MICA CDMC | GLOBAL KIDS ONLINE

INDIAN KIDS ONLINE

Negotiating The Global and The Digital Flows - A Pilot Study Report

Ahmedabad City, Gujarat, India

A Study undertaken by:

CDMC – MICA, AHMEDABAD, INDIA
IN PARTNERSHIP WITH GLOBAL KIDS ONLINE

MICA
THE SCHOOL OF IDEAS

EXECUTIVE SUMMARY

The study, *Indian Kids Online: negotiating the global and the digital flows,* which explores online access to information/ data/social media, user experiences, and the impact of online risks and opportunities on children's wellbeing was conducted for the first time in India in the framework of a partnership formed by Global Kids Online, and CDMC–MICA, Ahmedabad, India. This research study is part of an international project that seeks to gather rigorous and comparable evidence on children's use of the Internet and inform them of the dangers and opportunities children face online.

Global Kids Online is a collaborative initiative of the UNICEF Innocenti Research Center, the London School of Economics, and the EU Kids Online Network. Over 40 countries have now implemented this research project in Europe, Latin America, Africa, and Asia.

In recent years, India has witnessed a significant surge in the democratization of digital technology and Internet connectivity owing to current public policies for digital inclusion like the Digital India Campaign. These efforts have placed the country above the average to ensure digital connectivity, reach and access in the world and the continent. In this context, it becomes imperative to know how the Internet influences children, their interactions across digital platforms, how they access and use the Internet, and their overall wellbeing in these changing technological transformations. In 2019, CDMC-MICA undertook the study to understand children's interactions and wellbeing in the digital world. The study was carried out through state-level representative data as a pilot to explore how Indian children adapt to the use of Internet and other technologies, their access barriers, risk, mediation, and opportunities.

The methodology adopts an exploratory and descriptive approach to study children's digital experiences, risks, and opportunities in the digital world. We have adopted a mixed method for data collection. Qualitative data were collected from 228 participants through interviews, including in-school and out-of-school children and parents. The study also surveyed 867 children from the city, studying in low, middle, and high-income schools and low-income group schools supported by CSR foundations and non-governmental organizations and around 272 parents. The study paid attention to know the current determinants of children's access to the internet, their risks, vulnerabilities, and opportunities, along with their skills and experiences online. A thematic analysis was undertaken on the qualitative data using NVivo software, with the major findings from quantitative research used for substantiating the qualitative insights. Seven key themes emerged in the process: (1) access; (2) skills and practices; (3) opportunities; (4) risks and vulnerabilities online; (5) privacy; (6) mediation and support; and (7) ecosystem.

CHILDREN'S INTERNET ACCESS

India is home to the world's second-largest internet user base, with almost 624.0 million internet users in India in January 2021. Internet subscription in the country in 2021 has seen an 8.2% rise from the previous years. Our study reveals that a substantial share of children claimed to access the Internet almost daily. Nevertheless, variations existed in total duration of access, with high-income children stating much higher time than middle and low-income and out-of-school children. The pandemic has increased digital access and use duration among children.

In Ahmedabad, Gujarat, almost 81% of the children who participated in the research were aware and informed about using the Internet uses, and 61% of them use it at least once every day. The study shows improved digital penetration in urban areas notwithstanding access-based differences and disparities based on income, environments, norms, and access to devices. Digital penetration has led to newer opportunities and skills among children to empower them for a digital-ready world.

The online environment has allowed children to innovate, get exposure to newer opportunities, and learn from diverse information sources. About 89% of the students use search engines like Google and YouTube to acquire information and learn online. With online learning as a single resort for many students during the pandemic, search engines like Google, YouTube, and Wikipedia were used mainly by the children to self-learn and be aware of different views and perspectives.

The Internet allows the children to get knowledge about various topics based on their interests and choices. Most children found the information on the Internet reliable, valuable, and authentic as it offers anonymity, peer experiences, and support-seeking options in case of any problem.

The internet also worked as a bridge for children to stay connected during the pandemic. Most children were using social networking sites to remain associated with their friends and family. Both pre-teens and teens were using WhatsApp more frequently than other social networking sites like Facebook or Instagram. There is also growing curiosity and exposure of children to OTT platforms like Amazon Prime or Netflix. The social networking sites and OTT platforms allowed the children to stay connected and stay engaged and have support during the pandemic.

CHILDREN'S ACCESS DETERMINANTS

Income is seen as one of the significant determinants of digital access among students. Children from high-income group schools and sponsored schools were using the Internet more frequently than low-income group schools. Data shows that middle, low-income, and out-of-school children had relatively digitally limited environments with the prevalence of mobile phone access compared to high-income schools and sponsored low-income group schools. While some had access to multiple devices, others from more deprived environments engaged in device sharing by numerous family members. Out-of-school children, who usually shared devices with other family members, ended up requiring separate mobile devices particularly when they moved to bigger cities from villages for work.

Socio-economic status is seen as a determinant that influences children's access and engagement with the Internet. The pandemic has resulted in the uptake of digital device ownership among children from less privileged backgrounds.

Conversely, limited device access and inadequate internet connectivity continue to widen digital disparities.

Gender-wise digital access disparities are observed, with patriarchal norms leading to lower device ownership among some girls from less-privileged backgrounds and restricting access to sharing family members' devices. In some cases, girls' access was heavily regulated and perceived online transgressions led to loss of community status.

A substantial share of children claimed to access the Internet almost daily. Nevertheless, variations existed in total duration of access, with high-income children stating much higher time than middle and low-income, and out-of-school children. The pandemic has increased digital access and use duration among children. Many of the low-income children were provided independent devices owing to online education post pandemic. However affordability and network availability become a lingering concern for these children and act as hindrance from accessing the Internet.

CHILDREN'S DIGITAL SKILLS AND PRACTICES

Children possessed a variety of operational, information-browsing, social, and creative skills. They also knew ways to bypass internet barriers and widen overall access. Almost 82% of the children who participated in the study found it easy to browse the Internet for information.

Unique skills, including coding and hacking, were prevalent, especially among boys. Coding was increasingly integrated into education, especially in high-income schools. Information-browsing skills were more commonplace among high-income schoolchildren due to stronger support systems of parents, teachers, and experts. The relatively limited information-browsing skills among low-income backgrounds can be a cause for concern since it could make them vulnerable to digital risks such as fake news etc.

Children found innovative strategies to engage in *'jugaad,'* a popular concept in South Asia denoting practices of finding workarounds or hacks to solve problems. Many children applied the idea of digital jugaad for different purposes, from hacking into games or artificially boosting social media followers. Hacking also became one possible way for less-privileged children to gain agency and reduce some digital inequalities such as poor internet connectivity. One reason boys had these unique skills includes more opportunities for unsupervised peer interactions than girls, some of whom were restricted to their homes especially in less privileged households.

Many children, especially girls, were familiar with creative and visual skills, partly due to the popularity of visual-centric and female-oriented social media platforms such as Instagram, Tiktok, and Snapchat.

DIGITAL OPPORTUNITIES, RISKS, AND VULNERABILITIES

Children showed variations in the way they perceived and engaged with the Internet. Their preferences, choice of online content, internet engagement, social networking, and others define their digital opportunities as well as risks. Children's activities online are more critical for understanding the outcomes than the time they spend online. The more children use the Internet, the more skills they develop and broaden their opportunities. But as they engage in a broader range of online activities, children are also more likely to get exposed to harmful content that may make them vulnerable and pose risks.

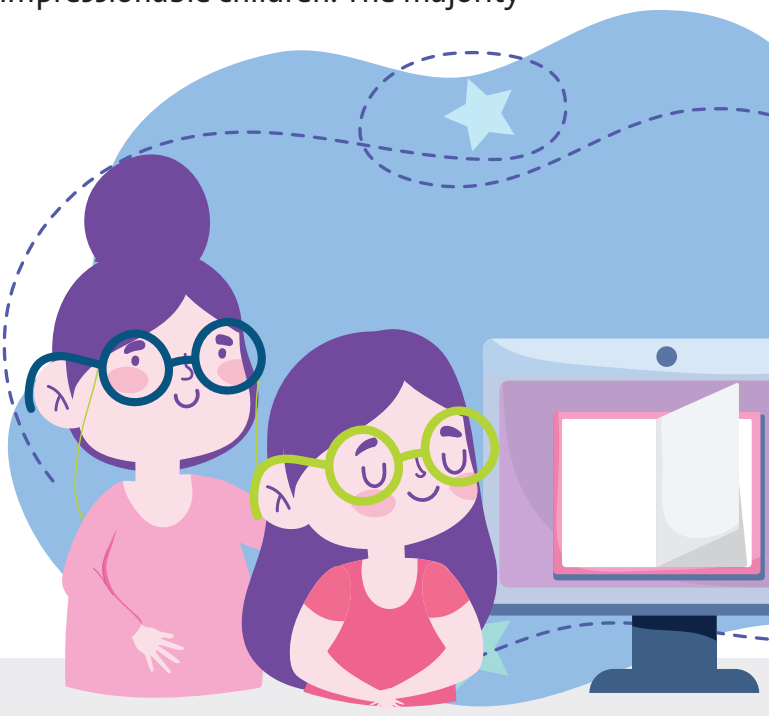
Internet allowed the children to have newer learning opportunities and skillsets. However, there are variations in the activities children engage in, based on their choice, preference, awareness, and

other social and economic determinants. High-income schools were more drawn towards English-language and global content, whereas middle and low-income children consumed more local-language homegrown content. Children from internet-deprived environments also preferred offline download, freemium viewing, and high video quality for sub-optimal internet connectivity. Sponsored low-income schools evinced a relatively higher usage of platforms like Wikipedia as compared to non-sponsored low-income counterparts, many of whom were found accessing the internet more for gaming and entertainment than learning motives. While accessing digital devices for leisure activities can certainly be one mode to encourage digital participation among the less privileged, its excessive usage can hamper their formal education and widen socioeconomic disparities.

A gendered perspective on internet usage highlights inter-gender and intra-gender variations in online engagement and activities among boys and girls. While girls spoke of socialization experiences on Instagram, Snapchat, etc., many boys used multiplayer gaming platforms as socializing sites. Gender also did not have a notable role in monitoring and restrictions over online socializing in the case of high-income school girls. On the other hand, some middle and low-income schoolgirls were altogether prohibited or heavily restricted from social media due to conservative cultural taboos and safety fears.

The expansive nature of the Internet provides wider opportunities for children to learn and unlearn at the click of a button. However, children were sometimes overwhelmed with the volume of content available online, experiencing difficulties in gauging reliability. The multipurpose nature of digital technologies made online learning difficult, with children often getting distracted. Children sometimes preferred physical mode for activities like learning or seeking mental health support. They regretted how digital participation sometimes came at the expense of face-to-face interactions with family and friends.

The vast information available exposes children to more vulnerabilities and risks of cyberbullying, harmful sexually explicit content or sexually violent behaviors, which may lead to lower psychological, physical, and mental health wellbeing. Some teenage boys regularly discussed accessing adult pornographic content, though many expressed concerns over its easy availability to young and impressionable children. The majority



of female participants have shared that they often encounter unsolicited messages, risky content, and privacy issues while using the Internet.

Most of the time, children may not be direct victims of harmful cyberbullying or crime but become indirectly affected or remain bystanders to such bullying or crimes. Such encounters adversely affect a child's psychosocial wellbeing and may lead to risky behaviours. Few participants also have suggested health risks due to prolonged digital usage and facing online content and social threats. This impacted physical and mental wellbeing, producing aggression, addiction, depression, and anti-social and avoidance behavior. Lack of parental intervention also compounded health risks.

Many children have experienced online risks such as unsolicited requests, privacy issues, content risks, virus-infected content, disinformation, harmful messages, and graphic and oversexualized images. Children were wary of such encounters and shared negative consequences of such risks, including data theft, privacy compromise, and adverse economic and psychological impact.

DIGITAL MEDIATION AND SUPPORT

Children's relationship with parents and their mediation and monitoring is crucial for protecting children from online risk and psychosocial harm. The study suggests that most parents engage in restrictive mediation, setting time limits, confiscating devices temporarily, blocking content access, etc. Monitoring was done through surprise checks on children's digital usage, installation of time limits and tracking apps, etc. Many parents claimed to engage in enabling and participatory roles in digital mediation. However, children spoke more about monitoring and restrictions by parents. Generational differences sometimes impeded enabling forms of mediation between children and parents.

Parents of high-income children were generally more permissive towards children's digital usage, whereas more restrictive mediation was found among middle and low-income children. Parental mediation is reduced for most children by mid to late teenage years, except for some girls, especially from middle and low-income backgrounds. Even a few girls from high-income backgrounds complained that constant monitoring made them feel they were not trusted.

Children were predominantly self-taught on digital usage. Additionally, they received support from parents, siblings, other relatives, teachers, friends and peers, media, etc. Parents helped children with technical advice and other forms of support. However, they were often ill-equipped on several digital concerns. Moreover, children were uncomfortable discussing specific issues with parents

and relied extensively on peer support. Children from sponsored-category low-income schools had an advantage of being imparted stronger digital literacy skills in their schools as compared to general low-income schools. Special support among sponsored low-income schools can potentially improve digital participation among underprivileged children and help resolve some of the digital divides.

Digitally-savvy children also provided support to adults, particularly in low-income backgrounds where many parents possessed limited digital skills and knowledge. Such encounters differed from traditional mediation dynamics where adults assumed to impart skills to children.

DIGITAL PRIVACY AND DIGITAL ECOSYSTEM

Digital privacy involves three contexts, namely interpersonal, commercial, and institutional. High-income children were more informed about privacy-relevant concerns in interpersonal and commercial contexts. Middle and low-income and out-of-school children meanwhile understood privacy primarily in an interpersonal context. Such differences impacted their overall privacy orientation.

Children felt digital participation necessitated some privacy compromise, particularly for an enhanced and personalized experience. Appropriate selection in terms and conditions was one way to compromise or protect personal privacy. Some children from low-income and out-of-school backgrounds were unsure about this feature, with language barrier being one notable reason for either unthinkingly accepting the terms or withdrawing from such websites altogether. Despite being well aware of its purpose, most children took terms and conditions either out of habit or trusting the website.

Children from high-income backgrounds were strongly digital-dependent with fewer barriers to digital participation. Relatively higher constraints in digital participation persisted for many middle and low-income children, with gender disparities standing out. Digital eco-systems were even sparser for out-of-school children, who mostly shared their devices with other family members.

There were differentiated expectations from the Internet. High-income children suggested enhancing existing digital features, robust safety measures, and alternate revenue models for a better digital future. Middle and low-income children stressed more on functional aspects, such as improving the quality of digital access and making design user-friendly and localized for the less privileged. They also suggested blending online-offline models of education to make it accessible to every child.

STUDY GAPS AND LIMITATIONS

We recognize the shortcomings in our inquiry mainly owing to the unique challenges and constraints of the pandemic. Relatively limited attention has been given to qualitatively examine the experiences of low-income, out-of-school children and parents. Similarly, our quantitative inquiry requires a more robust analysis. Lastly, the investigation can further benefit through interviews with other stakeholders including, educators, experts on children's issues, and policymakers.

FUTURE SCOPE

- There is an avenue to explore how digital access and other dynamics of digital participation (e.g., device ownership versus sharing; individual social media account versus using family's account) shape individualist or collectivist orientation among children.
- It is worth exploring how access to smart devices and voice assistants widens or reduces existing divides among children. Also, explore the norms, traditions, and culture that create a rigid barrier for certain children to become digitally empowered and inclusive.
- Further probing can be undertaken on how gender differences in digital opportunities accessed lead to acquisition/non-acquisition of specific digital skills.
- An in-depth study on the strong gaming culture among Indian children (Deshbandhu, 2020) will be a relevant contribution and explore how visual platforms offer a democratic mode of self-expression compared to verbal expression, which many Indian children may lack due to educational disparities.
- One can probe how potential class distinctions manifest in children's social media practices, for instance, associating Instagram as a platform for the elite versus Tiktok as a platform for the 'masses.'

- It would be interesting to explore further whether and how children's actions of supporting adults in digital usage increase the children's agency and autonomy. We propose further investigation on how stringent restrictive parental mediation and monitoring become tools to achieve the dual objective of encouraging girl children's digital participation while simultaneously regulating their autonomy in patriarchal establishments.
- There is lot more scope to understand intra-category variations in digital participation especially among low-income schools which are sponsored (for instance by CSR) compared to non-sponsored low-income schools.
- Based on the Ahmedabad data, the team can plan workshops with parents and children and offer insightful articles for popular newspapers and magazines and social media posts to move the public perception from panic to participation mode concerning young people and their online experience. There is scope for further investigation on how schools can enhance the overall digital participation among underprivileged children may help direct policy and CSR initiatives.


The vast amount of information online can often overwhelm the children, who need skills to identify reliable sources.

INTRODUCTION

Digital technology has emerged as one of the most robust tools for the modern world to navigate change and possibilities. Be it learning, socializing, or doing any essential interactions, our virtual existence has never been so prominent as in recent times. With the evolving digital ecosystem, children are the ones whose lives are increasingly mediated by digital technologies. One in three children is estimated to be an internet user globally. The way children interact, use and spend their time over the Internet have seen a steep rise. Understanding how children are placed in this dynamic digital world has never been as acute as recent times.

With COVID-19 as a complete disrupter of normalcy, there is an increase in e-learning apps, online gaming apps, social networking sites, and digital communication apps. Digital technology has redefined opportunities for a child to acquire information, knowledge, and access to services, communicate or engage with a broader audience, find newer opportunities, build skills, and many more. Yet, very little is known about how children are experiencing the offline to online shift, how these digital shifts play a role in their psychosocial wellbeing, how it is exposing them to opportunities, risks, and vulnerabilities.

The discussion around children's engagement with technology also underpins the broader goal of realizing children's rights, reducing digital inequity among children across class, ethnicity, or gender (Livingstone, Carr, & Byrne, 2016).

- The global data suggest that out of 3.2 billion internet users worldwide, one-third of them are children.
- Only 33% of children and young people have internet access globally, i.e., two out of every three children or young people aged less than 25 years of age have no internet access at home (UNICEF, 2020)

Internet access also increasingly varies among high-income and low-income countries based on socioeconomic conditions, household wealth, and rural-urban divide and geography. Countries in Eastern Europe and Central Asia, East Asia, Pacific, and Latin America, and Caribbean regions show around or over 50% of children and young people under 25 years having internet access at home. Contrary to this, only 13 percent of children and young people have internet access at home in South Asia, Eastern, and South Africa. In West and Central Africa, access is even lower at 5 percent. There is also a high incidence of rural-urban divide across the countries regarding children's internet use and connectivity. Globally, 25 percent of rural children and young people aged 25 years or less have internet access compared to 41 percent of their urban peers, a

difference of 16 percentage points. This gap is more a reflection of a country's income and interestingly, the proportion of children internet users are found to be higher in lower-income countries than in others.
(Byrne & Burton, 2017).

Statistics by the International Telecommunication Unit (ITU) showed that in developing countries, young people between 15 and 24 outnumber the general population by 2 or 3 times, and the Internet has penetrated all aspects of their public life (Kemp, 2020). Internet has also become a critical aspect of children's learning in recent times. There is more and more innovation and emphasis on remote delivery of education. Data suggest that most countries worldwide have developed remote learning opportunities and approaches to minimize education inequity. Almost 90% of education ministries worldwide have implemented remote and e-learning opportunities for children through radio, television, and the Internet (Byrne & Burton, 2017). With the onset of the COVID-19 crisis, the Internet has also been an aspect to meet the children's social, health, educational needs, and well-being in many ways. Therefore, this report attempts to understand how access to digital technology is shaping the lives of children in countries like India and addressing the social, cognitive, and emotional well-being as well as the risk and challenges in this evolving digital world. The report presents a summary of findings from a pilot study conducted in Ahmedabad city in Gujarat. The following section gives a brief understanding of the digital landscape in India and its challenges.

INDIA'S DIGITAL LANDSCAPE

- Children in India constitute 14 percent of active internet users in the country. In the last two years, India has witnessed a 15% increase in internet use among children.
- An estimated 71 million children aged between 5-11 years in India have access to the Internet on devices of their family members, at home, or in schools.
- India registered a 574-million active internet user base in 2019, with an annual growth of 24 percent. Interestingly in India, the recent data on urban and rural internet users suggest that number of internet users in urban India remains almost the same as the number of internet users in rural areas. At 264 million, rural India witnessed an internet growth of 45 percent, while urban India registered 11 percent of active internet users. However, with 66% of India's population living in villages, only a little over 15% of rural households have access to internet services. For urban families, the proportion is 42% percent approximately. Children in

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urban India continue to spend more time on the Internet than in rural areas. Though these statistics present an overwhelming trend of active internet users in the country, the growth has been haphazard and exclusionary. According to the National Sample Survey Report on education, 2017-2018 suggests that only 24% of Indian children have access to the Internet in their homes. Only 8% of all households with members aged between 5 and 24 have computers and internet connections. Around 38% of school-going kids have access to the Internet in India (NSO, 2019).

DIGITAL DIVIDE

India also witnesses a stark digital divide in terms of class, gender, and geography. According to sample survey report 2017-18, only 4% of the rural population has access to computers compared to 23% in Urban India and only 23 % Indian households have access to internet facilities. There is also a considerable difference among rural and urban households in their ability to operate computers and access the Internet. Out of 20% of households in low-income groups, only 2.7% have access to a computer, and 8.9% to internet facilities. Alternatively, among 20% of homes in the high-income group, the proportions are 27.6% and 50.5% (UNICEF, State Of World Children's Report, 2019) Among children and young people, only 24% of the persons between 15-29 years in rural areas can operate a computer compared to 56% of their urban counterparts (TRAI, 2018). Apart from the rural and urban digital divide, gender is also a dominating factor contributing to the inequity in access, utilization, and engagements of children and young people with digital technology. In 2017, UNICEF's State of World Children Report claimed the Internet to be still a "male preserve" in India. It has outlined a stark gender divide as less than one-third of Internet users are females. Most girls in rural areas are imposed with restrictions when it comes to using Internet and is more disadvantaged (India Child Protection Fund, 2020)

The digital divide is apparent across different states in terms of gender, accessibility, and infrastructure. States like Andhra Pradesh, Bihar, Tripura, Telangana, and Gujarat have reported the lowest percentage of urban women using the Internet among other Indian states. In terms of digital access in Delhi, Kerala, Himachal Pradesh, Haryana, Punjab, Gujarat, and Uttarakhand, more than 40% of households have internet access. The proportion is 20% for Odisha, Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, and West Bengal. With both government and private sectors promoting digital usage, lower-income states have shown tremendous growth in penetration of Indian services. Low-income states like Uttar Pradesh, Madhya Pradesh, and Jharkhand were among the five fastest-growing states in internet penetration between 2014 and 2018 as compared to other states. (Das, 2020)

IMPLICATIONS OF DIGITAL ACCESS AND SPREAD ON CHILDREN

Children's experiences are increasingly imbued with digital technologies. The UN Convention on the Rights of the Child provides a most comprehensive rights-based framework for children protection from violence (abuse, harassment, and exploitation); provision or access to resources, (knowledge, education, and health information) and participation (civic engagement, freedom of expression, and the right to privacy) concerning digital technologies. Internet access has allowed more children to make informed choices about their rights, interaction, and online presence. It has also allowed children to have freedom of expression and execute their rights. However, these experiences are shaped by how their digital presence and rights are managed in virtual or physical environments. Children's access to the Internet, their skills, digital literacy, resources, socioeconomic conditions, online content, and security influence their online use. Also, the Internet can be a place where children are provided with enormous opportunities and can expose them to a greater extent of vulnerabilities and risks. There are rising incidents where children encounter inappropriate content, threats, bullying, harassment and unsolicited requests, and violence over the Internet.

