ASER 2023 Evidence Brief

Digital Readiness of India's Youth

About ASER

Since 2005, the Annual Status of Education Report (ASER), has generated evidence on whether children in rural India are enrolled in school and learning. Since 2016, the nationwide ASER focusing on foundational skills is conducted in alternate years, reaching all rural districts of the country to record children's enrollment status (for those aged 3-16) and to assess foundational reading and arithmetic abilities (among children aged 5-16). In the intervening years, ASER focuses on a different aspect of education.

ASER 2023 'Beyond Basics' explores the lives of 14-18-year-old youth in rural India. It aims to understand what youth in this age group are currently doing, their educational and career aspirations, and their ability to apply foundational skills to everyday life situations. The Beyond Basics survey was first conducted in 2017. To the original 2017 domains, ASER 2023 adds the new domain of youths' digital awareness and skills. The survey reached 34,745 youth across 28 districts in 26 states of India.

Introduction

The rapid pace of technological evolution in recent years has made digital literacy a key component of youth preparedness for the future. On the international stage, this is reflected in Sustainable Development Goal (SDG) Target 4.4, which aims to "substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship, by 2030".[1] SDG indicator 4.4.1 measures the "proportion of youth and adults with information and communications technology (ICT) skills, by type of skill"[1] and indicator 4.4.2 measures "percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills".[2] Similarly, UNICEF's Comprehensive Life Skills Framework refers to digital skills as part of 'foundational skills' alongside literacy and numeracy, and gives them equal importance.[3]

The importance of digital technologies was reinforced during COVID-19, which forced organisations and systems across sectors to innovate and find remote alternatives to conventional ways of working. Even as the world returned to normal, the use of digital technologies remained embedded in people's everyday lives. More recently, the rapid development of artificial intelligence (AI) technologies further underscores the importance of digital literacy in today's world. As we move forward, access to and mastery of digital technologies will play a significant role in shaping educational, economic, and social progress in every aspect of human endeavour. It will be crucial in realising the much-anticipated "digital dividend", which the World Bank defines as the returns on digital investments that materialise in the form of growth, jobs and services for all.[4]

The digital landscape in rural India has witnessed a massive transformation in recent years. Data from the ASER 2022 report shows that smartphone ownership in rural India more than doubled (from 36% to 75%) between 2018 and 2022.[5] The report further revealed that over 95% of rural households now have a mobile phone, 75% have a smartphone, and of these, almost 90% households had internet available on the day of the survey. According to another report published by the Indian Council for Research on Economic Relations (ICRIER) in early 2023, **India is the second largest and fastest growing mobile broadband market in the world, with over 820 million subscribers as of September 2022.**[6]

[1] Goal 4 | Department of Economic and Social Affairs. United Nations. Accessed February 20, 2024. https://sdgs.un.org/goals/goal4#targets_and_indicators.

[2] Law, Nancy, David Woo, Jimmy de la Torre, and Gary Wong. *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2.*UNESCO, 2018.

[3] Comprehensive Life Skills Framework. UNICEF. Accessed February 20, 2024. https://www.unicef.org/india/media/2571/file/Comprehensive-lifeskills-framework.pdf

[4] World Bank Group. *World Development Report 2016: Digital Dividends.* World Bank, 2021.

[5] ASER Centre. *Annual Status of Education Report (Rural) 2022.* ASER Centre, New Delhi, 2023.

https://asercentre.org/aser-2022/

[6] Mishra, Deepak, Mansi Kedia, Aarti Reddy, Shiva Kanwar, Mayank Manish, Bhargavee Das, Saptorshi Gupta, and Devashish Sharma. *State of India's Digital Economy (SIDE) Report 2023.* Indian Council for Research on International Economic Relations (ICRIER), 2023.

