Annexure 10: Development of the digital framework for the ASER survey

The rapid pace of technological evolution in recent years has made digital literacy a key component of children's preparedness for the future. This has been acknowledged in the National Education Policy (NEP) 2020, which makes many references to "digital literacy". NEP 2020 proposes 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; leveraging existing technology; and blended modes of learning. Additionally, NEP 2020 envisages the creation of a dedicated unit to build world-class digital infrastructure, digital educational content and capacity.

The importance of digital literacy has also been echoed internationally, as measured by SDG indicator 4.4.2 which states that "a minimum level of proficiency in digital literacy skills" is a major 21st century goal. Reflecting the growing role of technology in education, ASER 2023 had digital literacy as a key area of focus for youth aged 14-18.

Given this backdrop, the domain of digital literacy was also included in ASER 2024. The availability of representative data on digital abilities of children (assessed through actual tasks) will help identify opportunities and gaps in children's usage of digital tools.

This note summarises the development of the framework for the digital domains of the ASER survey.

Literature review

Widely cited and used documents that have been key in shaping the understanding of digital literacy across the world were identified. These resources laid the basis for shaping the framework and approach for ASER. These key documents are:

1. **The Digital Competence Framework for Citizens (DigComp)[1]:** Published by the European Commission, this document provides a common understanding of what digital competence is. It is a tool designed for the European Union to improve citizens' digital competence, help policy-makers formulate policies that support digital competence building, and plan education and training initiatives to improve the digital competence of specific target groups. The framework brings together five main competence areas: Information and data literacy; Communication and collaboration; Digital content creation; Safety; and Problem solving. The DigComp framework has been widely cited and used in many international studies. The Digital Literacy Global Framework developed by UNESCO also identifies similar areas under its conceptualisation of digital literacy.

2. **G20 Toolkit for Measuring Digital Skills and Digital Literacy[2]:** This compilation of reports proposes a standard definition of digital literacy for G20 countries. It describes four "pillars" within the digital domain – Infrastructure and ecosystem; Literacy; Empowerment; and Jobs. It also encourages nationally representative surveys to measure the digital skills of citizens, technological adaptation of firms, and other digital indicators. It suggests self-reported and knowledge-based questions to assess these elements.

3. **Digital India[3]:** This campaign of the Government of India is an overarching collection of schemes and programmes to make India a 'global leader' in the digital arena. It includes infrastructural initiatives for universal internet access, and other programmes to increase digital connectivity and literacy. The Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA) is a scheme under the Digital India mission which aims to empower citizens in rural areas by training them to operate digital devices. It is being implemented through Common Service Centres (CSCs) where one person aged 14-60 years from each rural household can enroll in a 20-hour PMGDISHA course. The training content, available in the public domain, takes the beneficiary through five modules: Introduction to digital devices; Operating digital devices; Introduction to the internet; Communications using the internet; and Applications of the internet.

A review of these documents, along with several other assessments and frameworks, revealed that there is no standard definition for digital literacy. However, studying these documents provided an overview of the competencies that digital literacy encompasses and served as a guide to contextualise it for India.

[1] Vuorikari, R., Kluzer, S. and Punie, Y., DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes, EUR 31006 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-48883-5, doi:10.2760/490274, JRC128415.

[2] United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), Wong, J. T. Y., Wang, T., G20 Presidency of Indonesia, Socarana, B., Wulandari, D., Putri, C. M., Prasetya, Y. S., Enrico, J. H., Tayyiba, M., & Permadi, Dr. D. (2022). G20 Toolkit for Measuring Digital Skills and Digital Literacyfile:///C:/Users/shris/Downloads/ESCAP-2022-RP-%20G20-Toolkit-Measuring-Digital-Skills-Digital-Literacy.pdf.

[3] For more details, visit https://www.pmgdisha.in

Extracting relevant competencies

Despite the lack of a standard definition of digital literacy, there were several similarities in the digital skills that these frameworks identified as important. To map these, we decided on some key competence areas and then categorised skills from each study/framework under these competence areas. We chose the DigComp framework as the basis of these key competence areas because the DigComp areas are broadly defined, allowing for a wide range of skills to be incorporated under each competence area. Secondly, the DigComp framework has been frequently cited by many international publications and has been used as a guiding framework for various research studies.