According to India Child Protection Fund report in 2020, children from cities like Mumbai, Delhi, Bangalore, Chennai, Ahmedabad, Kolkata, Pune, and Hyderabad are found to witness harmful behaviour in social networking sites and digital spaces in recent times. Almost 24% of children became victim of bullying, and 57% admitted to bullying others on social media (India Child Protection Fund, 2020). There is also an increase in online searches of child sexual abuse materials. This makes children vulnerable to online risks and challenges. There is a growing concern about children's digital presence and access, and most children and young people have become sensitive to online safety. Almost 90% of the children in India feel that they should acquire the necessary skills and competencies to protect themselves and not be monitored by parents or the government (ibid).

There is a growing need to holistically understand the environments in which children access and execute their rights to digital technologies. Though a lot of reports suggest that children are performing better at technologies, there is also a digital gap in terms of teaching children about primary digital citizenship, which is a set of life skills, management of information and data, how it is used online, safety and reacting to cyberbullies and so on. Therefore, there has to be an evidence-based understanding of the factors that influence children's digital engagement, their digital literacy, access to information and resources, internet engagement, security, and safety.

The India Kids online study presents evidence-based findings of children's digital acceptance, participation, engagements, and risk and hurtful behavior.

METHODOLOGY

The India Kids Online study aimed to be in sync with the overall Global Kids Online project objectives like:

- To understand children's online access to information, their experience, and impact on their well-being considering the risks and opportunities
- To study children's expectations from online technology, their understanding of privileges, needs, and specific challenges arising from information stream through the internet
- To study the dissemination of computer information between children and parents, the quantum and level of mediation by parents, and other sources of assistance in addition to parents

Research Ethics

All the ethical standards as suggested by the Global Kids Online network on their website were followed. The consent form template given on the GKO website was used to obtain written consent from schools, students, and parents to participate in the research and an online survey.

Sampling

The sudden emergence of the Covid-19 pandemic severely affected the data collection process. It delayed the process for almost nine months and compelled the team to change their sampling approach and sample composition. The study adopted a random sampling technique for the selection of participants. Based on the roll numbers of the children in the class, chits were made, and those roll numbers chosen were selected for the study.

Study Location

As proposed in June 2019, the research was to occur in one district. The study would be conducted in an urban centre (Ahmedabad), two small towns, and four villages from the district. The plan was to interview around 200 children, parents, and teachers cumulatively in a school-based study. Due to the pandemic and the resulting lockdowns and restrictions on movement, we restricted the study population only to Ahmedabad city in Gujarat. While we could not probe into diversities and disparities emerging out of geographical location, our research promises in-depth intra-city account of multitudes of the digital experience of children and some parents. Interviews with the teachers became difficult due to closing of all the schools and their extremely busy schedule following online classes during the pandemic.

Ahmedabad city was selected for the study for two reasons-

- Ahmedabad is the top administrative, business, and educational hub in Gujarat, with a very diverse population promising rich data. We felt that the study could capture a wide section of people as intended in our original study proposal.
- MICA is situated in the Ahmedabad district, so collecting qualitative data requiring multiple visits and long-duration engagement in schools, would be smooth.

Qualitative Data Collection

The study initially intended to capture a sample size of approximately 2100 children, parents, and teachers. But owing to the COVID-19 pandemic and the lockdown imposed in March 2020, the data collection was suspended after conducting qualitative research with high and middle-income children of Ahmedabad City in February 2020. Our remaining data collection with low-income children (both availing sponsored education and those non-sponsored), parents of children, and out-of-school children took place via telephonic Personal Interviews (PIs) post-lockdown.

About 209 school-children from the four schools in Ahmedabad city participated in the qualitative research through 20 Focused Group Discussions (FGDs) and 14 Personal Interviews (PIs).

Gender / Schools	Girls					Boys					
Grade	**4th Grade**	**7th Grade**	**9th Grade**	**11th Grade**	**Total**	**4th Grade**	**7th Grade**	**9th Grade**	**11th Grade**	**Total**	**Overall Total**
High-income	9	9	11	6	**35**	9	8	11	10	**38**	**73**
Middle-income	9	18	9	9	**45**	9	17	9	8	**43**	**88**
Low-income	12	9	0	3	**24**	12	9	0	3	**24**	**48**
Total	**30**	**36**	**20**	**18**	**104**	**30**	**34**	**20**	**21**	**105**	**209**

Table I: Sample Demographics of student respondents

We interviewed 11 out-of-school children, of parents who worked as daily wageworkers at various construction sites in Ahmedabad. Maintaining the norms of social distancing interviews with these children were conducted face-to-face during the post-lockdown period.

Eight telephonic PIs were conducted to collect qualitative data from parents to understand their level of knowledge about the Internet and children's risks and opportunities. We also tried to understand how they monitored their children's online activities and their personal opinion of the Internet to be beneficial or harmful to their children.

Gender	Girls					Boys				
Grade	4th Grade	7th Grade	9th Grade	11th Grade	Total	4th Grade	7th Grade	9th Grade	11th Grade	Total
High-income	0	0	0	1	**1**	0	1	0	0	**1**
Middle-income	0	1	0	0	**1**	0	0	1	1	**2**
Low-income	0	0	1	0	**1**	1	0	0	1	**2**
Total	0	1	1	1	**3**	1	1	1	2	**5**

Table II: Sample Demographics of parent respondents through PIs

Quantitative Survey

Quantitative data collection resumed in December 2020. The schools remained closed, but the online mode of teaching-learning was fairly well-established in certain schools. These schools, when approached, offered to assist in data collection by distributing online the survey questionnaire. For ethical reasons, we decided to approach children only through their schools and never directly. A Google Form was prepared and circulated through the school authorities. Over 1300 responses [1086 Students and 285 Parents] were captured from the exercise, of which 867 completed responses of children and 272 for parents were included for analysis.

Survey Details of Children

The respondents were in the age group of 9 to 17 years. They were grouped into 'pre-teens' (aged 9 to 12 years) and 'teenagers' (aged 13 to 17 years). There were 33 percent pre-teen respondents and 67 percent teenagers.

Gender	Pre-teens (9-12 Yrs.)	Teenagers (13-17 Yrs.)	Total
Male	**31%**	**69%**	**100%**
Female	**34%**	**66%**	**100%**
			N =867

Table III: Distribution of Student Respondents by Age and Gender (in percentage)

School wise distribution of respondents

School Category	Numbers	Percentage
Corporate CSR School (students from low-income families sponsored under CSR initiative)	**522**	**60%**
High Income	**126**	**15%**
Low Income	**100**	**12%**
Mid Income	**55**	**6%**
Visamo (a non-profit sponsored home for students from poor rural households/rural orphans)	**64**	**7%**
Grand Total	**867**	**100%**

Table IV: School wise distribution of respondents

Survey Details of Parents

The data was collected from 272 parents of the children who studied in five schools mentioned earlier. Out of these, 54 percent were the parents of pre-teens (age 09 to 12 years), and 46 percent of respondents have teenage children between the age group of 13 to 17 years. The sample included 58 percent female and 42 percent male respondents.

Female	Male	Grand Total
158	114	272
58%	42%	100%

Table V: Gender wise distribution of parent respondents

Quantitative Data Collection

Survey

Using the survey questionnaire, the quantitative data were collected from about 20 different schools that included elite private schools, middle-income public/private schools, and low-income public schools. Also included in the quantitative data collection were two sponsored arrangements for low-income children of rural daily wage workers. Both the schools only aided students whose families were beyond a specified income cutoff. In one case, the children were part of an NGO that would provide education at different schools in Ahmedabad, based on qualifying educational criteria. The other sponsored category school functioned as a CSR unit of India's most prominent corporate organization. This school provided excellent infrastructure with adequate digital facilities and a uniform curriculum to academically bright low-income families.

STAGES OF DATA GATHERING PROCESS

Thorough training was given to each field researcher by an expert panel on the various methods and ethics for researching with children.

Obtaining Permission from Government Education Department

To ensure the cooperation of government schools in the research, all the necessary permission from the concerned Government Education Department was obtained before approaching the government schools. Written consent was obtained from the District Education Officer.

Modifying and Translating the Research Tools and Pre-Test of the Tools

The tools for Focus Group Discussion, Personal Interaction, and Survey [questionnaire] given on the GKO website were examined and modified according to the Indian context and approved by the panel of experts at MICA, Ahmedabad and the University of Hyderabad, Department of Communication. Specific questions mentioned in the GKO template were inconsistent with the Indian context. For instance, Indian children predominantly do not move out until, and in many cases, much after, attaining adulthood. The

option of living with partners, mentioned in the GKO questionnaire, was inconsistent with the cultural context.

Once the tools were redesigned, a pre-test in the field was conducted to ensure their compatibility and cogency in the actual field research scenario. Upon finalizing the tools, they were translated into Gujarati to ensure that the field researchers asked the questions correctly to the students from the Gujarati medium schools. Once the translation was complete, it was approved by a language expert and again field-tested.

Connecting with Schools and Institutions

Various schools from three different categories, i.e., elite private schools, middle-income public/private schools, and low-income public schools, were approached and requested to participate in the research. The school authorities were consulted on the appropriate language of communication with children.

Qualitative Data Collection

The qualitative data was collected from four schools as well as out-of-school children.

a. One High Income School
b. Two Middle Income Schools
c. One Low Income School
d. Out-of-School Children

The marked differences in fees between the schools became criteria to assess the general income levels of students. While the cost of education in high-income schools exceeds over INR 1 lakh annually, government schools provide free education. Besides this, we also noted the varying levels of school infrastructure between the schools, with the high-income schools providing high-quality digital infrastructure.

The qualitative data collection through FGDs and PIs was conducted at the various schools that participated in the research. Students from standard 4, 7, 9, and 11 were selected to ensure children's participation between the age of 9 and 17 years in the research. The selection of students from each class was random, and separate groups of boys and girls were formed. For random sampling, roll number-wise chits were made for each participant and were chosen without looking to get the desired sample in each class. The field researchers and the students were of the same gender, assuming that students would be more comfortable disclosing their personal information.

Interactive Methods

The field researchers played various interactive games with children to ensure their conscious participation in the FGDs. One of the games was identifying different logos of specific mobile applications and websites to understand their mobile apps and websites. Quizzes were organized where children were asked to give names of mobile applications and websites related to education, movies, music, games, shopping, social media, learning music and languages, shopping, etc.

FOCUS GROUPS

- 20 FGDs were conducted with a minimum of 7 students in each FGD.
- These FGDs were conducted with children coming from high, middle and low-income group schools in Ahmedabad.

PERSONAL INTERVIEWS - STUDENTS

- 14 Personal Interviews were conducted with students
- Six via Face-to-Face interaction at the school during the Pre-Covid-19 situation
- Eight via Phone Call during Covid-19 situation
- These Personal Interviews were conducted in high-income, middle-income, and low-income category schools.

PERSONAL INTERVIEWS - PARENTS

- 8 Personal Interviews were conducted with parents via telephone

Contrary to the qualitative data collected from the students, the Personal Interviews conducted with the parents took place during the COVID-19 period in January 2021. To maintain the norm of social distancing, these interviews were conducted via telephone calls. The parents were informed about the research project, and oral consent was obtained from them to participate in this research.

Transcription and Analysis

The transcription of qualitative data had begun simultaneously with data collection. Once the lockdown was imposed following the pandemic in March 2020 and no further data collection was possible, the transcription and analysis of the FGDs and PIs were completed. The field investigators did the data transcription so that they could incorporate any noteworthy observations from the field. The data collection, transcription, and data analysis took place simultaneously and were handled by separate teams. Both these teams interacted with each other at regular intervals. They exchanged updates and concerns regarding the process and emerging insights which helped refine both the data collection and data analysis.

Data processing and analysis

The software NVivo and Microsoft Word were used for qualitative analysis. At the same time, coding was undertaken predominantly on NVivo, and some transcripts were coded on Word following post-pandemic constraints on software availability due to work-from-home situation. When the transcripts were received, the analyst read them once to familiarize with the interview before beginning the coding process. Following one level of open coding, the analyst referred to the coding and analysis guide provided by GKO for selective coding. At the same time, they remained open to any new insights not highlighted in the guide and coded them accordingly. The themes generated were triangulated on an ongoing basis between the analyst, the field-researchers, and two professors helping

the project to ensure credibility, authenticity, and dependability of findings.

The quantitative data were analyzed through the software MS Excel. Following data cleaning, the research team collectively enlisted all possible data points that can be generated. Following this process, the quantitative research team extracted the necessary data on MS Excel and prepared tabular and graphical representation. The notable selective findings were added to support the qualitative analysis. Again, the pandemic work-from-home situation made it infeasible to embark on a full-fledged quantitative analysis using sophisticated software.

Adapting the toolkit

Since the survey questionnaire was supposed to be answered by the children on their own and not to be executed by the field researcher face-to-face with the children, it was necessary to keep the survey short enough for the children to complete it, at the same time comprehensive enough to get the valuable insights from the students and parents. During the pre-test of the survey, it took a child about 45-55 minutes to answer all the questions, and before reaching halfway through the survey questionnaire, we received feedback from the children that the survey was taking too long to complete. Therefore, after a round of pre-test, few optional questions were removed. Also, the entire optional Section G that was about Unwanted sexual experiences was removed from the questionnaire. A few questions were added to assess if the children spent more hours online during the pandemic period and, if so, how.

The questions during FGDs and PIs were often improvised and adapted according to each FGD and PI situation during the field research.

Analysis and Findings

Based on the quantitative and qualitative data, we discuss the following themes relevant to children's digital experiences broadly:

i) Digital Access
ii) Digital Skills and Practices
iii) Digital Opportunities
iv) Digital Risks
v) Digital Mediation and Support
vi) Digital Privacy and
vii) Digital Ecosystem

Voice-based technology made internet functionality simpler, especially for those with limited English-language fluency. This was the case with some middle and low-income children, who praised the feature for aiding their online search and other activities.

KEY FINDINGS

DIGITAL ACCESS

- Access-based differences and disparities persisted notwithstanding digital penetration owing to affordable smartphones and internet connections.

- High-income children had digital-diverse and digital-friendly environments and were likelier to own digital devices from an early age. The solid digital dependence among children and family members resulted in separate devices for children and relatively limited device-sharing practices. Device-ownership also became a way for parents to track children's mobility beyond the home.

- Middle, low-income and out-of-school children had relatively digitally-limited environments with the prevalence of mobile phone access. While some had access to multiple devices, others from more deprived environments engaged in device-sharing by numerous family members.

- The pandemic has resulted in the uptake of digital device ownership among children from less privileged backgrounds. Conversely, limited device access and poorer internet connectivity continue to widen digital disparities.

- Gender-wise digital access disparities were observed, with patriarchal norms leading to lower device ownership among girls from less-privileged backgrounds, who were restricted to sharing family members' devices. In some cases, girls' access was heavily regulated, and perceived online transgressions led to community status loss.

- Speaking of age, more device sharing trends were prevalent among younger children across schools, while device ownership among children was observed around or post-adolescence.

- Locations for digital access included home followed by friends' place, school, and during transit. Device access was largely prohibited, and during school hours, it was generally limited and monitored for middle and low-income schools.

- A substantial share of children claimed to access the internet almost daily. Nevertheless, variations existed in total duration of access, with high-income children stating much higher duration than middle and low-income and out-of-school children. The pandemic has increased digital access and use duration among children.

DIGITAL ACCESS

Digital access is fundamental to the child's overall digital participation. A child with even basic access to the Internet can practically explore its opportunities and acquire new skillsets. The following quotes indicate that digital access may expose the child to new risks and a learning process that boosts their confidence to navigate the internet ecosystem safely.

81%
respondents know a lot about using the internet access

"I think access makes a difference"

"You can Google everything that you need to do, honestly" (females, Grade 11, high-income)

"Using the phone isn't difficult at all since everyone can use the internet to know everything. Even little kids need no guidance as they can simply open the phone and search" (female, Grade 11, middle-income)

Digital access is increasingly becoming indispensable, with several basic facilities going digital in recent years. In today's world, children living in urban and many rural parts of India have at least some level of digital access, be it at homes, schools, internet cafes, and through peers and neighbors, etc.

Access to mobile devices has become common, the reason being India is a mobile-first nation with affordable access to internet-enabled smartphones compared to other technologies (Wadhwa, Vashisht, & Phutela, 2020).

"We are so dependent on the internet that if we do not have internet from tomorrow more than half of the world would stop functioning."

male, Grade 11, high-income

"Even those who are living in cities away from villages get updates from villagers (through internet-enabled services) on how the present government has built roads and all, and it can directly reach the ministry"

male, Grade 11, middle-income

Our survey data similarly shows that mobile phones were most frequently used for internet access than other devices such as laptops/desktops, tablets, etc.

Devices	Almost all the time	Daily or almost daily	At least every week	At least every month	Hardly ever	None at all
Smart Phone	29%	48%	7%	4%	10%	2%
Desktop/ Laptop	7%	16%	10%	9%	53%	5%
Tablet / I-Pad	4%	9%	8%	5%	69%	5%
Games Console- PlayStation/ Xbox	2%	5%	10%	7%	71%	5%
Smart TV	4%	17%	10%	10%	54%	5%

Table VI: Frequently Used Digital Devices

Digital access cannot be viewed as simply a binary of possession versus non-possession of digital devices and internet services. It is a multidimensional concept that includes the availability or non-availability of internet services and necessary infrastructure for digital access (which is, mobile-phones computers, tablets, gaming consoles, routers, etc.); device and internet connection type (including device model and specifications, internet service provider and internet speeds); device diversity in terms of access to single or multiple devices; device maintenance (aspects such as frequency of device repair, maintenance costs, etc.); device possession status (self-owned versus sharing practices); and location/s and time duration of digital access. Digital access levels lie on a spectrum than a binary that must account for all aspects mentioned above (Lenhart & Horrigan, 2003). It is here that factors such as age, educational level, gender, socioeconomic level, individual and family characteristics, and cultural factors influence the nature and extent of children's overall digital access.

There were apparent differences in digital access levels between high-income school children and middle and low-income school children. The high-income school children were more firmly embedded in digitally diverse and digital-friendly environments where every family member, including parents, siblings, and grandparents, generally had independent digital devices for themselves. One such participant shares enthusiastically,

> "So I have my laptop, I share my IPad with my brother so me and him. And I didn't include it, but I use my mother's phone, my grandmother's phone, my grandfather's phone, and my father's phone"
>
> (female, Grade 7, high-income)

Access to multiple and digital devices was common among these children, including having high-end smartphones (Apple, Samsung), laptops, tablets, gaming consoles (PlayStation), and intelligent devices (Amazon Echo). "I am using an IPad and my Mac."

"Okay, I use my phone, laptop, and IPad" (four others reply the same)

"(At home I have) my own phone and laptop, and my dad's IPad and my mom's phone" (females, Grade 7, high-income)

The children additionally had relatively stable high-speed internet connections and extensive data limits. While some raised concerns over data speed, it was generally for data-intensive activities like video-streaming.

Many of these children owned digital devices when they were in 5th or 6th grades and did not prefer sharing certain devices with others.

"We definitely do share the TVs. But when it comes to our phones and laptop, I don't think that all of us share that much." (female, Grade 11, high-income)

In some instances, the reasons for greater device ownership among high-income children go beyond affordability or enhancement of the child's digital skills. One reason is the parents' own technology dependence and anxieties over data compromise. Most high-income school children had both working parents who were strongly dependent on digital devices themselves and found it difficult to share them with others. One participant says,

"I am not allowed to use my mom's phone... because she has a lot of work, and she doesn't want me to use it"

(female, Grade 7, high-income).

Even in single-income households, mothers who were homemakers were frequent users of digital devices to be willing to part with them. One parent shares,

"I use the Internet a few times in a day whenever I get time from the house chores. I use it for entertainment; I listen to a lot of music online on Spotify, my daughter told me about this app. Plus, I enjoy cooking, so I use the Internet and YouTube to find interesting recipes. I make video calls to my parents and friends sometimes".

Furthermore, parents were concerned about their personal data safety in handing their devices to children and instead let their child have their own devices. To quote a participant, *"(My mother)'s a lawyer. And she's just scared if anything gets deleted as you know... because it happened once" (female, Grade 7, high-income).*
Digital access of high-income children was linked equally to autonomy and tracking of children's activities and whereabouts. We found that the digitally-savvy parents bought separate devices, smartphones in particular, as a way to track their child's whereabouts and activities using proximity detection applications. Some children were explicitly instructed to carry their phones with them on leaving homes, for instance, while going to schools or picnics.

"The primary reason most of us have phones or like, like devices is, so we need to contact our parents. We go to classes alone. So I wasn't supposed to get like a phone till like the tenth, but then because I go for my classes alone, I just got one."

"My dad's always (worried)... something is going to happen to me... So I always have to carry it, tell him when I'm done... tell him when I'm coming back, what I time I approximately reach, where am I. And my, my dad's also installed like some app on my phone... Live 360... it's like a Tracker thing. You send whoever like on the app like an update, and they know where you are."

"... So when my driver takes me somewhere I don't, he knows where we are in car exactly..."

"Like I had gone out of town for like a week from the school itself, and we were allowed to take our phones there for like calling purposes... I had to FaceTime my mom at least twice a day where I was"

"My dad is also kind of annoyed when I'm not allowed to take my phone to camps because he didn't like the idea of not knowing exactly where I am" (females, high-income, Grade 7)

This insight is consistent in previous research efforts to surveillance urban children's mobility (Ferron, Leonardi, Massa, Schiavo, Murphy & Farella, 2019; Fotel & Thomsen, 2003).

The Siri, Alexa Appeal

Smart devices (Amazon Echo, Fire TV stick) and voice-based technology software (Alexa, Siri) are steadily growing popular in India (Singal, 2020). Our child participants engaged with such devices for different reasons, as a mere pastime, as search assistants and translators, as learning aids, etc.

"When I'm mad, I just take it out on Siri..."

"It just gets you." (females, Grade 7, high-income)

High-income school children were more likely to have access to smart devices at home. One participant who used Alexa for educational purpose shares, "What I do for my English is I just go to Alexa and then 'Alexa I want you to (unclear) this.' Alexa will tell, 'Wait, wait I'll write it down.' So that's the most helpful app" (female, high-income, Grade 7)

Voice-based technology made internet functionality simpler, especially for those with limited English-language fluency. This was the case with some middle and low-income children, who praised the feature for aiding their online search and other activities. A participant says,

"Now we have Hello Google, which helps us search for any information using speech. It helps us translate to Gujarati, from Gujarati from English, and a lot of other information" (male, Grade 11, middle-income). Another participant adds, Those who find it difficult to type can speak it, and those who find it difficult to speak can type"

(male, Grade 7, low-income).

Children from middle-income schools comparatively had access to limited digital devices, primarily mobile phones and tablets, with few instances of device diversity. The device models owned by many of these children, such as Redmi and Nokia, were generally less high-end compared to those of high-income school children. When asked about the devices used for digital participation, one group of middle-school children replied,

"We use mobile phones"

Low-income school children had more limited access to digital devices, with cases of single device usage (usually a mobile phone) by the entire family. Besides this, some children without tablets and laptops were provided

tablets by their school for learning purposes. To quote one participant,

> *"Those who don't have access are given tablets. Like my father has a phone, but he cannot share it with me for longer time"*
>
> *male, Grade 7, low-income*

Many middle and low-income children were additionally bound by limited data with concerns of data laggardness and data-pack exhaustion being frequent. Participants who did not have-end devices faced multiple issues such as limited memory space, device crashing, etc., which compounded the problems of digital access.
"There is no internet sometimes."

