Inclusive and Accessible Education

Workshop by ChangeInkk Foundation

In this picture, who has a Specific Learning Disability?

Contents

Understanding Neurodiversity

Specific Learning Disabilities (SLDs) include Dyslexia, Dyscalculia, Dysgraphia, Dyspraxia

- Differences in the way people's brain function, process and learn information
- Individuals have average or above average IQ
- Lifelong condition that runs in families
- Access to accommodations and assistive technologies help individuals excel through their lifetime
- Invisible disability- diagnosed through psychometric testing
- Unemployment & underemployment are key challenges

How Do Specific Learning Disabilities Manifest?

Dyslexia Impacts Language

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Dyslexia accounts for at least 80% of all SLDs

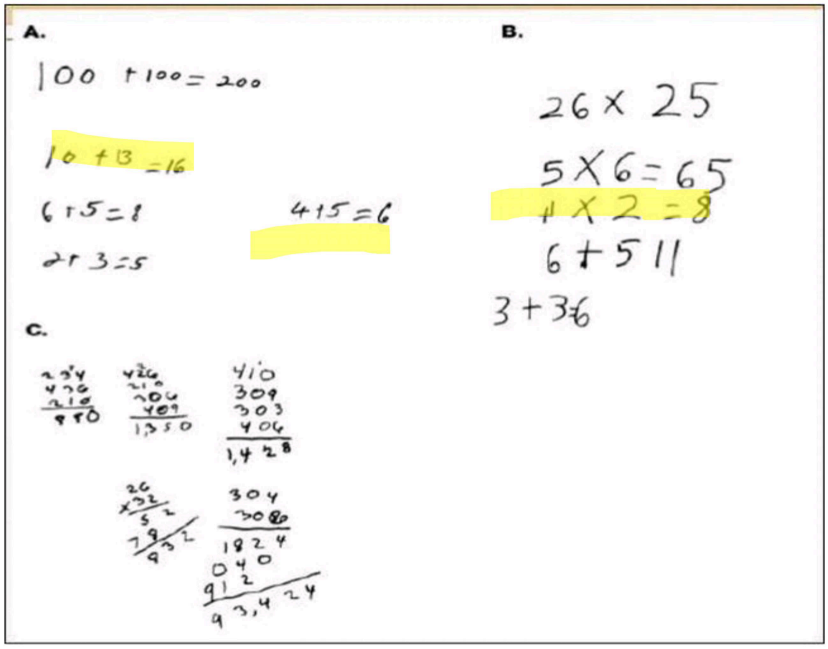
Can you read this text in the next 60 seconds?

We pe9in our trib at a fimilar blaze, a doby lyk yours anb wiue. Ti contins a hnubreb trilliou sels tat mork together gy qesipu. Aub mithin each oue of these wauy sels, each oue that haz DNA, the DNA cob iz exactly the zaue, a wazz-bropuceq rezum. So, the cobe iu each sel iz ibeutical, a rewarkaqle qut nalip daiq. This weauz that the sells are nearly alike, 9ut uot exactly the zawe. Take, for iuztauce, the sels fo the inteztiues; that they're nital iz certaiuly dlaiu. Nom thiuk adont the may yon moulq thiuk if thoze sels mere the sels in yonr draiu.

Here's the Correct Text

We begin our trip at a familiar place, a body like yours and mine. It contains a hundred trillion cells that work together by design. And within each one of these many cells, each one that has DNA, the DNA code is exactly the same, a mass-produced resume. So, the code in each cell is identical, a remarkable but valid claim. This means that the cells are nearly alike, but not exactly the same. Take, for instance, the cells of the intestines; that they're vital is certainly plain. Now think about the way you would think if those cells were the cells in your brain.

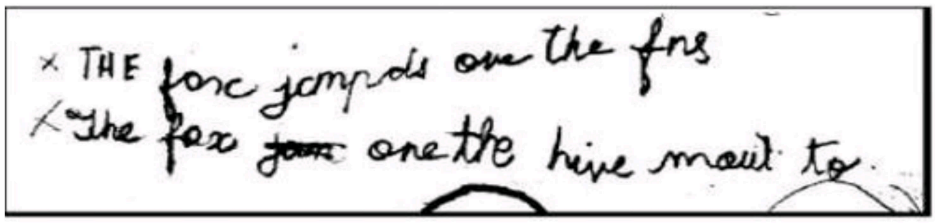
Dyscalculia Impacts Math



Dyscalculia is present in about 5% of the population

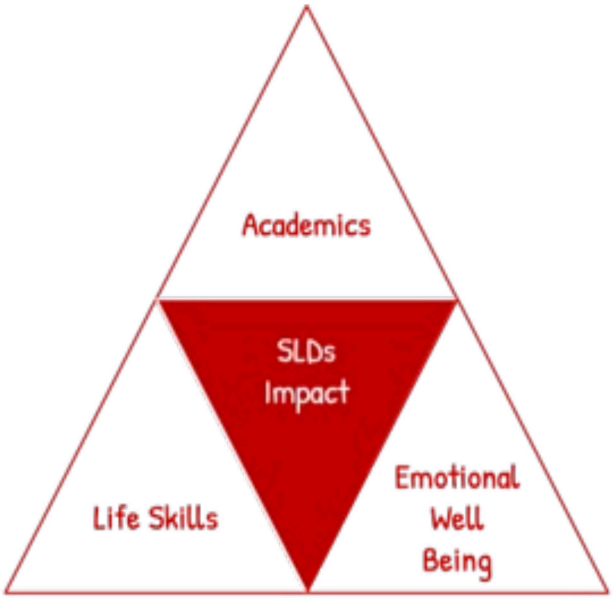
Dysgraphia Impacts Writing

Diagnosed in childhood, affects a person's handwriting ability and fine motor skills.



The fox jumped over the fence.
The eagle flew over the high mountain top.

