

ASSISTIVE TECHNOLOGY, OPEN EDUCATIONAL RESOURCES (OER), AND LICENSING

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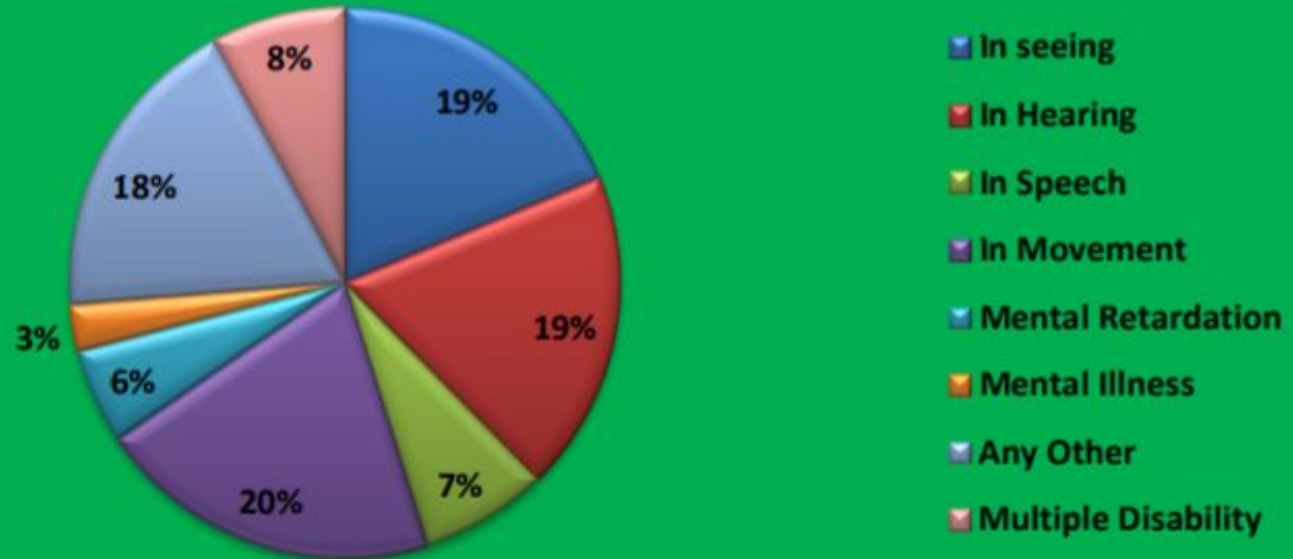
ASSISTIVE TECHNOLOGY

- “Disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others”-(CRPD-2006)
- Any Software, Device/gadget or system that can assist person with special needs.
- A major prerequisite to achieve inclusive education
- The Universal Design for Learning (UDL) has a great role to play.

STATISTICAL REALITY

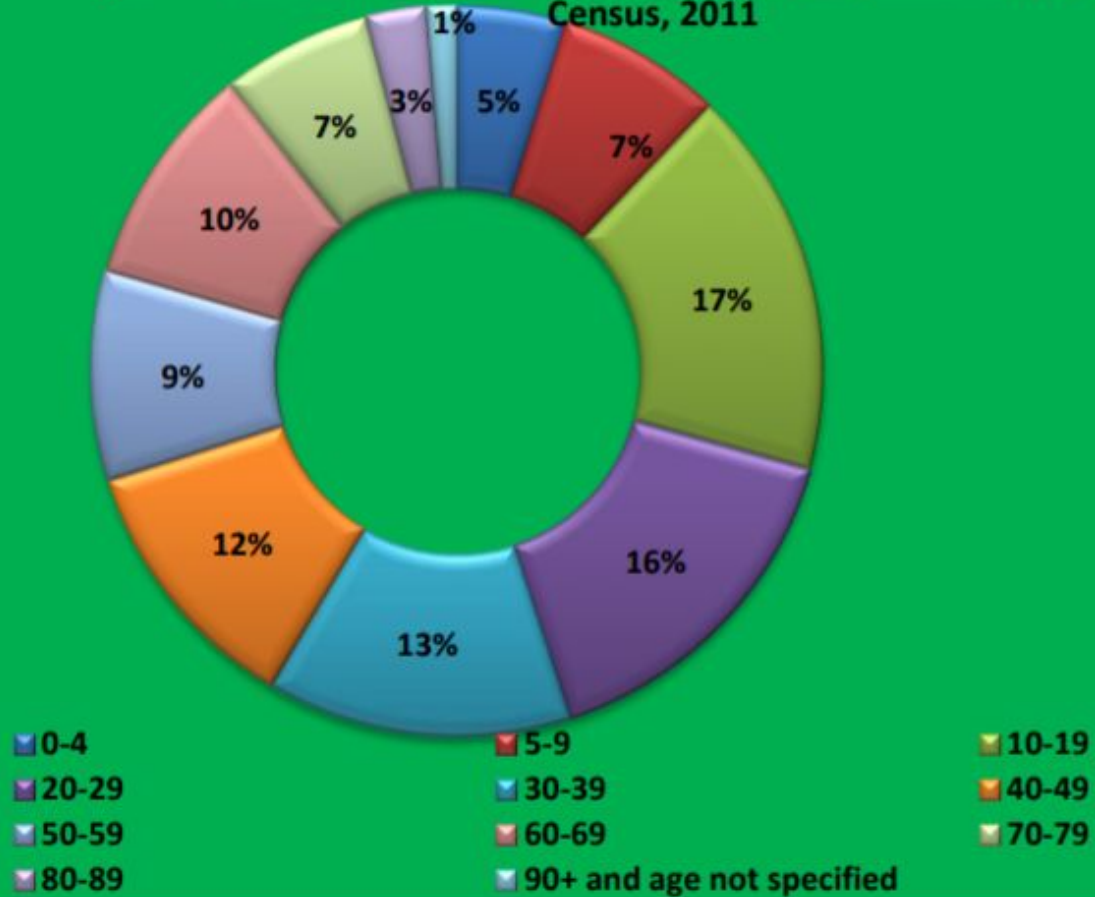
As per the Census 2011, differently abled population in India is 26.8 million (2.21%)