..."*When we download games, our phone crashes" (males, Grade 11, middle-income)*

"Battery swells up" (female, Grade 7, middle-income)

"It hangs up if there are too many apps." "It also hangs up when the memory card's full)" (females, Grade 7, middle income) (stating reason for not using Facebook) "It takes up more space, and my phone starts hanging, so I don't use it."

While the Jio Revolution in 2016 dramatically widened affordable internet access across the nation, our data show that the struggle for consistent high-speed internet connection and stable devices persists for many.

Device-sharing trends were common among middle and low-income participants (see box below)

Device Sharing

Mobile phones are dominantly perceived as individual and personal devices, yet studies in the developing world have revealed distinct mobile sharing practices. Donner, Rangaswamy, Steenson & Wei (2008), examining urban India, observe how children often share their parents' phones. Phone sharing activity is also gendered, with men more likely to own and lend phones than women (Marler, 2018). A recent article by research firm Nielsen notes that mobile sharing and borrowing practices between known people are common due to fewer smartphones than people in the household (Sherugar, & Budiu, 2016). Our own inquiry found device-sharing practices prevalent mainly among middle and low-income school children.

I have a phone but use it less... my mother uses it more...my dad had gifted me one, but I said I didn't want it and gave it to my mother. I borrow it from her occasionally" (male, Grade 7, middle income)
I use the mobile meant for home... it is shared by my entire family" (male, Grade 7, low-income)

While high-income school children were accustomed to owning devices from early on and were uncomfortable with device-sharing, middle and low-income school children

did not express such reservations. Many even used their parents' social media accounts even during or post-adolescence, an aspect further elaborated under the subsection 'digital socializing' (check 'Digital Opportunities'). Such insights reveal intriguing 'collectivist practices' of device and internet usage.

Device-sharing also bears undercurrents of patriarchal norms and traditions. We observed stark gender differences in mobile-sharing practices among middle-income school children, who largely belonged to single-income households with traditional gender roles. Male members in these households generally owned devices like smartphones, while female members depended on the males or had access to feature phones with limited functionalities. The device-ownership trends among low-income participants were similar to those of middle-income, even if some households had both working parents. This restricted the girl child's digital access as they could only share their mother's feature phones during the day or wait until night to use their father's smartphone for a limited duration. When asked about duration of phone usage, a participant shares,

"I use the phone for five to ten minutes... Not for an hour or two... My father (the only family member owning a smartphone) works at his stall the entire day, and he first charges his phone (on returning home) after which I use it for some time at night before sleeping"

(female, Grade 7, middle-income).

While boys from a similar background started owning mobile devices by the onset of adolescence, only some girls were lucky to own mobile phones, that too, only in their late teenage years.

The pandemic has led to a shift in existing dynamics of device access among family members, especially in case of middle and low-income households. The increased digital dependence among all family members has led to a concomitant rise in device ownership and internet access, especially among female members and younger children.

"It is only after the pandemic that I had to have an internet connection on my phone for my son to take his online classes. Before that, only my husband and my older son who is a chartered accountant had internet on their phones" (mother of a 17-year old male, middle-income)

One parent, the father of a 16-year-old girl, for instance, bought a phone post-pandemic so that their daughter could study, *"recharging it every month."* Another, who couldn't *afford to buy a new phone, ended up borrowing one from his village. He shares, "I was not keen on giving a mobile phone to my son, but I had to because his*

school called me and told me to give him a mobile phone so that he could study" (father of a 16-year-old boy, low-income).

Coming to age-wise trends of digital access, survey data revealed almost similar internet usage among pre-teens and teenage respondents, with the latter showing comparatively higher frequency of usage. Similarly, while only 4% of teenage respondents 'hardly ever' used the Internet, it was 14% in the case of pre-teens. The figures reveal relatively higher digital dependency among older children.

4%
adolescent respondents 'hardly ever' used the internet

14%
pre-teens 'hardly ever' used the internet

Age Range	Almost all the time	Daily or almost daily	Weekly	Monthly	Hardly ever	None at all
Pre-teens (9- 12 years)	18%	57%	7%	4%	14%	0%
Teenage (13-17 years)	23%	65%	6%	1%	4%	1%

Table VII: Internet use of students from different age groups

Our interviews and focus groups additionally revealed some interesting distinctions. Younger children across schools were likelier to share parents' or siblings' devices as compared to older counterparts, who owned devices. This is because younger children generally use devices for limited reasons, such as calling and content consumption. As one participant succinctly puts it, when asked about limited digital usage, *"Because I don't have so much to do on the internet" (male, Grade 4, high-income).* As usage diversifies with age, children preferred to own rather than share devices. To quote a participant,

"For me especially sharing my laptop is a task because I am usually very much in need of it and giving it to someone means they can be open to taking it back"

(female, Grade 11, high-income).

This statement suggests that the participant did not want others to get into the habit of borrowing her laptop, a device she was heavily dependent on. Most children got their own devices by their early teenage, though there were cases where the children only began owning devices during their late teenage years.

Trends for Location of Digital Access:

- Digital access was mainly at home, followed by school, friend's place, and during transit.

Place	Yes	No
School	62%	38%
Home	95%	5%
Friends Place	59%	41%
On the way (e.g., on the street, in a bus or car)	38%	62%

- During school hours, access to digital devices was either prohibited or monitored, with 72% of survey participants stating their teachers framed the rules for internet usage. High-income school participants had relatively fewer restrictions on carrying mobile devices or personal laptops than middle and low-income participants. The latter could use school-owned computers and only bring mobile phones on special occasions.

- For high-income schools in particular, older teenagers had fewer restrictions on bringing devices to schools as compared to children and preteens.

  "You are allowed to get smartphones only in the tenth or like..."

  "Eighth and ninth, you can't get your iPhone like a smartphone. You have to get a Dabba (feature) phone, but you can also get your laptop."

  "Unless you have permission from the teacher to get a smartphone"
  (Grade-7 girls, high-income)

- Higher-income school participants were more insistent on bringing mobile devices to school. Reasons include safety, emergency use, and pastime during transit or breaks.

Trends for Duration of Digital Access:

- Survey data showed that children across schools claimed to use internet daily or almost daily. Nevertheless, frequency of usage topped for high-income respondents, with nearly half the respondents using internet 'almost all the time'. This is followed by middle-income respondents, where only 25% claimed to use internet 'almost all the time.' Frequency of usage of 'sponsored category' schools was slightly higher than regular low-income counterparts, which showed the lowest internet usage frequency across schools with 4% of respondents not accessing the Internet.

School category	Almost all the time	Daily or almost daily	Weekly	Monthly	Hardly ever	None at all
Sponsored category 1 (CSR –supported low income	17%	67%	7%	2%	7%	0%
High Income	47%	43%	6%	2%	2%	0%
Low Income	13%	76%	2%	2%	3%	4%
Mid Income	25%	64%	5%	2%	4%	0%
Sponsored category low income schools (NGO supported)	14%	57%	2%	5%	22%	0%

Table IX: School-wise frequency distribution of Internet use

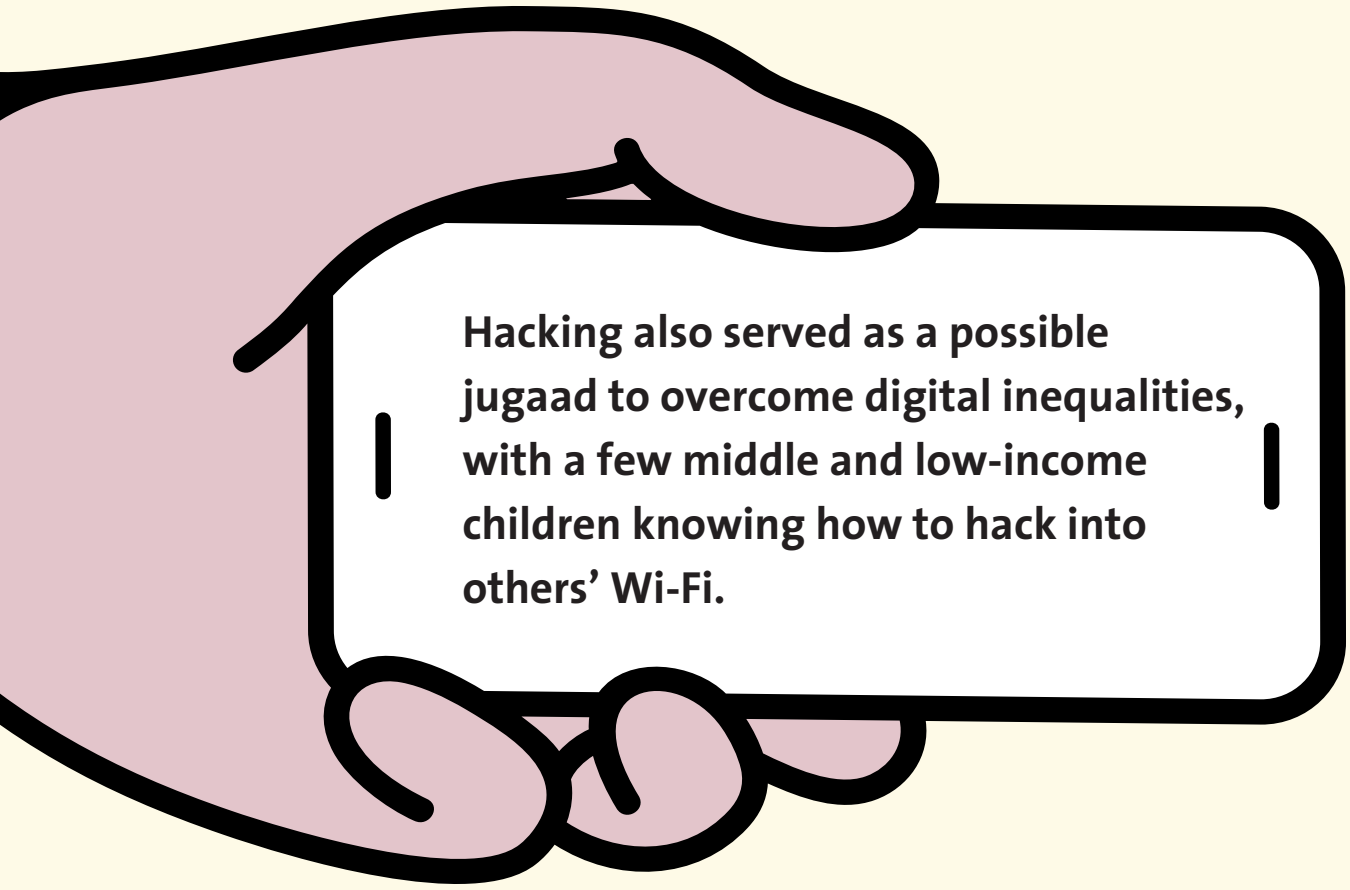
- Claimed daily internet access (in hrs):
  - High-income participants – 1.5-7 hours
  - Middle-income participants – 30 mins-2 hours
  - Low-income participants – 30 mins – 4 hours
- High-income participants had different estimates about their claimed hours of usage from two hours to all day. In one interview we found that the participants had not accounted for their study-time initially when they claimed 3-4 hours of usage. Including study hours, this increased to 6-7 hours.
- Greater device ownership and multi-device environments among the reasons for greater claimed daily internet usage among high-income participants compared to middle and low-income counterparts.
- As high-income school children were relatively more familiar with features to track their daily usage (e.g. Screentime), they were likelier to give a more accurate measurement. To quote a participant, *"My father has installed Screentime so that I can't use my phone for more than 1.5 hours (a day)" (male, Grade 9, high-income)*. On the other hand, some children especially from middle and low-income schools, likely understated their duration of use. They would claim digital usage not exceeding an hour or two only to give contradictory responses later in the interview, for instance, when describing their prolonged gaming usage.
- Interviews with low-income school children happened post-pandemic where schools went entirely online. The addition of online sessions therefore leads to higher usage hours. To quote a participant, *"Taking into count my online classes, I (use the internet) for 3 hours, else one or one and half hours)" (male, Grade 8, low-*

income). The time-trends are similar to middle-income school children if this factor is considered.

- Digital access was generally during post-school during late-afternoon and late-evening.
- Some female participants from middle-income schools claimed extremely limited duration of digital access, from 15-20 minutes. This is likely because they did not have access to independent mobile devices and were wholly dependent on their parents, who were also more at home and using the devices for longer hours during the pandemic.

RECOMMENDATIONS

With the present global pandemic, children's digital usage has increased dramatically, especially with online classes. Further research can examine: How have digital ownership and sharing trends changed with the pandemic, and what are its consequences concerning device ownership among children in general and girls in particular? Does it accelerate anxieties about children's (especially the girl child's) online activities? It also becomes necessary for various stakeholders, including educators, teachers, parents, policymakers, and children themselves, to take cognizance of concerns such as 'digital overload' and 'digital fatigue', and relevant coping mechanisms that can be undertaken for (un)doing some of the digital. (Alevizou, 2020).


Hacking also served as a possible jugaad to overcome digital inequalities, with a few middle and low-income children knowing how to hack into others' Wi-Fi.

KEY FINDINGS

DIGITAL SKILLS AND PRACTICES

- Children possessed a variety of operational, information-browsing, social, and creative skills. They also knew ways to bypass internet barriers and widen overall access.

- Many children, especially girls, were familiar with creative and visual skills, partly owing to the popularity of visual-centric and female-oriented social media platforms Instagram, Tiktok, and Snapchat.

- Unique skills, including coding and hacking, were prevalent, especially among boys. Coding was increasingly integrated into education, especially in high-income schools. Hacking, meanwhile, became one way for less-privileged children to gain agency and reduce some digital inequalities. Boys having these unique skills included more unsupervised peer interactions than girls, some of whom were restricted to their homes, especially in less privileged households.

- Information-browsing skills were prevalent among high-income school children due to stronger support systems of parents, teachers, and experts.

The increased digital dependence among all family members has led to a concomitant rise in device ownership and internet access, especially among female members and younger children.

DIGITAL SKILLS AND PRACTICES

Having digital access lets the child both harness digital opportunities and encounter potential risks. For efficient and safe internet use, it becomes essential to have digital literacy through acquisition of various skills (Third, Collier, & Forrest-Lawrence, 2014). This majorly includes i) operational skills, pertaining to technical know-how in terms of both device and web operations, ii) information-browsing skills, which comprise competent internet navigation and information-evaluation potential, iii) social skills, concerning safe communication, and iv) creative skills, involving creation of online content.

Our research participants claimed skills broadly classified as operational, information-browsing, social, and creative. They discussed activities including web search, verifying source credibility, enabling phone tracking and data security features, accessing online services, navigating social media platforms, conducting inter-device data transfer etc.

"While using Internet and searching on YouTube, we need to enter 'how to make something' to get some tutorials..." (female, Grade 4, high-income)

"I know how to change passwords, enable screen lock... lock all applications on my phone... make my account private." (Grade-11 girl, middle-income)

"With iCloud I can connect things from anywhere to my laptop. I can transfer things from my phone to my laptop and work on the latter if I don't wish to use the phone" (male, Grade 11, middle-income)

Some participants also learned skills to bypass certain barriers and restrictions on the Internet and widen their digital access beyond what was readily accessible. This included giving false information on age-restricted websites or using virtual private networks (VPN).

"The Pokèmon game in India is not so good. In that to catch PokÈmon is not so good in India. So, we use VPN to use out of India network, so that you can reach higher levels in the game" (male, Grade 11, high income)

"My date of birth is 5-10-2003 but I use 2002 as my birthdate (for a Facebook account) since the platform is restricted for under 18"

(male, Grade 11, middle-income)

We observed an emphasis on digital audiovisual skills across the schools. One possible reason for this is the diverse avenues of audiovisual self-expression available online, notably Instagram, Pinterest, Tiktok, etc. Participants used a variety of audiovisual tools and discussed activities, including selecting an appropriate frame, deciding the look, changing filters, editing photos and audio, and creating videos.

"I am good at editing funny pictures and she is good at editing good pictures"

"Yeah I use this app called VSCO and it's a paid app where you can edit pictures and everything, the picture that I sometime take from my phone I edit them on that app and then post them..."

"(I am good at) beauty pout" (females, Grade 11, high-income)

"There are good (apps) for making birthday videos"

"We search for (such apps) and install"

"(We make) some photo collages too" (females, Grade 7, middle-income)

They used a variety of mobile applications for the purpose, many of which were user-friendly alternatives to professional software.

"If you had to do something really fast and quick, not all of us have usually had access to apps like Illustrator or CorelDRAW. So Canva is something all of us use a lot"

"So that we can make quick infographics or yearbooks" (females, Grade 11, high-income)

"So Powtoon is this app where you can create animated videos... We struggled at the beginning because we didn't know how to work, but we read up on it and then yeah..." (females, Grade 9, high-income)

These statements highlight that children may be exceptionally comfortable adapting to the highly visual culture of the present times (Mirzoeff, 1999). Some girls, particularly from the high-income schools, were adept at many of the creative skills used for audiovisual social media content. Boys on the other hand spoke more about knowing skills like coding and hacking as well as graphical skills for gaming and movie-making (as compared to social media content). The gender-wise distinctions in digital skill acquisition warrant a deeper look.

Coding Fever

Some students were familiar with specialized skills such as coding. Boys mainly discussed coding at length compared to girls, a pattern consistent with global gender-wise skewness in STEM fields (Makarova, Aeschlimann, & Herzog, 2019). We found one case of a female coder among our participants, who shared,

"I can do a bit amount of coding like on scratch... (besides) there are other coding sites for which I go online and make games and all."

female, Grade 9, high-income

School-wise, we found some of the high-income schoolchildren knew coding from an early age, with one of the fourth graders revealing, *"I do coding, and in that I make*

games... Even my cousins have made them". Further, high-income school children received formal training at coding workshops organized at schools or summer coding camps.

"I go to coding camp... it is for kids"

"We learn to code in school, and I have learned not-so-proper games. That you can play, they are not-so-proper games that you can play" (males, Grade 4, high-income)

Coding fever can be seen as both a cause for celebration and concern. On one side, urban India is witnessing a coding fever with companies like White Hat Jr., Toppr, and Tinker Coders offering courses that cost anywhere between INR 6000 to INR 5 lakh. Conversely, scholars like Livingstone draw attention to undue pressure and competition children, parents, and teachers face to keep pace with the complex demands of modern times (Livingstone & Blum-Ross, 2020). Kalra (2020) also alerts that the limited accessibility to coding training resources will widen the urban-rural digital divide in India.

Scholars like Livingstone and Helsper (2007), Cabello et al. (2020), Van Deursen and Van Dijk (2010), alert to possible differences and disparities in digital skills, depending on factors like age, educational level, nature, and level of internet usage, access modalities, socioeconomic status, etc. Information-browsing skills are essential considering the explosion of fake unverified news and disinformation on online platforms. Our survey revealed that 72% knew how to validate the credibility of websites. Similarly, 82% knew how to verify the authenticity of online information. We observed that these skills were emphasized mostly by the (older) high-income school children during FGDs and PIs. These include credible browsing sources, authenticating content, or comparing sources before confirming information facticity.

"We try to search on multiple sources and if the information is similar on multiple sources than we believe that it could be correct"

"And there are certain sites that we are aware of, for example, Quora, where a lot of people add their opinions and information, so such sites may not be credible"

"We only check for credible news on sites that we are fully aware that these are reliable, we can't fully trust/rely on Wikipedia. Then there are other reliable sources like Lukas, CNN, BBC, Reuters"

males, Grade 11, high-income

...Interviewer: "How do you come to know that the game developer is unreliable?"

"If you have never heard of the game or if it keeps appearing numerous times on your page"

72%
respondents knew how to validate credibility of websites

82%
respondents knew how to verify authenticity of online information

"We have met a lot of experts who have made us aware about which websites to use which not to use" ... "We know this stuff" (Grade-9, girl, high-income)

In addition to the examples shared above, one of the high-income Grade-11 girl participants spoke of downloading from 'sci-hub' website regularly, revealing an early familiarity with academic sources.

One possible reason for the disparity is that high-income students had a more robust support system to enhance their information-browsing capabilities. To quote a group of participants,

Middle-income school children mentioned taking a few steps like comment verifi-cation for activities like online shopping. A participant shares, *"On Amazon, when we order something, we check the reviews to gauge the quality, and some reviews also post pictures. So that way we under-stand" (Grade-11, girl, middle-income).* Nevertheless there was no mention of verification of other forms of information, particularly news articles or forwarded messages.

Doing Digital 'Jugaad'

Children have found innovative strategies to overcome constraints of their ecosystems, whether digital or otherwise. They engage in 'jugaad', a popular concept in South Asia denoting practices of 'finding workarounds or hacks to solve problems' (Rai, 2019; Rangaswamy & Sambasivan, 2011). To quote some examples of jugaad, a participant shares, *"If we are on a trip and I want to buy something that I don't want to show to parents, then I take using the pocket money (which parents give for food)" (males, Grade 9, high-income).* Similarly, one of his batchmates secretly engages in the trade-off of restricted items to increase their pocket money.

In the context of digital jugaad, many participants knew cheats and hacking skills. They would learn and employ these skills for different purposes, from hacking into games or artificially boosting social media followers. A participant shares,

"When I went to my village, I taught my brother how to hack the game Free Fire"

male, Grade 7, middle-income

Hacking also served as a possible jugaad to overcome digital inequalities, with a few middle and low-income children knowing how to hack into other's Wifis.

"I have an app that helps me hack into someone's Wifi... It's called a WPS, WPA system. Our Wifi (router) has a WPS button at the back which if pressed allows the application to auto-connect to the Wifi" (male, Grade 11, middle-income)

The children would learn about these skills either online on YouTube channels like Mr. Indian Hacker or through their friends and others in their social circles.

"I have a friend who hacks Instagram IDs, and he even had a case registered in his name... he would increase likes, comments, and followers as much as you wish" (Grade-11 boy, middle-income)

"One of my mother's friends... taught me a hacking technique although I don't remember it now" (male, Grade 9, high-income)

One of the middle-income male participants, in his late teens, had attended ethical hacking course as he believed it gave him an early advantage in future career prospects.

"Once we graduate and we say get a job in the government or police, these (ethical hacking) skills can come in handy to solve issues. Even the army requires people to undergo hacking courses" (male, Grade 11, middle-income)

Boys compared to girls discussed these unique skills. One possible reason for this is that it is a common practice in India for girls to spend more time at home and be back from school by a certain time. The activities they do at home are hence mostly those sanctioned by the family. Boys on the other hand spend more unsupervised time with peers, which increases the possibility of peer-learning, in this case of jugaad techniques.

RECOMMENDATIONS

It is necessary and urgent to impart information-browsing skills to children. at all levels to ensure they become informed citizens.

KEY FINDINGS

DIGITAL OPPORTUNITIES

- High-income schools were more drawn towards English-language and global content, whereas middle and low-income children consumed more local-language homegrown content. Children from internet-deprived environments preferred offline download, freemium viewing, and high video quality for suboptimal internet connectivity.

- The video-sharing platform Tiktok (now banned in India) hugely drew middle and low-income children. Its inappropriate content notwithstanding, Tiktok served as a potent and relatable site for self-expression, fame, and idolization of popular Tiktok stars.