Key government policies and initiatives promoting digital literacy in India

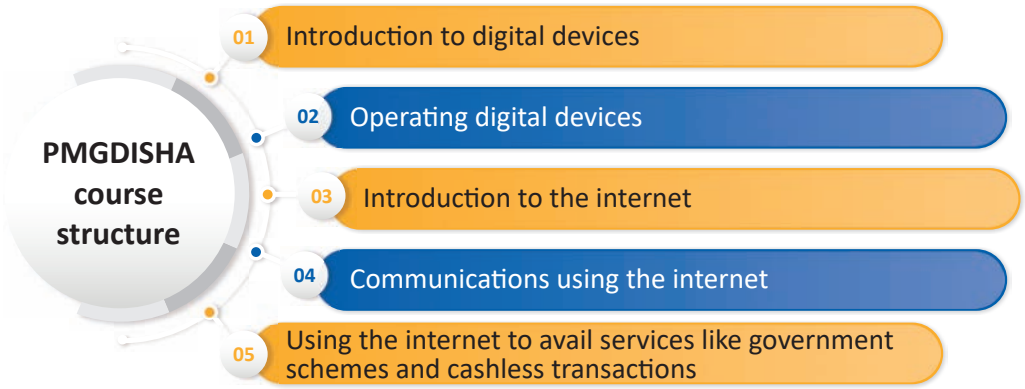
The growing importance of digital literacy internationally has been echoed at the national level in India. **The National Education Policy 2020**[7] makes many references to "digital literacy", proposing the creation of a National Technology Education Forum (NTEF) which would be tasked with the use of technology in education. NEP 2020 charts various pathways to incorporate digitalisation in all aspects of education. Key among these are:

- **Bridging the digital divide:** Investing in digital infrastructure in the education sector keeping in mind India's scale, diversity, complexity and device penetration. NEP 2020 chalks out the importance of campaigns like Digital India and availability of affordable computing devices.
- **Leveraging existing technology:** Using existing technology and platforms as a way forward, for example by making online educational platforms like SWAYAM, DIKSHA, SWAYAMPRABHA, etc. user-friendly and creating digital libraries for hosting e-content.
- **Blended modes of learning:** NEP 2020 proposes an exploration of blended modes that combine in-person learning and digital learning. It proposes involving institutions like NTEF, National Institute of Open Schooling (NIOS), Indian Institutes of Technology (IITs), among others to evaluate the benefits of integrating education with online education while finding ways to mitigate negative impacts like student device addiction.

Additionally, NEP 2020 envisages the creation of a dedicated unit to build world class digital infrastructure, educational digital content and capacity.

With regard to initiatives on the ground, digital literacy and readiness became a national priority in 2015 with Digital India, the Indian government's flagship mission that envisions transforming India into a 'digitally empowered society and knowledge economy' with 'universal digital literacy'. To this effect, the government has incorporated digital elements across policies, kicked off several campaigns and programmes to push the digital agenda, and set up several e-governance portals to provide its services online. **One key initiative, the Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA), is a flagship programme of India's Ministry of Electronics and Information Technology that aims to make one person in every Indian family digitally literate.[8] The scheme is intended for citizens aged 14 to 60 years in rural India, specifically targeting vulnerable groups such as Scheduled Castes, Scheduled Tribes, women, Below Poverty Line (BPL) card holders, differently abled individuals and others.**

The PMGDISHA programme, implemented via an online course, is structured as a series of five modules:



PMGDISHA reported reaching 40% of rural households by March 2019. With a network of 435,608 training centres across the country, over 63 million people had completed training and over 47 million were certified.[9]

[7] Ministry of Human Resource Development. *National Education Policy 2020.* Government of India, 2020.

[8] Pradhan Mantri Gramin Digital Saksharta Abhiyan. Accessed February 20, 2024. https://www.pmgdisha.in/

[9] Figures as per the PMGDISHA website as of February 6, 2024.

The digital framework of ASER 2023

An in-depth review of international literature suggests that there is no standard definition of digital literacy. Different frameworks and studies have varying objectives and contexts. **The widely cited UN Digital Literacy Global Framework defines digital literacy as the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship, encompassing competencies that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy.**[10]

Digital literacy can also be viewed as a set of competencies and skills that use digital technologies to effectively communicate, create content, make decisions, and solve problems. Pew Research Centre takes a broader view that includes people's beliefs about their capacity to determine the trustworthiness of information online and safeguard personal information, as well as the degree to which people use digital tools in the course of carrying out online tasks.[11]

The digital component of ASER 2023 attempted to gauge whether rural youth in India have the digital access and skills needed in a digitally driven world. A self-reported questionnaire covered a broad range of themes such as smartphone access, ownership, online learning, usage for entertainment, communication through social media, access to digital payments and services, and knowledge of online safety and security. Additionally, a digital skills assessment tested the youth on their ability to apply digital knowledge to simple smartphone-based tasks.

