non-users compared to 15% of boys (Table 12). Smartphone non-usage was found to be 18% in primary grades and 12% in secondary grades, indicating greater smartphone usage among children in grades 9-12 (Table A16, Annexure C).

Table 11: Proportion of children who didn't use smartphones across urban and rural households

Usage of smartphones	Urban	Rural	Total
Does not use the smartphone	9.7	17.9	15.5

Table 12: Proportion of boys and girls who didn't use smartphones across urban and rural households

Usage of smartphones	Urban			Rural		
	Boys	Girls	Total	Boys	Girls	Total
Does not use the smartphone	13	6.7	9.7	15.1	21.1	17.9

Parents/guardians cited the absence of 'need for children to use smartphones' as the prominent reason for non-usage of smartphones amongst children.

Parents/guardians cited 'child does not need a smartphone' as being the primary reason for the non-usage (43%). Other prominent reasons for non-usage were 'children being too young to understand the use of smartphones' (30%) and 'navigation to unsafe content' (29%).

In urban households, a disproportionately higher proportion of parents/guardians reported that the child doesn't need a smartphone (65%), as compared to rural households (38%). While 'child is too young to understand the usage of the smartphone' was unanimously the second prominent reason across urban (27%) and rural (30%) households, a higher proportion of respondents in rural areas cited 'navigation to unsafe content' (32%) and 'limited devices at home' (21%) as other prominent reasons (Figure 13).

Figure 13: Reasons for non-usage of smartphones amongst children across urban and rural households

Legend:
- Limited devices at home and shared usage
- Limited devices at home and other kids use it
- Child does not need to use smartphones
- Child gets hooked to games/cartoons
- Child gets navigated to unsafe content
- Others (no phone balance, network issues)
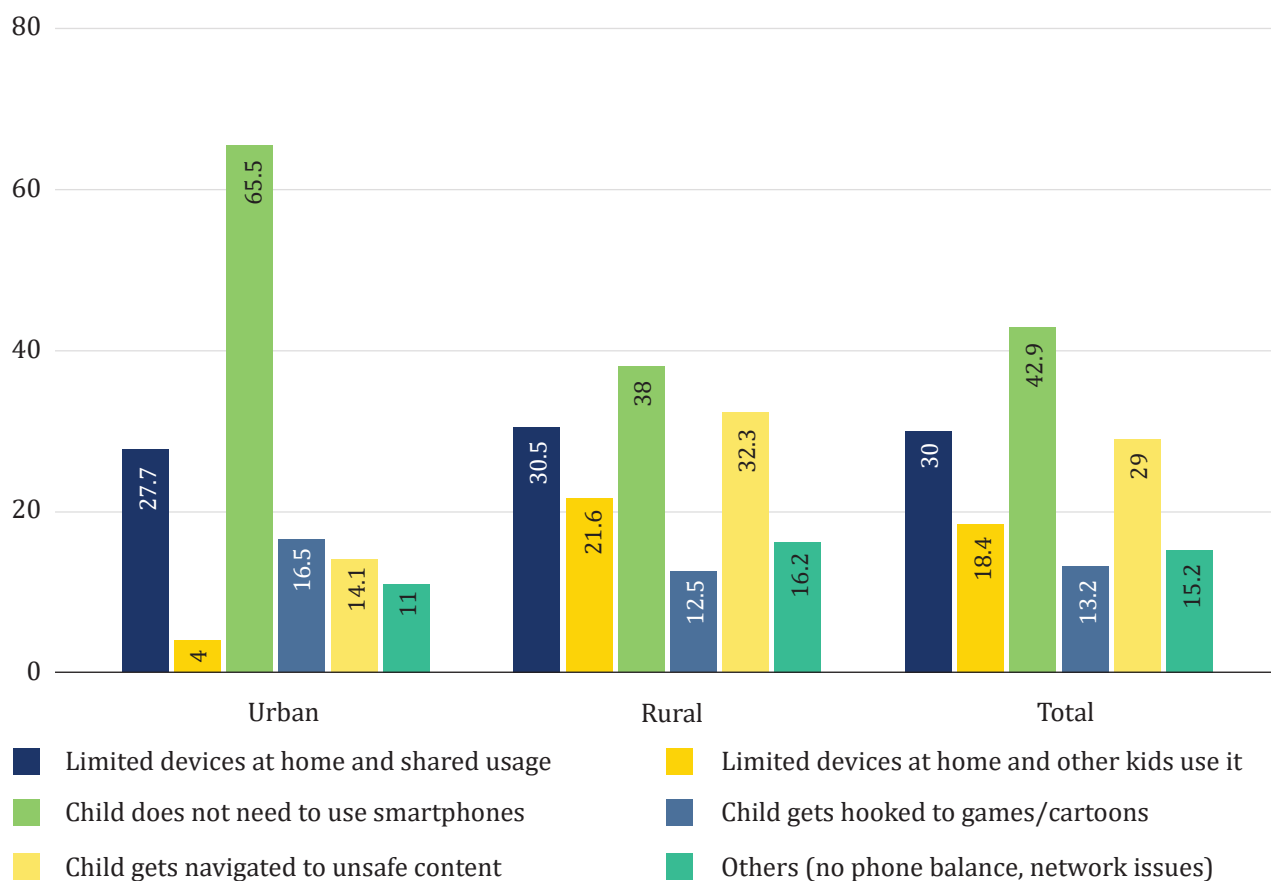
Across grades, 'absence of need for smartphones' was a prominent reason for non-usage by children. Unsafe content as a reason was cited more for children in secondary grades.

Regardless of the grade of the child, parents reported that children do not require smartphones. However, parents have cited 'child gets navigated to unsafe content' as a reason for non-usage more for children in secondary grades (41%), compared to primary grades (27%). This is also reflective and in congruence with the reporting of higher parental supervision for children in primary grades (Table A17, Annexure C).

Across genders, the reasons for the non-usage of smartphones such as 'the child does not need to use a smartphone', 'too young to understand', and 'navigation to unsafe content' were the most prominent with variations in proportions (Figure 14).

Figure 14: Reasons for non-usage of smartphones by girls and boys

Legend:
- Child is too young
- Child does not need to use smartphones
- Child gets navigated to unsafe content
- Limited devices at home and shared usage
- Child gets hooked to games/cartoons
- Others (no phone balance, network issues)
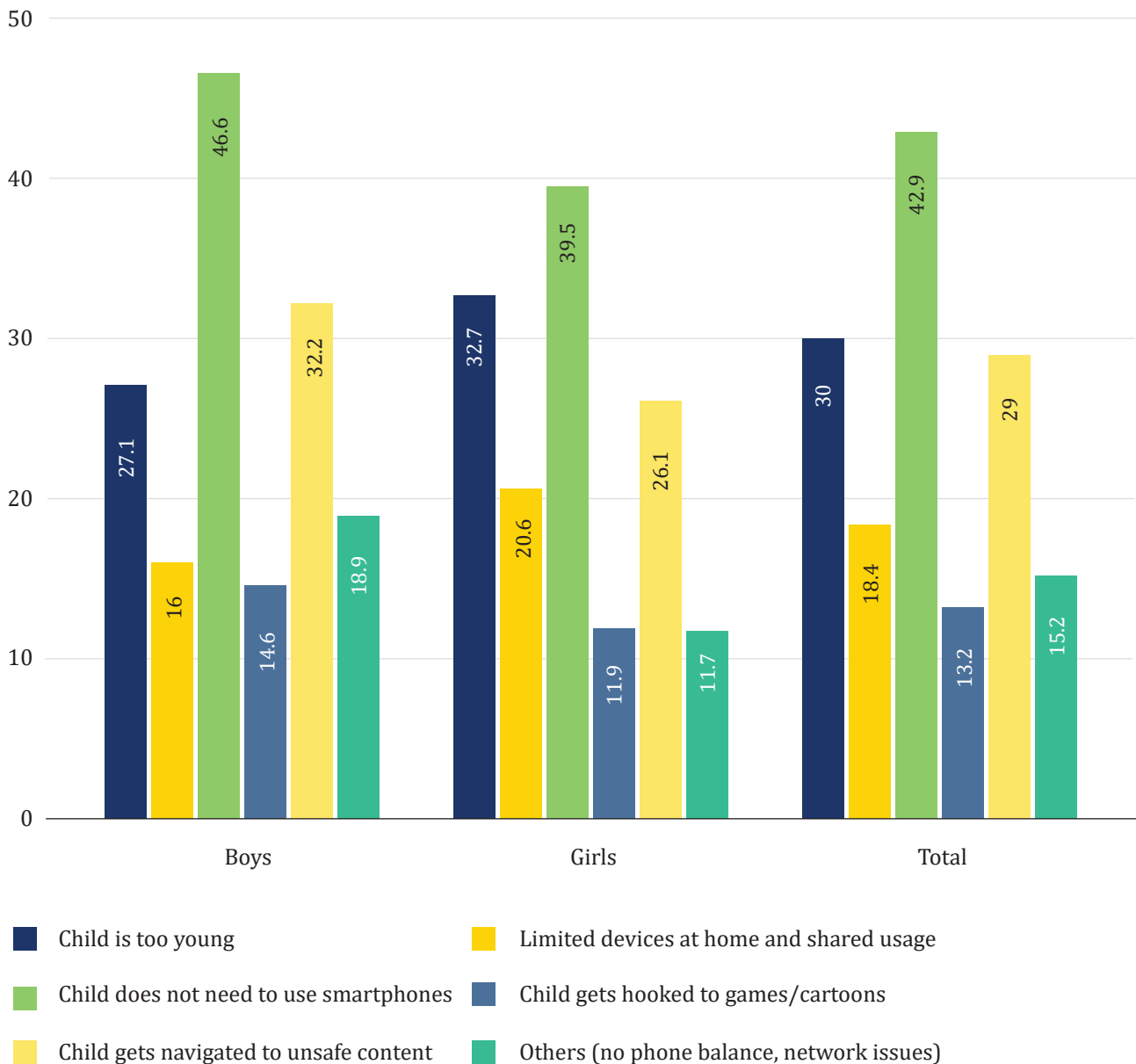
6.1.2.2 Access to the internet

Nearly all children were able to access the internet on their smartphones, however, nearly half the children had intermittent internet access.

Overall, of the children who used smartphones, almost all children reported having access to the internet. However, around 50% of the children reported intermittent access[7] to the internet. Children in urban households (63%) were found to be more likely to have uninterrupted access to the internet compared to children in rural households (45%) (Table 15). No notable difference in the accessibility of the internet was found between girls and boys (Table A18, Annexure C).

Table 15: Frequency of internet availability on the smartphones used by the children[8]

Internet Availability	Urban	Rural	Total
Always	62.7	44.6	50.2
Sometimes	37.2	55.3	49.6

Internet recharge getting exhausted was cited as the most prominent reason for intermittent internet access across rural and urban households.

Of all the children who had intermittent access to the internet, 93% reported 'internet recharge getting exhausted' as the primary reason, followed by 25% saying that 'phones were not available at home'. The availability of smartphone(s) at home was reported to be a reason for intermittent access to the internet by a greater proportion of urban households (31%) compared to rural households (24%). Network issues were reported to be more prevalent in rural households (12%) compared to urban households (1%) (Table 16). No notable differences were noted between boys and girls (Table A19, Annexure C).

Table 16: Reason for intermittent access to the internet on smartphones used by the children

Reasons for intermittent internet access on smartphones	Urban	Rural	Total
Network issues in the household	1.2	11.5	9
Internet recharge gets exhausted	88.3	94.1	92.8
Phone is usually not at home	30.6	23.8	25.4
Others	0.4	0.2	0.2

6.1.2.3 Usage of smartphones

Most children who had access to smartphones used them daily. Daily usage was highest among children in secondary grades.

Among children who had access to smartphones at home, more than 60% used them daily. A greater proportion of children in rural areas used smartphones daily (65% rural and 60% urban). In urban households, a greater proportion of girls (64%) used smartphones daily as compared to boys (55%) (Table 17). Further, it is interesting to see that of the children who were studying in grades 9-12, a greater proportion used smartphones daily (69%), whereas this proportion was slightly lower for children studying in grades 1-5 (58%) (Table 18).

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7   'Intermittent access to the internet' refers to situations in which the child could access the internet sometimes due to slow speed of internet, connectivity issues, and others.

8   The survey contains multiple response questions, in which each respondent selected more than one option for the question asked. In the tables generated for such questions, the percentage will always exceed 100%. Therefore, for ease of the reader's understanding, the rows with the 'total' for such tables have been removed. This rule has been uniformly followed in the entire report.

Table 17: Number of days in a week for which smartphones were used by boys and girls across urban and rural households

Number of days per week for which a smartphone was used	Urban			Rural		
	Boys	Girls	Total	Boys	Girls	Total
1 day a week	3.7	5.9	4.9	1.3	2.2	1.7
2-3 days in a week	16.8	11.2	13.8	16.1	14.2	15.2
4-5 days in a week	21.7	17.6	19.4	16.7	19.7	18.1
Daily	55.1	64.1	60	65.6	63.8	64.8
Weekend	2.8	1.2	1.9	0.4	0.2	0.3
Total	100	100	100	100	100	100

Table 18: Number of days in a week for which smartphones were used by the children enrolled in different grades

Number of days per week for which a smartphone was used	Grades 1-5	Grades 6-8	Grades 9-12	Total
1 day a week	2.2	1.8	4.3	2.7
2-3 days in a week	17.2	13.9	11.3	14.8
4-5 days in a week	21.2	17.1	15.2	18.5
Daily	58.3	66.7	68.5	63.3
Weekend	1.1	0.5	0.6	0.8
Total	100	100	100	100

On a given day, most children had more than 30 minutes of session time on smartphones. Children in rural households were more likely to spend more than 1 hour on a smartphone compared to children in urban households.

Overall, parents/guardians reported that 74% of children had more than 30 minutes of session time on smartphones on a given day, with a similar proportion of children in urban (75%) and rural (72%) households. A higher proportion of children in rural households (30%) compared to children in urban households (21%) had more than 1 hour of session time on their smartphones (Table 19).

Table 19: Time spent by children on smartphones in a given day across rural and urban settlements

Time spent on smartphones in a given day	Urban	Rural	Total
<30 mins	25.6	26.8	26.4
30 min - 1 hr	53.8	43.4	46.6
>1 hr	20.7	29.8	26.9
Total	100	100	100

A higher proportion of boys (30%) and children in secondary grades (44%) spent more than 1 hour on smartphones. (Table 20, Figure 21)

Table 20: Time spent by boys and girls on smartphones in a given day

Time spent on smartphones in a given day	Boys	Girls	Total
<30 mins	24.7	28.2	26.4
30 min - 1 hr	45	48.4	46.6
> 1 hr	30.3	23.5	26.9
Total	100	100	100

	<30 mins	30 min - 1 hr	> 1 hr
Grades 1-5	34.8	48.5	16.7
Grades 6-8	22.5	49.7	27.8
Grades 9-12	15.7	40.3	44
Total	26.4	46.6	26.9

Children with 'dedicated access' to smartphones spent more time on smartphones.