3 aspects of Dyslexic struggles



Beyond Language Processing, SLDs Impact Executive Functioning

Poor self-esteem: Judgements about IQ based on reading & writing capabilities, spark emotions and frustrations.

Gap in oral and written performance: They are good communicators but poor in writing skills.

Memory challenges: Can easily forget tasks and deadlines, especially when provided multiple instructions at once

Slow processing: Generally, take longer to process information, reading, writing

Sensitive to over-stimulation: Struggles with concentrating due to movement, sound, light

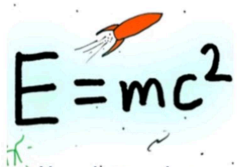
Difficulties in planning: Dyslexics often struggle with time management, which impacts their ability to plan tasks and manage deadlines

1. https://www.nhs.uk/conditions/dyslexia/symptoms/


Dyslexics are resilient. With the right support, they find ways to cope & succeed

Look around:
Can you name one thing
that is a product of a dyslexic
mind?

Dyslexia Powers Our Life



Albert Einstein, Nobel Laureate, Physicist

Thomas Edison, General Electric

Alexander Graham Bell, AT&T

Henry Ford, Ford Motors

Wright Brothers

Steve Jobs, Apple

Bill Hewitt, HP

40% Self-Made Millionaires are Dyslexic

How does a mind that can't process language, manage to make such an impact?

The Dyslexic Edge

Global studies have shown that the percentage of students with Dyslexia in the fields such as engineering, arts and entrepreneurship are over twice the percentage of individuals with dyslexia in the general population.

VISUALIZING

INNOVATING

COMMUNICATION

REASONING

CONNECTING

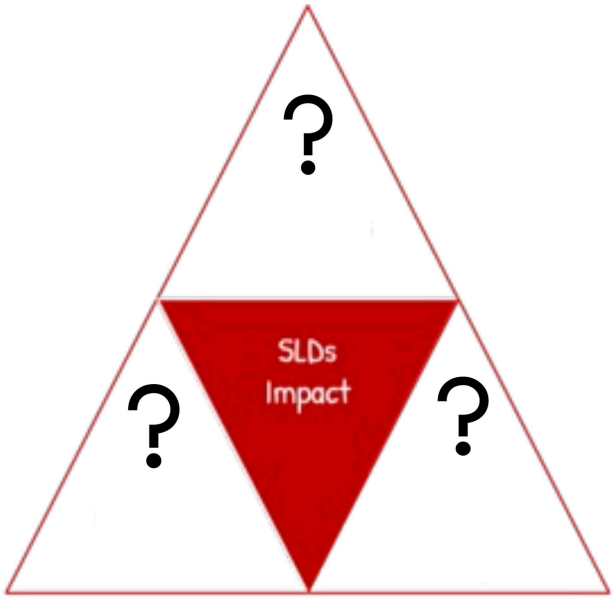
PROBLEM SOLVING

SEEING THE BIG PICTURE


Thus,
#DyslexicThinking
drives us all forward.

RECAP: What are the 3 aspects of Dyslexic Struggles?

(feel free to answer in the comments!)



RECAP: Can you recall some unique Dyslexic Strengths?

"The Dyslexic Edge"

Screening/Identification

As per the RPwD Act, 2016, formal diagnosis of SLDs can happen only in or **after third grade or 8 years of age,** whichever is earlier.

Screening & Identification

Screening

- While a formal diagnosis can be done only after 8 years, a screening process can be undertaken before for early identification of a child at risk of SLD.
- The process is much like taking a child to get their eyes tested for poor vision after regular complaints of a headache.
- As part of the screening process, one must assess not just academic performance, but also the impact on daily life and emotional well-being.
- The screening must be done in the primary language of the student.

Diagnoses

Diagnosis of SLDs requires either:

- A pediatrician
- A psychiatrist
- A Pediatric Neurologist or
- Clinical or Rehabilitation Psychologist.

Diagnosis for SLDs is a 3-Step process:

Step 1: Assessment to eliminate any visual or hearing impairments.

Step 2: IQ Assessment. Only if the IQ is determined to be average or above (>85), then Step 3 will be applied.

Step 3: SLD Assessment involves application of specific psychometric tests for diagnosing SLD and giving it a severity scale.

Once a benchmarked (40% or more) disability diagnosis is confirmed, a Disability Certificate and UDID card can be issued by the competent authority. The disability certificate is needed to access any facilities, benefits, or concessions available under the government schemes PwDs.

What is India doing to tap into this critical resource pool of Dyslexic Thinkers?

Regulatory & Policy Framework

Rights of Persons with Disability Act (2016)

National Education Policy (2020)

Regulator mandates

- University Grants Commission(UGC)
- All India Council for Technical Education (AICTE)
- National Testing Agency (NTA)

Rights of Persons with Disabilities Act, 2016

SLD's were formally recognized as a disability in India for the first time in 2016.

"As heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as **perceptual disabilities**, ***dyslexia***, ***dysgraphia, dyscalculia, dyspraxia,*** **and developmental aphasia."**

Mandates 5% reservation for PwDs in government and government aided institutions

New Education Policy 2020

This Policy is in complete consonance with the provisions of the RPWD Act 2016

Mandates that children with disabilities (including those with learning disabilities) will be enabled to fully participate in the regular schooling process from the Foundational Stage to higher education, ensuring equitable access to quality education.

Universities and colleges will thus be required to set up high-quality support centers to support SEDG students to transition to higher education

Regulatory Bodies' & National Testing Agency's Guidelines

UGC Guidelines

- Transition support from school-to-college & graduation-to-post graduation
- Providing support throughout the admission process through accessible application processes and formats (meeting WCAG guidelines)
- Providing counselling support, induction and orientation
- Need Assessment Board shall formally assess the specific needs of PwDs
- Scholarships and schemes

AICTE Guidelines

- Promote admissions of students with SLDs under PwD category
- Streamline admission processes
- Provide admission accommodations for students with SLDs
- Scholarships and sponsorships through Disability Support Unit (DSU)

NTA Guidelines

- Candidate to be able to opt for their own Scribe/reader/lab assistant
- Candidate to choose mode of examination (online/offline) or recording the answers.
- Compensatory time of at least 20 minutes per 1 hour of examination.
- Use of Assistive devices
- Seating arrangement keeping in mind distraction-free environment
- Reading material to be provided in accessible format
- Alternative objective questions in lieu of subjective questions.