The digital framework of ASER 2023 used widely cited international literature such as The Digital Competence Framework for Citizens developed by the European Commission. PMGDISHA course modules were studied to contextualise the framework for the Indian context. Ultimately, the following broad competence areas were identified for ASER 2023: basic computer and mobile operations; information and data literacy; communication and collaboration; critical thinking, mental wellbeing and safety; empowerment and access.[12] Within each of these areas, specific sub domains were identified and questions were developed to understand the youths' digital habits.

The literature review also revealed that most existing frameworks rely on the self-reported format to assess digital skills. However, self-reported ICT assessments are known to overstate proficiency levels, making it difficult to accurately estimate the number of people who can perform these activities.[13] The few surveys which do include a performance-based assessment component are either not in the public domain, or not suitable to the Indian rural context. No performance-based digital skills test has been developed for India.

UNESCO's recommendations for digital skills assessments[14] **were a guiding principle for the creation of the digital assessment for ASER 2023. The document stresses that a knowledge-based or performance-based test should be combined with a self-reported questionnaire. It also recommends assessing for a "minimum level of proficiency" for digital literacy.**

In keeping with the ASER philosophy, the digital tasks were designed to be rapid and easy to administer as well as engaging for the youth, his/her family, and other community members. The assessment was designed for smartphones rather than computers, given the far higher penetration of the former. Surveyed youth were asked to bring a smartphone that they were familiar with – their own, a family member's, or a neighbour's – to do these tasks in the presence of the survey team.

[10] Law, Nancy, David Woo, Jimmy de la Torre, and Gary Wong. *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2.* UNESCO, 2018.

[11] Horrigan, John B. *Digital Readiness Gaps.*Pew Research Center, 2016.

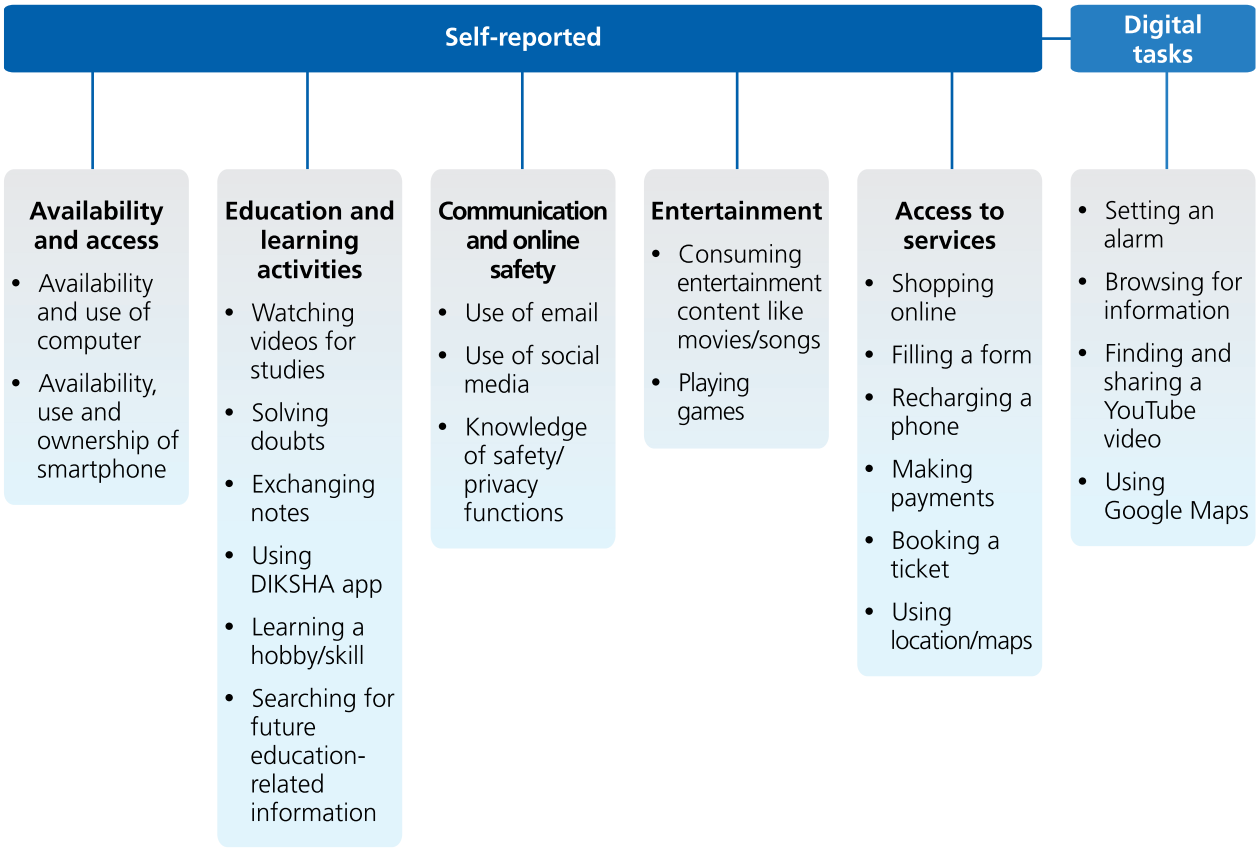
[12] For more details on how the ASER 2023 Digital Framework was developed, refer to the ASER 2023 report.