Smartphone usage was also found to be associated with the type of access children had to smartphones. More time was spent on smartphones by dedicated users. Parents/guardians reported that 88% of children, with dedicated access, had more than 30 minutes of session time on smartphones on a given day. Additionally, 62% of children with dedicated access and 24% of children with shared access spent more than 1 hour on the smartphone (Figure 22)

Figure 22: Time spent by children on smartphones in a given day, examined for the type of device access

	<30 mins	30 min - 1 hr	> 1 hr
Dedicated access	11.7	26.8	61.5
Shared access	27.7	48.3	23.9
Total	26.4	46.6	26.9
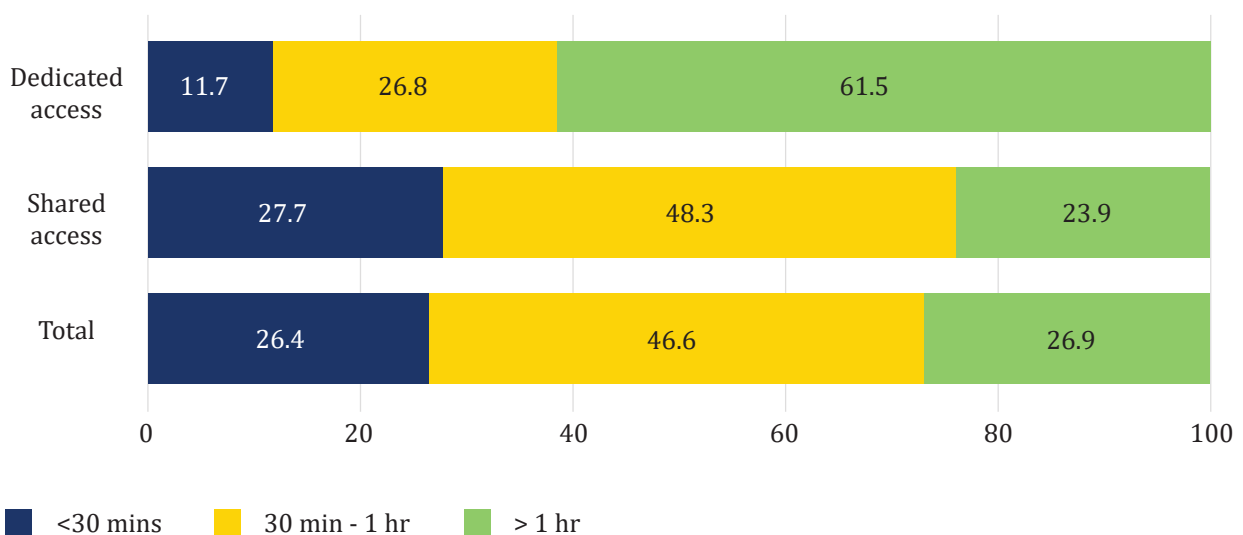
6.2 User Sentiment Towards EdTech Adoption

To understand the user sentiment of caregivers towards adoption of technology for learning, certain home ecosystem elements such as the household-level beliefs and behaviors around child's education at large and their perceptions around technology were explored. This section examines certain beliefs and behaviors that could drive the exploration of avenues for ensuring quality education for their children, such as the nature and extent of support provided at home by caregivers, resources dedicated towards conventional mediums such as private tuitions, and other learning avenues. The section also explores the awareness levels of caregivers regarding technology for learning and advocacy of EdTech. Overall, these insights seek to provide a sound understanding of the inclination of a household to adopt technology for their child's education.

6.2.1 Caregiver's sentiment around school education

33% of the households surveyed believed that in-school education was not sufficient for performing well in studies.

33% of the households surveyed believed that in-school education was not sufficient for performing well in studies (Figure 1). However, variations were observed at a state and settlement level. Amongst the states surveyed, Odisha reported the highest proportion of households that believed in-school education was insufficient (65%), whereas households in Telangana reported the lowest proportion (9%). (Table A20, Annexure C). Additionally, a greater proportion of households in urban areas believed that in-school education was insufficient (38%), as compared to households in rural areas (32%) (Figure 1).

No notable differences were noted at the grade level. (Table A21, Annexure C).

Figure 1: Proportion of households that believed in-school education was not sufficient, across urban and rural households
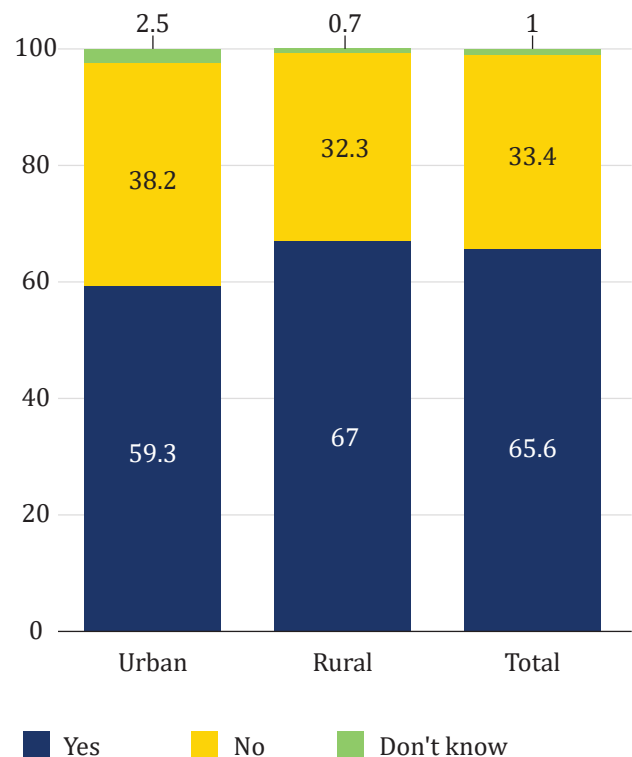
6.2.2 At-home learning support

Most children received support at-home for learning from their household members. Mothers provided support to their children in learning at home more than fathers.

70% of children in the surveyed households received some learning support from household members. A higher proportion of children in urban households (77%) received learning support compared to children in rural households (69%).

Further, of all children who received at-home learning support, 40% received support from their mothers, 23% received support from their fathers and 17% received support from their elder sibling(s) (Figure 2).

Figure 2: Household members who supported children's at-home learning, across urban and rural households
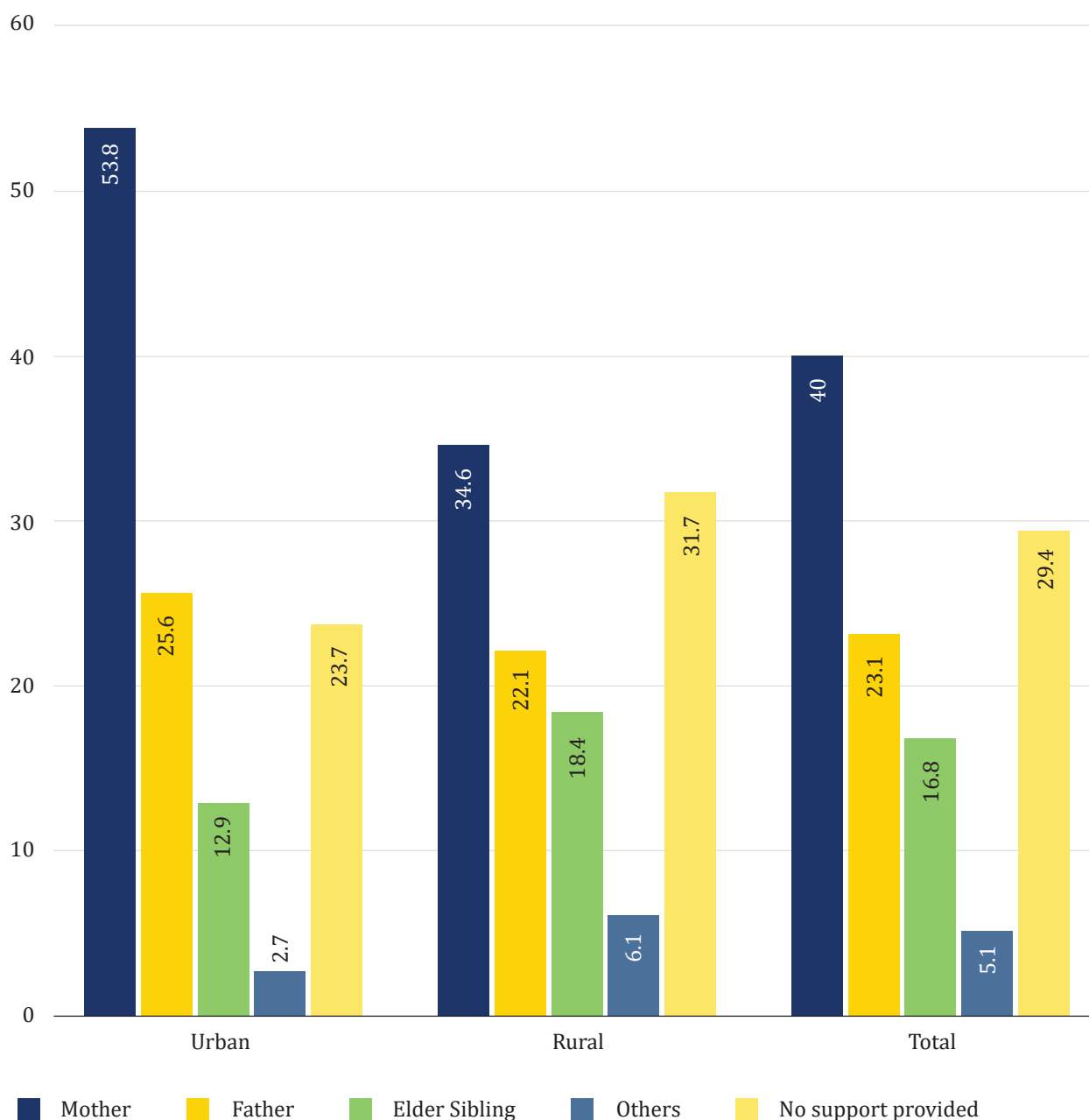
Children enrolled in primary grades received more at-home learning support, compared to secondary grades.

80% of children in the primary grades received at-home learning support, compared to 70% of children in middle grades and 52% of children in secondary grades. Across grades, a higher proportion of mothers than fathers and other household members supported their children in learning at home in secondary grades—siblings (20%) supported more than they did in primary grades (14%) (Table 3).

Household members who supported children's at-home learning	Grades 1-5	Grades 6-8	Grades 9-12	Total
Mother	50.5	36.5	21.9	40
Father	26.7	23.9	14.6	23.1
Elder Sibling	14	19.3	20	16.8
Others	6.1	4.8	3.5	5.1
No support provided	20	30.2	48.4	29.4

More than 75% of household members kept track of what was done in the child's school, and supported them in completing their homework. Children in primary grades received the most support with completing their homework, whereas, for children in secondary grades, household members spent most time checking what was done in school.

The most prominent types of at-home learning support for children included checking what was done in school (79%); supporting them with completing homework (77%); assisting them in studying/clarifying doubts/revising (56%) and supporting the children with some learning activities (29%).

Most children in primary grades received support with completing homework (83%) and checking what was done in school (80%), whereas, 58% and 76% of children in secondary grades received support with these activities respectively (Table 4).

No notable differences were observed at the gender level (Table A22, Annexure C).

Table 4: At-home learning support provided to children, examined for the different grades

At-home learning support provided to children	Grades 1-5	Grades 6-8	Grades 9-12	Total
Support in completing homework	83.4	75.8	57.8	77
Assist child in studying/clarifying doubts/revising	55.6	58.3	54	56
Check what is done in school	80.3	78.2	76.3	79
Do some learning activities with the child/ support the child in learning activities	29.6	29.6	26.8	29.1
Need based: when the child requires help with some subject/topic	23.2	21.7	26.8	23.4

6.2.3 Paid private tuition

Children in primary grades in urban households were more likely to have availed paid private tuition compared to children in middle and secondary grades.

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9   The survey contains multiple response questions, in which each respondent selected more than one option for the question asked. In the tables generated for such questions, the percentage will always exceed 100%. Therefore, for ease of the reader's understanding, the rows with the 'total' for such tables have been removed. This rule has been uniformly followed in the entire report.

Children in urban households (47%) availed paid private tuition more than rural households (34%) (Figure 5). This avenue of learning was also chosen more by children in primary grades and secondary grades (Table 6). A greater proportion of boys (42%) availed paid private tuition compared to girls (32%) (Table 7).

It was also noted that among the children in urban households who availed paid private tuition, a notably higher proportion of children were enrolled in grades 1-5 (58%), whereas, in rural households, paid private tuition users were more evenly distributed (Figure 8).

Figure 5: Proportion of children who availed paid private tuition across rural and urban households
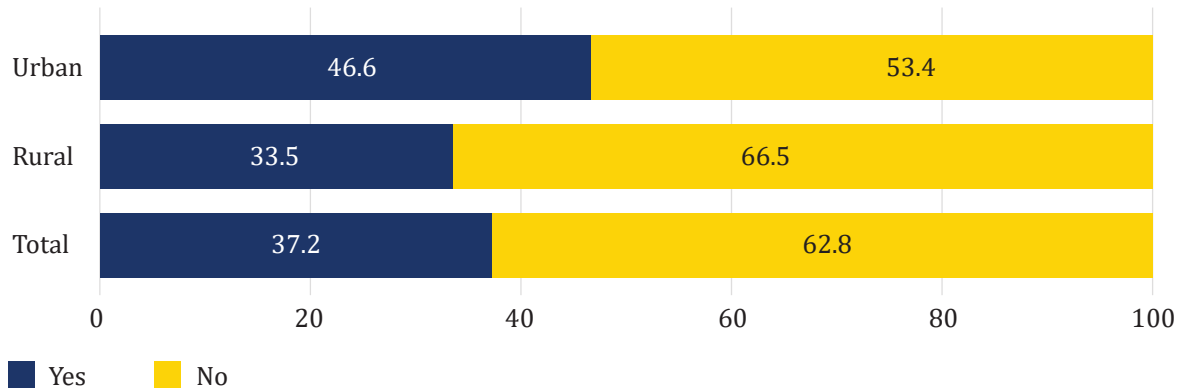
Table 6: Proportion of children who availed paid private tuition across different grades

Availed paid private tuition	Grades 1-5	Grades 6-8	Grades 9-12	Total
Yes	39.8	31.9	37.8	37.2
No	60.2	68.1	62.2	62.8
Total	100	100	100	100

Table 7: Proportion of boys and girls who availed paid private tuition

Availed paid private tuition	Boys	Girls	Total
Yes	42	32.1	37.2
No	58	67.9	62.8
Total	100	100	100

Figure 8: Proportion of children in different grades who availed paid private tuition across urban and rural households
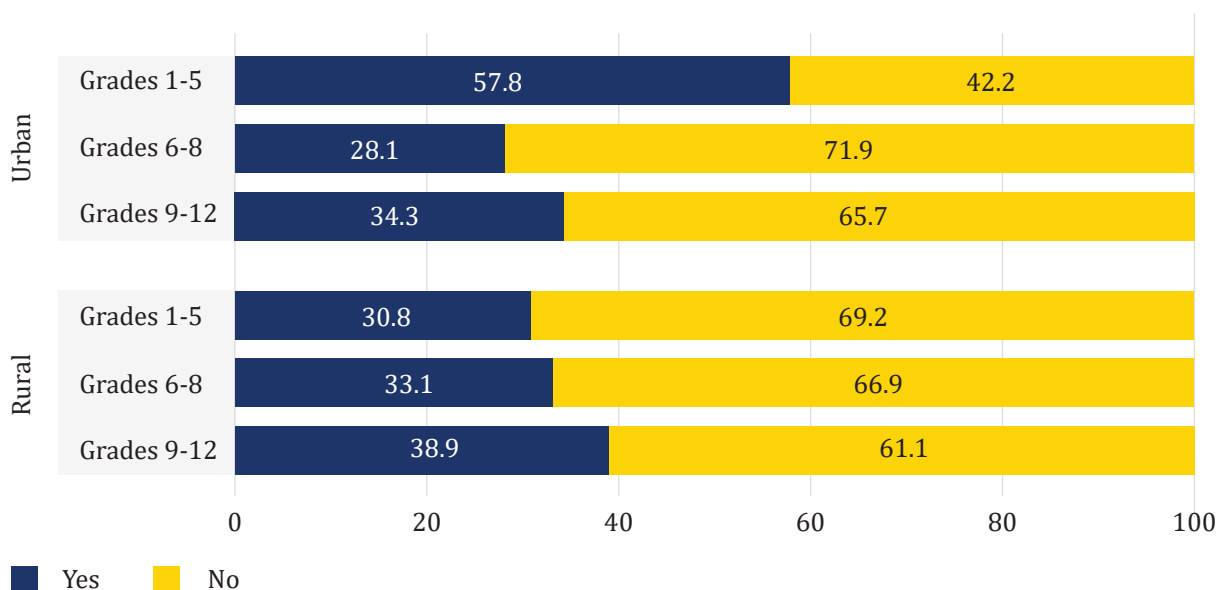
On average, parents/guardians spent INR 355 monthly on their child's private tuition. Within urban households, parents/guardians spent INR 453 whereas rural households spent INR 300.