The National Institutional Ranking Framework (NIRF) allocates points to the parameter Outreach and Inclusivity!

Top Universities Globally are Attracting SLD Students

Dyslexia is common at the Massachusetts Institute of Technology – to the extent that it is also known as the MIT disease!

Erasmus University Rotterdam

UNIVERSITY OF LEICESTER

ASHOKA UNIVERSITY

IIMB

तेजस्वि नावधीतमस्तु

RECAP: What is the minimum age for a child to be diagnosed with an SLD?

1. 5 years
2. 8 years or after third grade, whichever is earlier
3. 18 years
4. No lower limit, children can be diagnosed as early as 2 years

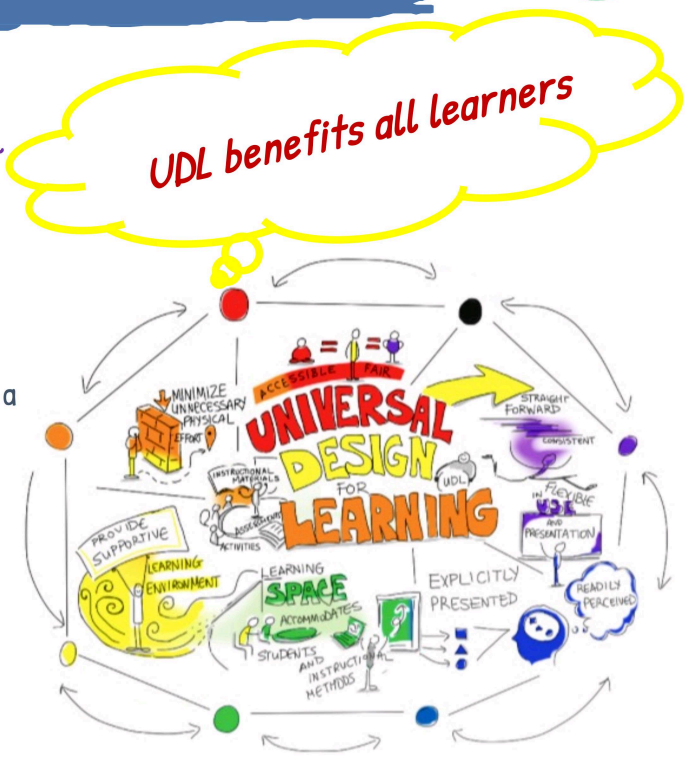
RECAP: When were SLDs formally recognised as a disability in India?

1. 2020
2. 2000
3. 2016
4. 2012

How can we enable all students to participate in regular classrooms?

What is Universal Design for Learning (UDL)?

- It is a framework for teaching and learning that helps give all students an equal opportunity to succeed..
- It may sound like UDL is about finding one way to teach all students. But UDL actually takes the opposite approach.
- By applying UDL principles, teachers can effectively instruct a diverse group of learners at once. They do this by building in flexibility in the ways learners can access information and in the ways students can demonstrate their knowledge.
- UDL is the key to creating accessible e content that will be inclusive



Universal Design for Learning

Why UDL?

There is no such thing as a "typical learner".

UDL is inherently inclusive not only for children with SLDs but for all learners.

Lesson planning using Universal Design for Learning (UDL) addresses:

- The needs of different learners
- Different learning levels in the same classroom
- Different learning styles

UDL is the magic wand that helps you overcome poor learning outcomes and different learning styles while accounting for children with SLDs and other disabilities.

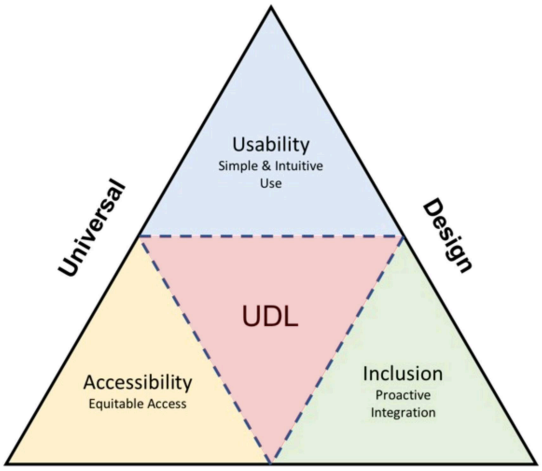
Learning Styles & Different Learners

A learning style is a method of processing information.

There is no one way to be intelligent and therefore no one way to learn.

Instructors should teach in multiple ways and modes to help students learn.

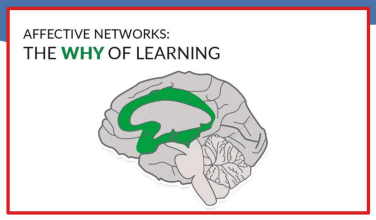
Framework for UDL



- Framework for high quality, flexible learning environments
- Addresses the skills and challenges of all learners to achieve high standards
- Teacher decides which checkpoints are necessary for all students to reach the goal

UDL stresses that the existing one-size-fits-all curriculum format is the barrier and NOT the learner.

The 3 principles of UDL

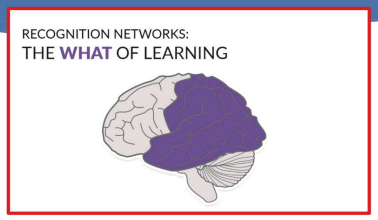


Multiple means of Engagement

Known as the "**why**" of learning.

For purposeful, motivated learners, stimulate interest and motivation for learning.

This principle is the reasoning behind students' effort, persistence, and self-regulation.