[13] Palczynska, Marta, and Maja Rynko. *ICT Skills Measurement in Social Surveys: Can We Trust Self-Reports?* Qual Quant 55, pp 917- pp 943, 2021.

[14] Laanpere, Mart. *Recommendations on Assessment Tools for Monitoring Digital Literacy within UNESCO's Digital Literacy Global Framework.* UNESCO Institute for Statistics, 2019.

Evidence from ASER 2023[15]

The digital component of ASER 2023 'Beyond Basics' consisted of two parts:a self-reported questionnaire and a one-on-one assessment. The flow chart below summarises the information that was collected in each section:



Findings from the self-reported questionnaire[16]

1. Almost everyone has access to and can use a smartphone, but far more males than females have their own smartphone.

Table 1. Smartphone availability and use, by sex.

Sex	% Youth who have a smartphone at home	% Youth who reported that they can use a smartphone	Of youth who can use a smartphone, % who have their own smartphone
Male	90.9	94.7	43.7
Female	87.3	89.8	19.8
All youth	89.0	92.1	31.1

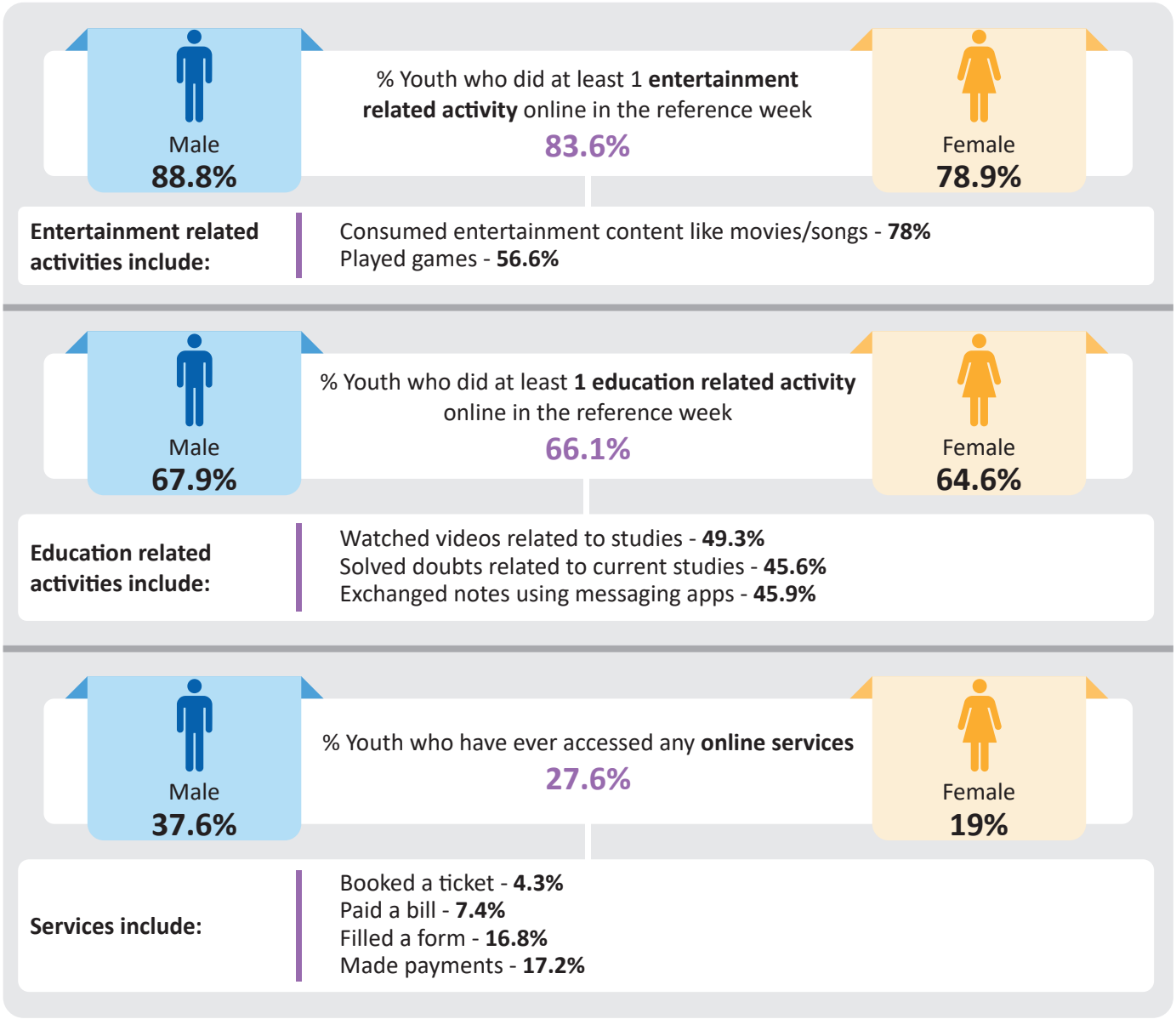
ASER data reveals that close to 90% of youth have a smartphone at home. An even higher proportion of both males and females report that they can use a smartphone. While access is almost universal, there are large gender gaps in smartphone ownership. The proportion of males who have their own smartphone is more than twice that of females.

[15] While data from ASER 2023 is not representative at the national level, its geographical spread makes it fairly indicative of national trends. The figures presented here are aggregates derived from all the 28 surveyed districts. For district-wise data and more details on the sampling process, see the ASER 2023 report. https://asercentre.org/aser-2023-beyond-basics/

[16] For the complete questionnaire, refer to the ASER 2023 report. https://asercentre.org/aser-2023-beyond-basics/

2. In the week prior to the survey, most youth reported using smartphones for entertainment.

Chart 1. Of youth who can use a smartphone, % who did various activities on it.



Almost all youth used smartphones for entertainment in the reference week, doing activities such as watching a movie, listening to music or playing games. Close to 80% of all youth consumed entertainment content such as movies and music, and 56.6% played games on a smartphone. While entertainment is the most popular use of smartphones overall, there are notable differences by sex. Data show that males are almost 10 percentage points more likely to have engaged in recreational use of smartphones.

Interestingly, the gender gap nearly disappears for education-related activities. Over two thirds of all youth report doing an activity related to their current education on a smartphone in the reference week, and this proportion is similar for both males and females.

Despite the increasing digitisation of government schemes and amid the push for digital payments, only about a quarter of the youth have ever used a smartphone to access services such as paying bills or booking tickets. The gender gap resurfaces here, and males are more than 15 percentage points more likely to have done at least one of these activities.

The only activity for which females use smartphones more than males is to learn a hobby or skill, with more than half the females reporting that they learnt a hobby online as compared to about 40% of males.