The survey also explored how much parents/guardians spent on their child's private tuition in a month enrolled across government and private schools. It was found that 47% of the households spent less than INR 250 per month on private tuition, followed by 41% of households that spent INR 250-500.

On average, parents/guardians in urban households spent INR 453 on private tuition and those in rural households spent INR 300. A higher proportion of rural households (55%) spent less than INR 250 whereas a higher proportion/majority of urban households (47%) spent between INR 250-500 (Figure 9).

Figure 9: Monthly expenditure incurred by parents/guardians on their child's private tuition

Legend:
- INR less than 250
- INR 250 to 500
- INR 500 to 750
- INR 750 to 1000
- INR 1000 to 3000
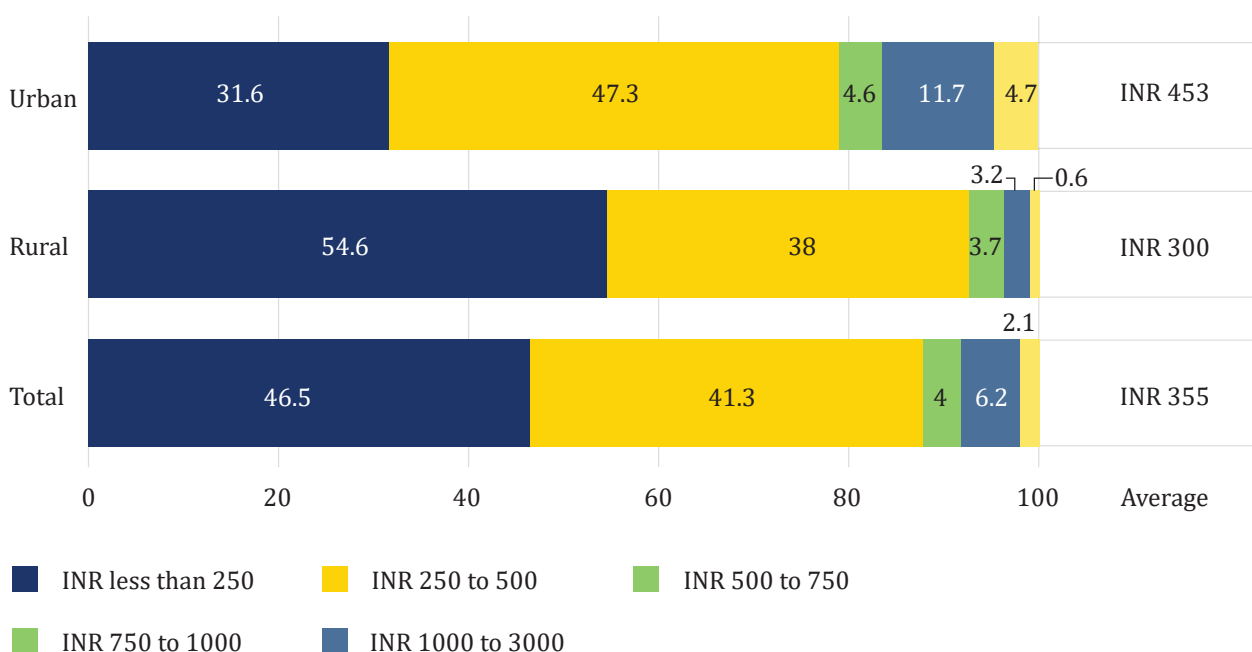
6.2.4 Sentiment towards using EdTech

The previous sections analyzed sentiments around more traditional forms of education and schooling support, using views around sufficiency of in-school education as an indicator. Further, the section also examined the proportion of resources allocated towards education and the availing of additional support for students such as paid private tuition. Having examined these avenues for a child's education, the survey seeks to understand households' exploration of technology-based tools. This is indicated by parents' understanding and awareness of common technological tools, advocacy for EdTech, and inclination to purchase a smartphone for educational purposes.

86% of parents/guardians were aware that technology can be used for learning purposes. Awareness levels were higher for parents/guardians of children in secondary grades.

Overall, 86% of the respondents reported that they were aware of technology as a medium of learning. Respondents from Gujarat (99%) showed the highest awareness levels, whereas respondents from Madhya Pradesh (71%) showed the lowest awareness levels (Table A23, Annexure C). Overall, urban households (96%) had higher awareness levels of EdTech than rural households (82%) (Figure 10).

Urban — Yes 95.7, No 4.3
Rural — Yes 82.1, No 17.9
Total — Yes 86.2, No 13.8

■ Yes   ■ No
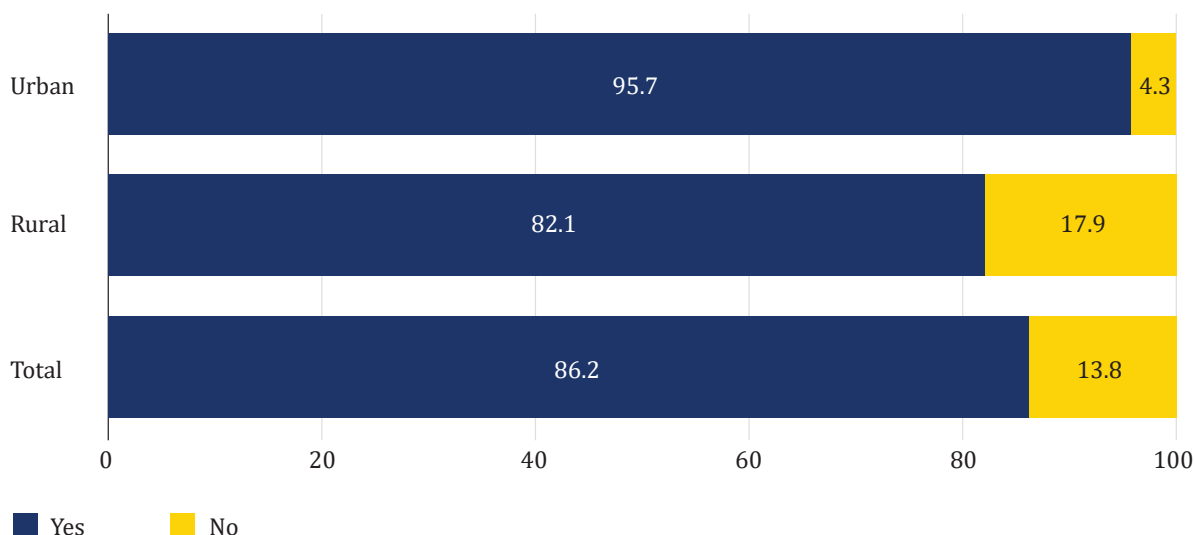
It was also noted that parents/guardians of children in secondary grades were more aware of EdTech (90%) than parents/guardians of children in primary grades (82%) (Table 11).

Table 11: Awareness levels of parents/guardians about using EdTech examined for the different grades

Awareness levels of parents/guardians about using EdTech	Grades 1-5	Grades 6-8	Grades 9-12	Total
Yes	82.1	87.5	89.9	85.4
No	17.9	12.5	10.1	14.6
Total	**100**	**100**	**100**	**100**

6.2.5 Advocacy of EdTech

Most parents/guardians expressed their willingness to advocate EdTech solutions. The prevalence of advocacy was greater in urban households and among parents/guardians of children enrolled in secondary grades.

67% of all the surveyed households expressed a likelihood to advocate for EdTech. 8% of the households did not advocate EdTech and 25% didn't comment as they had not previously used EdTech. The prevalence of advocacy of EdTech solutions was notably greater in urban households (79%), compared to rural households (62%) (Figure 12).

Figure 12: Perspectives of respondents towards advocacy of EdTech solutions, across urban and rural households

Urban — Yes 78.5, No 9.8, Haven't used EdTech 11.7
Rural — Yes 62, No 7.5, Haven't used EdTech 30.4
Total — Yes 66.9, No 8.2, Haven't used EdTech 24.8

■ Yes   ■ No   ■ Haven't used EdTech, can't comment
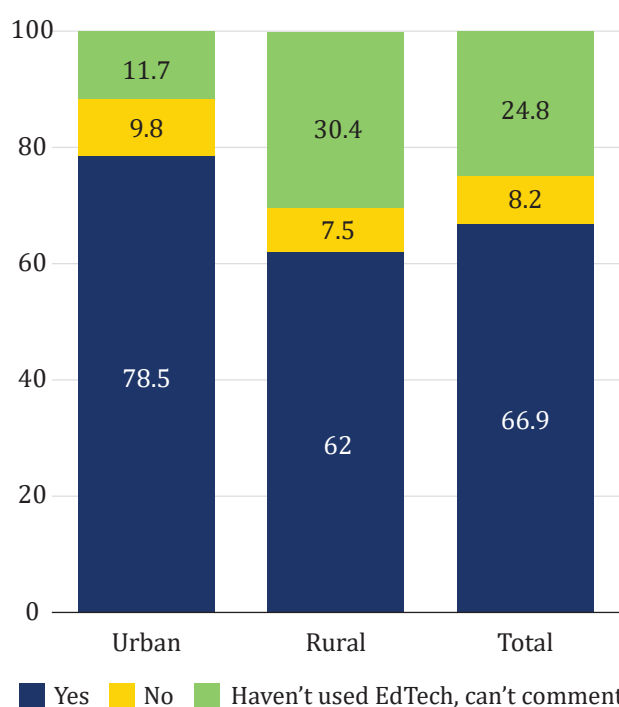
Advocacy was also greater among parents/guardians whose children were enrolled in secondary grades (Figure 13).

Figure 13: Perspectives of respondents towards advocacy of EdTech solutions, examined for the different grades
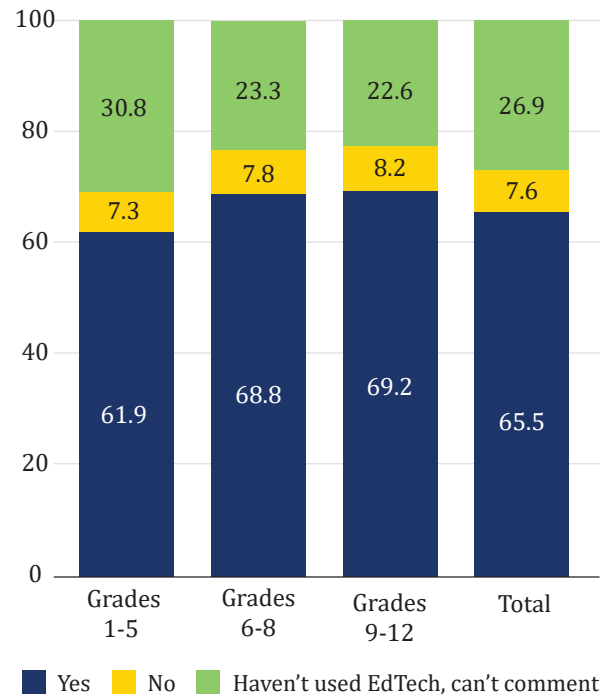
6.2.6 Intention to purchase smartphones for learning purposes

11% of all the household respondents stated an intention to purchase smartphones for learning purposes 'within the next 6 months''. The inclination was higher among parents of children in secondary grades.

11% of the household respondents stated an intention to purchase smartphones 'within the next 6 months' of the survey [10] (Figure 14). No major variations were reported across urban and rural households (Table A24, Annexure C).

Parents/guardians of children in middle grades were more inclined to buy smartphones (14%) than parents/guardians of children in primary grades (10%).

Figure 14: Intention of parents/guardians to purchase smartphones for learning purposes in the next 6 months examined at the level of their children's grades

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10 The survey was conducted from November 2022 to January 2023

Intention to purchase smartphones for education purposes was higher for parents/guardians who did not own a smartphone at the time of the survey.

Smartphone ownership had a bearing on the intention to purchase one. Those who did not own a smartphone at the time of the survey expressed a greater interest in buying one (26%) compared to those who owned a smartphone (8%) (Figure 15).

Figure 15: Intention of parents/guardians to purchase smartphones for education purposes in the next 6 months examined based on the availability of smartphones within the households
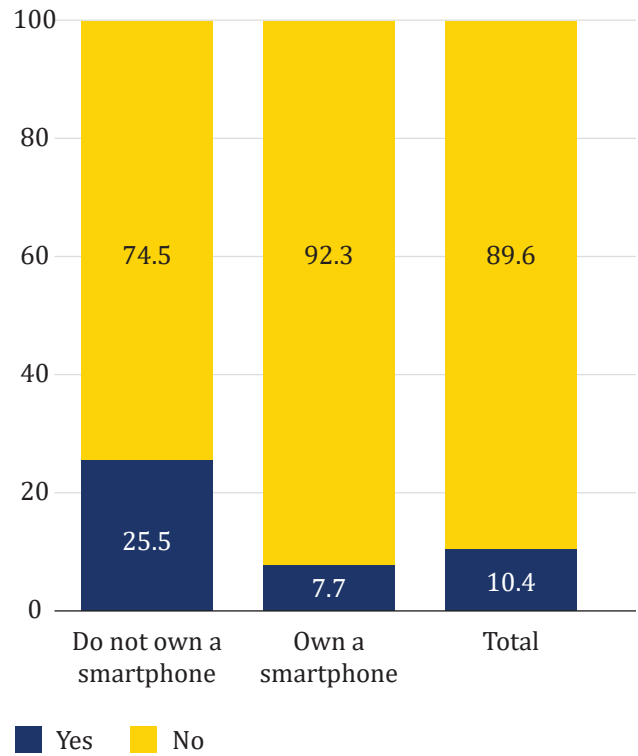
6.3 EdTech Usage

In this section, trends around children's adoption of technology for learning purposes (EdTech) have been explored. The academic year of 2020-21 during the pandemic lockdown period has been used as the starting year to explore the trends in EdTech usage. The survey identified users of EdTech by considering their usage behavior. The proportion of children who were using EdTech at the time of the survey was considered 'present users'. Their usage was examined at a settlement level with variations at the grade and gender level.