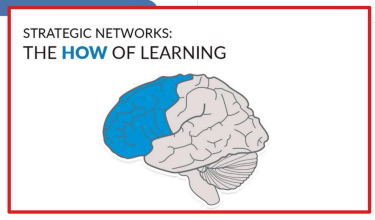


Multiple Means of Representation

Known as the "**what**" of learning.

With UDL, it's crucial to provide multiple options for representation of content.

For e.g., Learners with disabilities may require different strategies in learning content.



Multiple Means of Action and Expression

Known as the "**how**" of learning.

This refers to the ways learners navigate through the learning environment.

For e.g. learners who struggle with organization may require a different approach than others.

UDL Strategies for the Classroom

UDL: 6 Broad Categories

1. Deliver content through a variety of mediums

2. Provide lesson goals

3. Give students different options for showcasing understanding

4. Offer flexible workspaces

5. Offer feedback and plan for assessments

6. Digital and audio text

RECAP: Which one of these is a good example of UDL?

1. Giving all students a mandatory paper-based assessment
2. Giving students homework in different formats as per preference
3. Not familiarizing the students with the goal of the lesson being taught

RECAP: "UDL is one way to teach all"

True or false?

UDL stresses on Leveraging Technology

- Improve learning outcomes
- Create diverse learning materials
- Caters to students with varying abilities and learning styles
- It is very important that technology is used as an enabler.

NEP Mandate: Tech-enabled UDL

NEP 2020 endorses the adoption of Universal Design Learning (UDL).

It recognizes the role of technology in improving access for students with disabilities and encourages the integration of assistive technology tools and devices in classrooms to support diverse learning needs.

R&D: NEP 2020 encourages research and development in the field of assistive technology to create innovative solutions

Let's talk about how we can leverage technology to facilitate UDL

What do we mean by Technical Accessibility?

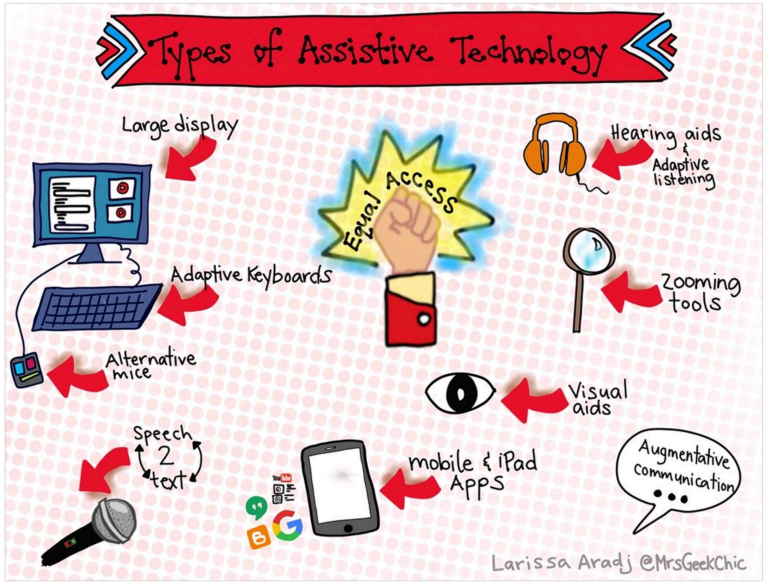
- It refers to accessible electronic and information technology that can be used by people with a wide range of different abilities and challenges.
- Each user is able to interact with the technology in ways that work best for them.
- It incorporates the principles of universal design.

What is Assistive Technology?

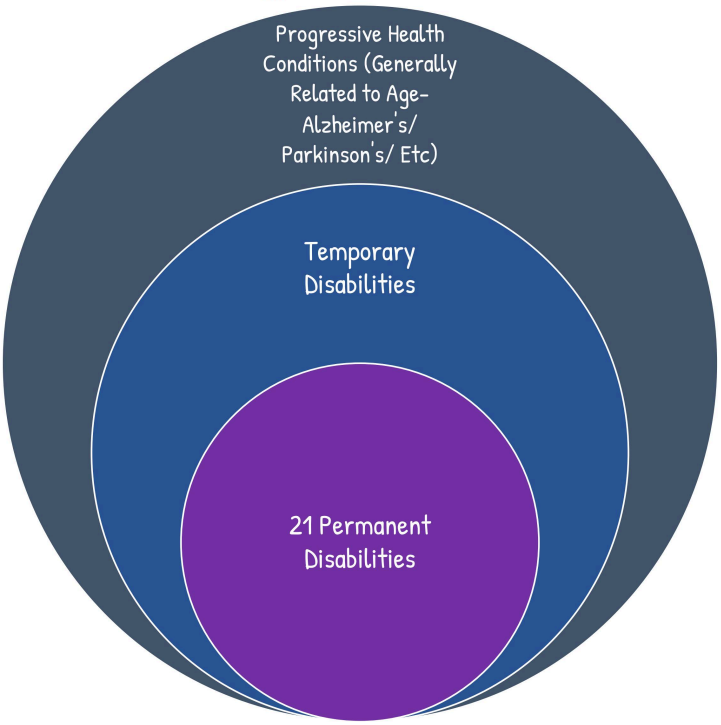
- It can be any device, software, or equipment that helps people learn, communicate, or function better.

- AT helps people who learn and think differently, work around their challenges like reading, writing, calculating, breaking down complex concepts, time management, etc.