- Gaming was another avenue that attracted both boys and girls. Boys were particularly fond of action games and more invested in gaming culture, with some uploading gaming-related content on popular online platforms. Girls mostly spoke about mobile gaming.

- Some teenage boys discussed accessing adult pornographic content regularly, though they had mixed responses about its easy availability. Some

were concerned about young children watching such content and advocated a ban or restrictions. Others argued that children would find ways to bypass restrictions anyway.

- Engagement in leisure-driven activities, often considered frivolous, could be a potential gateway to digital participation and a medium of vicarious consumption for children from less privileged backgrounds. However, a preponderance of digital usage for entertainment purposes at the expense of other opportunities is a matter of concern, with parents alerting negative consequences, including worsening grades and digital addiction.

SOCIALIZING

- Online socializing strengthened children□s social networks, encouraged participation in interest groups and communities, broadened worldview, and motivated civic participation.

- Socializing began with internet-enabled instant messaging services and email, often required for school correspondence. Then it expanded to popular social media platforms during or post-adolescence.

- Children had their own impressions about social media platforms. High-income school children generally preferred Instagram and Snapchat over

Facebook, which was derided as old-fashioned. Many low-income children, on the other hand, continued using Facebook and were active on Tiktok.

- Inter-gender and intra-gender variations were found in online sites accessed for socializing. While girls spoke of socialization experiences on Instagram, Snapchat, etc., many boys used multiplayer gaming platforms as socializing sites. Next, gender did not have a notable role in monitoring and restricting online socializing in high-income school girls. On the other hand, some middle and low-income school girls were altogether prohibited or heavily restricted from social media due to conservative cultural taboos and fears of safety.

LEARNING

- Children availed both school-related and extracurricular learning opportunities online. They praised the unconventional and interactive nature of online learning.

- Parents were also very supportive of children□s internet usage for learning purposes.

- Children with low English literacy praised online features (e.g. Google Translate) for improving language fluency.

- Older teenagers actively sought exam-preparation-based online materials.

- Some criticized digital learning to encourage plagiarism culture. Children were sometimes overwhelmed with the volume of content available online, experiencing difficulties in gauging reliability. The multipurpose nature of digital technologies made online learning difficult, with children often getting distracted.

- Children sometimes prefer physical mode for activities like learning or seeking mental health support. They regretted how digital participation sometimes came at the expense of face-to-face interactions with families and friends.

Girls did not discuss gaming-based socialization much. They instead displayed a particular interest in discussing their experiences on popular social media platforms and messaging services like Facebook, Instagram, Snapchat, WhatsApp etc.

DIGITAL OPPORTUNITIES

The Internet offers myriad avenues for children to explore their capabilities in domains of education, leisure, consumption, sociality, civic life, recreation etc. (Livingstone & Blum-Ross, 2017; Smahel et al., 2020; Swist et al., 2015). They may engage in different capacities, as relatively passive consumers and audiences, as prosumers who simultaneously engage in production and consumption, and as active participants and actors. Children enhance their digital literacy, learn to tackle any risks that accompany opportunities, and become confident users of the Internet. For this study, we broadly classify digital opportunities under the headings, i) entertainment ii) socializing and iii) learning. While such classifications are made for convenience, we are nevertheless cognizant of their overlapping and fluid nature – such as 'entertainment' content simultaneously providing educational and socializing potential – and demonstrate this in our analysis.

88%
respondents used online video platform YouTube

Entertainment

We observed a massive appetite for entertainment across ages, gender, educational levels, and socioeconomic categories. This included video-sharing and over-the-top (OTT) content (YouTube, Netflix, Hotstar, Tiktok); PC, console, and mobile gaming (Minecraft, Clash of Clans, PubG); music apps (Spotify); websites (Pottermore); pirated sites (YesMovies); and adult websites (Pornhub).

We observed school-wise differences in the nature of content consumed. High-income school children were more drawn towards OTT platforms like Netflix and Amazon Prime, both of which are subscription-driven and cater more to urban audiences.

The participants praised such platforms for making content readily available anytime, anywhere, which wouldn't be the case during pre-digital times.

"On Netflix, we have a lot of shows and series... so I watch that" (male, Grade 9, high-income)

"Netflix is easy for entertainment"

female, Grade 9, high-income

"On Amazon Prime, you can watch movies that are just released from the theatre. For a TV, it will come after two months, and on Amazon Prime, you can watch after 15 days. If you have Netflix, you can watch many programs that are not available on normal TV" (male, Grade 4, high-income)

On YouTube, international and Indian YouTubers, including Pewdiepie, CarryMinati, and Bhuvan Bam (of BB

Ki Vines fame) were popular among some high-income participants, especially boys. High-income participants were also active on music apps like Spotify and Shazam and the image-sharing service Pinterest.

56%
high income respondents used audio streaming platform Spotify

"Pinterest I'm on it like a lot because I save like stuff" (females, Grade 7, high-income)

"I also use Pinterest with my mother to see photos of cars and space-related photos. I use it every weekend"

male, Grade 7, high-income

Middle-income school children preferred platforms with a strong share of mass content and local language diversity, such as MX Player and Hotstar, two of the biggest OTT players in India after YouTube (MICA CMES, 2020). Regional content accounts for 40% of Hotstar's overall content consumption, for instance (ibid). One group of participants, praising Hotstar for its different features, share,

"Hotstar has new pictures all the time"

"Hotstar also has serials"

"And matches are played on Hotstar" (female, Grade 7, middle-income)

MX Player, another hugely popular OTT platform, was similarly appreciated by participants, with one telling, *"When we download a movie for offline viewing (in OTT services), a regular player often does not permit fast-forward but on MX player you can swipe forward the parts you want to skip" (male, Grade 9, middle-income).* Offline download is particularly beneficial for those lacking consistent access to high-speed internet services (Gurung, 2019). MX Player also made technological investments to ensure higher quality videos even for those users with suboptimal internet connectivity (MICA CMES, 2020). Both Hotstar and MX Player offer freemium content making certain features freely accessible, beneficial to those with limited financial means.

On YouTube, the children similarly watched more local-language content which was relatable in nature. In this regard, one group of participants share,

"(We watch) Kishore Kaka" (4-5 girls laugh)

"Who is Kishore kaka?"

"He does stand-up comedy"

"Gujarati comedy" (females, Grade 11, middle-income)

These trends are consistent with media reports which have observed a boom in regional-language content and viewership besides the urban appeal for English content (FICCI & EY India, 2020).

A representative for YouTube, in fact states that such language diversity shall become even more granular to specific dialects in the coming years (MICA CMES, 2020). Such hyper-localization shall ensure that even non-urban children in India have content that resonates with their milieu.

Tiktok was a massive craze among middle-income school children as compared to their high-income counterparts. While the latter showed relatively tepid enthusiasm towards the platform, they nevertheless acknowledged Tiktok's massive popularity and lucrative potential.

"A lot of people have made social media their profession. Like people have become so famous making videos on Tiktok etc. that they have their own official songs now"

male, Grade 7, high-income

Trending on Tiktok

Tiktok, the video-sharing platform by the Chinese firm Bytedance became a nationwide phenomenon soon after its Indian release in 2016, with its lion's user share being youngsters from Tier-2 and Tier-3 cities (Bagchi, 2020). In our research, we found that middle-income school children were especially active on Tiktok. They were fans of popular Indian 'Tiktokers' like Jannat Zubair and Riyaz Aly, who possibly served as models for admiration and emulation. When asked about their favorite Tiktok stars, one group of participants mention,

"Of course, there's Jannat Zubair... Anushka Sheikh"

"Faizu... Faizal Khan. Faizu is short-form" (some participants giggle) (females, Grade 11, middle-income)

Few of the children actively uploaded their own content on the platform often as means for social validation and fame.

(Referring to one of the participants) "This fellow is a singer"

"He's more active on Tiktok. Tell them your follower count..."

"Above 500 at least"

"(Naming another person not in the interview) My friend has 8000" (males, Grade 11, middle-income)

Others shied from uploading content fearing repercussions from family members. Nevertheless, they still created videos and saved them offline. These examples reveal that Tiktok has captured the desires, imaginaries, and aspirations of the non-elite Indians like no other.

This being said, the platform has been in troubled waters over inappropriate material, becoming potentially risky for children. Several user-generated contents have been flagged for misogyny, sexually abusive content, and disturbing trends.

"I don't like the 'acid attack' trend on Tiktok at all... it happened around the release of the Bollywood film 'Chhapaak' (a movie based on a real-life acid attack case in India)"

"Though they just use water (in the Tiktok videos), the message they give is 'Look what happens to your face on throwing acid" (females, Grade 4, middle-income)

Tiktok was eventually outlawed in 2020 however, the reason was not the presence of inappropriate content. It was data security concerns following geopolitical tensions between India and China.

Gaming is another avenue of entertainment that has avidly captured the interest of children and young people, with industry figures revealing the demographic from the largest share of online gamers (FICCI & EY India, 2020). Most participants across age groups and boys spoke about regularly playing computer, console, or mobile games. Consistent with previous research on gender-preferences in media content (Lemish, 2010), most boys found action-genre games like Clash of Clans, Free Fire, Minecraft, and Call of Duty very appealing. Some boys had multiple accounts for a game and played for hours on end. One high-income participant who knew to code well even ended up playing his own self-made games.

"I have four accounts on PubG and seven on Freefire"

"3 on PubG and two on Freefire" (males, Grade 7, middle-income)"

"I play Fortnight, I play Minecraft and that car racing game"

"I mostly play AI games and sniper training"

"I play sports games"

"I mostly play AI games"

"I play those games that I make while coding" (males, Grade 4, high-income)

They also viewed game-related online content. This includes gaming-related

YouTube channels which are enormously popular and whose overall viewership almost doubled between 2019 and 2020 (MICA CMES, 2020). Children also checked out live-streaming by popular hardcore and professional gamers. Some of them were aware of monetization potential of gaming.

"I watch two gaming channels, one is 'Total gaming' and the (other) 'Lokesh Gamer'... '2 side gamer', these are all for gaming"

male, Grade 7, middle-income

"I enjoy watching YouTube videos gaming videos, like if someone plays Minecraft and then he uploads those videos of the game I enjoy watching those videos..."

... "In Twitch... you can donate to (streamers)... "It is written there 1, 10, 5, 100 $. How much ever you want to donate. Then there are other YouTubers who give these streamers 1000$"

..."These kinds of people earn a lot of money. More than a million in a year" (male, Grade 7, high-income)

Such content motivated a few participants to even start their own gaming channels online.

"He has made a channel called Indian Gamer... 'Desi Gamer'" (pointing to another guy)

Interviewer: "You have your own channel"? "Yes" (male, Grade 7, middle-income)
While noting the lucrative potential of gaming through streaming and content-creation, the participants also admitted that such pursuits were time-consuming and involved material costs not feasible for all.

"Streamers and gamers play for 4 hours because their livelihood depends on playing games. Like Ninja (a professional online gamer) streams for 12 hours in a fortnight"

male, Grade 7, high-income

"There's a boy, he has an excellent channel... he's not here, he's gone to his village"

"Yes... he has his own phone. His father has a phone shop. Electronic shop. He also has a laptop" (males, Grade 7, middle-income)

Girls are increasingly becoming part of the male-dominated gaming space. According to Think with Google APAC □ Play like a Girl Report, 18% of gamers in India are women, and the number of women games is fast increasing compared to men (Bhushan, 2020). Among our participants, many of the girls were particularly fond of mobile games, including Subway Surfers, Candy Crush, Glitch, and PubG. Middle-income school girls also played games involving baking and acting as air-hostess. A middle-income Grade 7 participant shares,

"There are some games on my dad's phone which I play, like the one about cakes... it's about baking cakes and adding stuff in it".

Another participant states, "I like the mobile game) where I dress up Barbie", with her batch-mate adding, "Shopping

and stitching-games." Such themes are consistent with gender-wise stereotypes in gaming genre-preferences.

Leisure-based online activities are often perceived as frivolous and placed at the lower end of the spectrum of digital opportunities (Rangaswamy & Arora, 2016). Going by this observation, one would traditionally consider middle and low-income school children's preoccupation with gaming as concerning as it strays from opportunities typically classified as 'developmental' and 'empowering'. Interviews with parents did reveal a preference towards the educational potential of the Internet. One parent, discussing their son's mobile phone usage, states,

"I have strictly told him to not use the mobile phone apart from his educational activities. No talking to friends, etc. I don't allow him to waste his time on anything. If he gets time from studying, he has to help with the house chores... The children absorb the environment that prevails in the house and in our house, nobody has extra time to sit and use the mobile phone. Everyone has their own work (duties) to perform"

father of a 16-year old male, low-income

With its curfews, lockdowns, and social distancing, the pandemic has led to a greater demand for remote leisure activities, with digital devices offering a getaway (Mansur, 2020). Industry reports showed a rise in data consumption, from 1GB per user in pre-COVID times to 1.21 GB per user in April 2020, a month after the nationwide lockdown. Similarly, smartphone use rose from 3 hours 22 minutes to 3 hours 54 minutes, with users across the ages glued to digital activities like gaming, OTT content consumption etc. (MICA CMES, 2020). In the case of children, the usage of digital devices exclusively for such leisure purposes becomes a cause for concern, especially when it negatively impacts children's education. One parent a tuition teacher herself, echoed this sentiment. She was deeply perturbed about underprivileged children's excessive smartphone use for entertainment, especially post-pandemic. She observed,

"There are a lot of children in my neighbourhood whose parents are absolutely illiterate and they don't know what their children are doing on the internet. They think that their children are taking online classes but actually, they are just watching other videos on YouTube and songs and playing games like PubG all day. Since these parents are illiterate, they don't know how to check what their children have been doing on the phone. They just give the phone to the child with this faith that their child is studying on the phone. When the parents ask the children what they are doing all day, these children easily fool their parents by showing something and saying that they are studying... So most of these children have become weak in their studies and have gone on a completely wrong track. I am a tuition teacher so I can say this from my experience that if parents don't pay attention to their children, the children will always misuse the internet.

It is my observation that students from standard 1 to 9 have not studied at all in the past year. This online education has not been useful. In fact, they have forgotten everything that they had learned before the lockdown"

mother of a 17-year old male, middle-income

Conversely, Rangaswamy & Arora (2016) warn against writing off leisure when examining adoption of internet and mobile technologies in the developing world. The authors argue that participation in leisure-based online activities is in itself agentic. It allows people from lesser privileged backgrounds to familiarize with features and technicalities of the digital interface and acts as their gateway to digital participation. It also helps them vicariously experience things they could not access in their actual lives due to socioeconomic constraints. As one low-income school child succinctly puts it,

"What we cannot afford in our real lives, we can at least Google it!"

male, Grade 8, low-income

Thus, children's digital participation must include a healthy balance between the various digital opportunities, namely entertainment, social, or education, to truly benefit their overall potential.

Accessing the 'Unspeakable'

The Indian culture has traditionally considered it taboo to publicly discuss issues such as sexuality and pornography, even though adult content is widely consumed in the country (MICA CMES, 2020). Only in recent times have people, especially from urban parts of India, growing more aware and forthcoming to discussing such issues. In our interviews, children's immediate impulse was to skirt around these questions first or use euphemisms like 'that content, you know'. Some adolescent and teenage boys from both high-income and middle-income schools gradually opened up about watching such content on regular basis and accessing different features. The Grade-9 boys, high-income school mentioned the following:

"There's a pornography app that allows chatting option"
"We can talk one-on-one (on the app)"
"We use it when we are either alone playing a game. Sometimes we call one of our friends too" (laughter)
"Sex games also allow that"
"Like I said before, when we open the inappropriate app... we can make our own characters"
"When you win some amount (in the game) you get some pics in return" ... "(Referring to a pornography website) They have a live screen when they come online and viewers can watch them like on YouTube Live... then you can send tips"
"Money tips"

They considered friends and peer groups as their go-to company to discuss the 'unspeakable'. One participant shared how they secretly logged into their parent's account with an adult website to consume exclusive content that's otherwise inaccessible to them.

"I use my dad's premium account on a pornographic site... I got hold of his username and password (unbeknownst to him)"

male, Grade 9, high-income)

Through these strategies, children extend their online selves by sneaking into the adult world from a young age. Although the boys mentioned that girls were equally consuming adult content, we could not validate and explore this aspect in interviews with girls as none explicitly discussed it. Some older participants also expressed concerned about pornography becoming easily accessible to very young children.

77%
parents are worried about children watching inappropriate content online

"Even young children watch (porn) these days" "On Google!"

males, Grade 11, middle-income

"If a young child is asking about porn, I feel that they do not need to know about all that at this age, especially when we go on the bus if a child from grade 4th or 5th is asking me about porn than I'll explain to him that it is not your age to know about such things. I'll try to change the topic" (males, Grade 11, high-income)

One participant suggested age-based verifications as a possible solution to this issue. He suggested, *"There should be tighter control on pornography because kids from 5th and 6th standard are asking questions about it these days. That could be linked with some valid documentation validating user age"*. Another went to the extent of recommending a total restriction on adult content as a way to curb consumption, saying, *"If pornographic sites were not available online we would stop seeing them. We don't want such sites and wish they would stop" (males, Grade 11, middle-income)*. Some doubt whether such measures will ever work when internet makes it so easy to bypass barriers.

"It is banned but people still use it"

"Such people use VPN" ... "People don't follow the rules and (age-restrictions and content warnings) make people more curious and gives them more reason to follow..."

males, Grade 11, high-income

Socializing

Online socializing is beneficial for children in multiple ways. They help children to familiarize themselves with different social media platforms (Facebook, Instagram, Twitter, and Snapchat) and messaging and mailing services (WhatsApp, email, Google Hangouts). Children are able to maintain their existing social networks as well as form new social connections online. Connecting with people also keeps children updated about the latest happenings in the world shared across social media platforms.

"For some people, social media is good as well because they can learn something. It is also a mode of communication. We know people from far off because of social media"

"It is essential for communication too because for instance, the news of the bush fire in Australia if there were no communication the news would not reach other places" (males, Grade 7, high-income)

Conversely, socializing experiences also introduce children to risks like catfishing, 'stranger danger,' and privacy incursions. A participant observes, *"(social media) works well (and is) definitely a good way to connect with people but it also (works in a) bad way because... (there are) people you don't know, people who hack you, people who can pretend like you're somebody else like catfishing" (female, Grade 7, high-income).* This can either lead to children reducing their online socializing or actively learning to protect themselves in better ways online.

"I think that the internet is a great place to meet people that you wouldn't normally get a chance to meet"

"As long as you are careful about it" (females, Grade 11, high-income)

Parents were generally more permissive of children using instant-messaging like WhatsApp either freely or with supervision (81%), compared to social media platforms (40%). This is likely because social media platforms are generally considered more public in nature and accessible to unknown persons. WhatsApp, on the other hand is more semi-private in nature and requires sharing of contact information for communication (Lyons, 2020).

Online socializing of children generally begins with emails and messaging services then branches out to the popular social media platforms. When a group of younger children is asked if they have online accounts, the instant response is, *"Only Gmail" (males, Grade 4, high-income).* Opening an email account is a big step for young children, who were largely consuming content until then.

Interviewer: *"Which was your best experience on the internet?"*

"When I got my Email ID"
(male, Grade 4, high-income)

Schools nowadays create email accounts for children as well as use messaging services like WhatsApp for formal communication. One participant informs,

"...We get some school assignments via mail and Google Classroom and some announcements via WhatsApp".

Google Hangouts feature on Gmail is extensively used by children for both formal and informal peer socializing, such as creating project-based groups and engaging in 'chit-chat' and 'time-pass' respectively. We observed such email socializing particularly in case of the high-income school participants.

"I talk to friends if they are online on Hangouts. Hangouts is a part of Gmail if two people are online and if they are friends they can chat. And if there are 4-5 people, they can make a group and chat, like WhatsApp"

"Hangout is like WhatsApp. It is from Google so we all can talk. Group talk or personal talk" ...

"It means time-pass messages"

"Like they would pick up anything from google and forward the links. Then they would send jokes and roast each other, argue with each other"

"If one person says 'Hi', one hundred people reply with 'Hi'"

"Now imagine, if there is a group of 20 people and if all of them reply with a Hi, think about the number of notifications that we will receive of just a 'Hi' and when we left there would be so many notifications of 'Bye'" (males, Grade 7, high-income)

"Like for doing our school work together for some project you need like people together and you want them to see what you are doing so you use Hangouts for that" (females, Grade 9, high-income)

Coming to social media platforms, children usually start off viewing their parents' or elder relatives' personal accounts or utilizing it for limited non-socializing purposes such as playing games on Facebook.

"I don't have social media with me. But it is there on my mom's phone..."

"My mother's phone has Facebook and Instagram" (females, Grade 4, high-income)

"My parents use Twitter a lot... so I sit (beside them) and watch" (male, Grade 4, male)

They are generally allowed by families to open their own accounts around the beginning of adolescence, marking the onset of gradual (digital) individualization. This however came with restrictions and time-to-time monitoring with some being disallowed from sharing personal information and pictures or making contacts with unknown persons.

"I can only message others when my mother sits beside me else I cannot" (female, Grade 7, middle-income)

"Like of course there are several restrictions but they go..."

"Don't try meeting with someone with whom you have met only online"
"Don't talk to anybody who you think is shady"
"And no Omega or like FaceTime people (females, Grade 11, high-income)"

"Don't post any photos on Facebook, don't send your photos to anyone. Don't use your own photo (i.e., face pic) as profile" (male, Grade 7, middle-income)

"My parents just made an Instagram account to follow me and see what I do" (female, Grade 9, high-income)

Social media presence allows the children to partake in online groups that foster and reinforces their specific interests.

"Sometimes I use Discordant app too. It is a website of gamers with their groups of gamers. We do game-related chatting on that website" (male, Grade 7, high-income)

"We have a cricket group in our building. There's an online group for that where we share cricket-related messages" (males, Grade 11, middle-income)

Children also make evaluative choices on which platforms to engage on, for instance, some of the high-income school children considered Facebook a "boomer's app" and were active on Instagram and Snapchat instead.

Interviewer: "Why don't you use Facebook"

"Yeah, it's an old people app" (laughter) Yeah, it is basically a boomer app and hard to operate"

... "And what is poking (on Facebook)... ?" (laughter)
"We don't really want to know anyways"

"We are fine without Facebook" (females, Grade 9, high-income)

This was reflected in our survey results as well, where Facebook was used by merely 2% of high-income respondents, drastically low compared to Instagram (47%) and Snapchat (70%). Facebook was still popular among low-income children, with 35% of respondents using the platform. In such ways, children carve their niches and spaces in the virtual spheres of socializing.

Most used platforms for socializing	%
WhatsApp	80%
Instagram	31%
Snapchat	23%
Facebook	14%

Table X: Most used Social Media platforms

Online socializing also offers potential for civic participation. Some of the high-income school children spoke of actively engaging in social issues online, despite often facing online vitriol and trolling.

"I think something good about the internet is like a lot of people have started to put like a petition or like a lot of people like come together to form a voice against something that's happening with the government but again the government might remove that information. So, someone has the power of controlling the internet, then they also have the power of controlling the world by that"

"With this whole thing of CAA [Citizenship Amendment Act 2020] happening and there were bunch of posts on and viral videos of protest and everything... and one person from our school was very anti-CAA and then he put his thoughts up on Facebook and then people replied to him and he received a lot of hate just because he put his opinions online."
Interviewer: "So, was it scary for him?"

"No, I don't think it was that scary for him because he stood his ground"

"No, it was not scary but it is bad to criticise someone for putting up his opinion" (females, Grade 9, high-income)

The online platforms potentially serve as public sphere where children can engage with the world as independent being in their own right.