In cases where EdTech is used at present, it is likely to be enabled by one of the two methods: (i) teacher-directed material shared through WhatsApp/text or (ii) self-learning by the child using smartphones. This section examines trends at the level of overall children, variations at the settlement level, gender, and grade level. Additionally, the section explores the experience of EdTech users by understanding the types of tools children use for learning purposes, the subjects, and the reasons they use it for.

6.3.1 EdTech users

51% of the children were 'present users' of EdTech. Urban households had a higher prevalence of present users.

More than half the children across the surveyed households were present users of EdTech (51%). Overall, 41% had never used technology for learning and 8% had discontinued it[11] (Figure 1). Telangana had the highest proportion of present users (87%) and the lowest proportion of non-users (11%) and discontinued users (1%). Nearly half the children in Uttar Pradesh (50%) and Madhya Pradesh (49%) had not used EdTech. Additionally, within Gujarat, 72% were present users and nearly 27% of children in Mizoram were discontinued users of EdTech (Table A25, Annexure C).

At a settlement level, the prevalence of present users was higher in urban households (57%) compared to rural households (48%). However, the prevalence of discontinued users was higher in rural areas (9%) compared to urban areas (7%). For non-users, the prevalence was higher in rural households (43%) compared to urban households (37%) (Figure 1).

Figure 1: Proportion of different types of EdTech users across urban and rural households

	Discontinued users	Present Users	Non user
Urban	6.7	56.8	36.5
Rural	8.5	48.3	43.3
Total	8	50.7	41.3

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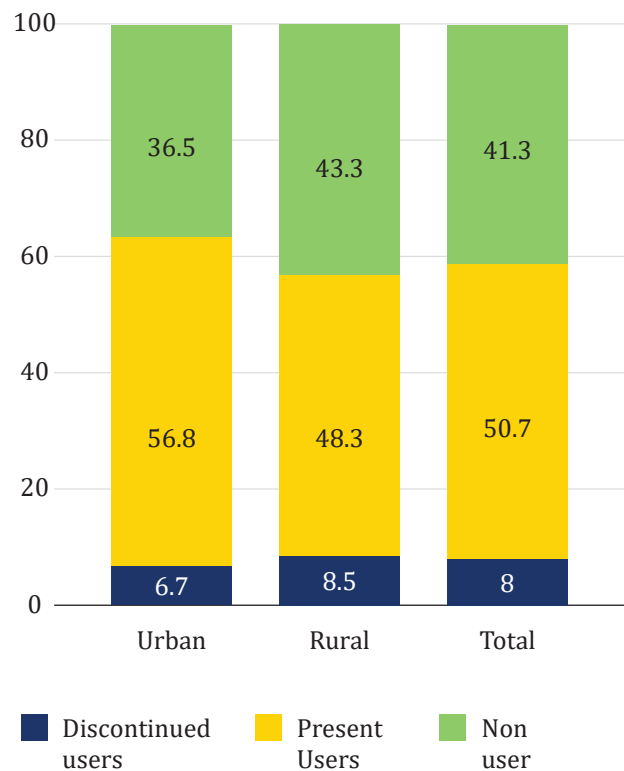
11 Children who were using EdTech in AY 2020-21 and at the time of the survey are referred to as 'present users'; children who were using EdTech in AY 2020-21 but not at the time of the survey are referred to as 'discontinued users'; children who were not using EdTech in AY 2020-21 and at the time of the survey are referred to as 'non-users'.

Middle and secondary grades had the highest proportion of present users of EdTech.

A higher prevalence of present users of EdTech was noted in middle and secondary grades. In grades 9-12, 72% were present users of EdTech, followed by 55% in grades 6-8 and 39% in grades 1-5. The primary grades had the highest proportion of non-users (53%). (Figure 2) At a gender level, no notable differences were found across types of EdTech users (Table A26, Annexure C).

Figure 2: Proportion of different types of EdTech users across different grades
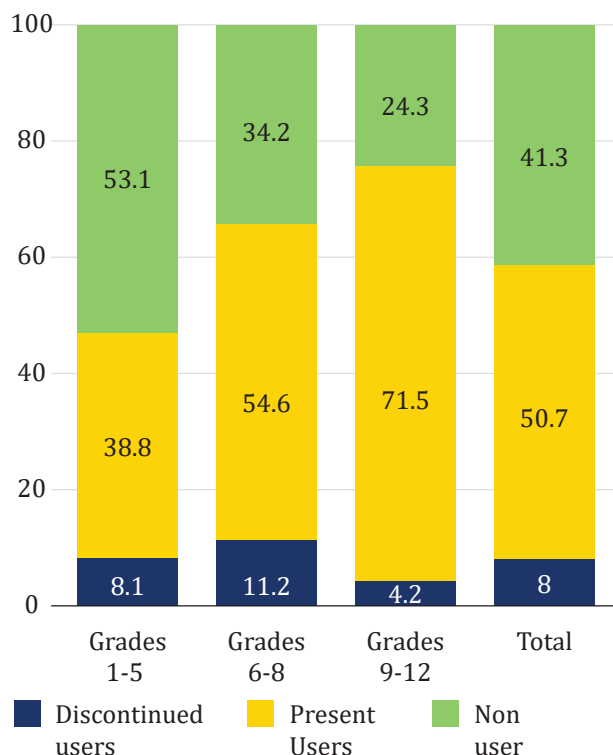
	Grades 1-5	Grades 6-8	Grades 9-12	Total
Non user	53.1	34.2	24.3	41.3
Present Users	38.8	54.6	71.5	50.7
Discontinued users	8.1	11.2	4.2	8

6.3.2 Present EdTech usage

6.3.2.1 Teacher-directed learning

About 1 in 3 children received 'teacher-directed materials' on the smartphones in the household at the time of the survey, with children in urban households and secondary grades more likely to have received these materials.

Of all the children surveyed, 32% of children reported receiving 'teacher-directed materials' on smartphones at the time of the survey, with children in urban households (43%) more likely to have received these materials, compared to children in rural households (28%) (Figure 3).

Figure 3: Proportion of children who received teacher-directed materials through a digital medium across urban and rural households

	Urban	Rural	Total
No	56.6	71.9	67.6
Yes	43.3	27.9	32.3
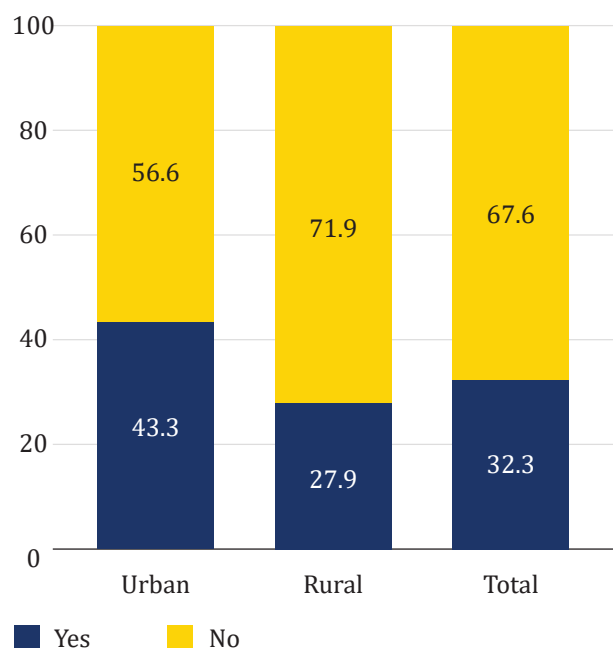
Children enrolled in secondary grades had a greater prevalence of receiving 'teacher-directed materials'. 43% of 9th-12th graders received teacher-directed materials, compared to 35% of 6th-8th graders and 26% of 1st-5th graders (Table 4). The difference in exposure was more prominent for urban households, where 32% of children in grades 1-5 received teacher-directed materials, compared to 66% of children in grades 9-12 (Table A27, Annexure C). Additionally, children enrolled in private schools (35%) were more likely to have received teacher-directed learning materials than those enrolled in government schools (31%) (Table 5).

Table 4: Proportion of children who received teacher-directed materials through a digital medium, examined across different grades

Teacher-directed material received through a digital medium	Grades 1-5	Grades 6-8	Grades 9-12	Total
Yes	25.9	35.2	42.5	32.3
No	74.1	64.7	57.2	67.6
Total	**100**	**100**	**100**	**100**

Table 5: Proportion of children who received teacher-directed materials through a digital medium, examined for the type of school the children were enrolled in

Teacher-directed material received through a digital medium	Government School	Private School	Total
Yes	31	34.7	32.3
No	68.9	65.2	67.6
Total	**100**	**100**	**100**

6.3.2.2 Self-learning

Half the surveyed children reported self-learning through EdTech. Children in secondary grades used EdTech for self-learning more as compared to children in primary and middle grades.

About 50% of children from the surveyed households reported that they used EdTech for 'self-learning'. Children in urban households reported a higher prevalence of self-learning through EdTech (56%) compared to children in rural households (48%) (Figure 6).

Figure 6: Proportion of children who pursued self-learning through any digital medium across urban and rural households

n=9.8k ■ Yes ■ No
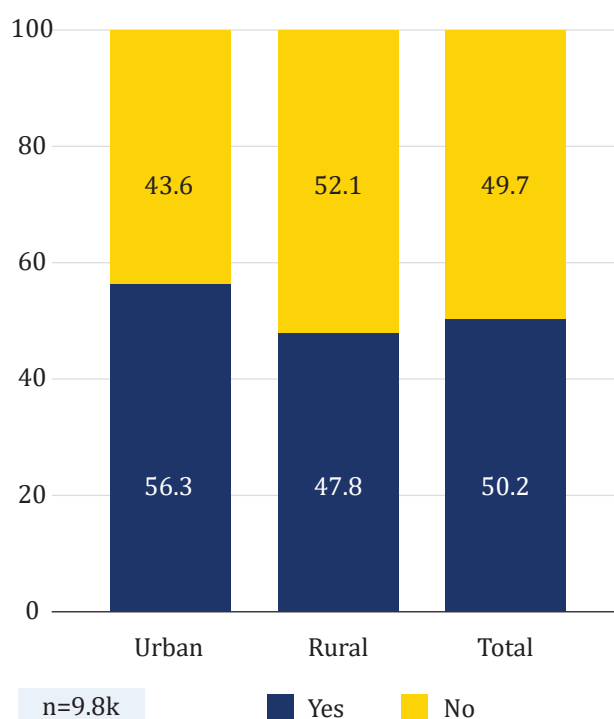
Children in grades 9-12 were more likely to have used EdTech for self-learning (71%), compared to children in grades 1-5 (38%) (Figure 7).

While at an overall level, no notable gender difference was reported for self-learning amongst children in the surveyed households (Table A28, Annexure C). A greater proportion of girls (67%) than boys (45%) in urban areas and a greater proportion of boys (50%) than girls (45%) in rural areas were more likely to be using EdTech for self-learning (Figure 8). Additionally, self-learning through EdTech was also found to be higher for children studying in private schools (54%), compared to those studying in government schools (48%) (Figure 9).

Figure 8: Proportion of boys and girls who pursued self-learning on any digital tools across urban and rural households
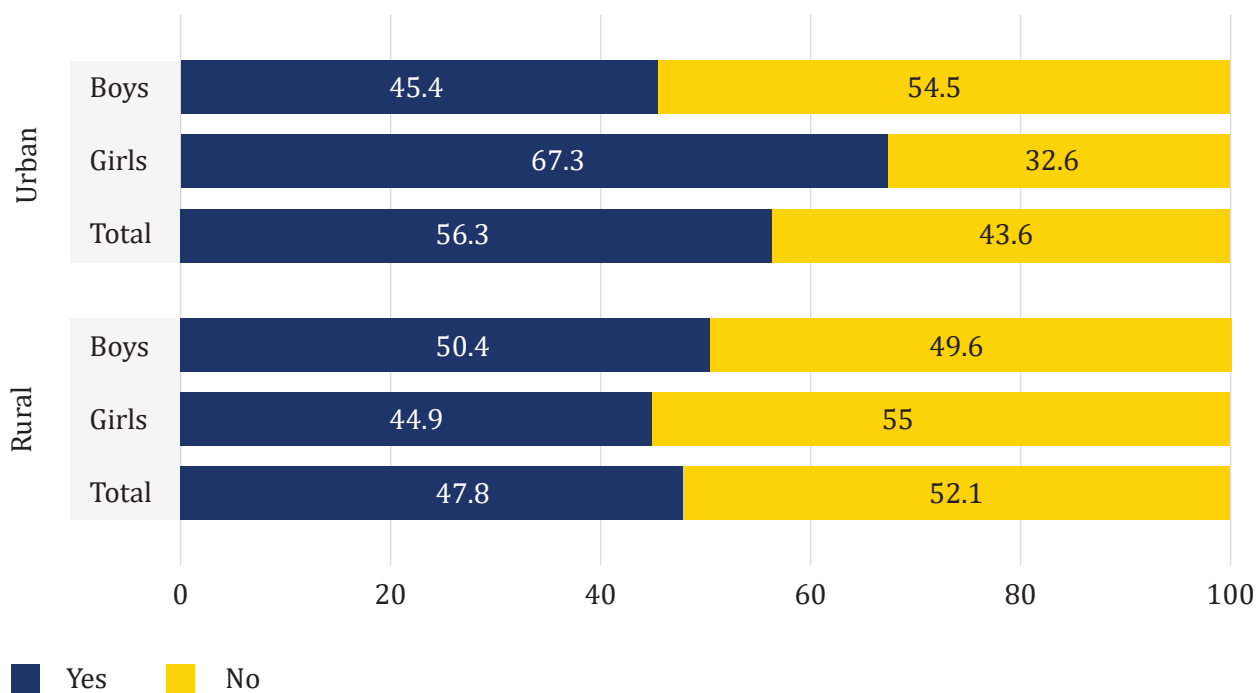
Figure 9: Proportion of children who pursued self-learning through a digital medium, examined for the type of school the children were enrolled in

Government School — Yes: 48.1, No: 51.8
Private School — Yes: 54.2, No: 45.7
Total — Yes: 50.2, No: 49.7

■ Yes ■ No
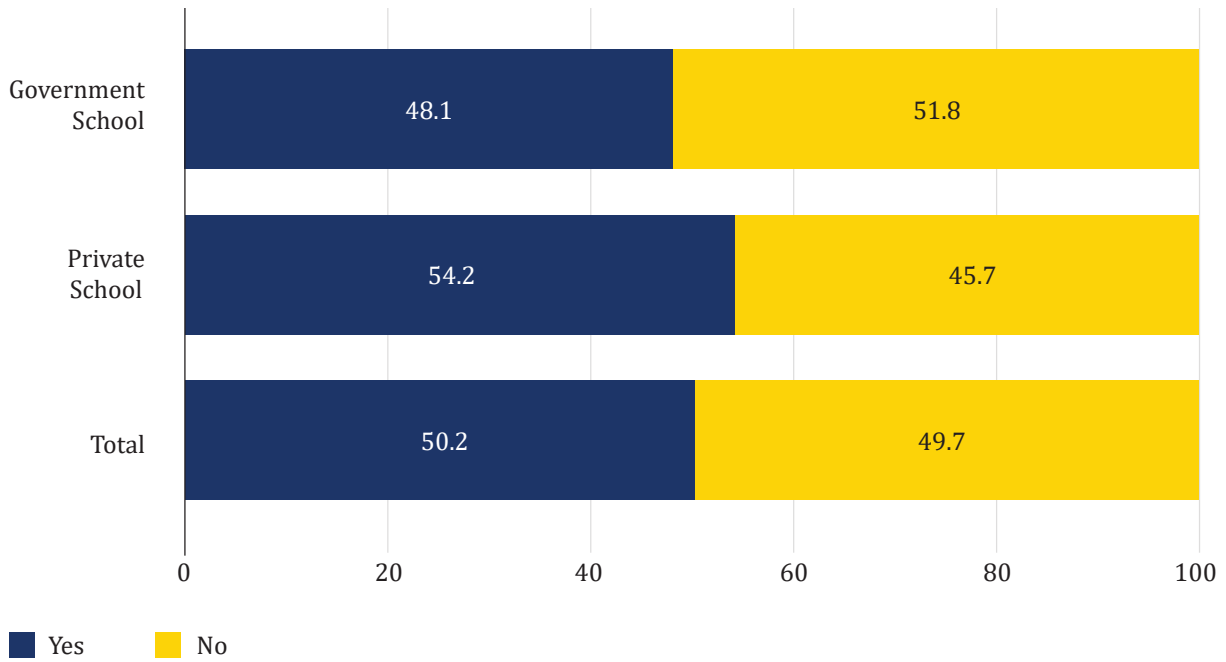
Nearly 9 in 10 dedicated smartphone users were engaged in self-learning as compared to only 7 in 10 shared users.