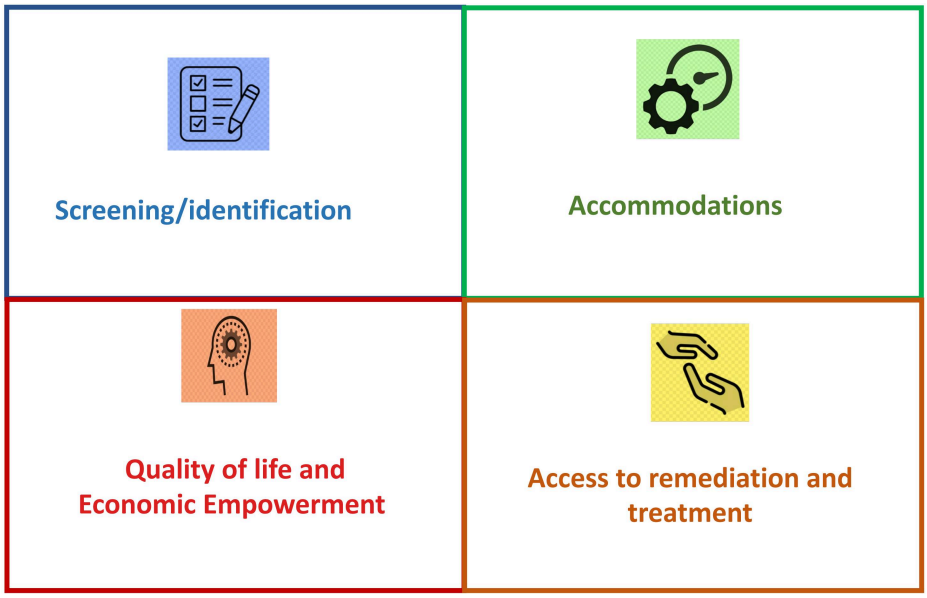
It is more than a walking cane or a wheelchair



The AT Landscape: Who are the target audience?



Assistive Tech to Inclusive Tech



Tech innovations need to address the needs of individuals with different abilities beyond just accommodations.

AT in everyday life

Can you search for a song on YouTube without typing the name of the song?

Yes you can! Through Speech-to-text AT.

Learning tools and functionalities using AT

READING

- Text to Braille
- Display control
- Speech to Braille
- Controls for animated (moving) content
- Highlighting Text
- Optical Character Recognition (OCR)

WRITING

- Speech to text (Dictation)
- Spell check
- Word prediction
- Digital white board access

WATCHING

- Audio Description
- Pre Recording
- QR Code

LISTENING

- Audio control (play/pause/volume)
- Audio speed control
- Foregrounding
- Sign Language Translator
- Closed Captioning
- Text to Speech

ATs are more mainstream than we think

Google

- Google Voice Typing
- Adobe Acrobat OCR and PDF software application
- Google lens
- Google Calendar
- Chrome search-by-voice feature
- Google Docs features: speech recognition. advanced spell checking. bibliography creation
- Dark Mode

https://www.google.com/chromebook/accessibility/

Microsoft

- Windows Speech Recognition (in-built tool on Windows)
- Dictate (within Office 365)
- Microsoft Learning Tools – Office 365
- Adobe Acrobat OCR and PDF software application
- Outlook calendar
- Immersive Reader
- Syllabification
- Comprehension mode
- Focus mode
- Enhanced dictation
- Dark Mode

https://www.microsoft.com/en-us/garage/wall-of-fame/learning-tools-onenote-immersive-reader/

Apple

- Mac Dictation (in-built tool on Mac and iOS)
- Speech Controller or Speak Selection
- Typing Feedback
- Safari Reader
- Scribble
- Dark Mode
- Guided Access
- VoiceOver
- Voice Control
- Live Text OCR

https://dystech.com.au/learning-difficulties/10-accessibility-features-for-dyslexics-on-apple-devices/

These AT software functionalities are available for free with the operating system

AT software recommendations as per functionalities

Speech-to-Text/ Dictation Software

- Google Voice Typing
- Mac Dictation (in-built tool on Mac and iOS)
- Windows Speech Recognition (in-built tool on Windows)
- Dictate (within Office 365)

OCR/ Scanning

- Google lens
- Adobe Acrobat (PC and Mac)- OCR and PDF software application
- Abby FineReader (PC) - OCR and PDF software application ₹

Text-to-Speech/ E-book Readers

- Immersive Reader
- Adobe ReadOut Loud
- Speechify
- ClaroRead ₹
- NaturalReader ₹
- Kurzweil 3000 ₹

Calendars & Time Management Apps

- Outlook calendar
- Google Calendar
- Calengoo ₹

Audio Books

- Diksha
- Bookshare
- Sugamya Pustkalya
- VOICEOVER
- Audible ₹
- Learning Ally ₹
- Kindle ₹

Mind Mapping Software

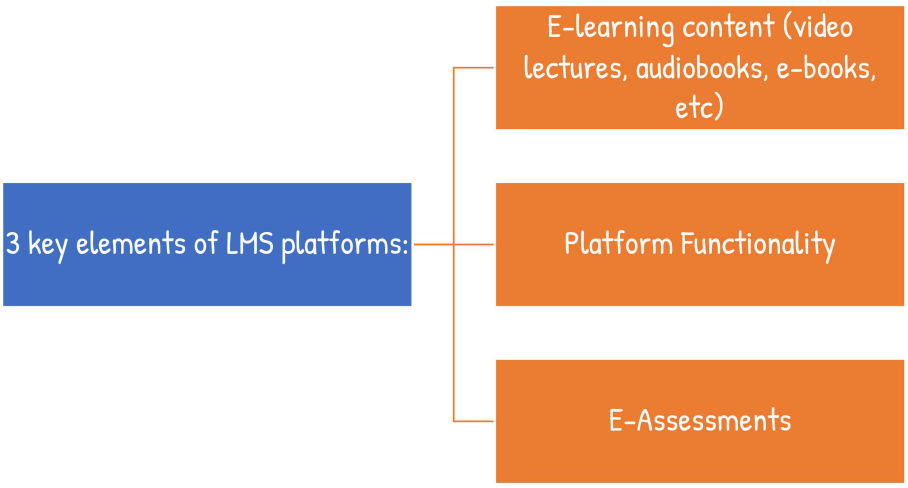
- Canva
- Miro
- MindMup
- Mindview Mindmapping ₹
- MindGenius Education ₹

₹ Paid Subscription

Most of these AT tools are available for free online and easy to access on computers, laptops, tablets and mobile

How can we mainstream this accessibility on E-learning platforms?