Next, to adapt these key competence areas to the Indian context, we modified the DigComp areas to make them more relevant and aligned to the specific needs and challenges of children in India. The definitions of some of these areas were reworded to make them simpler. These modifications helped contextualise digital skills for India, and allowed us to incorporate elements that were tailored to the rural context.

The table below summarises the ASER 2024 approach in the context of the other frameworks reviewed.

Mapping key competence areas of digital literacy

Key competence area	Definition	Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA)	Digital Competence Framework (DigComp)	G20 Toolkit for measuring Digital Skills and Digital Literacy	ASER 2024
		Scheme launched by the Ministry of Electronics and Information Technology in 2017. Aimed at making one individual aged 14- 60 years from every eligible rural household digitally literate.	Framework prepared by the European Commission which includes guidelines for various digital competencies for people aged 16-60.	Toolkit to evaluate digital skills in G20 nations.	Household-based survey of 14- 16-year-old rural children. Digital components include a self-reported questionnaire that captures digital access and usage, and a one-on-one assessment using an available smartphone.
Mobile skills	Basic handling of mobile phones	■ Setting up phones/tablets: switching on, locking/ unlocking, charging, SIM card, internet, etc. ■ Using applications for phone calls, messages, songs, pictures, calculator, radio, etc. ■ Setting up Wi-Fi	■ Use of smart devices to perform autonomous tasks (eg: smart TV, refrigerator) ■ Inserting SIM card ■ Charging a phone ■ Switching phone on/off	■ Connecting to Wi-Fi network, mobile network or Bluetooth	**Self reported:** ■ Knowledge of using smartphone **Task-based:** ■ Setting an alarm
Information and data literacy	Browsing, filtering and downloading/ saving data using the internet	■ Browsing on Google: searching keywords, webpages, etc. ■ Wikipedia: finding, editing and adding information ■ Installing apps	■ Browsing, searching, filtering data ■ Evaluating and managing data, information and digital content	■ Operating a browser (opening a new tab, navigating to previous and next page, bookmarking pages on websites)	**Self reported:** ■ Using smartphone for educational activities like watching education-related videos online, solving doubts and searching for information related to current studies.

Key competence area	Definition	Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA)	Digital Competence Framework (DigComp)	G20 Toolkit for measuring Digital Skills and Digital Literacy	ASER 2024
			■ Locating, accessing and organising information ■ Retrieving and holding/ storing of information and media content ■ Using GPS	■ Searching for information online using keywords ■ Saving/storing data ■ Uploading, downloading/ saving and opening saved files ■ Downloading and installing apps	**Task-based:** ■ Browsing using a search engine ■ Finding a video on YouTube
Communication and collaboration	Using email, social media, chatting platforms, etc. for communication and collaborative work	■ Setting up, installing, making accounts on, and using: email, Skype, Facebook, Twitter, YouTube, WhatsApp	■ Interacting through digital technologies ■ Sharing through digital technologies ■ Engaging with media for self expression ■ Collaborating through digital technologies	■ Communicating through email ■ Using instant messaging or social media for communication ■ Working with others using cloud services ■ Making conversation (including text, audio or video calls) over the internet using platforms	**Self reported:** ■ Using social media **Task-based:** ■ Sharing video
Critical thinking, mental well-being and safety	Caveats of internet usage, vetting information, and netiquette; use of digital devices and its impact on mental health	■ Rules of the Information Tecnology Act, 2000	■ Netiquette ■ Copyright and licences ■ Protecting devices ■ Protecting personal data and privacy ■ Content licensing issues (eg: pay for streaming, watching) ■ Protecting against cyber bullying ■ Online and offline balance ■ Protecting health and well-being: psychological well-being, addictions, social well-being	■ Choosing secure passwords ■ Backing up data ■ Basic knowledge about virus/ malware ■ Two-factor authentication ■ Privacy settings on social media ■ Not disclosing personal information on social media ■ Disabling location access in mobile apps ■ Knowledge of how to report abuse on social networking apps ■ Ability to decide what information is credible and authentic before sharing it ■ Checking the identity of people met online	**Self reported:** ■ Knowledge of privacy and safety settings on social media applications (blocking, reporting, privacy of account, changing password)