Compared to 69% of shared smartphone users, 88% of dedicated smartphone users used EdTech for self-learning. Additionally, 12% of dedicated users did not engage in any self-learning, compared to 31% of shared users (Figure 10).

Children who attended paid private tuition (49%) and those who did not (51%), engaged in self-learning through EdTech in similar proportions. Hence, the presence or absence of paid private tuition did not have any bearing on self-learning through EdTech (Table A29, Annexure C).

Figure 10: Proportion of children who pursued self-learning on any digital platform, examined for the type of smartphone access to the children

Dedicated access — Yes: 87.4, No: 12.4
Shared access — Yes: 68.7, No: 31.2
Does not use the smartphone — Yes: 0.2, No: 99.7
Total — Yes: 50.2, No: 49.7

■ Yes ■ No
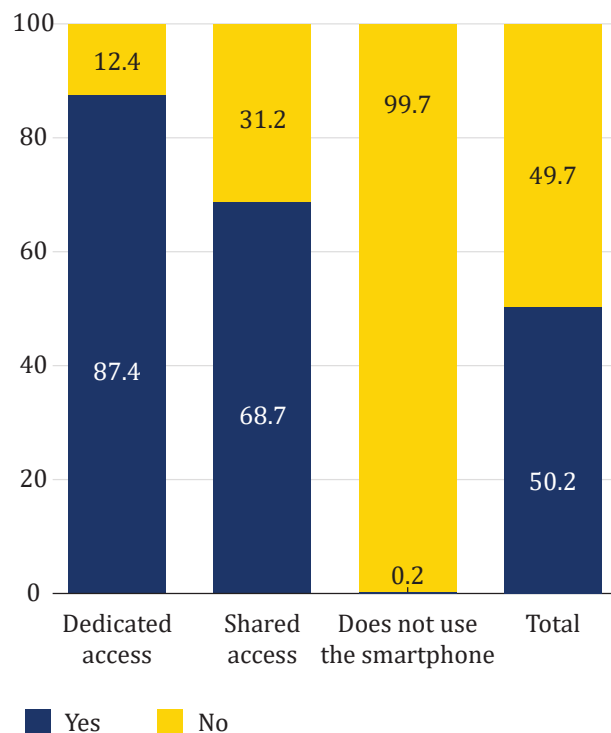
6.3.3 Present EdTech user experience

The survey sought to explore the experience of EdTech users by understanding the tools they prefer to use, which subjects they use them for, and why. This section specifically examines those who presently use Edtech and their experience of the same.

6.3.3.1 Tools used for EdTech

YouTube was found to be the most popular tool used for learning purposes. Overall, the prevalence of low-tech tools such as text, TV, and IVRS was low, but higher in urban areas as compared to rural areas.

The most prevalent tools reported for learning through technology were YouTube (89%), WhatsApp (62%), and Google (52%). YouTube (Urban 80%; Rural 93%) and Google (45% Urban; 55% Rural) were more frequently used by children in rural households, whereas WhatsApp (78% urban; 55% rural) was more frequently used in urban households (Figure 11).

While there was an overall low prevalence of low-tech tools such as text messages (8%), TV (7%), and IVRS (7%), children in urban areas were exposed more to these tools, compared to rural areas.

Figure 11: The different EdTech tools used by the children across urban and rural households
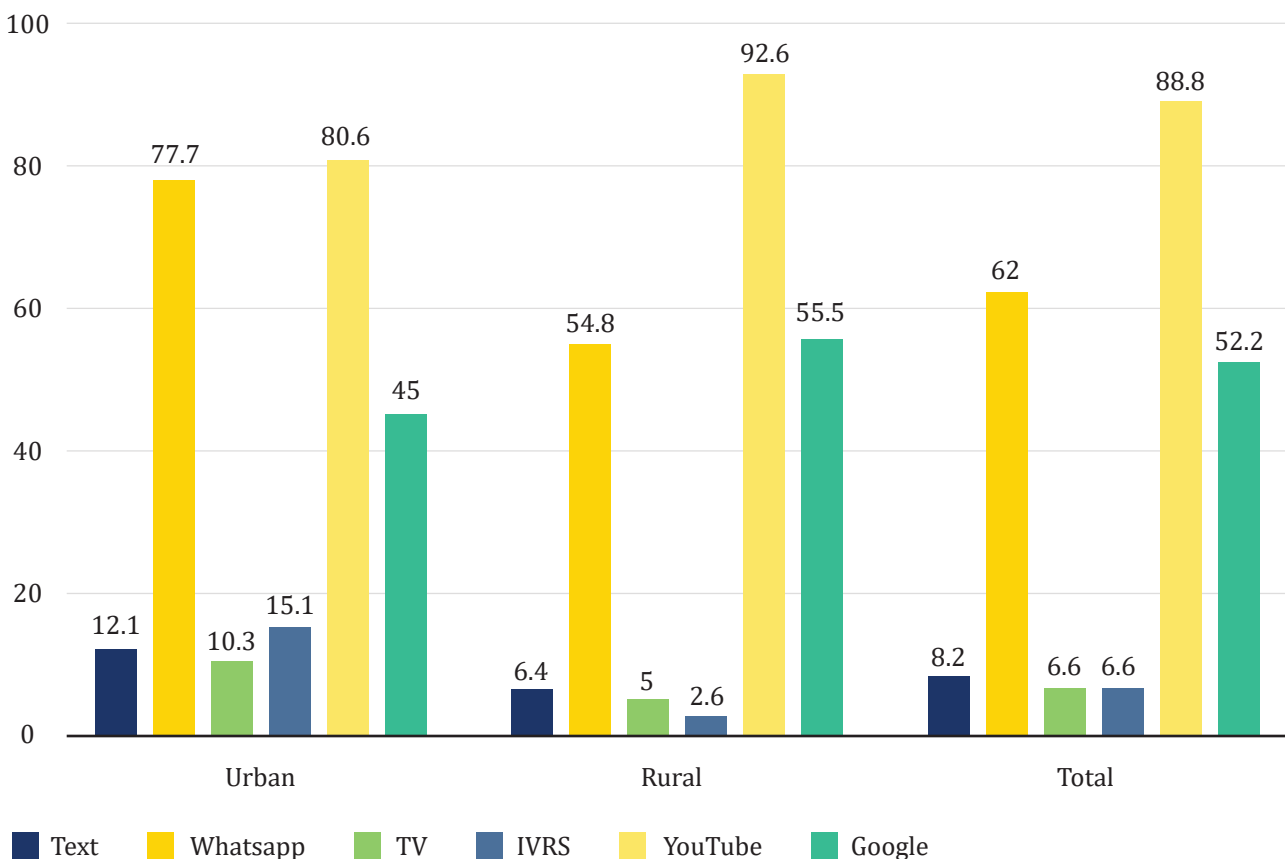
There was also an association between these three prominent tools and the grades of the children. The prevalence of these tools was noted to be higher in secondary grades (Figure 12). There were no notable gender differences in the type of EdTech tools used (Table A30, Annexure C).

Figure 12: The different EdTech tools used by the children, examined across the different grades

Legend: Text · Whatsapp · TV · IVRS · YouTube · Google
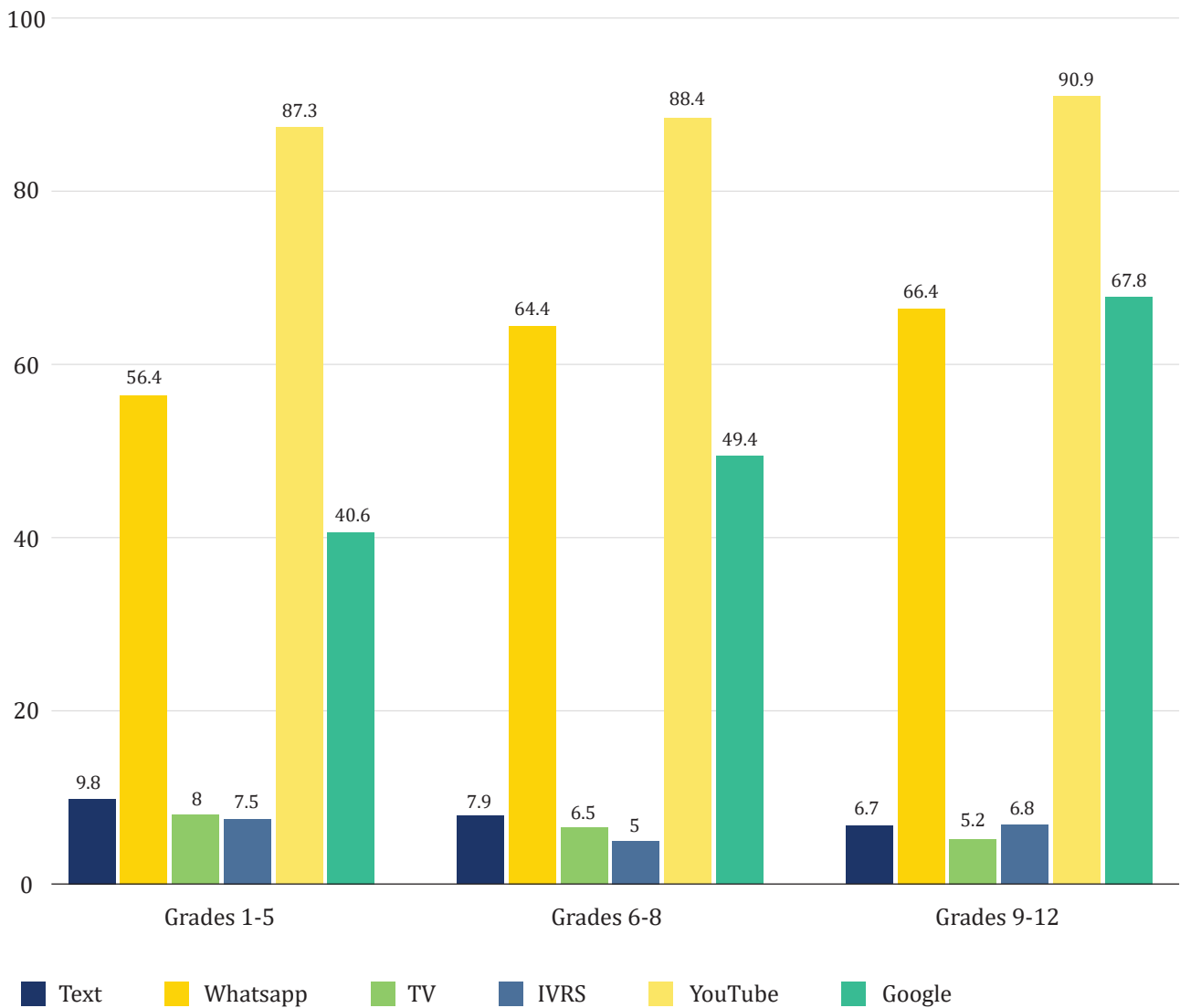
6.3.3.2 Subjects studied using EdTech tools

English and Mathematics were the most reported subjects for studying using EdTech tools.

Of the total present EdTech users, 84% used it to study English and 76% used it to study Mathematics. The other commonly studied subjects were Science/Environmental Studies (EVS) (57%), Languages (53%), and General Knowledge (GK) (31%). Further, a greater proportion of children in urban households used these tools for studying Mathematics (88%), followed by English (88%) and EVS (72%), while in rural households, English (83%) was reported as the most, followed by Mathematics (71%) and other languages (56%).

While EdTech was used by a smaller proportion of users to learn art and craft (15%), the urban-rural difference was notable with urban households (32%) being 4 times higher than rural households (8%) (Figure 13).

Figure 13: Subjects for which the children used EdTech tools

Chart legend: Mathematics, Science/EVS, English, Language (Hindi, other), GK, Other (Coding, Art and craft, Social science)

Urban: Mathematics 88.2, Science/EVS 71.5, English 87.9, Language (Hindi, other) 46.7, GK 38.9, Other 37.6
Rural: Mathematics 70.5, Science/EVS 50.6, English 82.6, Language (Hindi, other) 56.1, GK 27.8, Other 10.5
Total: Mathematics 76.1, Science/EVS 57.2, English 84.3, Language (Hindi, other) 53.1, GK 31.3, Other 18.9

Further, as the child's grade level increases, they report higher usage of EdTech tools to study Science/EVS, English, Language, Coding and GK. For studying Mathematics, however, the usage reported was highest for secondary grades (80%), followed by children in primary grades (77%) (Figure 14).

Figure 14: Subjects for which the children used EdTech, examined across different grades

Chart legend: Mathematics, Science/EVS, English, Language (Hindi, other), GK, Other (Coding, Art and craft, Social science)

Grades 1-5: Mathematics 76.8, Science/EVS 44.8, English 82.8, Language (Hindi, other) 51.1, GK 27.6, Other 16.5
Grades 6-8: Mathematics 80.8, Science/EVS 63.1, English 84.4, Language (Hindi, other) 54, GK 32.7, Other 20.5
Grades 9-12: Mathematics 71.4, Science/EVS 66.2, English 85.9, Language (Hindi, other) 54.5, GK 34.2, Other 20.4

At a gender level, girls had a higher tendency to use EdTech tools for studying Mathematics (77% girls; 75% boys), English (86% girls; 82% boys) and art and craft (20% girls; 11% boys). However, Science/EVS (56% girls; 59% boys) was studied more by boys than girls (Table A31, Annexure C).

6.3.3.3 Reasons for using EdTech tools

More than half the children used EdTech because of the ease of understanding complicated topics enabled by EdTech tools.

The most prominent reasons reported for children using EdTech were ease of understanding of complicated topics (53%), followed by self-paced learning using EdTech (47%), and doubt clarification (42%).