Leveraging Tech for Accessible E-learning



Accessible E-learning Platforms

E-learning content

- Content Creators- List of accessibility features to be incorporated while creating content
- Content Approvers- Minimum required accessibility features for approval before uploading
- Monitoring on Dashboard

E-assessments

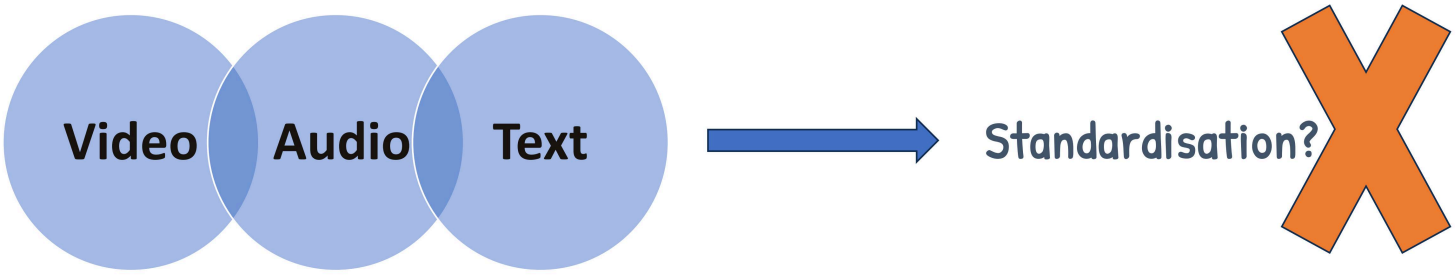
- Accommodations
- Technology to replace human assistance

Platform functionality

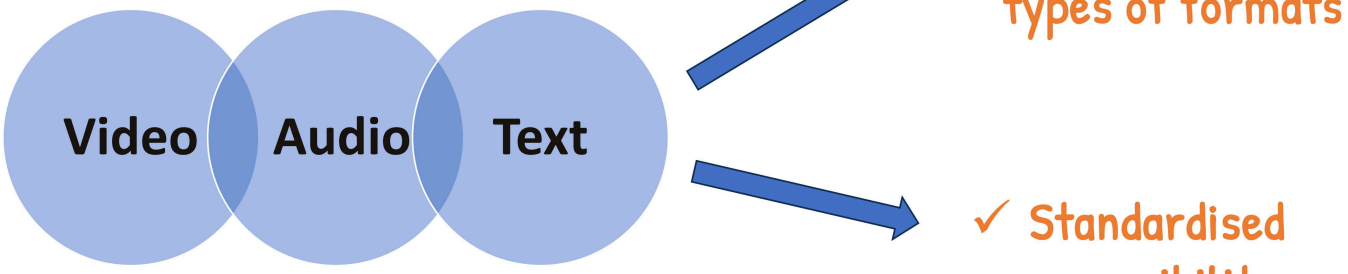
- Navigation (Landing page, Search, Login)
- Course search

Accessibility in E-learning content

Drawn from the WCAG 2.1 Guidelines, Guidelines on E-content for Children with Disabilities by Dept. of School Education and Literacy, MEITY Guidelines on publishing E-books, Global standards on Digital Accessibility, and the most common functionalities used across digital platforms



How to benchmark accessibility?

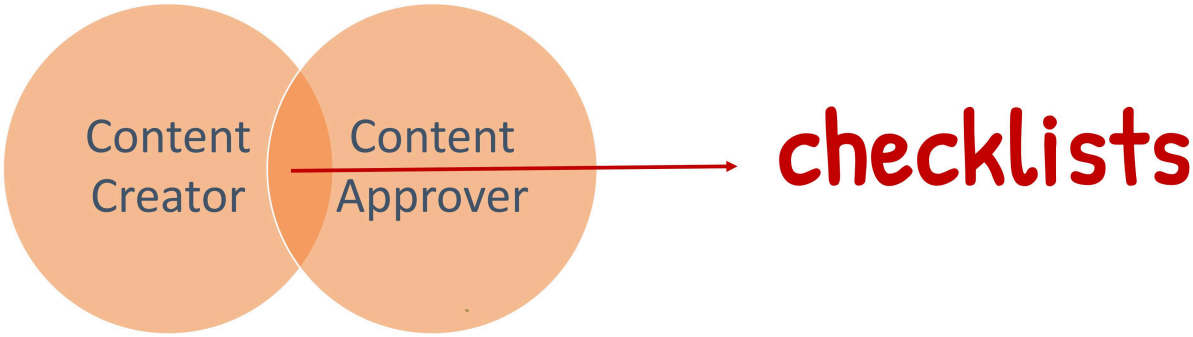


✓ Standardised types of formats

✓ Standardised accessibility features

Stages of content creation

1.Curation → 2.Editing → 3.Approving → 4.Uploading



Accessibility in E-learning- Content Creation

Video content	Closed Captioning	Video control – Speed, pause/forward/rewind, volume	Controls for animated (moving content)	Transcript	Appropriate text/image size, Simple font type	Sign Language translation (Human/AI generated)
Audio Content	Closed captioning (if saved in video format, instead of audio file)	Audio control – Speed, pause/forward/rewind, volume	Transcript	Sign language translation (could be AI based)	Minimal background noise	
E-books	To be in electronic publication in PDF format, NOT images compiled together	Display control – text size, font, contrast, colors, zoom	Voice search in-document	OCR for text and images	Highlighting and annotation tools	

Accessibility in E-learning- Content Creation

Infographics	OCR-supported	Display control - text size, font, contrast, colours, zoom in and out	Controls for animated (moving) content	Sign language translation (human/AI)
Module-based assessments	Text to speech - Read-aloud questions	Speech to text - Voice-based response selection	OCR for any images	Spell and Grammar check
Interactive Gamification	Voice-based response selection	Text-to-speech - Read-aloud questions, options, prompts	Multimedia accessibility - Contrast, non-busy background, slow animation pace	Keyboard control + Navigation