3. Social media is widely used by rural youth. However, knowledge of safety functions is poor.

Table 2. Of youth who can use a smartphone, % who used social media in the reference week and know how to use safety features, by sex.

Sex	% Youth who used any social media in the reference week	Of these, % youth who know how to:		
		Block/report a profile	Make profile private	Change password
Male	93.4	56.7	55.6	64.8
Female	87.8	48.0	40.4	40.0
All youth	90.5	52.3	47.8	52.2

9 out of 10 youth had used a social media platform in the reference week. Unlike entertainment and services, this figure is similar across sexes. While the popularity of social media is widespread, the knowledge of safety features is much lower. For all three safety features asked, only about half the youth report having the ability to use them. Females and younger age groups are less likely to know these features and are more vulnerable online.

Findings from the digital assessment

Youth were asked to bring an available smartphone and do the following tasks on it. Tasks were administered orally, one-on-one, with a text prompt shown to the youth.[17]

Setting an alarm

8:30 in the morning tomorrow

Question: Set an alarm for 8:30 in the morning tomorrow.

Instruction for surveyor: *If the phone has an AM-PM setting, ensure that the youth has selected the correct option before recording the answer.*

Browsing for information

First woman President of India

Question: Search on the phone and tell me the name of the first woman President of India.

Instruction for surveyor: *It does not matter which search engine the youth uses to find the answer; he/she could use Google, YouTube, or any other method. He/she should be able to point to/tell you the correct answer.*

Using Google Maps

Maps

Question: Open Maps and tell me how much time it would take you to travel from your current location to <district name> bus/taxi stand by bike/two-wheeler?

Instruction for surveyor: *The youth should be able to do the task on an app (like Google Maps) and not on a search engine (like Google). Even if the youth simply points to the correct answer, it will be considered as correct. Ensure that the youth has chosen the correct option from two-wheeler/four-wheeler on Maps. Do not ask the youth to turn on the location.*

Finding and sharing a YouTube video

PMGDISHA Module 1

Question: Find the "PMGDISHA Module 1" video on YouTube.

Send/share it with a friend/family member using WhatsApp or Telegram.

Instruction for surveyor: *The youth should be able to point at the correct video after searching on YouTube.*

[17] For more information on the assessment process, see the ASER 2023 report. https://asercentre.org/aser-2023-beyond-basics/

About two thirds of all surveyed youth were able to bring a smartphone for the assessment. Males (72.9%) were 10 percentage points more likely than females (62%) to be able to do so.

Among those who could bring a smartphone, browsing-related tasks were found the easiest by youth. About 80% could find a given video on YouTube and of those, nearly 90% could share it with a friend. Youths' familiarity with browsing is also reflected in their ability to use the internet to find the answer to a question – 70% could do so. Setting an alarm is slightly more difficult, with two-thirds of youth being able to do so. The Google Maps task was the hardest, and under 40% of youth were able to successfully find the time taken to travel between two points on the Map.

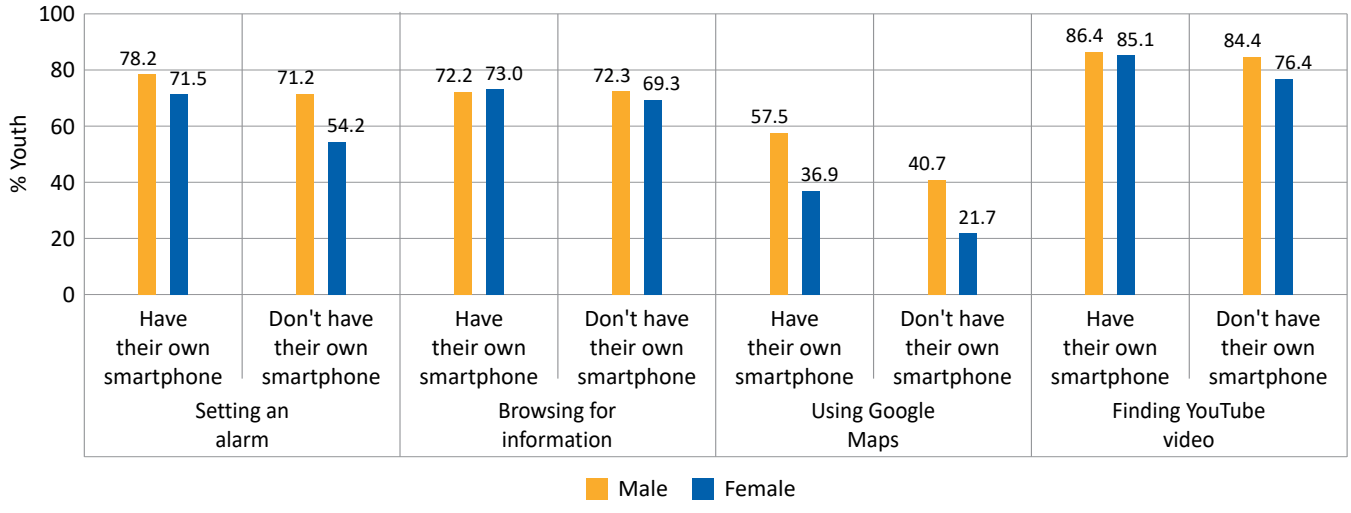
Table 3. Of youth who could bring a smartphone for the assessment, % who could do digital tasks, by sex.