There were gender-based distinctions in online socializing both in terms of the sites used and the experiences shared during interviews.

Gaming became a social rather than solitary event for boys, who spoke at length about their gaming experiences as well as game-related and in-game socializing.

Multiplayer online gaming in particular doubled as sites for socialization with features like text messages, microphones, and chat rooms. One participant shared, *"Once when I was playing the game Free Fire... a stranger joined us and when I asked 'Where are you from?', he said Bangalore one time and Africa another. Sometimes when I'd play with my friends and we'd leave the mic on, I'd ask – 'What are you doing right now?' – and other questions" (male, Grade 7, low-income).*

Some participants played online games with friends they knew while others were comfortable playing with unknown persons too. One high-income Grade 4 male participant shares,

"Actually, when I'm playing... a lot of friends are playing along with me, I only play when they're playing too. The games have a 'join team' (option) so I choose their team... and when I play I don't choose unknown friends, but only known ones" (male, Grade 4, high-income)

"Whenever I play online there are people from various locations... Out of 150 people in the game I know only 10 of them" (male, Grade 7, middle-income)

Girls did not discuss gaming-based socialization much, they rather displayed a particular interest in discussing their experiences on popular social media platforms and messaging services like Facebook, Instagram, Snapchat, WhatsApp etc.

Interviewer: "What do you do exactly online?"

"Chat"

"Mostly chat"

... "My friends always get mad at me, 'You are never online, you never read any chats'"

... "(I'm on) Instagram because most of my friends are on Instagram" (female, Grade 7, high-income)

Interviewer: "If there was no internet from tomorrow. What will you miss the most?"

"I feel I will miss the most is Instagram because I use that a lot. I look at people's posts, I post stuff myself. I will miss Instagram the most because it's a fun way of interacting with people from my class. Not only my class but other classes also"

There were intra-gender differences in level of online socializing as well. High-income school girls faced relatively lower parental restrictions compared to middle and low-income counterparts who were sometimes prohibited from most socializing opportunities. These restrictions partly stemmed from concerns of online social risks that girls were likelier to face and partly from patriarchal traditions.

Digital Patriarchy

Various reports reveal a sharp gender gap in smartphone ownership and internet usage due to factors including gender disparity in education, preferences for male children, early marriage, limited autonomy in patriarchal systems, online misogyny, limited digital skills etc. (GSMA, 2020). On a positive note, the inequalities are steadily narrowing with more women entering workforce and migrating to larger cities, grassroots efforts towards girl child education and digital equality, user-friendly smartphones, and so on (Sampathkumar, 2021; Sonwalkar, 2020). Gender-based digital inequality is reflected in our interviews, with girls across schools facing unique challenges and constraints. They were far more prone to social risks online as they frequently received inappropriate content and advances from adult strangers.

"When my mom and dad go out and I am home alone and if there is this person who stalks me and I don't know that person at all. I look into their profile, I deny this, and they continue again and again asking me for request-request, I get scared and afterwards I just leave my iPad and do something else" (female, grade 7, high-income)

"Once an older man asked me (on Facebook), 'Are you married?'. I replied, 'No, I am just in 7th grade'" (everyone giggles)

Interviewer: "And then?"
"Then what... He told me, 'Send your mother's picture'... I said, 'No I don't share pictures. Then he sent his own picture... he had a long beard... so I got scared, I immediately blocked him"

Interview: "The guy didn't give his real name, right?"

"See... What happened is... His DP had a picture of (the Bollywood actor) Shahrukh Khan and others so I thought it was actually (Shahrukh)" (females, Grade 7, middle-income)

Furthermore the girls shared multiple incidents of social risks faced by other women known to them.

"It has happened with my mother. A guy opened an account pretending to be a girl and began messaging my mother on Facebook in Hindi... My mother felt something was amiss... how can someone my age speak like that? My mother decided to video call the person multiple times but received no response. She sensed something was risky and blocked the account"

female, Grade 11, middle-income

"This happens with my sister... she found some online friends which she is not supposed to but... because it was her friends' friend's friend, that is why she accepted the following

request. And then they tricked her into like meeting someone and everything. But then thankfully we couldn't like find her for three hours then yeah, the family told it to the police. And then they finally found her back. Now she is not allowed to use any phone and she has to go to hostel" (female, Grade 7, high-income)

In response to such risks, parents engaged in stronger restrictions and monitoring over girl child's online activities. One participant shared,

"My father told me not to watch Tiktok videos, but I nevertheless did and started making my videos eventually. But since it was on my father's phone, he came to know one day and deleted them all"

Interviewer: "He deleted it? Was he angry with you?"

"Yes, he hit me" (female, Grade 7, middle-income)

Although high-income school children had a relative gender parity in digital participation, girl children from middle and low-income schools experienced greater disparities with respect to digital access, skills, and opportunities. While survey results did not reveal significant gender-wise differences in internet usage, interviews and focus groups with female participants painted a more complex picture.

	Almost all the time	Monthly	Weekly	Daily or almost daily	Hardly ever	None at all
Female	**20.1%**	**1.7%**	**5.4%**	**59.1%**	**13.1%**	**0.6%**
Male	**22.3%**	**3.1%**	**5.7%**	**56.6%**	**12.0%**	**0.3%**

Table XI: Gender-wise internet use

Some girls relied on their parents' devices until late teens, with some not getting their own devices even after. With fathers at work, they had to share their mothers' feature phones, which have a relatively inferior interface compared to (father's) smartphones. Limitations were placed on making new contacts, sharing pictures or engaging on social media platforms. To quote a participant,

"My father has forbidden me from using Facebook. He also says, 'If you want to share photos then send those having both you and your brother. Don't send just your pic else someone may crop their own photo next to yours. This does happen so my father restricts'"

female, Grade 7, middle-income

Such steps were taken often with the intention of protecting them from internet's harm. In one particular case, the girl child's online activities directly stake her family's standing in the community.

"In my community if any girl makes too many videos, experiments with her dressing, ventures out often, and if (a community member) finds out... one that very day, the girl's father is summoned by the community and fined... The community doesn't stop us from making videos, but if it spreads then it comes down hard"

Interviewer: "Have you come across any incident?"

"Girls cannot go out except when accompanied by their parents. They can't go out alone"

female, Grade 7, middle-income

Here, it was not merely the family which monitored the child's activities but the entire community itself, with perceived transgressions having community-enforced repercussions.

"When word spreads in the community about the videos we create, then we don't receive the white color bangles (from the community) which we believe in and which is in fashion (in our community)" (female, Grade 7, middle-income)

This is a distinct trait in collectivist cultures where social self often precedes the individual self. Women become symbols of family/community honor, which often leads to repressive measures against their autonomy. With platforms like Instagram and (the now-banned) Tiktok emerging as powerful sites for individual self-expression, they have also produced cultural anxieties in countries like India. Such sentiments were echoed in some of the interviews with middle and low-income participants. This includes the children as well as their parents who made statements like:

"Instagram has inappropriate photos... some backless (shots), someone showing their (unclothed) back and posting it)"

"I am against giving a mobile phone to children because it ruins their culture and they learn bad things"

father of a 16-years old male teenager, low-income

"The risk about the internet is that if a child watches something that they should not watch

at this age (indicating towards adult content) and if by chance they get curious about it and develop a habit to watch such things, then it is dangerous for us as parents... Especially from adolescence till they turn 19-20 we have to keep a watchful eye on them so that they don't get attracted towards wrong things. My daughter is approaching her teenage so I have to be extra cautious" (father of a 13-years old female teenage, middle-income)

Women tend to bear the greater brunt of such cultural anxieties. To quote the same girl who faced community restrictions, *"Girls cannot venture out, they can only do so in their parents' company and not otherwise"*. Needless to say such patriarchal restrictions extend to their digital participation, where their every move is under surveillance. If she dares to overstep her boundaries, she (as well as her family, in some cases) are punished.

Learning

The internet has become indispensable to learning and knowledge through its plethora of opportunities. This includes educational platforms (Khan Academy, Save My Exams, Quiz Net, Byju's), collaborative encyclopedias (Wikipedia), news portals, designing tools, online tutorials, etc. The child is never restricted in terms of learning resources, with one parent observing, *"He can learn things that children older than him are studying at the same time he also has access to things that children younger than him are studying. This provides excellent flexibility as well as the opportunity for a child to learn ahead of his age as well as strengthen his knowledge of things that he had learned in the past" (father of a 13-year-old boy, high-income).*

The learning potential of online world was harnessed by participants across educational levels, age, gender, and socioeconomic status. Children would regularly seek out information for school-based and extracurricular activities. This included developing new hobbies or learning and improving their language skills.

"Most of the work or any study that we do is online. Like doing papers and academic help" (male, Grade 11, high-income)

"I draw and I do calligraphy and I write for an online magazine. So it's like there are people from grade 6-7. We have like a teacher and you know coordinate and write every month"

females, Grade 7

"I watch YouTube the most. We can get anything on the platform. All my schools projects can be done with its help"

female, Grade 7, middle-income

The interactive nature of internet has led to development of gamified online platforms like Kahoot which participants enjoyed for its blend of education and entertainment.

"Kahoot is the best"
Interviewer: "What is this Kahoot?"

"It's a quiz that you have to play in rounds (online)"

In addition, they used internet-enabled services like Google Hangouts and WhatsApp for learning-based collaboration. To quote one participant, *"We had made that group on Hangouts for a school assignment... We had made the group for coordination between ourselves..." (male, Grade 7, high-income)*

Digital learning opportunities had specific benefits for participants of certain socio-economic groups and ages. Middle-income and low-income school children with low English-language literacy could use features like Google Translate, audio pronunciation, and grammar correction. "Ma'am there is an app where we can type words in English which we do not understand and it translates to Gujarati" (female, Grade 4, middle-income). Language-related resources also helped some improve their English-language fluency. One parent mentioned how the internet came to their rescue during pandemic when they could not help their child with English-language school subjects because of low language fluency.

"The greatest difficulty is when (my son) has online classes of English subject. Because I don't know English so I find it difficult to understand the teacher and so I can't teach my son well. But whatever little English he knows is due to his school and watching English cartoons on the internet" (mother of a 9-year-old boy, low-income)

Older participants expectedly sought curriculum-based online initiatives as learning aids for year-end board examinations.

"We find (practice) sums for accounting and statistics (online)" (female, Grade 11, middle-income)

Interviewer: "Which apps are you using for studying any websites?"

"Past papers, Papa Cambridge"

"There is Save My Exams then there is Khan Academy" (females, Grade 9, high-income)

Using the online medium for learning opportunities thus has largely positive outcomes on the children□s growth and development. Owing to this, many parents themselves were very encouraging of children□s digital participation in learning. Our survey reveals that 85% of parents allowed their children to use the internet anytime and without supervision for educational opportunities. These figures were drastically high compared to other digital opportunities, such as viewing entertainment or social media, where only 37% and 15% of parents permitted unsupervised and unrestricted access. Conversely, digital learning often leads to a 'copy-paste' culture through an overreliance on instantly accessible online

content at the expense of original thinking. One participant noted, *"If somebody has written something on his or her blogs, people copy that and put it on their respective pages without even citing them - that is plagiarism"* (Grade-11 boy, high-income).

The vast amount of information online can often overwhelm the children, who need skills to identify reliable sources.

"Many times, when you are trying to search on a particular topic, you do not find accurate responses. You don't get expected results"

"Also, you can't trust the various sources online" (males, Grade 11, high-income)

As digital devices are multipurpose, they often tend to distract children from their studies leading to parents frequently stepping in.

"So I'm doing my research and... then there's a notification. And then I tell those people to stop texting back. They start talking with me and then after five minutes still none of them are shut up. And my mom is still shouting that why are you chatting on Hangouts?" (female, Grade 7, high-income)

"...So that I study for my exams, my mother told me not to recharge my internet balance" (female, Grade 7, middle-income)

Despite the growth of digital modes and sources of learning in recent years, offline efforts cannot be replaced entirely. This was evident in responses of children, with some preferring non-digital sources of learning while others, a blend of offline-online.

(Un)Doing Digital

Children are often quick to adopt digital technologies extensively in their lives compared to adults. Many find internet to be a safe place they can express themselves more openly and seek out friendship and support, as revealed in our survey.

Statements of Expression	Yes	No	Grand Total
Feel safe on the internet	71%	29%	100%
Find that other people are kind and helpful on the internet	73%	27%	100%
Find it easier to be myself online than when I am with people face-to-face	71%	29%	100%
Talk about private things online which I do not talk about with people face-to-face	66%	34%	100%

Table XII: Self Expression Online

There are times however when they rather prefer 'logging out' and access physical resources to digital. Some lament that the overwhelming presence of digital devices comes at cost of alternate activities such as socializing with friends and family members.

"Because of mobile phones, we have begun spending more time with devices than humans. Everyone at home including our own fathers are too engrossed in their phones to talk to us... We lose out on spending time with our family or focusing on our education"

female, Grade 9, middle-income

"Because of the internet, people don't come down to play with my friends. If there will be no internet, they will come down and we all will play in the play-ground. If I go to play alone, I get bored and come back home upstairs, then I start using the internet. When I am alone, I play passing the ball with the wall"

male, Grade 7, high-income

Such children are conscious of the often-excessive presence of digital in their lives and make efforts to ensure healthy balance. Some of our participants for instance preferred the physical mode for activities like reading books and sample examination materials, finding word meanings, or seeking mental health support.
"I just use IGCSE textbook. I am old fashioned. I use textbooks."

" 'Old fashioned' huh!"

..."I'm really bad at Hindi so in case I need a word I use Google Translate"

"I don't use Google Translate I ask my Grandmother... my dadi (grandmother) is my Google translate" (females, Grade 7, high-income)

Some grade-11 girls, high-income shared their dilemma about connecting with online therapists and concerns: "I thinks there's like an internet market place for everything, like I am pretty sure if you google you could like talk to like verified therapists online or like people."

... "I think that's kind of sad to contact a therapist online and not talk to my mom about it at least; like if I am upset then I'd rather talk to my mother and my close friends"

"Sometimes, it is better to have just human interaction process"

..."I don't think I'll feel comfortable talking to people online. I mean because I really don't know the person, so I'd rather talk to someone I can see and meet and also I can trust"

Children even welcomed their parental measures to place time-limits over their digital access so long as they found it reasonable. One high-income Grade 7 male participant shares, *"If my mother gives me five minutes to play, I choose the game accordingly. There are games for five, fifteen, or twenty minutes too, and sometimes if necessary, I leave the game in between"*.

One participant in fact voluntarily decided not to own mobile devices until she had cleared primary education. She states, *"Although my dad said he would buy me a phone after 10th I told him I only need it after 12th. I know that having a phone would keep me too preoccupied with messaging my friends at the cost of my studies"*.

RECOMMENDATIONS

Children today can know anything and everything about the world with a single click. Therefore, stakeholders, including parents, educators, and policymakers, should be open-minded to discuss topics with children even if they veer towards the unknown, the uncomfortable, and nurturing environments that foster rather than frown upon conversation. For instance, what should be stakeholders approach children's adult content consumption practices? Do they adopt sex negativity and call for the banning of pornography to protect children (such moral outrage being frequently witnessed in India)? Or do they duly consider children's natural desires and curiosities while exploring their sexuality and at the same time be a vigil to negative consequences of pornography, including the prevalence of misogynistic content, etc.?

The learning potential of the online world was harnessed by participants across educational levels, age, gender, and socioeconomic status. Children would regularly seek out information for school-based and extracurricular activities. This included developing new hobbies or learning and improving their language skills.

KEY FINDINGS

DIGITAL RISKS

- Content risks discussed include unsuspecting and suspicious websites, spam, clickbait, pop-up advertisements, virus-infected content, disinformation, harmful messages, and graphic and oversexualized images. Children were wary of such encounters and shared negative consequences of such risks, including data theft, privacy compromise, and adverse economic and psychological impact.

- Social risks discussed include pressures to maintain social connections, cyberbully, trolling, stalking, catfishing, unsolicited messages from strangers, and invasion of privacy. Many parents expressed reservations about children's online socializing due to such risks—furthermore, girls are likelier to experience social risks such as sexual harassment, exploitation, and misogyny.

- Health risks resulted from prolonged digital usage and as a consequence of facing online content and social threats. This impacted physical and mental wellbeing, producing aggression, addiction, depression, and anti-social and avoidance behaviour. Boys were more prone to addiction due to gaming habits, with games like PubG courting controversy for enabling aggressive tendencies. Lack of parental intervention also compounded health risks.

- Technical risks comprised device malfunction, lagging internet speeds, and children usually experienced data deletion from less privileged, digitally sparse backgrounds.

Those with greater freedom over access and who explored multiple opportunities and acquired different skills and experiences were more adept at identifying risks intuitively and taking risk-preventive steps that further enabled their online participation.

DIGITAL RISKS

Just as the online world promises a gamut of opportunities, it also reproduces several risks of the offline world and further brings challenges unique to digital space. Livingstone, Byrne, & Bulger (2014) suggests that children in Global South are particularly more vulnerable to online risks, as they have experienced rapid and wide-scale adoption of digital technologies albeit without a concurrent 'understanding of what constitutes safe and positive use in digital contexts' (p. 3). In our interviews the children spoke about different risks which were generally experienced when accessing online opportunities of entertainment and socializing. We broadly classify the risks under four categories – i) Content risks ii) Social risks iii) Technical risks and iv) Health risks. Children responded to these risks in various manner which we discuss subsequently. We are taking into account both children's first-hand encounters with risks and their observations and narrations of risk experiences faced by others known to them or what they heard through media. This provides a more comprehensive perspective of children's understanding of digital risks.

i) Content Risks

The internet is cluttered with an enormous and ever-growing volume of content risks (see Box below).

Unsecure and suspicious websites

"...in Yes Movies (streaming site) if you click in the wrong place for instance if you want to press the full-screen button and if you press even slightly away from it, it will redirect you to another website" (male, Grade 7, high-income)

"...if you don't click in the right spot it takes you to 5000 different websites and it's like totally random websites. Not genuine quality websites"

female, Grade 7, high-income

"...if there is a payment that you need to make and the website is not secured then don't buy from that website" (female, Grade 11, high-income)

Spam

"This Nigerian prince thing... It's a huge scam! It's a huge scam"

"It's this Nigerian prince who wants all your bank details because he wants to transfer money to your account. But it's actually scam where he actually takes your account basically" (females, Grade 7, high-income)

Clickbait

"There are a lot of clickbait on YouTube like people like say that the video is about something but then it turns out to be about (something else). Once I was watching this video on YouTube and it was like five minutes was about that and the rest 35 minutes was all rubbish" (female, Grade 7, high-income)

Pop-up advertisements

"Many pop-up ads keep on coming if you are watching some shows online and if they are pirated..." (male, Grade 11, high-income)

Virus-infected content

"Viruses often appear when my dad's phone isn't working well" (female, Grade 7, middle-income)

Misinformation

"There was a crisis in Sudan, and it was all over the internet, so there was this post that if you put it on your story... some kid in Sudan will get a meal of something"

"So pretty much our entire (class) had that post up on their story until somebody sent a link on their story which we all opened and saw that this was fake"

"Yeah so we got to know that the person who posted it was just fo r the clout"

..."Yeah and then we later realized that it actually helped them we blindly followed" (females, Grade 9, high-income)

Harmful messages

"There was this Blue Whale thing that caused a lot of children to commit suicide so that was dangerous because it threatened them and they knew their location and everything" (females, Grade 9, high-income)

Graphic and oversexualized images:

"Where YouTube has a lot of good things, there are many channels, song channels or websites, which are bad"

"They are very sexualized" (females, Grade 11, middle-income)

Children were tired of the frequent encounters with such content and found it extremely distracting and detrimental to their digital experience. Some girls were disturbed by the imagery of objectified female bodies in particular.

"If some lady is baring her skin (in a photo) then that area is circled and highlighted" (Grade 11, middle-income)

Participants spoke about the possible consequences of consuming problematic content, with one sharing, *"We don't realize but a lot of what we do or the information we get is from the internet. Just for example there are rumors that through the internet umm a lot more people voted for Donald Trump or something like that. So, I think the internet could also be telling us a lot of fake news. Or the internet could be ummm... because of the internet our opinions could change" (female, Grade 9, high-income).* Others gave accounts of negative consequences of content risks faced by people known to them, which includes data theft, privacy compromise, and economic loss.

"My friend... logged on to a website and her entire Macbook glitched and it broke. Like the screen of workbook, the keys, everything stopped working" (female, Grade 7, high-income)

"It happened with one of my relatives in Surat. He was a child, he thought that he will get free money on those games, so he signed-up. He was asked to give credit card information. The information was stored (in the device already) so after that 25$ were debited from his account"

male, Grade 11, high-income)

ii) Social Risks

Digitally-mediated socializing has become a common phenomenon due to platforms like WhatsApp, Snapchat, and Instagram. With the increased flow of everyday communication, children often feel pressured to maintain and scale up their social connections. Some of the social media features similarly tempt the children to remain hooked to their phones even as they attempt to resist. One participant shares,

"There are groups on Hangouts and WhatsApp where even if we don't want to talk, we still keep getting notification. Even when we keep the phone aside the notifications keep tempting us and we have to check the phone and notifications"

male, Grade 7, high-income

Participants also spoke about cyberbullying and online trolling that takes place online, especially when people post on certain issues. The concern was brought forth by some high-income school-children.

"I have heard about trolling happens on the internet with let's say anybody who is active on the internet"

"I think as soon as you sort of go on a political page there is this whole like you are like a liberal page and then there is a lot

of like anti-feminist, conservatives and..." "It is very difficult to have an opinion on the internet without other people being like 'You know your opinion is wrong because blah blah blah...' then they can be, mean about it" (female, Grade 11, high-income)

60%
parents prohibit children from using social media

Social risks also appeared in the form of unsolicited and inappropriate textual and audio-visual content usually from strangers and misuse of personal images and other data. Girls were far more prone to such experiences compared to boys. They frequently received inappropriate messages and unwanted solicitations including photographs calls from adult strangers.

"So basically unknown people send you some links and they actually turn out to be some like unappropriate [sic] site"

female, Grade 7, high-income

"Some (unknown person) called me but when I picked up it they didn't respond. Then I got direct WhatsApp (messages) from him sending 'Hi', 'Good morning'..."

female Grade 7, middle-income

Girls were also vulnerable to 'catfishing', where fake identities were created on social media to target victims. One participant explains, *"People you don't know, people who hack you, people who can pretend like you're somebody else like catfishing. Like I put some umm girl's photo and I pretend like I'm that girl and so that's stupid". (female, Grade 7, high-income)*

These experiences mirror existing global trends of digital sexism and misogyny, with reports stating that 58% of young women face online harass-ment and abuse (Gauer, Corr & Gallinetti, 2020). Owing to such risks, girls were more careful about sharing information online which reflected in our survey as well.

Gender	Aware	Unaware
Male	**82%**	**18%**
Female	**87%**	**13%**

Table XIII: Gender-wise Awareness of Sharing Information Online

iii) Health Risks

Many children spoke of the adverse effects of certain digital activities on mental and physical health. 'Overuse of internet' was singled out as an issue of concern, with one participant reflecting, *"We must be careful about the amount of time we spend online" (male, Grade 11, high-income).* This hampered both their general well-being and priority towards activities such as studies, eating habits, and offline socializing.

"We forget to change our clothes after school. And to eat"

"Forget to wear our shoes and socks!" (All giggle)
"Even when I'm sick I need my phone with me" (females, Grade 7, middle-income)

Boys were more prone to health-related

risks like addiction, aggression and antisocial tendencies stemming from prolong gaming habits.