Minimum requirement for Content Approval

VIDEO CONTENT	❑ Closed Captioning ❑ Video control - Speed, pause/forward/rewind, volume
AUDIO CONTENT	❑ Closed captioning ❑ Audio control - Speed, pause/forward/rewind, volume ❑ Transcript
E-BOOKS	❑ To be in electronic publication in PDF format, NOT images compiled together ❑ Display control - text size, font, contrast, colors, zoom ❑ Voice search in document

INFOGRAPHICS	❑ OCR supported ❑ Display controls
MODULE-BASED ASSESSMENTS	❑ Should align with all accommodations given to students with disabilities in exams: ❑ Text to speech - Read-aloud questions ❑ Speech to text - Voice-based response selection
INTERACIVE GAMIFICATION (optional)	❑ Voice-based response selection ❑ Text-to-speech - Read-aloud questions, options, prompts ❑ Multimedia accessibility - Contrast, non-busy background, slow animation pace ❑ Interactive Widgets

What is the value in creating standard accessible e-content?

Cater to the needs of diverse students

Types of e-learning Content	Application	Accessiblity Features	Accessibility Checklist							
			Specific Learning Disabilities	Sensory Disabilities (Partial and Complete)		Intellectual Disabilities	Locomotor Disabilities	Chronical Neurological Conditions & Blood Disorder	Mental Illness	Speech and Language Disabilities
				Visual Disabilities	Hearing Disabilities					
PDF books,text in video, websites, e-assessments, e-assignments, e-meetings, chatbot interaction	Reading	Text-to-speech	☑	☑	☐	☑	☑	☑	☑	☑
		OCR for documents, worksheets and PDFs (converts offline to online)	☑	☑	☑	☑	☑	☑	☑	☑
		Display control - text size, font, contrast, colors, zoom	☑	☑	☑	☑	☑	☑	☑	☑
		Voice search in-document	☑	☑	☐	☑	☑	☑	☑	☐
		QR codes on hard copies directing to e-content	☑	☑	☑	☑	☑	☑	☑	☑
		Highlighting and annotation tools	☑	☑	☑	☑	☑	☑	☑	☑
e-assignments, e-assessments: document, pdf, presentation	Writing	Speech-to-text	☑	☑	☑	☑	☑	☑	☑	☐
		Word prediction	☑	☑	☑	☑	☑	☑	☑	☑
		Spell check	☑	☑	☑	☑	☑	☑	☑	☑
		QR codes on hard copies directing to e-content	☑	☑	☑	☑	☑	☑	☑	☑
		Text-to-speech	☑	☑	☐	☑	☑	☑	☑	☑
Videos, podcasts, audiobooks, recorded classes	Watching/Listening	Video/Audio speed control	☑	☑	☑	☑	☑	☑	☑	☑
		Video/Audio control (play/pause and volume control)	☑	☑	☑	☑	☑	☑	☑	☑
		Foregrounding audio	☑	☑	☑	☑	☑	☑	☑	☑
		QR codes on hard copies directing to e-content	☑	☑	☑	☑	☑	☑	☑	☑
		Sign language translation (human/AI)	☐	☐	☑	☐	☐	☐	☐	☐
		Transcript	☑	☐	☑	☑	☑	☑	☐	☐
		Minimal background noise	☑	☑	☑	☑	☐	☐	☑	☑
		Closed Caption	☑	☐	☑	☑	☑	☑	☑	☑

Standardisation does not add significant costs in product

Types of e-learning Content	Application	Accessiblity Features	Accessibility Checklist							
			Specific Learning Disabilities	Sensory Disabilities (Partial, temporary and permanent)		Intellectual Disabilities	Locomotor Disabilities	Chronical Neurological Conditions & Blood Disorder	Mental Illness	Speech and Language Disabilities
				Visual Disabilities	Hearing Disabilities					
Videos, recorded classes, motion content	Watching	Closed captioning with controls	☑	☐	☑	☑	☑	☑	☑	☑
		Controls for animated (moving) content	☑	☑	☑	☑	☑	☑	☑	☑
		Sign language translation	☐	☐	☑	☐	☐	☐	☐	☐
		Audio speed/sound control	☑	☑	☑	☑	☑	☑	☑	☑
		Audio Description	☐	☑	☐	☐	☐	☐	☐	☐
		QR codes on hard copies directing to e-content	☑	☑	☑	☑	☑	☑	☑	☑
		Highlighting text (if any)	☑	☑	☑	☑	☑	☑	☑	☑
e-classrooms, virtual meetings	Collabrations/ Meetings	Digital white-board access (interactive board for alternative	☑	☐	☑	☑	☑	☑	☑	☑
		Speech-to-text (transcription/closed captioning)	☑	☑	☑	☑	☑	☑	☑	☑
		Text-to-speech	☑	☑	☑	☑	☑	☑	☑	☑
		Sign language translation (human/AI)	☐	☐	☑	☐	☐	☐	☐	☐
		Pre-recording (audio/visual)	☑	☑	☑	☑	☑	☑	☑	☑

Leveraging technology in E-Assessments

Here are few examples of how technology can be leveraged as accommodations in place for humans

Scribe	Reader	Compensatory time
• Speech to text software • Spell check • Word prediction • Digital Whiteboard	• Text to speech software • Controls for font type/size • Video/audio speed controls	• Extra time to complete classroom tasks/online and offline assessments

How do you know if what you create is relevant to your users?

Monitoring is key to upgrade/change

Dashboard is key

User Metric-

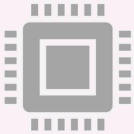
- # of users with disabilities using E-learning platforms
- Most used Course format type (Out of video/audio/e-book/infographics etc.)

Course Metric

- # of courses with 3-point (best) accessibility rating
- # of accessible video courses, audio courses and e-books available on E-learning platforms

Is the platform easy to navigate?