Fig. 3.2: Disabled population by type of Disability in India - Census, 2011



CWSN DATA (CENSUS 2011)

Fig. 3.4: Percentage dDistribution of disabled population by age in India -
Census, 2011



COMMON ASSISTIVE TECHNOLOGIES (SOFTWARE)

- Text-to-speech
- Speech-to-text (dictation)
- Word prediction
- Screen reader
- Screen recorder
- Optical Character Recognition (OCR) -converts text in image files into digital text
- braille displays
- screen magnifiers

TEXT-TO-SPEECH (TTS)

Technology that reads digital text aloud

Convert words into audio

Helpful for people who struggle with reading

Reading speed can usually be controlled - speed up or slow down

Some TTS tools can also read text aloud from images.

TYPES OF TTS TOOLS

- Built-in text-to-speech in devices (desktop and laptop computers, smartphones, digital tablets, and Chromebooks)
- Web-based tools: Some websites have TTS tools on-site
- Text-to-speech apps: users can download TTS apps on smartphones and tablets
- Text-to-speech software

ONLINE AT TOOLS TO HELP WITH READING, WRITING AND MATH

OCR - <https://www.onlineocr.net/>

TTS - <https://www.naturalreaders.com/>

Dictation - <https://speechnotes.co/>, <https://dictation.io/>

Screen Reader - JAWS, NVDA and Narrator (Windows).

Screen magnification - magnifier app on Windows

BUILT-IN ACCESSIBILITY FEATURES IN ANDROID

For reading: TalkBack, a screen reading feature, uses TTS technology to read aloud text from websites, emails and more. The tool's voice can be changed, and the reading speed can be adjusted.

For writing: Built-in dictation. By pressing the microphone button in the onscreen Google keyboard, users can type with their voices. The keyboard also has built-in **word prediction**, which suggests words.

For motor skills: Accessibility Menu (on-screen) to control your Android device. You can control gestures, hardware buttons, navigation, and more.

Take screenshots, Lock your screen, Open Google Assistant, Open Quick Settings and Notifications, Turn volume up or down, Turn brightness up or down.

ADAPTIVE KEYBOARDS



Maltron Single Hand Keyboards



Maltron L90 dual hand fully ergonomic (3D) keyboard - US English



Maltron Head/Mouth Stick Keyboard



Maltron L90 dual hand ergonomic flat (2D) keyboard - US English



Maltron Expanded Keyboard - US English

ALTERNATIVE INPUT DEVICES

- Head pointers
- Single switch entry devices
- Foot switches
- Sip-and-puff switches - <https://youtu.be/Bhj5vs9P5cw>
- Eye-tracking software
- Augmentative and Alternative Communication (AAC) tool
- Dynavox AAC device - <https://youtu.be/g95TO20hnmo>
- Braille display - refreshable. converts the digital text on the screen into braille
- Braille notetaker - <https://youtu.be/dV0KZtVmclo>

ENSURING WEB ACCESSIBILITY AS AN E-CONTENT DEVELOPER

Web is fundamentally designed to work for all people, whatever their hardware, software, language, location, or ability.

However, when web sites, applications, technologies, or tools are badly designed, they can create barriers

ENSURING WEB ACCESSIBILITY AS AN E-CONTENT DEVELOPER CONTD...

- Alternative Text for Images - for people who cannot see and use a screen reader
- Keyboard Input - those who cannot use a mouse due to limited fine motor control. Helps assistive technologies that mimic the keyboard, such as speech input.
- Transcripts for Audio - people who are deaf or hard of hearing, as well as to search engines
- Sign language interpretation of audio content
- Operable user interface and navigation