78%
respondents skipped eating or sleeping due to internet usage

55%
respondents have experienced conflict with family and friends over internet usage

"When PubG came, I would play it on the PS4 after connecting it to my television and then it came on the phone. Then I started playing on phone, and it would it would reduce my focus from people around me"

"(My brother) keeps killing people all the time (in the game). He plays PUBG (so much) he forgets his meals"

"Everyone gets so occupied in PubG that they don't do any other work and are on their mobiles all day"

"PubG makes you irritable by nature" (males, Grade 11, middle-income)

Parents are equally concerned with children's excessive dependence on digital devices, finding it difficult to monitor their rebellious nature. Our survey reveals that 55% respondents have experienced conflicts with family members and friends over their internet usage. To quote the mother of a 16-year-old high-income participant,

"I know some children amongst my friends and family who will not sit quietly if you don't give them a phone. They will throw so many tantrums and not allow their parents to have a conversation or do their work if you don't give them a phone. It will be almost impossible to calm them down... and looking at (violent) videos, these children have also developed a sort of aggressiveness in their behaviour and the habit of hitting people and they think that if the cartoon character can hit people, it is ok for them to hit others too".

The same parent notes that high-digital dependence is likely higher in single-child (and double-income) households, where *"the children... don't have siblings to play with nor do their parents have so much of extra time to play with them".*

Another health-risk emerges from problematic content online which may lower children's self-esteem and confidence. One participant observes, *"One of the bad thing is along with all the trolls and stuff it really lowers your self-esteem. Because of the images of people like show just generally... like a celebrity if you seem them you just compare them with yourself and you know that ends up making you feel like you have to achieve some kind of unrealistic body image"*

iv) Technical Risks

Technical risks include device malfunction, lagging internet speeds, and data deletion. *"Mobile hangs up"*
... "The internet speed gets slow" (female, Grade 11, middle-income)

"Because of gaming people use so much of the internet that the biggest gaming servers have started getting hang" (female, Grade 7, high-income)

"Once while I was using WhatsApp I somehow pressed a button that stopped everything. We ultimately had to get a new phone" (male, Grade 7, middle-income)

Middle and low-income participants with low-end devices and relatively limited data packages were more likely to face technical challenges, with one participant sharing,

"When I watchYouTube my mom warns me that the net would exhaust, especially if she wants to use the internet herself for listening to songs etc."

female, Grade 7, middle-income

This hampers children's overall experience and potential of digital participation.

The PubG-Blue Whale Scare

PubG and Blue Whale are two recent phenomena which have kindled a firestorm of discussion around their effects on children and youth. PubG or 'PlayerUnknown's Battlegrounds' is an online multiplayer battle royale game, whose objective involves killing other players while evading getting killed. PubG was a massive success in India, staking half of the worldwide PUBG Mobile player-base, and the game's Indian demographic was largely males (Curry, 2021). At the same time, the game has been linked to several anti-social incidents of addiction, loss in academic performance, accidents, suicides, and murders. In response, the gaming management system set in-game reminders for viewers under 18 to break away from the game to avoid unhealthy gaming practices (MICA CMES, 2020). PubG was eventually among the apps the Indian government banned this year citing 'security reasons' following India-China tensions. Blue Whale Challenge likewise was a social media phenomenon that courted controversy over unverified reports of child suicide cases. Though experts believe the challenge to be likely a hoax, it nevertheless generated moral panic. During interviews, participants across schools, and especially boys, made several mentions of these phenomena.

"There was a game called 'Blue Whale' which appeared (in news)"

"It encouraged suicidal tendencies. The first level would encourage self-harm using sharp objects... eventually as you reaches level 50, it threatens you (to kill yourself)... people getting too involved in it have ended their lives"

"It was made by a terrorist" (males, Grade 7, middle-income)

"In games like PubG) people get so engrossed that they forget food and water, even while streaming and play for hours. There was a child in Maharashtra who played the game for 6 hours and had a heart attack"

male, Grade 7, high-income

Participants quoted media reports and hearsay while some narrated their personal experiences or those of people known to them.

"There was a boy who would play the entire day... until he obsessively kept repeating words like 'Kill'. The news was all over social media. His parents were extremely distressed as even medical intervention could not cure him. Then there was another boy who was so habituated to PubG he ended up murdering someone" (males, Grade 7, middle-income)

The informal discussions between participants sometimes helped verify credibility of information.

"Many games are addictive like, a person was so addicted to (PubG) game, he went to a computer cafÈ and played for 3 days continuously and died"

(three participants chorus) "That was fake news" (males, Grade 4, high-income)

Owing to mainstream coverage, some parents had come across these games and had expressly warned their children not to play them. Says one child, *"When games like Blue Whale were in news my mother had warned me against downloading or playing them..." (female, Grade 11, middle-income)*

Response to Risks

Risks have twofold consequences on children's overall experience online. On one hand they may negatively impact both children's digital participation and their offline lives. On the other, they enable children to take suitable steps to overcome risks and make them resilient (Livingstone & O'Neill, 2014).

The most common response against digital risks include: 'verify website credibility' 'withhold personal information' 'restrict online socializing to those I personally know' 'ignore unwanted messages' 'block them', 'disable popups' 'install security apps' 'confirm if website is secured or unsecured' 'enable private browsing mode' 'turn off my location' 'make my account private' 'log off social media' 'check profile authenticity' 'document and report the undesired content' 'set parental monitoring' 'keep time-limits on online consumption' 'ask my parents or friends for help' 'spam the spammer themselves'

Children proactively took measures against content and social risks, with our survey revealing that 72% respondents knew what actions to take when someone online acted undesirably. However this was relatively less so for health risks where 51% of survey respondents facing challenges to curb excessive digital usage. In such cases, parents had to intervene by placing screen time trackers or temporarily confiscating phones.

72%
respondents knew what action to take when someone online acted undesirably

A participant, while discussing home rules with regards to digital usage, shares, *"At 10.30 in the night, I have to give (surrender) my phone to my parents and when I am studying, I have to keep the phone aside. And during the day I am allowed to use the internet for only 2 to 3 hours. The restriction is on the number of hours we spend online, not on what we are allowed to search or do online" (male, Grade 11, high-income).*

51%
respondents faced challenges to curb excessive digital use

Those with greater freedom over access, and who explored multiple opportunities and acquired different skills and experience were more adept at identifying risks intuitively and taking risk-preventive steps that further enabled their online participation. We observed this more for high-income school children, many middle-income school boys, and older children. To quote some noteworthy interaction,

Interviewer: "How do you figure out if the account is fake or not?"
"I mean you can just usually tell with the way they tag people. It's like a little bit of intuitions and it's a little bit of just common sense"

"Sometimes looking at the comments also you can tell, like people who have commented have mentioned names who are anything like that and looking through what the posts are before actually initiating any conversation"

"Also whether there are mutual friends or not"

"Yeah I mean if they are friend of a friend then obviously like you can trust them"

"You can than talk to your friend and ask if you can trust that person or not"

..."Like we mentioned earlier, like not talking to such people or like making sure that they are don't 'like' a very old picture" (smiles)

"If you feel uncomfortable about it then you should probably stop. Like on the internet it's really important to trust your instincts"

females, Grade 11, high-income

Children at times took risk-preventive steps collectively for more successful enforcement.

"One more game that was so addicting... it was called "brawl stars"... So, I got almost addicted and I didn't realize that but my parents made me realize that"

"Then the whole class banned the game. We can't do anything, we can't play. Not in the class, not in campus anywhere, not even at home. It is banned" (males, Grade 4, high-income)

Some even went so far as to 'spam the spammer' and 'hack the hacker', challenging in the process dominant assumptions of children as merely vulnerable victims to digital devices.

"If I get an email asking for my bank account number, I write to them 'I am a resident of Nigeria' I will give you 1000$ then you can give me 100$'. And I ask for them for their bank account number because they have also asked for my bank account number. Then he will say, 'No you give first.' And then I will send him a funny GIF" (female, Grade 7, high-income)

"My brother has an Instagram handle which was once hacked. So he and his friends in turn hacked the hacker's account but they were summoned by the police and scolded, 'You can't just sit at home hacking into people's account!'" (male, Grade 11, middle-income)

Our survey finds that male respondents were more likely to adopt such a confrontational approach as compared to female counterparts, who would take alternate measures such as blocking the individual, changing privacy settings, or temporarily discontinue internet usage. Such gender-wise differences in risk-responses may stem from patriarchal attitudes which largely place onus on females to protect themselves and holds them responsible for apparently provoking their aggressors (Jane, 2017).

Category of Risk Responses	2. Gender of the respondent			
	Female		Male	
	No	Yes	No	Yes
I tried to get back at the other person	**97%**	**3%**	**94%**	**6%**
I changed my privacy/contact settings	**79%**	**21%**	**82%**	**18%**
I blocked the person from contacting me	**58%**	**42%**	**67%**	**33%**
I stopped using the internet for a while	**84%**	**16%**	**85%**	**15%**

Table XIV: Gender-wise response to Digital risks

RECOMMENDATIONS

A targeted approach to identifying and rooting digital risks will yield better results and make the internet safer for everyone. Stakeholders must recognize how factors including age, gender, educational level, etc., compound risk experiences. For instance, more efforts must be expended on curbing digital addiction, especially among vulnerable boys due to heavy gaming activities.

Developers and the public must make active efforts to make online spaces safer for the children to tread without fear of getting bullied.

Children from different socio-cultural backgrounds should have parity in opportunities to engage online to avoid privileging limited voices.

Children gain a better understanding of when to and when not to consult their parents. They consider the issue in question, the nature of support required, and parents' receptiveness and capabilities to offer support.

KEY FINDINGS

DIGITAL MEDIATION AND SUPPORT

MEDIATION

- Restrictive mediation discussed includes setting time limits, confiscating devices temporarily, and blocking content access etc. Monitoring was done through surprise checks on childrencs digital usage, installation of time limits and tracking apps etc. Enabling mediation included setting rules for digital use with children, discussing online concerns as ‘friends’, etc.

- In surveys, parents claimed to engage in enabling and participatory roles in digital mediation. However, children spoke more about monitoring and restrictions by parents.

- Generational differences sometimes impede enabling forms of mediation between children and parents.

- Parents of high-income children were generally more permissive towards children’s digital usage, albeit with time-to-time monitoring and restrictions. Such parents’ own tech-savviness helped keep a constant watch on children’s digital activities. Some were critical of adopting an authoritarian approach, finding it counterproductive.

- More restrictive mediation was found among middle

and low-income children. Parents often sit beside children when they are using the internet. While some parents were more permissive and relied on enabling mediation and monitoring, others resorted to stricter restrictions. Many parents were not very tech-savvy, preventing them from sophisticated monitoring forms, such as installing tracking apps.

- Most children's parental mediation is reduced by mid to late teenage years, except for some girls, especially from middle and low-income backgrounds. Even a few girls from high-income backgrounds complained that constant monitoring made them feel not being trusted enough.

SUPPORT

- Children were predominantly self-taught on digital usage. Additionally, they received support from parents, siblings, other relatives, teachers, friends and peers, media etc.

- Parents helped children with technical advice and other forms of support. However, they were often ill-equipped on several digital concerns. Moreover, children were uncomfortable discussing specific issues with parents and relied extensively on peer support.

- Children from high-income families had a robust support system comprising digitally savvy family and friends. School support was facilitated through regular

expert interactions, which increased children□s overall digital literacy. For the most part, children belonging to middle, low-income, and out-of-school children lacked such support systems. Besides many family members being less technology-savvy, could do little to impart sophisticated digital literacy. Some children, therefore, relied on other sources, including neighbours or mobile-shop owners.

- Less privileged children from sponsored-category schools with quality education had some leverage in digital support, which could potentially enhance their digital participation.

- Digitally-savvy children also provided support to adults, particularly in low-income backgrounds. Such encounters countered traditional mediation dynamics where adults assumed to impart skills to children.

DIGITAL MEDIATION AND SUPPORT

This section is divided into two parts. One specifically focuses on parental mediation of children's digital activities. The other examines general support which children are provided by others and children provide to others. We could not conduct a full-fledged qualitative enquiry with parents and other stakeholders due to the global pandemic. Hence most of the insights are inferred from children's own accounts of their parent's mediation and other forms of support. We have added substantiation wherever necessary from selected parents we interviewed post-lockdown.

Parental Mediation

Parents have a tremendous impact on children's overall growth and their parenting style shapes children differently. They may be authoritarian and give children little to no say in the rules which are set for them. On the other end, they may be completely permissive with granting complete autonomy to children. Alternately they may be moderate and authoritative in their approach and give children reasonable levels of freedom and say yet having certain expectations from children and stepping in when necessary. Although India traditionally practiced authoritarian parental intervention, there have been gradual shifts to an authoritative style (a blend of authority and participative) in recent years, reflecting changing societal trend (Sahithya, Manohari, & Vijaya, 2019). Parenting styles also reflect in mediation of children's online usage and consumption, which in our case emerged in three forms, i) Restrictive mediation ii) Monitoring and iii) Enabling mediation.

Restrictive mediation refers to clear rule-setting and enforcement of limits over children's digital participation. Monitoring refers to time-to-time supervision over children's online activities. Passive co-viewing is loosely a form of parental monitoring as well since it keeps parents informed about children's actions online. Enabling mediation aims at encouraging the child to use the full range of online opportunities. A certain level of parental mediation results in healthy internet practices among children. Justifying the need for mediation, one parent states,

"The internet doesn't know whether the person using it is a child or an old person. So, it gives you all information without any discretion. Therefore, the internet is very dangerous for children if they are allowed to use it without their parent's supervision"

father of 16-year-old male, middle-income

The diagram below highlights some of the actions parents took under the forms of mediation:

RESTRICTIVE MEDIATION

'setting time-limits' 'grounding' 'confiscate devices temporarily' 'corporal punishment' 'blocking content access' 'disallowing certain online activities'

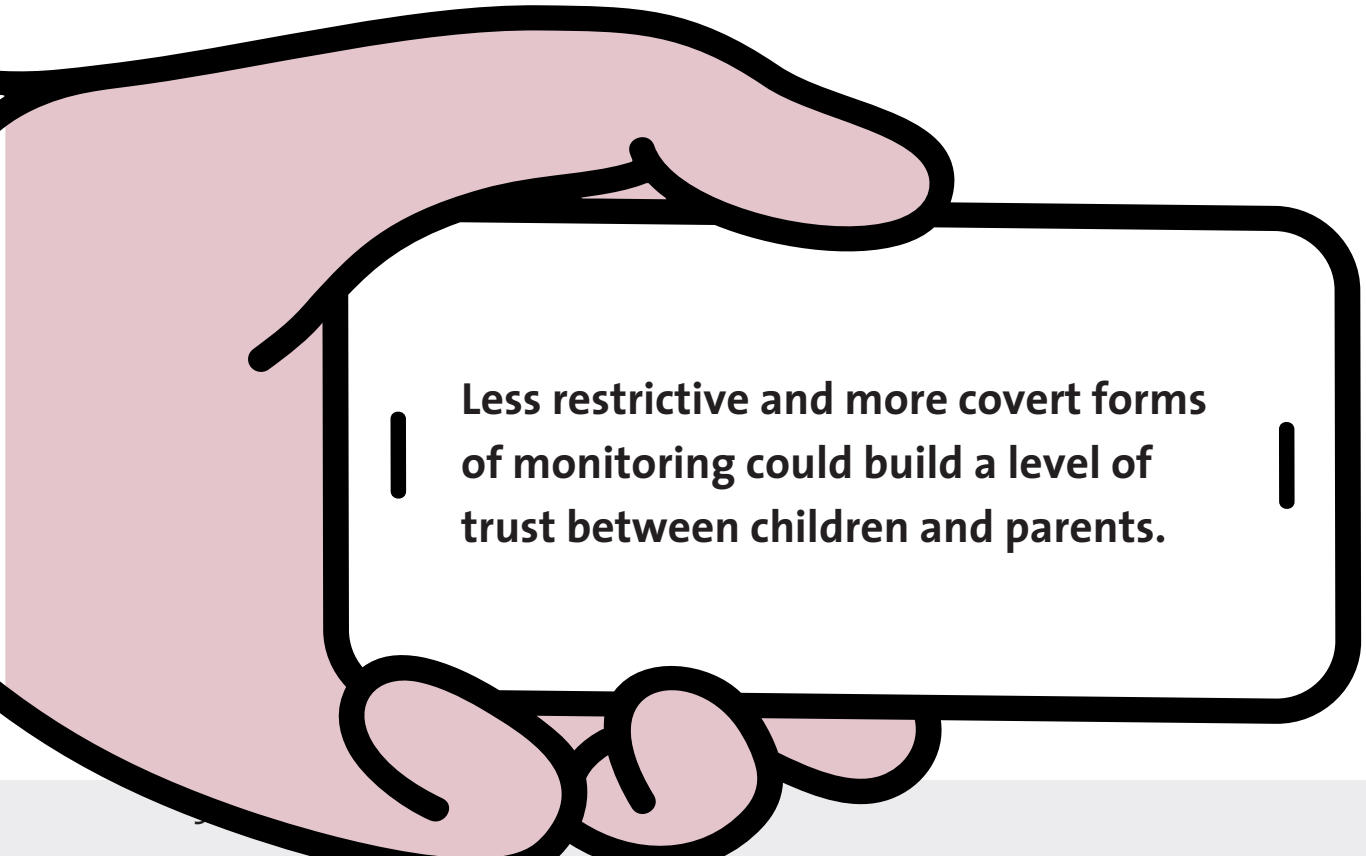
MONITORING

'reviewing search and chat history' 'recording phone calls' 'surprise checks' 'installing tracking apps' 'reviewing social media content and contacts' 'asking child to keep phones unlocked for random checks' 'co-viewing' 'creating joint online accounts/ asking children to only use parents' accounts'

ENABLING MEDIATION

'deciding do's and don'ts of internet together with the child' 'generally trusting the children' 'developing friendship with child' 'active co-viewing involving discussions' 'helping the child when in need' Interviews with children suggest monitoring and restrictive mediations were practiced quite often by the parents.

Based on surveys conducted with parents, we found that:
89% parents talk to the children about their online activities
86% parents suggested children ways to use the Internet safely
84% parents explained to children what is appropriate and inappropriate online
81% parents often encouraged children to learn new things
75% parents sat with their children when they used internet
Similarly surveys with children revealed:
70% respondents stated parents checked new contacts added by children on their social media profiles
64% respondents shared parents checked their in-app purchases
60% respondents shared parents checked messages and emails



Generational differences may be why many parents find it difficult to practice more enabling mediation without resorting to supervision or restrictions.

"My friends say it to me that, they use swear words again and again on WhatsApp. So my mom says that 'it is not good for you so don't chat with these people. Don't do that and all...' so I say that 'They are my friends and they are just joking with us'. So that is the fight that comes up" (female, Grade 7, high-income)

We observed variations in parental mediation styles between high-income and middle-income school children. Based on the children's interviews, we can infer that parents of high-income school children appear largely forthcoming in providing access and reasonable degree of freedom. Additionally, one of the high-income parent we interviewed mentions, *"I know that my son is a teenager now and as he grows, is going to be interested in watching and knowing certain things (indicating towards adult content) and I don't really have a problem with that because it is a natural course of life. But I just want to make sure that while he gets curious about new things, he doesn't lose track of his studies and doesn't get obsessed and addicted to unwanted things" (father of a 13-year-old boy).* While being encouraging towards their children's digital explorations, they kept a regular check on their activities and sometimes resorted to restrictive measures.

"There are no restrictions on us but if we go out of control, they chide us"

male, Grade 11, high-income

"If I watch idiotic videos on internet, like my parents say 'you can't watch any trailers of any upcoming movie'... they scold me a lot that if you watch any trailer of any movie which is not appropriate and you watch any video except origami or some information that you want" (male, Grade 4, high-income)

"For me, social media is not allowed especially because on Hangouts school friends write inappropriate things because they don't have parents' supervision so they write inappropriate things. One or two times my parents read it and they stopped me from using it. They have banned my social media twice; once in 4th or 5th grade and the second time recently 5 days ago" (male, Grade 7, high-income)

"And uhhh my mother grounded me from using my laptop. I get grounded all the time" (female, Grade 7, high-income)

From children's accounts of mediation experiences, we gather, these parents were digitally-savvy themselves and had ways to constantly monitor their children's activities and resorting less to restrictive measures.

"I also think that we all grew up with the internet and our parents have same

access. And parents really make sure that we didn't do anything stupid on the internet" (female, Grade 7, high-income)
"My parents saw something that someone had written on the group so then they told me to use it only under their supervision"

"Supervision means, my mother sees everything that comes in my chat, but when I am online, she does not sit with me. Because it shows in her phone directly"

"Yes, I make videos. So, when I make the videos it shows notifications in my parent's account as soon as I make it, so they see it and my Gmail is open in my mother's phone and if I get any message, she also can see it" (males, Grade 7, high-income)

Less restrictive and more covert forms of monitoring could build a level of trust between children and parents. We observed this clearly in one parent's interview, where the father of a 13-year old boy mentions that before pandemic, their child would use their devices, making it easier for them to track their children's digital activities using '(search/watch) history' and 'screentime' features. The situation changed post-pandemic when they were compelled to purchase a separate mobile phone for their child following increased digital dependence. Despite the new circumstance, the parent could successfully continue monitoring their children's digital activities using less obvious tactics. To quote the parent, *"I don't tell him that I am checking his phone, I just tell him that I am running a virus scan and cleaning his phone. But I still check his phone regularly".* The parent notes that imposing one's authority over the child through more authoritarian forms of mediation would be counterproductive, stating that,

"I don't want him to feel that his parents don't trust him because sometimes such a behaviour encourages children to do unwanted things".

The level of mediation reduced considerably for most high-income children by their late teens, with children stating their parents 'trusted them enough' as they grew older. One participant mentions, *"My mother likes to scroll through my feed sometimes. Like it's voluntarily. My mother is like I want to see your feed because (giving a reason)" (female, Grade 11, Riverside).* This suggests that their children's autonomy and behaviors online were respected. Further one parent acknowledged the limit to which children's activities could be mediated, especially as children grew older and more technology-savvy. The mother to a 16-year old teenager observes,

"(My daughter) knows more about the internet than I do, so if she really wants to hide something from me, she easily can".

Parents of some middle-income school children resorted to more explicit forms of restrictive mediation and monitoring. Some would remain beside their children to observe their online activities.

Interviewer: "Can you use the internet only when your father sits besides you... or you can use it without supervision?"
"No, father has to sit beside me"

Interviewer: "Sits compulsorily?"

"Yes" (male, Grade 7, middle-income)

"Whenever I'm playing online mom keeps a watch to ensure that I am not fiddling with the phone and just playing the game" (male, Grade 7, middle-income)

Similarly restrictions involved forbidding certain activities or confiscating the device itself. To quote one participant who belonged to a particularly restrictive environment, *"My mother tells me 'You can use WhatsApp but within limits'. She never opened a Facebook (account). She says, 'We shouldn't be on Facebook'" (female, Grade 7, middle-income).* Some parents resorted to corporal punishment as well.

Interviewer: "What happens when they get angry? Say when you say used the device even after they said no?"