At a settlement level, similar reasons for the usage of EdTech stood out with certain variations in proportions across urban and rural. Vernacular content, however, was reported as a reason for usage for a greater proportion of children in rural households (36%) as compared to urban households (29%) (Figure 15). At a state level, Gujarat and Madhya Pradesh found the availability of vernacular content most helpful (Gujarat 95%, Madhya Pradesh 59%), compared to Odisha (12%), Uttar Pradesh (8%) Telangana (5%) and Mizoram (0.3%) (Table A32, Annexure C).

No notable gender differences in reasons for EdTech usage were observed between girls and boys (Table A33, Annexure C).

Figure 15: Reasons for usage of EdTech by the children, examined across urban and rural households

Legend:
- It is fun
- Uses phone, might as well use it for digital learning
- Personalized learning pace
- Learning complicated topics with ease
- Learning new concepts outside school
- Clarify doubts through information/answers
- Accessible from home
- Content in vernacular language
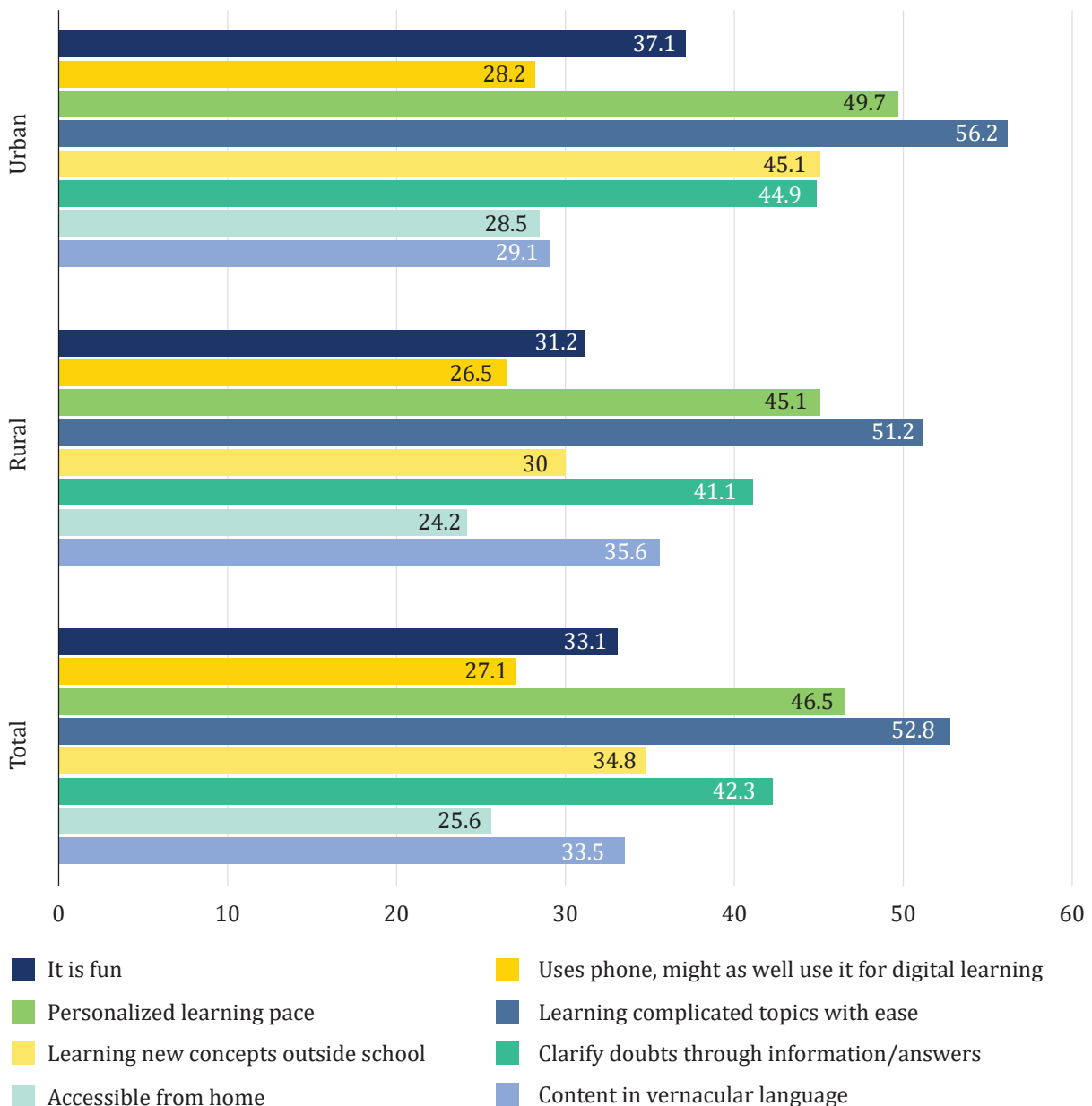
More than half the children appreciated the 'speed of learning' feature enabled by EdTech tools.

The features prominently appreciated by present users of EdTech were 'speed of learning' (54%), 'explanation of topics that a child does not understand' (43%), and 'curriculum alignment with school' (37%). While the latter two features stood out more for urban areas compared to rural areas, 'vernacular content' stood out as a likable feature more for children in rural areas (34%) than for children in urban areas (28%) (Figure 16).

Figure 16: Features of EdTech tools appreciated by the children, across urban and rural households

Legend:
- Game (rewards, leaderboards, badges)
- Speed of learning (leveling)
- Curriculum is aligned to school
- Vernacular content
- Cartoon/animation/character
- Teachers/instructors
- Can track progress
- Explanation for wrong answers

Urban: 19.1, 52.1, 43.1, 28.1, 21.5, 16.2, 16.3, 47.9

Rural: 18.5, 55.4, 34, 34.1, 23.2, 21.6, 14.9, 40.4

Total: 18.7, 54.3, 36.9, 32.2, 22.6, 19.9, 15.3, 42.7
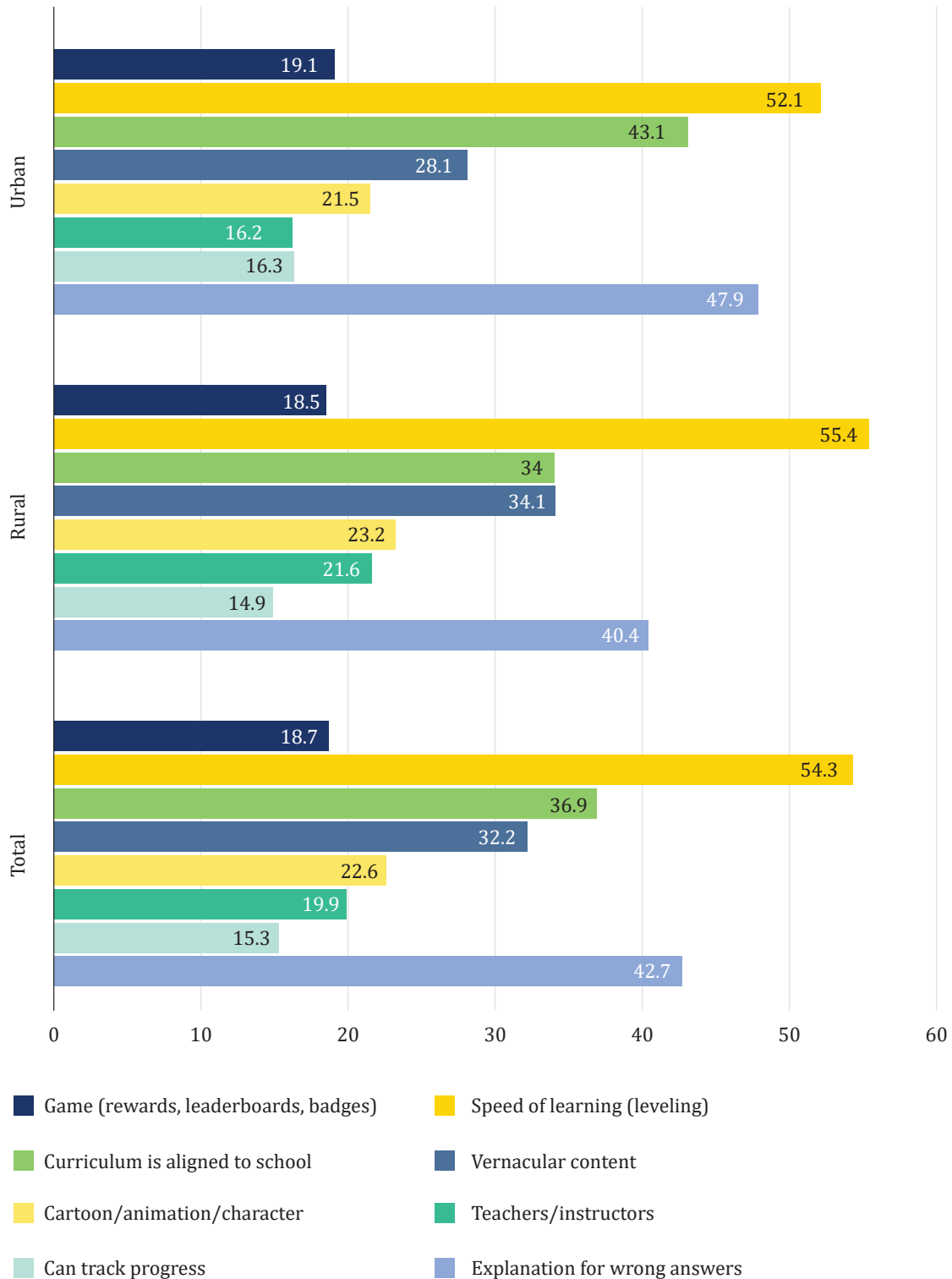
At a gender level, while 'speed of learning' feature was appreciated more by boys (59%) than girls (49%), no other notable differences in likability of EdTech features were observed (Table A34, Annexure C)

At grade level, while features appreciated across grades remained more or less the same, children in primary grades appreciated 'Game (rewards, leaderboards, badges)' (23%) and 'cartoon/animation/characters' (39%) more than children in middle and secondary grades. Features such as 'speed of learning' (61%), 'curriculum alignment with school' (45%), and 'ability to track progress' (22%) were appreciated by a higher proportion of children in middle and secondary grades than children in primary grades (Figure 17).

Figure 17: Features of EdTech tools appreciated by the children, examined for the different grades
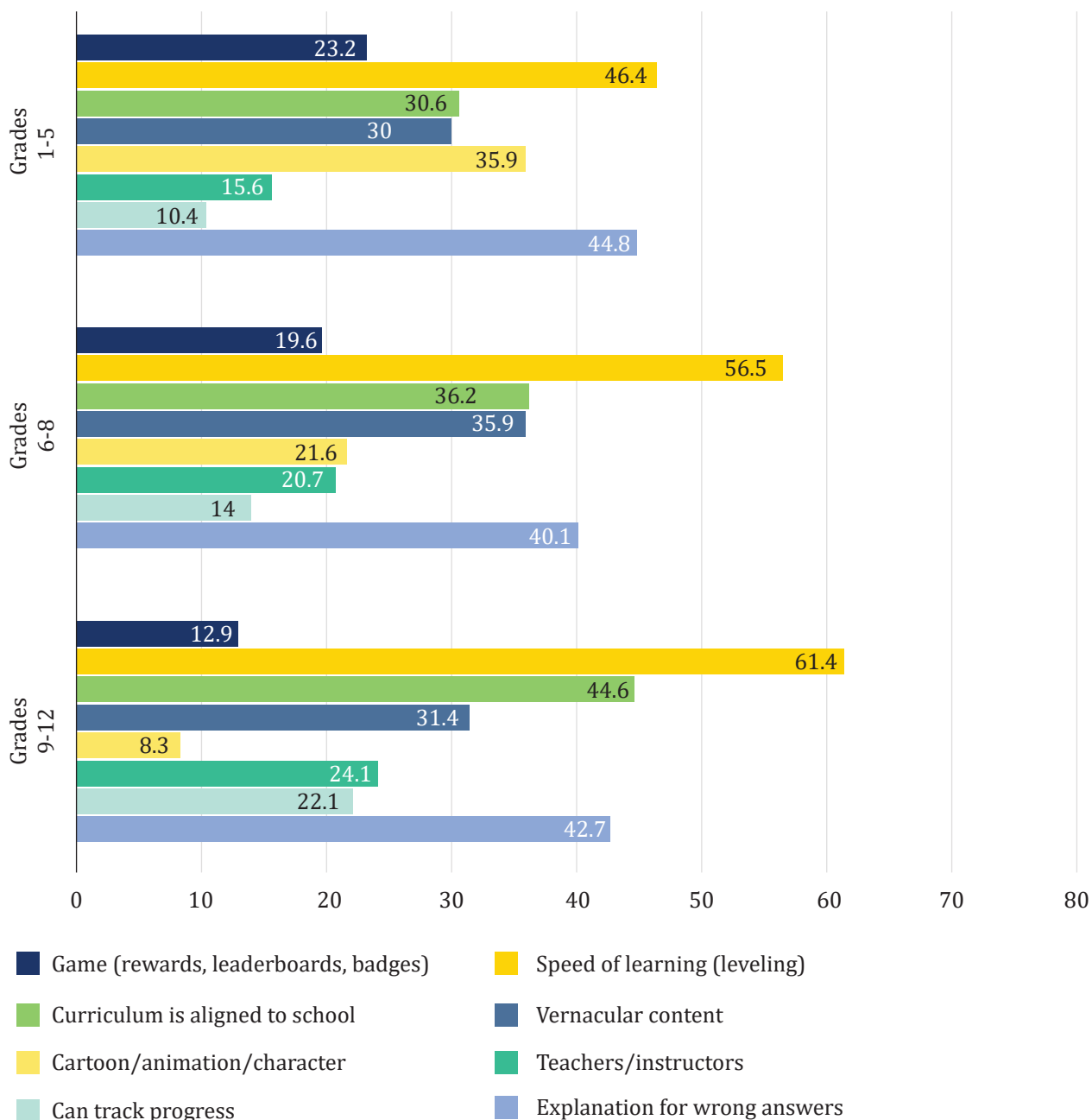
6.3.3.4 Reasons for non-usage of EdTech

Of the children who were not using technology for learning currently, 61% of them cited 'schools reopening' as the most prominent reason for non-usage.

49% of children were currently not using technology for learning. Among them, 61% cited 'schools reopening' after the pandemic lockdown as the reason, with rural households having cited it more (62%) compared to urban households (56%). 30% of respondents cited the 'availability of other learning avenues' (such as tuition) as the reason for not using technology for learning. Urban respondents cited this more (47%) compared to rural respondents (24%) (Figure 18).