Sex	Setting an alarm	Browsing for information	Using Google Maps	Finding YouTube Video	Of those who could find the video, % able to share it
Male	74.7	72.0	48.9	85.2	92.5
Female	58.0	69.7	25.3	77.9	85.8
All youth	66.4	70.9	37.1	81.6	89.3

Performance on digital tasks varies by sex, enrollment status and foundational abilities. Males outperform females across all tasks. The gender gap is wider for tasks that are more difficult overall. For example, while the gap in browsing for information is minimal at about 2 percentage points, males outperform females by almost 25 percentage points in the Google Maps task.

Digging a little deeper into the gender gap in digital abilities, there are patterns that emerge with respect to smartphone ownership. If a youth has their own smartphone, they are likely to have relatively unrestricted access to explore and learn its functionalities, and hence are also more likely to acquire digital skills. Lower smartphone ownership relative to their male counterparts goes a long way towards explaining the gap in females' self-reported use of smartphones and even their performance on digital tasks.[18]

Chart 2. Of youth who could bring a smartphone for the assessment, % who could do digital tasks, by sex and smartphone ownership.



[18] Chavan, Madhav. *Technology can assist but our mindsets have to change.* Annual Status of Education Report 2023. ASER Centre, New Delhi, 2024.

For example, ASER 2023 data shows that when youths' ability to do digital tasks is disaggregated by smartphone ownership, the gender gap decreases, and in some cases almost disappears. The only exception is the Google Maps task, where females do worse than males regardless of smartphone ownership status – perhaps a reflection of other restrictions placed on women, such as those related to mobility.

Chart 2 also shows that among males, smartphone ownership does not lead to significant changes in digital skills. Among females, on the other hand, having their own smartphone leads to a marked improvement in their performance on digital tasks. This could perhaps be because of social norms permitting males freer access to smartphones, even if they do not have one of their own.

Table 4. Of youth who could bring a smartphone for the assessment, % who could do digital tasks, by enrollment status.

Enrollment status	Setting an alarm	Browsing for information	Using Google Maps	Finding YouTube Video	Of those who could find the video, % able to share it
Std X or below	61.7	68.3	90.0	79.1	86.2
Std XI or Std XII	75.4	79.2	46.1	89.1	92.6
Undergraduate or other college-level	81.8	84.3	56.7	92.8	95.1
Not enrolled	49.6	47.3	27.7	61.7	87.0

Among various enrollment categories, those in college perform the best on all digital tasks, followed by those in higher secondary school. Notably, those who are not currently enrolled lag behind in all tasks, and do worse than the youngest in the sample i.e., youth in Std X or below.

The ASER 2023 exercise shines a spotlight on both achievements and limitations in the digital landscape in rural India. Youth have high levels of access, but need to be equipped with appropriate digital skills to adapt to an increasingly technology-reliant world. To formulate future policies, and to plan and design remedial programmes, regular, large-scale data will be crucial. All stakeholders must act in time to ensure that digital and demographic dividends are realised.

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