(unanimous) "They beat us" (females, Grade 7, middle-income)

Some of the covert forms of monitoring and supervision, such as installing trackers, etc., were less practiced likely because many parents themselves were less tech-savvy. One parent did express concern about coming across as too invasive, "*Sometimes I feel that if I constantly keep checking on my son while he is using the internet, he will start to feel that I don't trust him and that is why I am constantly checking on him. So, if there was some kind of mechanism that informed me only when there was something unusual about his online activities then I would ask him only about that particular activity. That way he will not feel that I don't trust him, his privacy and comfort will also be maintained and I will also be relaxed" (father of a 16-year old male, middle-income).* Many such mechanisms exist, as revealed in interviews of high-income children and parents. It is middle and low-income parents' limited digital literacy that makes them feel helpless at times, unable to keep a watch over their children's activities.

Parental mediation reduced for some of the middle-income school children by their late teenage years for the same reason stated by high-income participants – greater trust. To quote a parent, *"Older children are serious/ focused students studying in 11th and 12th standard because they are old enough to use the internet wisely for their benefit" (mother of a 17-year old male, middle-income).* For others however strong restrictive mediation and monitoring persisted even after growing older. Often these restrictions were to help them focus on education and avoid getting distracted. In this regard, Pathak-Shelat and DeShano (2013) observe that children

who mostly associated digital technologies as mediums for play (as opposed to work) practices viewed them as distractions rather than resources during exam time and valued 'textbook studying' (ibid, p. 991).

"I was asked to get off entirely from social media"
Interviewer: "You were allowed to do it in the as past, why were you asked to quit suddenly?"
"My father feels I should focus on education"

female, Grade 11, middle-income

"I had exams so I was asked to stop (playing online games)"

"I was stopped for four months... I can't play only during exams, else I can"

"Yes, he tries to annoy me by saying, 'You're in 7th grade, shouldn't you stop playing games'" (males, Grade 7, middle-income)

Parental mediation varied by age and gender as well. Restrictive mediation and monitoring was the highest for young children and continued until adolescence after which it gradually subsided. Speaking of gender, high-income school children did not reveal drastic gender-wise differences in mediation level. Nevertheless, some of the girls felt as though 'parents did not trust them enough' due to frequent monitoring and tracking of their activities.

"My mom doesn't trust me enough so she installed a screen-time app on my phone"

"My mom she gets really annoyed when I put a password on my phone. I'm like you can check my phone whenever you want! And they're like 'No, password'"

"I have like passwords saved on my phone on Notes. I lock my Notes but even then I don't feel the safest just leaving my phone there. And my solution to like my dad yelling at me, I'm like 'You can put your thumbprint on it'" (females, Grade 7, high-income)

Gender-wise differences were more pronounced for middle-income school children, with some girls facing strict restrictions over online participation, particularly their social media usage. One participant who was proscribed by her father from using Tiktok shares, *"I used to watch Tiktok before but I have deleted it... My father had told me not to watch such things yet I continued watching to a point where I started making my own videos. As my father would watch (Tiktok) too so all (my videos) appeared on his phone. On seeing them he deleted all" (female, Grade 7, middle-income).*

Children appreciated and complied with their parents' mediation efforts either out of respect for their parents and/or when they perceived their mediation as reasonable and were convinced it was in their interests.

"We must respect our parents" (male, Grade 11, middle-income)

"I won't do (certain activities) without their permission"

(sarcastically) "Very sanskari (Very 'cultured')!" (giggles) (female, Grade 11, high-income)

"I think the websites that our parents have restricted us from...
"We don't want to go on them either"
"So it is more like a mutual thing like I won't do this, I know you don't want me to do this, two-way process"

females, Grade 11, high-income

Support

Children are greatly self-taught on digital use. They learn by 'fiddling around' and grow over time learning from their experiences, both positive and negative. They find resolution to most concerns and doubts online itself.

"It's better not to as someone. I'll be happy to do it myself" (female, Grade 11, high-income)

"Yeah, maybe just go on the internet and find out whatever you want like..."
"You can Google everything that you need to do honestly"

female, Grade 11, high-income)

90%
respondents used Google search engine

"I ask my father, if my father doesn't know then Google" (male, Grade 9, middle-income)

"If I don't want (a risk) to ever to happen with me again... then I won't take those same steps. I will take completely different steps. And then see if it happens. So learning from this [sic] mistakes

female, Grade 7, high-income)

At the same time, they mentioned various other possible sources of support (see box below)

Parents

"On Tiktok, my dad has put a lock on 'like' (feature). (He has told me) not to make video public, to keep it as private... I learnt from him how to (make videos) private" (female, middle-income, Grade 7)

Siblings

"My dad doesn't know much about the phone, and my brother knows much more. So if anything happens, I ask him" (male, Grade 7, middle-income)

"My brother taught me about social media. He taught me what to do and what not to" (male, Grade 11, middle-income)

Other Relatives

"Every day when I go to grandmother's house so over there you are going to tell someone like. I ask them that 'What is this technical issue?', because they know about it" (male, Grade 4, high-income)

90%
respondents share that teachers encourage them to learn new things from internet

Teachers

"Our teachers give us websites which (we) can use and we also ask our seniors. And I am pretty sure that all are reliable"

female, Grade 9, high-income

Respondents share that teachers encourage them to learn new things from Internet (90%), suggest safe ways of internet usage (87%), and help with difficulties (82%)

Friends and peers

"I have a friend... He is of our age and is so knowledgeable about phones, you give him any phone he will tell you the phone's exact problem within 5 minutes!" (male, Grade 11, middle-income)

Media

"We shouldn't share our photos as they can be misused by others... Don't you watch 'Savdhaan India' (a crime show)? They show how bad incidents happen"

female, Grade 7, middle-income)

"On Tarak Mehta [Tarak Mehta Ka Ulta Chashma is a hugely popular Indian TV comedy series] there was an episode where Popatlal [a character] had a male companion who would pretend to be a girl and talk (online)... He would take (a girl's) photo and put it as his profile photo and keep a girl's name so that other's would not know that it is a man talking" (female, Grade 9, middle-income)

89%
respondents stated their parents suggested ways to use internet safely

Others

"There are child helplines one can call which help children for any problem. I've come across boards of such child helplines" (female, Grade 9, middle-income)

Parents are partly responsible for imparting skills to remain safe on the internet.

They may also resolve technical issues that children are unfamiliar with and provide general support.
"I ask my father (things like) 'Papa, why does the (phone) lock not open?', so he teaches me how to do it" (female, Grade 7, middle-income)

"My dad installed (Truecaller) the minute he got me my phone because it's like somebody calls you and you don't know that person and even if it's like a scam, it showed scam like me. And if that person's also on Truecaller then it will show you the name of the person" (female, Grade 7, high-income)

"My husband, my older son and my brother help my son (using the internet). And sometimes I also help him though I don't know many things" (mother of a 17-year-old, middle-income)
Children gain a better understanding of when to and when not to consult their parents. They factor into account the issue in question, the nature of support required, and parents' own receptiveness and capabilities to offer support.

"I do know adults that I trust that will help in case that I have an emergency online but I wouldn't say that the first adults in my circle have the entire knowledge"

..."I think depends on the problem"
... "I mean if it is on the internet there is only so much my parents can do? Their thing ends at word documents and google searches. We knew what then dad won't like. Personally speaking"

females, Grade 11, high-income)

36%
parents do not know shortcut keys

"Like if it gets extreme or we kind of get into trouble then I think you should not restrict to your parents" (female, Grade 7, high-income)

Children Teaching Digital
Children themselves are aware of various functionalities of digital technologies and use their knowledge to support family members, friends, younger siblings, etc. A high-income Grade 4 female participant shares, "*I used to help my maternal grandmother when she received a new phone... Her eyesight is poor so she can't see things clearly so I set her wallpaper, password and so on. I'd also mark (the text) in bold so she could see clearly. I also help my sister during homework... in case she can't search for something (online)*".

26%
parents do not know how to change privacy settings

30%
respondents find it difficult to verify website credibility

Our survey with parents reveals that 36% do not know shortcut keys, 30% respondents find it difficult to verify website credibility, and 26% do not know how to change privacy settings.

As adults themselves grew up in a pre-digital age, they were unfamiliar with certain skills and terms and sought their children's help. To quote a high-income Grade 11 male participant, *"Parents ask about texting slangs or full forms of certain abbreviations millennials use. They ask us what those words mean".*

Opportunities for reverse digital-support was all the more evident among middle and low-income participants, where children were often the most digitally savvy. *"I teach my mother how to download and other things... how to change the SIM" (female, grade 9, middle-income)*

"My mother's only completed schooling till 10th grade since in those years girl child education was not encouraged... so whenever she can't understand something in English she asks 'What do I click now (on the internet)?' and I reply 'Do this"

female, Grade 9, middle-income

This is consistent with Stoilova et al. (2021) that children generally led the way more than adults in contexts with lower internet penetration. Not only did these encounters provide opportunities for adult-child interaction, but they also turned on its head traditional adult-child dynamics where children were predominantly dependent upon, and rather subordinate to, adults.

Friends, siblings and acquaintance becoming recourse to various issues especially those which children find uncomfortable sharing with parents.

...Interviewer: "Who do you talk to when you need help?"
"A trusted adult basically"

..."Or like sibling"
"Siblings are like trusted adult basically" (females, Grade 11, high-income)

"If you start, if you have a younger sibling and you yourself start with a very like safe and nice social media, your younger sibling will also like look at it and learn like not to accept that everyone's request and have a private account" (female, Grade 9, high-income)

"I first speak to friends because one can open up with them" (female, Grade 11, middle-income)

"I am also thinking that amongst us (friends) there is usually a conversation of don't do

that, that's really dumb. So usually, someone will tell you before you (do something)"

female, Grade 11, high-income

Older children exercise certain discretion while providing any kind of support to younger ones especially in terms of sharing any kind of information. In the process, they take on the role of substitute grownups in some respects even as they may be forthcoming in general.

"Sometimes they hear bad words from friends or family and they keep asking the meanings of such words. And we don't want to tell them that"

..."Yes, it depends upon what they are asking"

"If it is something, they should know then I explain to them and if they are asking about certain things which they should not be knowing at this age, then we will explain in brief and not in-depth" (males, Grade 11, middle-income)

Digital support was not uniformly available to all children, with some sections benefitting from more robust support system. Parents of high-income school children were more digitally-savvy, with one parent remarking, *"Of course. I need internet for everything. I use the internet for emails, WhatsApp, YouTube, Facebook, Google, etc. I use the internet for booking my flight tickets and booking hotel rooms. I use it for net-banking, shopping, ordering food. I need the internet numerous times a day"* (father of a 13-year-old boy). Due to their own digital literacy, these parents could offer valued guidance and support. Quoting the same parent, *"My wife and I both help my son... and I have told him not to make any Facebook or Instagram or any such accounts until he turns 16 at least. I have also told him not to share any personal information like photos of himself or the family, and also not share phone numbers and address etc. anywhere on the internet"*. However, in the case of some middle and low-income school children, family members themselves knew very limited skills. One parent, the mother of a 9-year-old boy from a low-income family states, *"No, I don't use the internet. I don't know how to use the internet at all"*. Another, the mother of a 16-year-old teenager from a middle-income family adds that she knows about *"basic things like watching videos, news. I use email, Google Drive, YouTube, WhatsApp, etc"*. Children from these families often had to rely on sources beyond immediate family for helping them with digital usage

"Sometimes when my father gets something new (device) and he doesn't know how to start it, he asks others. We have a neighbor who knows a lot and is college educated. Sometimes when my mother's phone stops working, I go to (the neighbor)"

female, Grade 7, middle-income

"My boss's son who is 18 years old, teaches my son how to use the internet. If my son has any problem, I call my boss's son and

he helps him. My boss's son has done a computer course" (mother of a 9-year old boy, low-income)

High-income children meanwhile benefitted from regular workshops with experts to enhance their understanding of the internet.
"We have had sessions at school, where experts come to school"

"It has been happening from past few years"

"It has happens at-least twice a year"

"We often have workshops and experts coming in to talk about cyberbullying"

"Like if someone is trying to bully you online then how we can take steps to stop it and report them"

"(We learnt) which websites should one have access to" (females, Grade 11)
"We have had multiple sessions for fake news and credible news and stuff like that" (female, Grade 9)

Such perks however were out for reach for most low-income school children. As one participant astutely observes,

"I don't think everybody is privilege [sic] enough to get those lessons so I think (the internet) should be more safer for everyone, who doesn't have such sessions"

female, Grade 9, high-income

Schools as Catalysts for Digital Participation?

To explore whether school support can enhance digital participation among low-income children, we conducted surveys and interviews with sponsored as well as non-sponsored low-income school children. The sponsored schools are providing quality education to children from low-income background, which is otherwise inaccessible to such a socio-economic group. Among the two-sponsored schools, children from one school showed a noticeably upward trend in some aspects of digital participation compared to non-sponsored low-income children. To illustrate, the graph below provides a comparative account between the sponsored and non-sponsored schools.

Nature of Digital Activity	Sponsored Category 1 (CSR initiative)	Sponsored Category 2 (non-profit)	Low-income (unsponsored)
Google	92%	77%	84%
Wikipedia	35%	16%	18%
Pinterest	13%	16%	7%
WhatsApp	85%	78%	61%

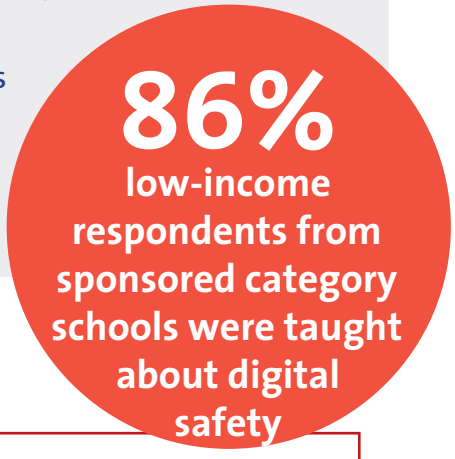
Table XV: Comparison of digital activities between sponsored-category children and low-income children

The higher usage of Wikipedia in one of the sponsored category schools is interesting. Many underprivileged children are believed to use internet greatly for leisure purpose at expense of learning. In addition, surveys with the children on level of teacher mediation over digital usage reveal that 86% low-income respondents from the sponsored category schools stated teachers taught them about digital safety as compared to 78% in case of low-income unsponsored schools. A participant studying at one sponsored school, sharing how their teacher would recommend suitable websites for learning, states,

"One of my teachers does a course on 'Math Masters' for which she keeps sharing explanation videos of Khan Academy as well as her own learning videos"

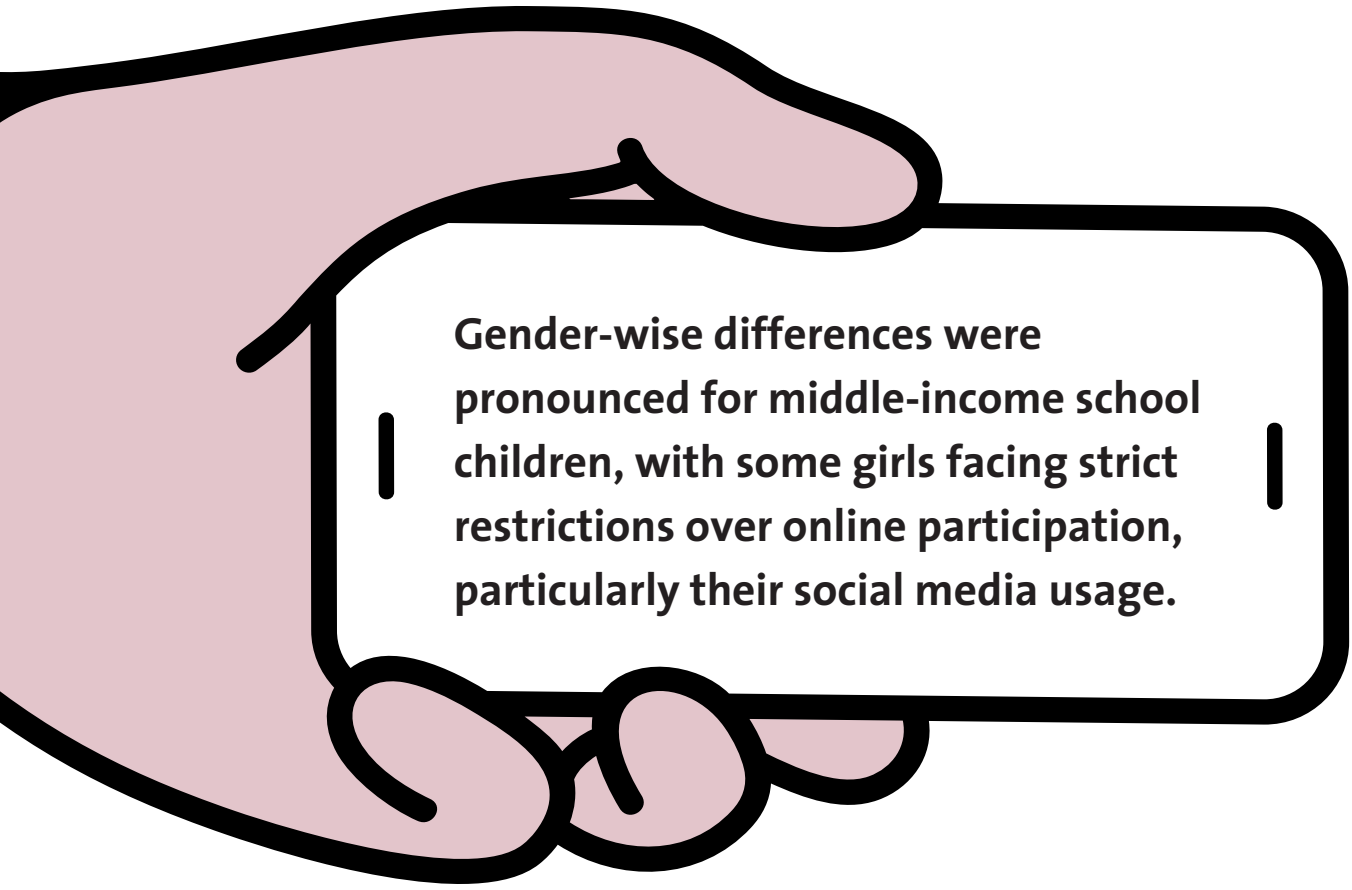
(male, Grade 8, low-income).

Some degree of teacher intervention can encourage productive uses of the internet. Take Bhatia (2018) for instance, who imparted religious literacy through media education to underprivileged children, teaching them how to evaluate political media content critically. Such an intervention is timely, especially in a politically-polarized environment where fake news and disinformation rampantly circulate online. Sponsored schools with good infrastructure and qualified teachers can act as one possible catalyst to promote better digital practices among low-income children, who otherwise are deprived of cultural capital to learn about various enriching online resources and possess higher digital literacy.



RECOMMENDATIONS

Concerted efforts must be undertaken to improve the overall digital support available to children, primarily from underprivileged backgrounds. These efforts must involve multiple stakeholders, including parents, educators, digital experts, policymakers, and children themselves.


Gender-wise differences were pronounced for middle-income school children, with some girls facing strict restrictions over online participation, particularly their social media usage.

KEY FINDINGS

DIGITAL PRIVACY: SUPPORT

- Measures taken for digital privacy included clearing history, installing ad blockers, providing fictitious information online, among others.

- Digital privacy involves three contexts, namely interpersonal, commercial, and institutional. High-income children were more informed about privacy-relevant concerns in interpersonal and commercial contexts. Middle and low-income and out-of-school children meanwhile understood privacy largely in an interpersonal context.

- Children felt digital participation necessitated some privacy compromise, particularly for an enhanced and personalized experience.

- Appropriate selection in terms and conditions was one way to compromise or protect personal privacy. Some children from low-income and out-of-school backgrounds were unsure about this feature. They either unthinkingly accepted the terms or withdrew from such websites altogether. Despite being well aware of its purpose, most children accepted terms and conditions either out of habit or trusting the website.

- Terms and conditions were denounced as vague, lengthy, convoluted, and deceptive. Children with low English proficiency additionally found it challenging to understand, leading to inadvertent privacy compromise.

Digital support was not uniformly available to all children, with some sections benefitting from a more robust support system.

DIGITAL PRIVACY

Privacy refers to control over flow of information and is an integral to children's digital participation. Westin (1970) defines it in terms of 'the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others' (p.7). Stoilova, Livingstone & Nandagiri (2020), exploring children's privacy issues, draws attention to three digital contexts of privacy, i) Interpersonal ii) Commercial and iii) Institutional. They find that children generally understand and take suitable individual actions to protect privacy in an interpersonal context. However, they are either unfamiliar or passive to privacy, compromising commercial and institutional contexts, such as algorithmically-inferred digital data sold to advertisers, educational institutions, etc., and digitizing personal information.

The following quotes reflect children emphasizing privacy-related actions taken at an interpersonal level.

"All applications have privacy settings so one can activate them. If you don't want your private information like your birthday, personal information, email address to go public, there are privacy settings that you can activate. To avoid people from knowing your number and other private information through Instagram. I have activated privacy settings in all of my accounts" (male, Grade 11, high-income).

"First and foremost we must not provide our mobile number to anyone. The mobile number is the Aadhaar card... is linked to several things... If we are careless about sharing our number, we may not know whether the person (who gets it) is good or bad... they may be a thief. We may have given to a bad person and they may commit theft. Since our account numbers are linked (to the phones) they can be searched easily"

male, Grade 7, middle-income

"I think most people generally follow the rule of don't post a lot about where you are - location. Don't post a lot about how much money you have received just general safety precautions" (female, Grade 11, high income)

Participants additionally spoke about taking various privacy-relevant measures, which include enabling firewall, clearing history, locking phones, changing privacy settings of social media accounts, deleting cookies, using incognito browsing, includes installing ad blockers and anti-virus software, keeping distance from or blocking unsecured websites and suspicious persons, providing fictitious information during online registrations etc. They felt greater sense of safety after taking such measures in exploring the internet.

Consistent with Park (2013)'s finding that socioeconomic factors influence the levels of digital privacy awareness. Children from high-income school, besides discussing privacy at interpersonal level, were also aware to how companies used their given and inferred personal data for commercial purpose.

82%
respondents knew what information to share online

"One thing that I find kind of scary about the internet is that it has our data, it knows a lot about us, it could also sell our information" (female, Grade 9, high-income)
"Sometimes when you signup on a website... they can take your information... like your email address and photos... do anything with the information... they may it to other companies" (male, Grade 4, high-income)

"You have a digital footprint at the end of the day, you really want to be careful about what it is (you are sharing online)"

female, Grade 11, high-income

These children were aware that certain things were beyond individual control and that systemic changes would create a more secure digital ecosystem where individuals' privacy gets precedence over commercial and institutional interests. Interestingly, we also found only in high-income schools participants reading the entire consent forms provided by the field investigators and seeking multiple clarifications on the privacy of their recordings. This shows their level of involvement and concern over their personal (and digital) privacy.

We found variations in knowledge of privacy among children from middle and low-income schools. Some knew actions that would protect their privacy especially in interpersonal context. One child, sharing about privacy-related guidance he received from his parents, narrates, *"My parents have taught me not to share my password with anyone else strangers can misuse (my data), they may delete important things which we may be unable to download again, not to share (my phone) with my friends" (male, Grade 4, middle-income).*

Others lacked sufficient knowledge about digital privacy-measures, with our survey revealing that low-income school respondents were least likely to change privacy settings compared to others.