Figure 18: Reasons for non-usage of EdTech by the children, across urban and rural households

Legend:
- Child ends up navigating to games/cartoons
- Other avenues (tuition)
- Schools have reopened
- Device not available
- Device is usually not at home
- Device is not good for children
- Others (no internet)
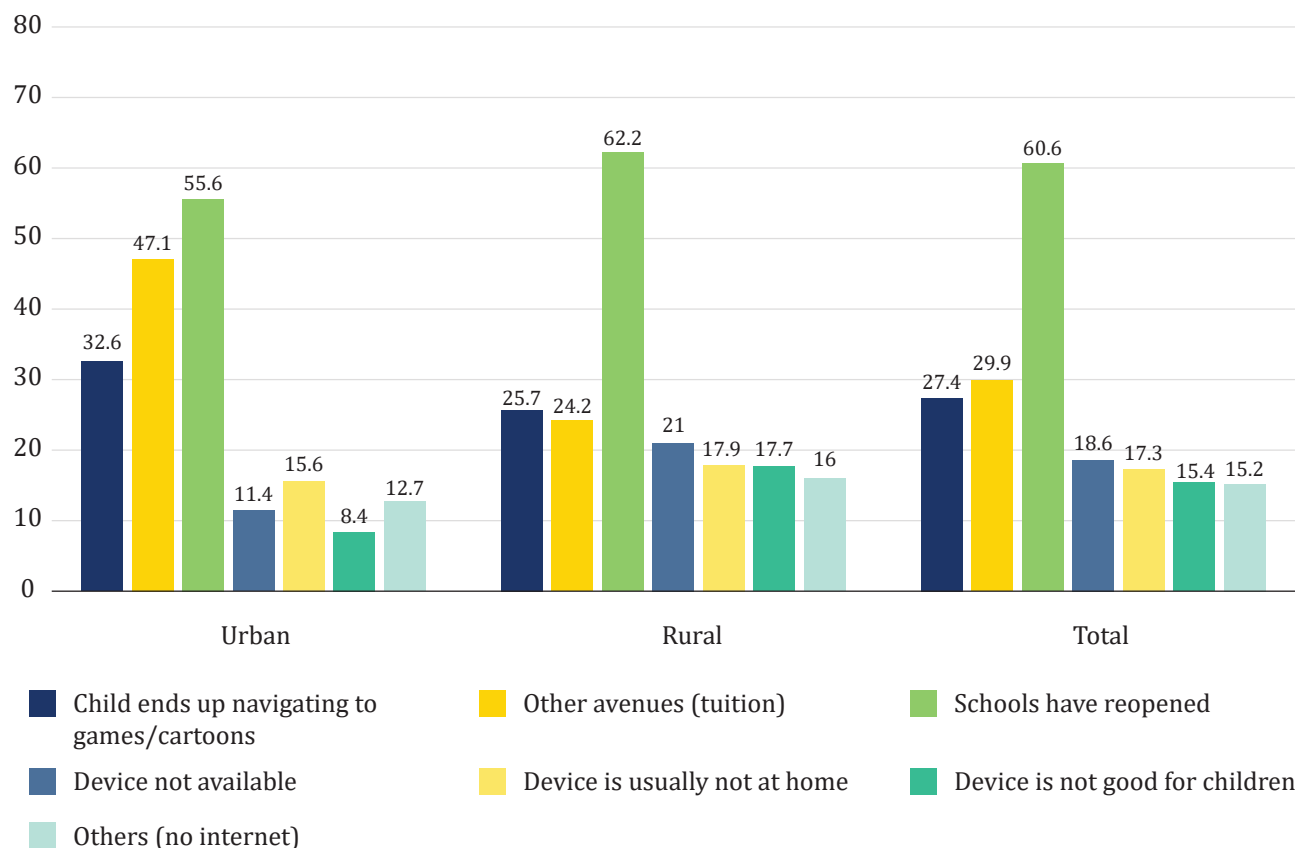
Among boys and girls, 'the device not being good for children' as a reason for EdTech non-usage was cited more for girls (20%) compared to boys (15%). However, the 'child ends up navigating cartoons/games' was cited more for boys (33%) compared to girls (21%) (Table 19).

Table 19: Reasons for non-usage of EdTech by the children, examined for different genders[12]

Reasons for non-usage of EdTech	Boys	Girls	Total
Child ends up navigating to games/cartoons	33.2	20.9	27.4
Other avenues (tuition)	34.6	24.5	29.9
Schools have reopened	60.5	60.7	60.6
Device not available	16.7	20.8	18.6
Device is usually not at home	15.2	19.8	17.3
Device is not good for children	13	18.1	15.4
Others (no internet)	14.2	16.4	15.2

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12 The survey contains multiple response questions, in which each respondent selected more than one option for the question asked. In the tables generated for such questions, the percentage will always exceed 100%. Therefore, for ease of the reader's understanding, the rows with the 'total' for such tables have been removed. This rule has been uniformly followed in the entire report.

Additionally, 'the device not being good for children' was cited more for children in secondary grades (20%) compared to those in primary grades (15%) and 'child ends up navigating cartoons/games' was cited more for children in primary grades (33%) compared to children in secondary grades (12%) (Table A35, Annexure C).

6.3.3.5 Association of parents' behavior and child's EdTech usage

The survey looked at other trends that could indicate a higher incidence of EdTech users such as a parent's ability to use technology and their inclination to advocate EdTech. These were analyzed to establish whether associations could be drawn from a child's home ecosystem that could potentially influence the child's usage of EdTech.

Parents'/guardians' ability to use technology and operate at least one tool (Facebook, WhatsApp, YouTube) was found to be associated with a higher prevalence of present users.

Of the children whose parents/guardians were able to use at least one of the three tools, Facebook/YouTube/ Google, more than 60% of the children were present EdTech users. Whereas, of the children whose parents/ guardians did not know how to use any of the three tools, only 26% were present EdTech users (Figure 20).

Figure 20: Influence of parents/guardians' ability to use technology on child's EdTech usage
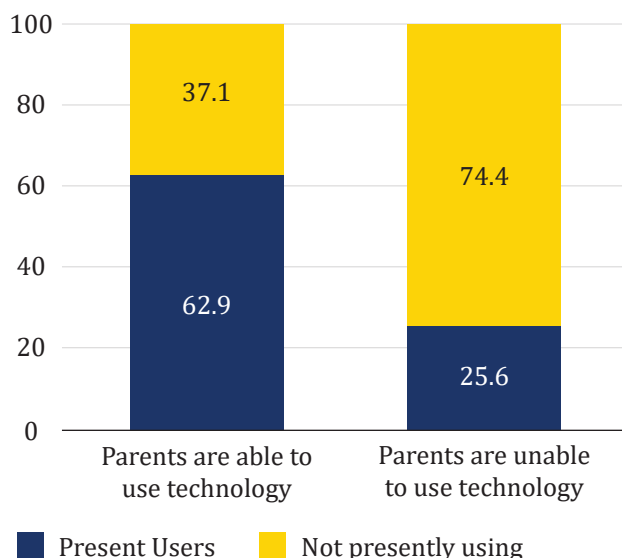
Awareness of EdTech amongst parents/guardians was associated with EdTech usage amongst children.

Of all the children whose parents/guardians indicated awareness of EdTech, 59% were present users of EdTech. In contrast, of all the children whose parents/ guardians were unaware of EdTech, 0.2% were present users of EdTech (Figure 21).

Figure 21: Influence of awareness of EdTech amongst parents/guardians on the prevalence of EdTech usage amongst children

BaSE: Bharat Survey for EdTech
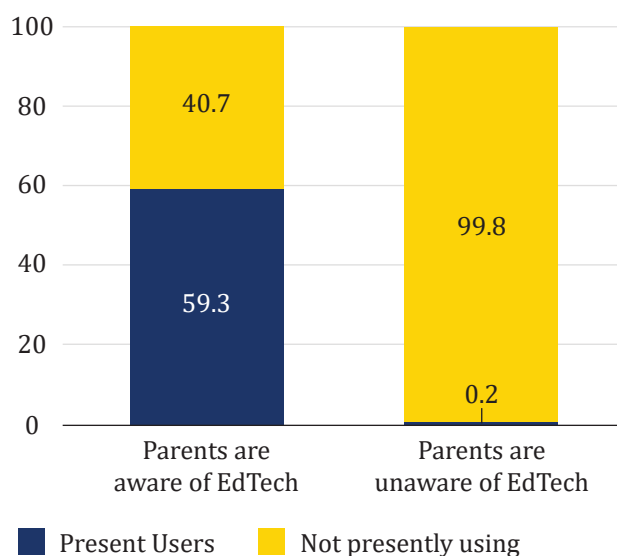
In households where parents/ guardians were likely to advocate EdTech, a higher proportion of Present users were noted.

Of children whose parents/guardians advocated EdTech, 67% were present EdTech users. Whereas, of the parents/guardians who did not advocate EdTech, 48% were present EdTech users. Parents/guardians of 11% of the present users refused to respond as the parents/guardians had not used EdTech (Figure 22).

Figure 22: Influence of willingness of parents/guardians to advocate EdTech on the prevalence of EdTech usage amongst children

Present Users   Not presently using
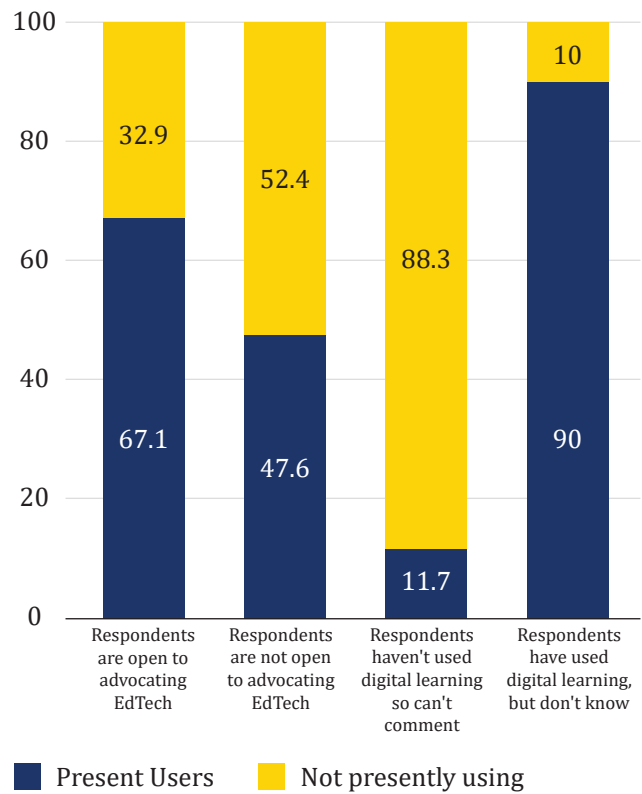
Annexure

Annexure A

Table A1: Sample size calculation

Z-score	Prevalence (p)	q (1-p)	Marking of error (d)	Design effect (deff)	Sample Size required
1.96	0.6	0.4	0.01	1.5	13830
1.96	0.6	0.4	0.02	1.5	3457
1.96	0.6	0.4	0.03	1.5	1537
1.96	0.6	0.4	0.04	1.5	864
1.96	0.6	0.4	0.05	1.5	553
1.96	0.6	0.4	0.06	1.5	384
1.96	0.6	0.4	0.07	1.5	282
1.96	0.6	0.4	0.08	1.5	216
1.96	0.6	0.4	0.09	1.5	171
1.96	0.6	0.4	0.1	1.5	138

Table A2: Sample distribution across states

	Uttar Pradesh		Odisha		Gujarat		Madhya Pradesh		Telangana		Mizoram	
Number of districts	75		30		33		52		33		11	
No. of Randomly Sampled Districts	8		6		7		8		7		5	
No. of Randomly Sampled Tehsils from each District	4		6		8		8		8		4	
Settlements	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
	130	37	139	17	96	71	121	46	102	40	80	12
Target number of Households	777	223	833	167	574	426	724	276	611	389	479	521
Total sample	1000		1000		1000		1000		1000		1000	

Table A3: Cut-off for monthly education expenditure for each state across urban and rural settlements

State	Settlement	75% cut-off (in Rupees)
Uttar Pradesh	Rural	325
	Urban	933
Mizoram	Rural	467
	Urban	1000
Odisha	Rural	541
	Urban	1466
Madhya Pradesh	Rural	667
	Urban	1083
Gujarat	Rural	1167
	Urban	1417
Telangana	Rural	1000
	Urban	1633

Annexure B

Estimation Procedure

To comment on the trends at the state level using a sample survey, sampling weights were used. Sampling weights were calculated for a multi-stage sampling design by computing the inverse probability of selection at each stage as illustrated in the equation below.

$$\text{Raw } W_i = \frac{1}{P_{1i} \times P_{2i} \times P_{3i} \times P_{4i}}$$

Where P_{1i} is the probability of a district within a state being selected, P_{2i} is the probability of a tehsil within a district being selected, P_{3i} is the probability of a settlement within a tehsil being selected, and P_{4i} is the probability of a household within a settlement being selected. Raw W_i is the cumulative inverse probability of all stages, known as raw weights. The raw weight is normalized using the equation:

$$W_i = \frac{\text{Raw } W_i}{W_L}$$

Where Raw W_i is the raw weight for each observation in a sample and W_L is the mean of raw weights. To ensure accuracy in the estimation of standard errors in our multi-stage sample, in addition to case weights, special procedures such as Taylor series approximation, bootstrapping, or design effects were also used.

Annexure C

Section 5: Household and children profile

5.2 Household profile

Table A1: Ownership of ration cards across urban and rural households

Ration cards	Urban	Rural	Total
AAY (Antyodaya Anna Yojana)	0.7	1.4	1.2
BPL (Below Poverty Line)	27.1	21	22.8
APL (Above Poverty Line)	58.4	51.2	53.3
PHH (Priority Household)	2.4	16.8	12.5
Don't know	0.1	0.1	0.1
None of the above	11.3	9.5	10.1
Total	**100**	**100**	**100**

Table A2: Number of children that go to school across states

Number of school-going children	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
1	43.8	36.1	67.9	50.4	55.9	42.9	44
2	43.5	45.7	24.8	38.4	41.6	36.9	40.1
3	9.4	13.8	6.6	9.4	2.3	15	12
4	2.4	3.9	0.5	1.7	0.2	3	2.6
5	0.7	0.5	0.1	0.1	0	1.9	1.1
6	0.2	0	0	0	0	0.3	0.1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

5.4 Profile of the children in the surveyed households

Table A3: Monthly education fee incurred by households for children across the states

Monthly education fee	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
No fees/admission under RTE	5.2	23.8	0.2	0.6	0	1.8	5.1
less than INR 250	14.7	6.3	10.5	8.6	0.1	41.7	27.8
INR 250 to 500	26.6	25.6	67.4	80.7	6.1	37.1	31.6
INR 500 to 1000	31.7	39.6	21.9	6.3	64.1	19.4	29.3
more than INR 1000	21.8	4.7	0	3.8	29.7	0	6.2
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Average	**INR 636**	**INR 444**	**INR 459**	**INR 442**	**INR 1028**	**INR 346**	**INR 479**
Median	**INR 666**	**INR 500**	**INR 400**	**INR 400**	**INR 1000**	**INR 300**	**INR 320**

Section 6: Survey Findings

6.1 Access to Technology

6.1.1 Access to technology at the household level

Table A4: Accessibility of smartphones and feature phones within states[1]

Accessibility of smartphone	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Smartphones (phones with touch-screen, internet, YouTube, WhatsApp)	89.9	76.8	85.4	80.2	96.5	85.7	84.8
Feature phones (phones without internet access)	35	41.4	5.9	50.3	18.6	61.9	48.3

Table A5: Accessibility of smartphones within urban and rural household across states

	Gujarat		Madhya Pradesh		Mizoram		Odisha		Telangana		Uttar Pradesh		Total	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Yes	90.3	89.73	86.56	73.76	89.09	83.92	88.84	79.64	99.67	92.94	83.07	87.1	87.61	83.62
No	9.7	10.27	13.44	26.24	10.91	16.08	11.16	20.36	0.33	7.06	16.93	12.9	12.39	16.38
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

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1   The survey contains multiple response questions, in which each respondent selected more than one option for the question asked. In the tables generated for such questions, the percentage will always exceed 100%. Therefore, for ease of the reader's understanding, the rows with the 'total' for such tables have been removed. This rule has been uniformly followed in the entire report.