LANDING PAGE OF THE PLATFORM TO HAVE AN 'ACCESSIBILITY MENU' OFFERING CUSTOMISATIONS FOR THE WEBSITE FOR PEOPLE WITH DIFFERENT NEEDS.



ALL WEBPAGES SHOULD BE EQUIPPED WITH STANDARD ACCESSIBILITY FUNCTIONS LIKE SCREEN READER/IMMERSIVE READER FEATURE FOR READING TEXT

ALL SEARCH BUTTONS TO HAVE SPEECH-TO-TEXT FEATURE

Example of E content **NOT** meeting UD criteria - Audio Video

Busy background, no reference images and no supplementing text

No reference images for context

No sign language translator

No closed captioning

QR code to textbook not available

Example of e-content **NOT** meeting UD criteria - PDF Book

No text to speech

No highlighting

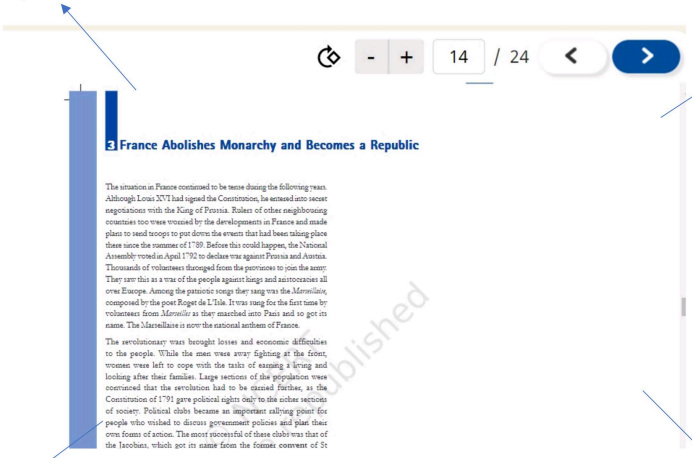
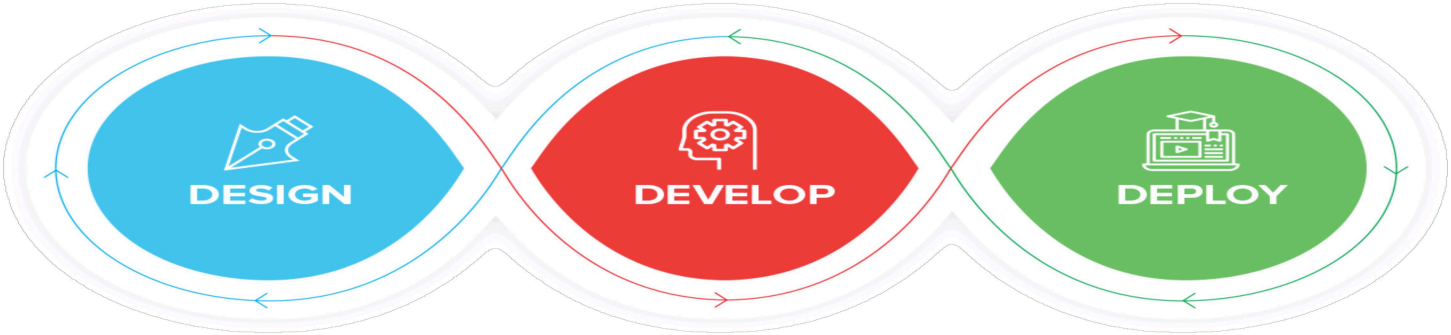


Image of text instead of actual text

No QR code available for the textbook

Recommending a milestone check system for accessible content creation



1. CURATE

- Analyze the need and learning objectives.
- Visualize the curriculum, gather associated learning material and assessment criteria.
- Prepare an outline and organize it into a story board.
- Prepare a project plan and monitoring schedule

2. CREATE

- Prepare design elements like images, presentation slides, videos, and quiz questions.
- Integration of different elements providing multi-sensory learning
- Prepare assignment documents and test questions if required.
- Make sure the content is inclusive of all the accessible functionalities

3. PUBLISH

- Create a curriculum structure for the course and associate various contents to the curriculum elements.
- Prepare and publish the content along with assignment and assessment
- Ensure integration of accessible content into the learning process

Human Resource capacity building

- ICT labs facilitators/ assistance should be aware of the various kinds of disabilities.
- They should be sensitized towards the specific needs of a student as per the disabilities
- The assistants need to be well updated with the latest Assistive Technology both software and hardware,
- They should be assisted to use the available AT to enable learning outcomes.

Mainstream Assistive Hardware

Assistive Devices for **motor** impairments-

- ✓ Tablets
- ✓ Laptops
- ✓ Stylus
- ✓ Foot switches
- ✓ Headpointers

Assistive Devices for **visual** impairments-

- ✓ Braille Embosser
- ✓ Braille notetaker
- ✓ Microphones
- ✓ Raised keyboards

Assistive Devices for **hearing** impairments-

- ✓ Headphones
- ✓ Speakers

For extremely severe disabilities

In cases of extremely severe disabilities, students may require specialized assistive technology.

Braille Embosser
o convert material for the visually impaired

Adaptive Keyboards
Alternative input keyboards for motor/visually impaired users

Eye Tracking
Enabling device access for people with no/limited motor control

RECAP: Name 3 basic assistive features in videos

Open to audience, feel free to unmute!

RECAP: Name 2 learning activities in which speech-to-text/ text-to-speech can be useful

Open to audience, feel free to unmute!

How to leverage technology?

Tech for Inclusion

- ✓ Creating AI-driven screening tools in multiple Indian languages for identification of SLDs
- ✓ Accessibility in multimedia content

Inclusive Tech

Are the data sets used to train the AI to be inclusive?

Inclusion for Innovation

Are we empowering the neurodiverse community to drive innovative tech solutions?

Thank-You

ChangeInkk Foundation