School Category	Sponsored Category 1	High Income	Middle Income	Low Income	Sponsored Category 2
Changed privacy settings	**22%**	**24%**	**22%**	**10%**	**30%**

Table XVI: Response to Privacy School-wise

In such situations, children would sometimes feel helpless and restrict their digital participation. One participant shared about her friend who stopped using Instagram after it was hacked thrice and also suggested her to follow suit. Reflecting on this, she adds, *"(She advised that) it's better to keep away from social media. So then I have logged out of all my accounts"* (female, Grade 11, middle-income).

(In)Voluntary Privacy Compromise

Children felt that the current digital ecosystem necessitated some privacy compromise. Accepting cookies for instance leads to an enhanced and personalized online experience. This particular aspect was observed by some high-income participants.

"I think that cookies that are sent to us should not be there..."

"But do you know that it will create a lot of problems?"

"Without cookies every time you want to log in to Instagram you will have to write your user ID and password" (males, Grade 11, high-income)

"Sometimes if you don't do cookie policy then they will block you from the online website" (female, Grade 7, high-income)

Many school participants admitted to skipping the process when discussing reviewing terms and conditions to protect digital privacy. They accepted terms and conditions without a review out of habit or when they perceived sites as secure.

"Across all the games the terms are somewhat standardised. So, it is ok to click 'Yes'"

"And again, when we know that certain sites like Instagram, Snapchat, etc. are trusted" (males, Grade 11, high-income)

"...I don't read terms and conditions because it's become a habit to immediately play the game (after downloading))" (female, Grade 4, middle-income)

Children complained that terms and conditions seemed deliberately lengthy, convoluted, vague and deceptive in nature. Some felt that a careful selection of terms and conditions would still not guarantee privacy protection. On being asked the reasons for skipping terms and conditions, Grade 9 high-income male participants replied,

"I feel lazy"

"It's too long"
"Terms and Conditions can be of 200-300 pages"

"I suspect they make it deliberately lengthy"

"Yeah... and they may insert certain loop(hole)s in between"
"And then they blame us saying that you accepted it"

Some participants went on to suggest ways to make terms and conditions accessible and child-friendly. Middle-and lower income participants in particular sought local language options.

"Make it short and easy"

"We shall read if it is a sentence or two in length but not entire pages" (males, Grade 9, middle-income)

"I can't understand as it is in English. If it is either in Hindi or Gujarati (I shall read)"

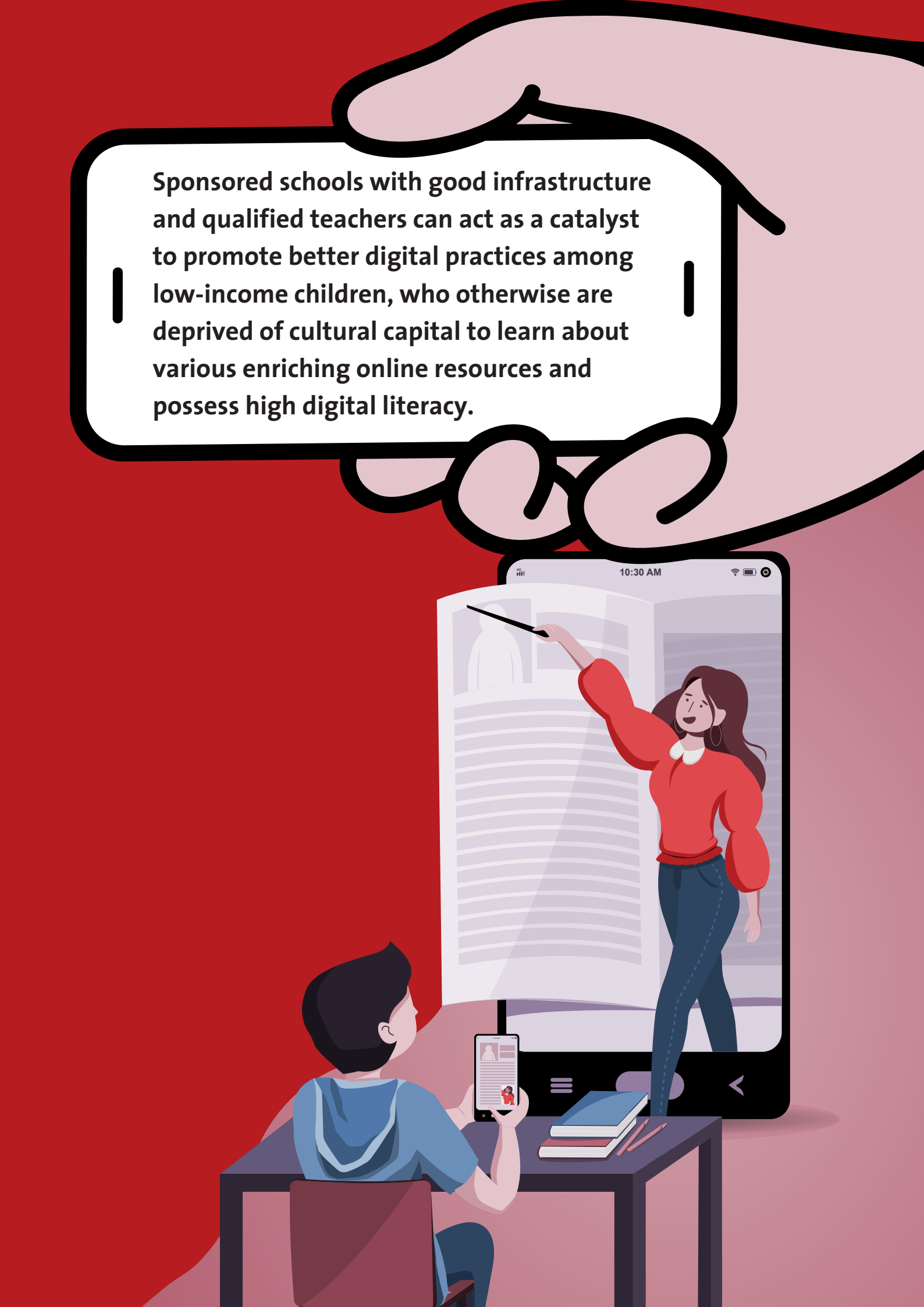
"Reading it in Gujarati would be a breeze. People from villages especially understand little of English" (males, Grade 11, middle-income)

RECOMMENDATIONS

Every child must be conscious of digital privacy in various contexts and learn how their data can be compromised and protected.

Terms and conditions must remain transparent and child-friendly in nature.

Sponsored schools with good infrastructure and qualified teachers can act as a catalyst to promote better digital practices among low-income children, who otherwise are deprived of cultural capital to learn about various enriching online resources and possess high digital literacy.



KEY FINDINGS

DIGITAL ECOSYSTEM

- Children from high-income backgrounds were strongly digital-dependent with fewer barriers to digital participation. Relatively higher constraints in digital participation persisted for many middle and low-income children, with gender disparities standing out. Digital ecosystems were even sparser for out-of-school children.

- There were differentiated expectations from the internet. High-income children suggested enhancing existing digital features, robust safety measures, and alternate revenue models for a better digital future. Children from middle and low income stressed functional aspects, such as improving the quality of digital access and making design user-friendly and localized for the less privileged. They also suggested blending online-offline models of education to make it accessible to every child.

DIGITAL ECOSYSTEM

Children engaging with digital technologies have varying sociocultural and socioeconomic backgrounds. In understanding the role that digital media serves in their lives, both Pathak-Shelat and DeShano (2014) and Banaji (2015) suggest distancing from the dominant media-centric lens where Western media-saturated contexts are assumed as the norm. Taking this approach inevitably leads to simplistic comparisons between West and 'the rest', and positions digital technologies as driving force of change in the underprivileged Global South. The authors notes that digital media does not necessarily play a central role in lives of many children who live in less mediatized worlds in the Global South. They problematize taking conditions of a wealthy highly mediatized Western context or even materially well-off context in Global South as the normative reference point to speak of childhood in different social locations. Rather, for many children, digital devices alongside various other forms and tools of media and leisure such as radio, television, theatre etc. feature either strongly or peripherally as part of their larger lifeworlds where the children navigate and negotiate "relationships, family-life, friendship, school, exclusion from school, labor... extreme poverty... (and) structural injustice" (Banaji, 2015, p. 580). It becomes important therefore to take into account the complex ways in which constraints and agency operate within specific contexts.

Speaking of our own inquiry, we have discussed how sociocultural and socioeconomic differences affect the nature and extent of digital access, skills and practices, opportunities, risks, and mediation. The nature of our inquiry made it somewhat inevitable to emphasize on the 'digital' as well as draw comparisons between experiences of high, middle, low, and out-of-school contexts somewhat inevitable. Notwithstanding, we have paid attention to 'the heterogeneity of children's lives' (Banaji, 2015, p. 580) wherever suitable, and demonstrated how particular social contexts and factors like gender, parental occupation, economic conditions, literacy, etc. inflect digital participation.

Multi-device environments characterize high-income school children's digital ecosystems with lower access barriers, stable connectivity, device-ownership, and longer usage hours; general knowledge of digital skills, multifarious usage and risk-preventive capabilities; reasonable freedom, overall with regular parental monitoring with some degree of restrictive mediation; robust support sources; advanced knowledge of privacy; and relative gender-parity in digital participation. On the other hand, middle and low-income school children's digital ecosystems are characterized by relatively device-limited environments with greater access barriers, data-restrictions and connectivity challenges,

device-sharing practices, relatively lower usage hours; varying levels of skills, usage-diversity, and risk-preventive capabilities; reasonable to low freedom with less monitoring and greater restrictive-mediation; limited external support; relatively limited understanding of privacy; gender-inequality in digital participation, and some cases, a limited reasons for digital dependence. Such disparities notwithstanding children from middle and low-income schools found some ways to negotiate their digital participation in their ecosystems, such as using internet prudently, accessing educational opportunities, realizing agentic potential through engagement in digital leisure activities, gaining unique skills such as hacking, etc.

'I Wish That I Also Had a Phone': The Case of Out of School Children

Digital access was the sparsest in case of out-of-school children, many of whom dropped out of their school only post-pandemic while some had done so much before. In every case, financial burden became the chief reason for the child dropping out, with some children lending their parents a hand at work.

"My parents cannot afford to pay my school fees. We have a large family. My grandparents and my uncle, aunt and cousin sister also live with us. After the lockdown our financial position became worst so I had to quit school"

(16-year-old male)

"My mother cannot pay for my fees so I stopped studying after 6th standard. My father passed away two years ago. So now my mother runs a tiffin service from home and I help her in cooking. So, I don't go to school" (15-year-old female)

One participant also pointed out that low online teaching standards also did not give the families an incentive to invest further in their children's education, especially during such challenging times. She states, *"Especially now that classes are online, I am not receiving proper education. Teachers don't teach us properly. And then they asked me to pay the fees. So, my parents said 'There is no need to study more. You know how to read and write, that is enough'" (17-year old female)*. Families with multiple children had to make a choice on whose education to continue within their limited means. The participant mentioned above shares, "*My older brother is in college. So, my parents can pay the fees for only one of us"*.

Similar to some of the low-income counterparts, a single phone was shared by the entire family of some of the out-of-school children. One participant for instance shared a smartphone with his brother who needed it for his online classes. She shares that it

was the first time their family bought a smartphone that too *"with great difficulties." (17-year old female).*

Some only had access to feature phones at their homes and could only access the internet when meeting relatives with digital access. To quote a participant,

"*There is no smartphone in my house. My mother has a keypad phone. There is no internet in that phone. I use the internet when I go to my sister's home, I use the internet on her phone. Sometimes when I go out to play (I access others' phones)*

(15-year-old female)

In this case, the participant had to be judicious in digital usage to avoid squandering the limited access they can avail. To quote the participant, *"I don't watch songs and movies because I only get to use the internet on my sister's phone and I don't want to waste her internet watching such things. So I watch only useful things"*. We found a case or two of out-of-school children who owned affordable lower-end models of either feature phones or smartphones. For instance, one respondent, a 17-year old teenager who dropped out after Grade 5 and worked along with her family at a construction site shared that she owned a Micromax smartphone with access to features like Facebook, WhatsApp etc.

Out-of-school children explored or express interest in exploring entertainment, socializing, and learning opportunities. To quote a participant, *"I watch videos and movies on YouTube. I play action and sports games. When I get my own phone, I will make FB, Instagram and WhatsApp accounts"*. However, the lack of digital access was challenge that they had to contend with, with one participant remarking, *"I think that if my parents had more money, I could buy a phone and learn many new things. I could also join computer classes and learn how to use computer too"*. One participant initially claimed to attach low importance to digital devices in her everyday life, stating, *"I don't think that I need a phone for myself... I usually don't have time to use the internet. My parents go to work so I have to look after the house and do house work too. I take my brother's phone in the night sometimes when I have some time" (17-year-old female)*. On further probing, however, the same participant revealed she did feel a bit envious of friends who had greater digital access, confessing,

"*One of my friends has a phone, it is her mother's phone but she brings it when she comes to meet me. She likes to show off. So sometimes she shows me things that I have never seen or heard of before. And she can use the phone well, she knows a lot about using the internet. At that time, I feel bad. And I wish that I also had a phone*".

Individuals who moved to bigger cities, especially for better educational or employment

prospects might have greater necessity for digital devices, be it girls and boys. One participant, hailing from a village in Dahod district, Gujarat and presently living in Ahmedabad, states a lot of her digital usage involves keeping in touch with relatives. Therefore, her digital dependence naturally reduces when she is in village since *"we (do) not get much time to use our phone, as we all are there only" (17-year old female)*.

There were gender-based differences in nature of digital participation among out-of-school children. One girl, for instance, claimed the rules were the same for herself and her male sibling. Male participants had restrictions on mobility as well, with one stating they *"don't go too far alone" (16-year-old male) while another got to "go out of the house many times"*, leading to unsupervised usage where they could *"see whatever I want, the phone is with me" (16-year-old male)*. It was more pronounced in case of the girls, with one stating she is *"not allowed to go out by myself. I always go out with my parents" (17-year old female)*. Limited mobility and economic pressures of early marriage among women resulted in superior digital access among the male members of the family. A 16-yrs-old female participant, who works as a house help and has access to a feature phone, shares, *"Generally in our family, only our brothers have a big phone, as they go out to work at different place. My mother does not like us spending much time on phone, as I have to also work and manage home chores after work. For us, a lot has to be saved for our weddings, so my mother keeps a track of my earnings. I cannot spend as I wish. This is also correct; after all, there is lot of inflation"*. When digital access happened primarily within the home, it resulted in a more controlled digital usage environment, with one female participant adding,

"The entire family is around whenever I use the internet. We have a small house. Sometimes I wish I had some privacy to learn about personal things"

17-year old female

We also found some gender-wise variations in the type of opportunities accessed. One of the male participants spoke about watching content on biking, an interest that is traditionally associated with men. *"I am very interested in watching videos of Bikes and how to modify and repair bikes. I want to open a bike service center after a few years. So, I watch videos related to that"*. Girls on the other hand mainly mentioned consuming content on cooking and applying mehndi (body art), and makeup, though we found one female participant who evinced interest in *"action games, sports games and car-racing games"*.

Among digital skills, we found out that school children possessing limited information browsing skills. Some mentioned comparing information on popular sources like Google search and YouTube. *"I can search in Google and YouTube to see if that same information is given there then I can believe"*. This is a very superficial evaluation at best, as popular

platforms themselves are rife with misinformation and cannot be trusted so easily. In this regard, non-governmental organizations (NGOs) engage with out-of-school children on a time-to-time basis, and this can be a useful medium to promote good digital practices. To quote a participant, *"I know that there are some websites where they give free education. People form an NGO came and told us about it" (17-year old female).*

The purpose of this segment was to draw attention to some of the commonalities and dissimilarities out-of-school children have with school-going children from low, middle, and high-income backgrounds. The findings (alongwith those of low-income school children) are preliminary and we definitely plan to explore them at length during post-pilot stage.

Differences in digital ecosystem impact children's expectations from the internet.

Digital technologies were deeply embedded in lives of high-income children. With basic digital access not being an issue, they sought enhancement of existing services.

"Please improve the speakers (laughter)"
"The phone speakers"
"Yeah specially for like IPhones"
"And have less in-app purchase apps"
"And have good battery life" (females, Grade 9, high-income)

They wanted technology firms to have more robust security measures for a safer digital experience.

"Whatever you have done to the chat, which is supposed to be private you should not be allowed to take screenshot or anything, or the person should get a notification" (female, Grade 11, high-income)

"Probably I would ask designers of google to have verified websites, so that it can tell you that these are verified sites. So, for example, when you are paying and providing your account details, they have this green lock for secured sites, so similarly for all other websites. Also, I would like credible sources for news as well. Google should give us certified websites (that we can trust)" (male, Grade 11, high-income)

One child even discussed alternatives to existing internet revenue models that would expand individual control over their digital experience. He suggested, *"Instead of ads, have micro payments. I pay 2000 INR for my internet every month. That 2000 was spent and these were the websites on which I spend my time. Let us say that at (name of a website), I spent 50% of my time. So, 50% of 2000 goes to them. And that will eliminate the need for ads. So, on every website, the time you spend gets an allocation of INR 2000". But then you need to decide how much money you need to give" (male, Grade 11, high-income).*

Some mentioned they would approach organizations like UNICEF if children's digital rights were under threat.

"We will call UNICEF"
"But why would you call UNICEF?"

"They will give us internet"
"Because they can help us. UNICEF helps and partners with United Nations, so they can help us"

males, Grade 4, high-income)

92%
respondents find the internet to be useful for different purposes

This shows how these children are considerably well-informed and investing in seeking better digital future. Middle and low-income school children also recognized certain potentialities of the internet in enhancing people's lives. When presented a hypothetical situation of life without internet, the children remarked,

"We can use all these (applications) like Instagram, Facebook and others. We wouldn't be able to use these if there were no internet"
..."All work will come to a halt..."
"Our pending online shopping transactions will be cancelled"
"Video calling on phones (will stop)"
"The phone will not be of much help"
(males, Grade 11, middle-income)

While discussing the benefits of the internet, they greatly emphasize its functional aspects. To quote a few participants,

"(We now have) GPS"
"We can order online through Swiggy, Zomato, Uber Eats, Amazon"
"When we want to go anywhere, (we can use) Ola, Uber"
..."We can do our hotel and flight bookings from home now" (males, Grade 11, middle-income)

92% of respondents find the internet to be useful for different purposes

They spoke about how basic digital access and design must improve and be user-friendly and safe. Moreover, online modes must complement offline modes rather than it so that no child is left out. When asked what they would suggest to internet developers to improve their digital experience, the participants share,

"The phone must not hang up firstly. And we must get consistent internet (some laugh)"

females, Grade 11, middle-income

"I will share that... my data high-speed that don't come and many time the network don't come that I will share" (male, Grade 7, low-income)

If we have privacy we are less tense about something bad happening to us" (female, Grade 9, middle-income)

"They can have a kid-safe option (for internet in general) just as they have for YouTube" (male, Grade 8, low-income)

"They should have an offline feature for those using internet and watching videos, because some what people (face difficulties) in completing assignments because their data gets exhausted so they can't use Google... also some use (feature) phones where Google doesn't work... So I wish they bring out a system which can work on phones, feature phones or otherwise" (male, Grade 7, low-income).

Internet is A Tad English

Internet is accessed by various language speakers across the world. Yet, it is English which appears as the de facto language for digital participation (Bokor, 2018; Pearce & Rice, 2014). Technology firms have taken measures over the years to be inclusive of non-English speakers, such as introducing multiple language options for web search and voice assistance. Notwithstanding, our interviews reveal that the web, being English by default, creates some barriers for their digital participation. Middle and low-income school children with limited English literacy had challenges understanding non-translatable content. One participant states, *"I find nothing easy on the Internet as my English is really weak" (female, Grade 7, low-income)*. In spite of facilities such as Google Translate, some found it challenging to find the right information. One participant complains, *"When I don't understand a word in Gujarati, I try searching for its synonyms online, but I am often unable to get the right answer... It shows something else (in another language), but not the English (translation)" (male, Grade 9, middle-income)*. Some manage to get help from people around them, such as family members. For instance, a participant tells, *"As I can read but I cannot understand English language, my elder sister has to help me" (male, Grade 4, middle-income)*. However, not everyone has this privilege since we found several instances of children stating their family neither understood digital usage nor the English language. A participant shares, *"If it is my father's (phone), I show him and ask what this is about. He replies, 'Leave it, and don't do anything. The phone will get ruined and we'll have to send it to the company'" (female, Grade 7, middle-income)*.

79%
parents were concerned about children revealing personal information online

Situations like these can cause children to inadvertently compromise on their personal data by readily accepting website terms and conditions following inability to decipher content in English. When asked if they read Terms and Conditions while making any accounts online, a participant replies, *"No, I directly agree" (male, Grade 11, middle-income)*. The participant adds, on being probed further, *"I can't understand since its English"*. Some stated greater involvement, especially in managing privacy, if content were in their local languages. To quote another participant,

"I read everything (of terms and conditions) provided it is given in Hindi, else I read it partly if given in English)"

male, Grade 9, middle-income

Middle and low-income school children with limited English literacy had challenges understanding non-translatable content.

FUTURE DIRECTIONS

ACTION POINTS

It is worth exploring how access to smart devices and voice assistants widens or reduces existing divides among children.

One must probe further how patriarchal norms bequeathed are reinforced through access-based disparities, particularly with girl children sharing digital devices vis-a-vis device ownership among boys. Further probing can be undertaken on how gender differences in digital opportunities lead to the acquisition/non-acquisition of specific digital skills. For instance, understanding how socializing through gaming versus social media platforms impacts how digital social skills develop Subtle gender differences in mediation for children from relatively privileged families need further probing. We propose further investigation on how stringent restrictive parental mediation and monitoring become tools to achieve the dual objective of encouraging girl children's digital participation while simultaneously regulating their autonomy in patriarchal establishments.

There is an avenue to explore how digital access and other dynamics of digital participation (e.g. device ownership versus sharing; individual social media account versus using family's account) shape individualist or collectivist orientation among children.

It is worth delving further into the motivations and consequences of acquiring unique expertise such as hacking (Livingstone & Bober, 2003).

An in-depth study on the solid gaming culture among Indian children (Deshbandhu, 2020) will be relevant.

Another research avenue involves understanding how visual platforms offer a democratic mode of self-expression compared to verbal expression, which many Indian children may lack due to educational disparities.

One can probe how potential class distinctions manifest in children's social media practices, for instance, associating Instagram as a platform for the elite versus Tiktok as a platform for the 'masses'.

It would be interesting to build on the finding that tech-savvy parents covertly monitor children from high-income families. In contrast, children from middle and low-income may sometimes escape such monitoring due to parents' lack of digital competence. How does this lead to middle and low-income children 'messing around' online while high-income counterparts are constantly on watch?

It would be interesting to explore further whether and how children's actions of supporting adults in digital usage increase their agency and autonomy.

Further investigation of how schools can enhance the overall digital participation among underprivileged children may help direct policy and CSR initiatives.

Future research can investigate how language divides affect children's digital participation, emphasizing personal data ownership, consent, control, and compromise.

Based on the Ahmedabad data the team can plan workshops with parents and children and offer insightful articles for popular newspapers and magazines as well as some social media posts to move the public perception from panic to participation mode with reference to young people and their online experience.

Limitations

- We recognize the shortcomings in our inquiry mainly owing to the unique challenges and constraints of the pandemic. Relatively limited attention has been given to qualitatively examine experiences of low-income, out-of-school children, and parents. Similarly, our quantitative inquiry requires a more robust analysis. Lastly the inquiry can further benefit through interviews with other stakeholders including, educators, experts on children's issues, and policymakers.

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