Table A6: Number of smartphones owned within a household across states

Ownership of smartphones	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
1	66.8	80	28.5	69	36.6	71.6	68
2	29.2	17.5	38.5	26.5	59.2	19.6	26
3	3.5	1.4	18.4	3.4	4.2	7.5	5
3+	0.4	1.2	14.5	1.1	0	1.3	1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Average number of smartphones	**1.3**	**1.2**	**2.3**	**1.4**	**1.67**	**1.4**	**1.4**

Table A7: Primary possessor of smartphones across urban and rural households

Primary possessor of smartphones	Urban	Rural	Total
Both mother and father possess the smartphone	26.2	15.6	18.9
Only the mother possesses the smartphone	22.7	14.8	17.2
Only the father possesses the smartphone	40.3	49.8	46.9
Neither mother nor the father possesses the smartphone	10.8	19.8	17
Total	**100**	**100**	**100**

Table A8: Primary possessor of smartphones across states

Primary possessor of smartphones	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Mother	24.7	20.1	62.1	38	66.5	37.5	36.1
Father	86.7	74.5	54.7	64.9	86.8	50.6	65.8
Grandparent	2.9	0.3	6.6	0.7	0.1	1.1	1
Children	12.4	18.4	16.6	21.4	9.8	24.2	19.5
Uncle	5.6	2.5	0.8	4.7	0.1	5	4
Aunt	0.2	0.1	2.7	1.3	0	3.1	1.6
Guardian	1.2	1.8	1.9	0.4	0.3	2.6	1.7

Table A9: Average income by possession of smartphone in the household

Average income by possession of smartphone in the Household	Average income
Household owns a smartphone	118085.6
The household does not own a smartphone	81312.51

6.1.2 Access to technology at the child level

6.1.2.1 Access to smartphones

Table A10: Proportion of children who were dedicated and shared smartphone users across states

Type of smartphone access for child	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Dedicated access	3.7	5.9	4.9	8.1	2.4	6	5.7
Shared access	90.8	76.9	89.2	88	95.4	76	81.2
Does not use the smartphone	5.5	17.2	5.9	3.9	2.1	18	13.1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A11: Proportion of children who had dedicated and shared access to smartphones, examined based on the grades across urban and rural households

Type of smartphone access by the children	Urban				Rural			
	Grades 1-5	Grades 6-8	Grades 9-12	Total	Grades 1-5	Grades 6-8	Grades 9-12	Total
Dedicated access	1	1.9	9.9	2.9	1.3	6	17.6	6.7
Shared access	73.6	73	84.8	75.7	61.3	66.1	58.1	61.9
Does not use the smartphone	25.4	25.1	5.3	21.4	37.4	27.9	24.2	31.4
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A12: Proportion of boys and girls who had dedicated and shared access to smartphones across urban and rural households

Type of smartphone access by the children	Urban			Rural		
	Boys	Girls	Total	Boys	Girls	**Total**
Dedicated access	3.5	2.4	2.9	9	4.2	6.7
Shared access	67.2	84.3	75.7	62.5	61	61.8
Does not use the smartphone	29.3	13.3	21.4	28.4	34.8	31.5
Total	**100**	**100**	**100**	**100**	**100**	**100**

Table A13: Proportion of children who use smartphones and the household members whose device was used across states

Household members	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Mother	21.7	14.9	50.7	32.7	63.3	31	30.1
Father	71.8	48.4	34.9	44.5	34.6	35.1	43.6
Grandparent	1.3	0	3.7	0.2	0	1	0.6
Children	9.1	12.7	13	16.3	7.2	11.1	11.4
Uncle	1.8	2.1	0.1	2.9	0	1.2	1.5
Aunt	0.1	0	0.5	0.1	0	0.2	0.1
Guardian	0.3	0.8	1.1	0.1	0.1	1.6	0.9
Does not use the smartphone	6.2	22.1	6.8	4.9	2.2	21	15.5

Table A14: Usage of the mother's phone by the child when both mother and father possess smartphone in a household across gender of the child

Usage of mother's phone by the child	Boys	Girls	Total
No	14.1	14.1	14.1
Yes	85.9	85.9	85.9
Total	100	100	100

Table A15: Usage of the father's phone by the child when both mother and father possess smartphone in a household across gender of the child

Usage of father's phone by the child	Boys	Girls	Total
No	76.1	78.2	77.1
Yes	23.9	21.8	22.9
Total	100	100	100

Table A16: Smartphone non-usage examined grade-wise

Smartphone non-usage	Grades 1-5	Grades 6-8	Grades 9-12	Total
Does not use the smartphone	17.8	14.6	12.3	15.5

Table A17: Reasons for non-usage of smartphones examined based on the grades of the children

Reasons for non-usage of smartphones	Grades 1-5	Grades 6-8	Grades 9-12	Total
The child is too young to understand how to use the smartphone	46.1	18.2	1.4	30
I am concerned about the health of the child because of screen time	6.5	2.9	6.7	5.6
There are limited devices at home and other kids use it	11.4	23.3	31.1	18.4
The child does not need to use any smartphone	42.7	42.5	44	42.9
The child may exhaust the phone balance	0.5	1.4	1.7	1
The child gets hooked to games/watches cartoons	15.7	11.9	8.2	13.2
It is unsafe the child gets navigated to unsafe content	26.8	24.3	40.7	29
It is difficult for me to monitor what the child is doing on the phone	5.9	5	8.4	6.2
Phone is generally not available at home	0.8	1.7	4.5	1.7
Network issues/poor internet connection	0.5	0.8	0.8	0.6
Do not know	0.2	0.1	0	0.1

6.1.2.2 Access to the internet

Table A18: Frequency of internet available on the smartphone used by the boys and girls

Internet Availability	Boys	Girls	Total
Always	49.4	51.1	50.2
Sometimes	50.4	48.8	49.6
Never	0	0	0
Whenever the child wishes to	0.3	0	0.2
Total	**100**	**100**	**100**

Table A19: Reason for intermittent access to the internet on the smartphone used by boys and girls

Reason for the child not being able to access the internet on the phone	Boys	Girls	Total
There are network issues in the Household	8.9	9.4	9.1
Internet recharge gets exhausted	92.6	92.9	92.8
Phone is usually not at home	25.8	25	25.4
Internet is unsafe	0.1	0.4	0.2
It is expensive to get the internet recharged	0.1	0	0.05

6.2 User Sentiment towards EdTech adoption

6.2.1 Caregiver sentiment around school education

Table A20: Proportion of households that believed in-school education was sufficient, across states

Sufficiency of in-school education	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Yes	70	71.1	77.4	33.7	90.6	64.2	65.6
No	21.7	28.7	17.4	65.3	9.4	35.2	33.4
Don't know	8.3	0.2	5.2	1	0	0.6	1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A21: Proportion of households that believed in-school education was sufficient, across different grades

Sufficiency of in-school education	Grades 1-5	Grades 6-8	Grades 9-12	Total
Yes	66.7	58.4	65.6	64.4
No	32.4	39.5	34	34.5
Don't Know	0.9	2.1	0.4	1.1
Total	**100**	**100**	**100**	**100**

6.2.2 At-home learning support

Table A22: At-home learning support provided to boys and girls

At-home learning support provided to children	Boys	Girls	Total
Support in completing homework	78	75.8	77
Assist child in studying/clarifying doubts/revising	55.7	56.3	56
Check what is done in school	78.3	79.8	79
Do some learning activities with the child/ support the child in learning activities	30.2	27.9	29.1
Need based - when the child requires revision during exams, or requires help with some subject/topic	26.5	20.2	23.4

6.2.4 Sentiment towards using technology for learning purposes

Table A23: Awareness levels of parents/guardians about using EdTech across states

Awareness levels of parents/guardians about using EdTech	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Yes	98.6	70.8	88.3	85.5	95.8	86.4	85.4
No	1.4	29.2	11.7	14.5	4.2	13.6	14.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

6.2.6 Intention to purchase a smartphone

Table A24: Intention of parents/guardians to purchase smartphones for education purposes in the next 6 months across urban and rural households

Intention of parents/guardians to purchase smartphones for education purposes in the next 6 months	Urban	Rural	Total
Yes	10.1	10.5	10.4
No	89.9	89.5	89.6
Total	**100**	**100**	**100**

6.3 EdTech usage

6.3.1 EdTech Users

Table A25: Proportion of different types of EdTech users across states

Type of Edtech user	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
Discontinued users	13	2.7	26.5	5.9	1.3	10.8	8
Present Users	72.2	48	36	50.6	87.3	39.1	50.7
Never-user	14.8	49.3	37.4	43.5	11.4	50.2	41.3
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A26: Proportion of different types of EdTech users across genders

Type of Edtech user	Boys	Girls	Total
Discontinued users	8.1	7.8	8
Present Users	49.2	52.3	50.7
Non-user	42.7	39.9	41.3
Total	**100**	**100**	**100**

6.3.2 Present EdTech usage

6.3.2.1 Teacher-directed learning

Table A27: Proportion of children in each grade who received teacher-directed materials on a digital medium across urban and rural households

Teacher directed material received through a digital medium	Urban				Rural			
	Grades 1-5	Grades 6-8	Grades 9-12	Total	Grades 1-5	Grades 6-8	Grades 9-12	Total
Yes	31.7	54.2	65.7	43.3	23	29.4	35.4	27.9
No	68.2	45.6	34.2	56.6	76.9	70.5	64.3	71.9
Don't know	0	0.2	0.1	0.1	0.1	0.1	0.4	0.1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

6.3.2.2 Self-learning

Table A28: Proportion of boys and girls that engaged in self-learning through EdTech

Self-learning through EdTech	Boys	Girls	Total
Yes	49	51.5	50.2
No	50.9	48.4	49.7
Don't know	0.1	0.1	0.1
Total	**100**	**100**	**100**

Table A29: Proportion of children who pursued self-learning on any digital tools, examined for the prevalence of paid private tuition

Self-learning conducted through a digital medium	Yes	No	Total
Yes	49.1	50.9	50.2
No	50.9	49	49.7
Total	**100**	**100**	**100**

6.3.3 Present EdTech user experience

6.3.3.1 Tools used for EdTech

Table A30: EdTech tools used by boys and girls

EdTech tools	Boys	Girls	Total
Text	9.9	6.6	8.2
WhatsApp	60.1	64	62
Apps, Specify the name of the App	2.3	0.8	1.5
TV	6.5	6.8	6.6
IVRS	6.7	6.4	6.6
YouTube	89.8	87.8	88.8
Google	53.6	50.8	52.2
Don't know	0.7	0	0.4

6.3.3.2 Subjects studied using EdTech tools

Table A31: Subjects for which the boys and girls used EdTech

Subject studied using EdTech	Boys	Girls	Total
Math	75.1	77.2	76.1
Science/EVS	58.5	55.8	57.2
English	82.3	86.3	84.3
Language (hindi, other)	52.6	53.6	53.1
Coding/Computer	3.7	3.6	3.6
GK	31.1	31.5	31.3
Art and craft (Drawing, painting, others)	10.7	19.7	15.2
Social science	0.1	0.2	0.1
Others, Specify	0	0	0
Don't know	3.1	2.4	2.8

6.3.3.3 Reasons for using EdTech tools

Table A32: Reasons for usage of EdTech, examined across states

Reasons for usage of EdTech	Gujarat	Madhya Pradesh	Mizoram	Odisha	Telangana	Uttar Pradesh	Total
It is fun	43.8	41.3	49.9	3.3	33.2	33.4	33.1
Popular/all friends use it	8.9	7.1	12	28.6	29	3.6	12.1
It is inexpensive/free	1.5	2.2	5.9	16.3	14.8	1	5.3
improve performance compared to peers	18.1	4.7	13.6	18.5	12.2	1.1	8.7
Uses phone, might as well use it for digital learning	66.3	27.5	5.5	4.1	32.1	12.9	27.1
learning through technology is important	34.4	15.7	3.9	17.4	50.3	9	22
Child learns at his/her pace	37.1	43.9	52	62.4	67.4	38.3	46.5
Child understands complicated topics with ease	44.3	38.4	21.6	42.4	64.7	64.1	52.8
Child is able to learn more and new concepts outside of school	31.1	21.9	7.1	30.3	47.6	40.2	34.8
Child is able to find answers/ information and clarify doubts	21.2	52.3	5.2	11.2	46.7	56.8	42.3
Time flexibility - any time, any day	28.9	19.1	0.4	3.2	21.4	22.2	20.3
Can be used from the comfort of home	39.5	27.3	0.5	19.7	25.4	19.7	25.6
Content in vernacular/local language	95.1	59.3	0.3	11.6	4.6	7.5	33.5
Someone recommended (teachers, friends, other)	22.7	4.8	13	47.4	18.2	8.3	16.5
Don't know	1.1	0	0.3	0.2	0	0	0.2

Table A33: Reasons for usage of EdTech, examined for the gender of the children

Reasons for usage of EdTech	Boys	Girls	Total
It is fun	36.2	30	33.1
Popular/all friends use it	13.7	10.6	12.1
It is inexpensive/free	6.4	4.1	5.3
improve performance compared to peers	9.7	7.7	8.7
Uses phone, might as well use it for digital learning	29.6	24.5	27.1
learning through technology is important	24	20	22
Child learns at his/her pace	49.3	43.8	46.5
Child understands complicated topics with ease	54.7	50.9	52.8
Child is able to learn more and new concepts outside of school	32.9	36.6	34.8
Child is able to find answers/information and clarify doubts	41.1	43.5	42.3
Time flexibility - any time, any day	19.9	20.7	20.3
Can be used from the comfort of home	24.6	26.5	25.6
Content in vernacular/local language	34.9	32.1	33.5
Someone recommended (teachers, friends, other)	14.7	18.3	16.5

Table A34: Features of EdTech tools appreciated by boys and girls

Features of EdTech tools	Boys	Girls	Total
Game (rewards, leader boards, badges)	21.9	15.5	18.7
Speed of learning (leveling)	59.1	49.4	54.3
Curriculum is aligned to school	35	38.8	36.9
Vernacular content	33.1	31.3	32.2
Cartoon/animation/character	20.8	24.5	22.6
Teachers/instructors	20.7	19.1	19.9
Can track progress	14.2	16.5	15.3
Explanation for wrong answers or topics that child does not understand	43.9	41.6	42.7

6.3.3.4 Reasons for non-usage of EdTech

Table A35: Reasons for non-usage of EdTech by the children, examined for different grades

Reasons for non-usage of EdTech	Grades 1-5	Grades 6-8	Grades 9-12	Total
Internet is expensive/cannot recharge frequently	4.2	6.8	5.8	5.1
Internet availability is a challenge due to connectivity/ infrastructure reasons	1.6	0.8	1.2	1.3
The child ends up navigating to games/cartoons	32.9	22.5	11.9	27.4
Learning tools/Apps have to be paid for	0	0	0.1	0
The child does not have time	4.8	7.9	6.9	5.9
We have other avenues - such as tuition	34	20.1	28.8	29.9
Schools have reopened	61.8	57.6	60.4	60.6
Finds it difficult to learn using technology	2.7	4.2	0.9	2.8
Device not available	16.8	23.2	18.6	18.6
Device is usually not at home	14.1	23.1	21.6	17.3
Device is not good for children	15.4	12.6	20.1	15.4
Limited devices at home	0.1	0.2	0	0.1