Accessible Content Creation Basics

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Introduction

Technological advancements eliminated many of the barriers to communication and contact that many people confront in the real world. However, poorly designed digital content, web sites, applications, technology, or tools might create barriers that prevent people from using digital assets.

We usually address **diverse** group of learners / users. Accessibility refers to whether or not a product or service may be used by anyone, regardless of how they come across it. As an educator / teacher / content developer we design the content that must be
accessible to all. Meaning providing equal access and equal opportunity to everyone. Everyone here means people with diverse abilities.

The UN Convention on the Rights of Persons with Disabilities recognises access to information and communications technologies, including the Web, as a basic human right. While designing content for e learning, not only the content, the platform that is used to deliver the material should be accessible and support accessibility. Should be reachable to diverse group of learners. For example learners with vision impairment, hearing or cognitive impairment might be accessing the content.
They should be able to access the content as regular learners.

Why do we consider designing accessible e-content?

According to WHO (World health Organization) 15% of world population are living with some disability. According to its report on blindness and vision impairment (as on Feb 2021) Globally, at least 2.2 billion people have a near or distance vision impairment.

As on 2 nd mar 2021 WHO report says: “Over 5% of the world’s population – or 430 million people – require rehabilitation to address their ‘disabling’ hearing loss. It is estimated that by 2050 over 700 million people – or one in every ten people – will have

disabling hearing loss." These numbers alerts us to focus on accessible content design practices.

Accessibility definition

The quality of being easy to approach, reach, enter, speak with, use, or adapted for use by people with disabilities – from dictionary.com

In simple words accessibility is

• *The ability to get something easily*

• *The quality or characteristic of something that makes it possible to approach, enter, or use it*

• *Ensuring content/device/environment etc. is available to *everybody*

" The power of the Web is in its universality.

Access by everyone regardless of disability is an essential aspect. **"** – Tim Berners-Lee, W3C Director and inventor of the World Wide Web

ACCESSIBLE CONTENT CREATION

Significance of accessibility

There are many reasons why people may be experiencing functional limitations such as auditory, cognitive, physical, speech, and visual at varying degrees of levels. These limitations could be sometimes temporary or situational. People have diverse abilities. Their talents, preferences, and expectations can play a significant role in how they access and use digital content / tools /technologies.

Sometimess users with age related problems may have similar requirements as users with some functional imapairement. Situation may demand certain accessible features. A good example for this can be a person accessing the web or digital content in the computer with a fractured hand or an injured palm. Where some assistive technologies like screen reader may play a significant role.

We have to ensure that the content we produce is available to *every one, including addresssing people with disabilitiess or with special needs. The content should be flexible enough to meet diverse learners requirements and preferences.

"*Disablity is a physical, mental, cognitive, or developmental condition that impairs, interferes with, or limits a person's ability to engage in certain tasks or actions or participate in typical daily activities and interactions*" – **Merriam-webster online dictionary.**

Disabilities can be Visual, Auditory, Motor Skills, or Cognitive.

Suggested Readings:-

Read more about Diverse Abilities and Barriers

People use various Assistive technology devices, software like screen magnifiers, alternative keyboards, special needs mouse, mouse sticks etc. to access the digital content.

While designing content, to organize and to beautify appearance of the text and images usually various colours, sections, headings are used. But, all users may not see the way you designed. Your users needs might be different and may use a variety of technologies and strategies in a variety of ways based on their needs. Some may have

multiple disabilities so they might need a combination of assistive technologies to access the content.

Screen Readers:- Might be used to read the content or Braille display options are used by some people with vision problems. A screen reader reads out everything appears on screen. This tool is not only used by blind people but could also be used by people with cognitive or learning disabilities.

Screen Magnifiers:- These are used to change the appearance of the content. Screen magnifiers help people to magnify the content of the screen. This will help people with low vision to enlarge the content to read it. Some others might need to change the appearance and other aspects of text display like font size, space between lines etc.

Did you ever observe this?

While browsing most browsers allow a user to change the appearance of the content like text size, page zoom (which zooms everything on the page, such as text, images, buttons) through settings. Only text zoom functionality is also available in some browsers. Which will zoom only text of the web page.

If the content is not designed properly to support the screen magnification, then it will become unusable when the text size is changed or if some zoom functionality is used. We must make sure that when the content appearance is changed, the information is not lost.

Sometimes text overlap happens or the space between lines disappear, lines of text become too long, and when text size is

increased parts of the content is not visible and learners must scroll horizontally to read the content. It is very difficult to read the content / text that requires horizontal scrolling. Sometimes it is impossible to read. One must make sure that pages/ content designed will not cause these kinds of difficulties.

We can address diverse learners needs by choosing content-creation tools, delivery platforms which are accessible friendly. While designing and after designing, test the content for latest Web Content Accessibility Guidelines. The Web Content Accessibility Guidelines or WCAG offers internationally recognised specifications and guidelines to prepare more accessible content.

Discussion Point

Regardless of ability many of us might be using various assistive technologies either knowingly or unknowingly. For example, voice recognition in the mobile phones.
sometimes we use only keyboard to access the content on the screen and using tab key we navigate. We use subtitles while watching a movie when we are in a crowded place or we may need some help in understanding the language spoken.

Can you think of any other example of such kind?

Understanding Web Accessibility Principles

Web Content Accessibility Guidelines – WCAG offers Internationally recognised guidelines and specifications to prepare more accessible web content.

There are four core principals that WCAG suggests, they are called POUR as acronym.

1. **Perceivable**
    - Users must be able to see, hear, digital content in order to process it. If one sense, such as sight, is lost, information presented must be obtained by another sense, such as hearing.
2. **Operable**
    - In General digital content / e-Content must be accessed / available using a keyboard and mouse or touch, but it may also be accessed using voice or other alternative input options. Or may be with either of the input methods seemlessly.
3. **Understandable**
    - Content should be presented in a predictable, and legible manner that means in a cinsistant manner that lowers the risk mistakes and is understandable to a wide variety of users.
4. **Robust**

    - Content should be compatible with wide range of technologies and have to make sure will continue to function in the future as technologies evolve

Each principle contains these elements:-

- Guidelines for general use
- Criteria for Success
- Techniques that are sufficient and consultative

Suggested Readings:-

- WCAG at a glance
- Visual map of WCAG 2.0 by Stamford Interactive

Accessibility is for all. For example, the text description added to an image to make it accessible to visually challenged users who uses assistive technology like screen reader, is useful to make it searchable easily by search engines. Or it works seamlessly with a text-based browser, similarly as a typical visual browser.

Can you think of any other example of such kind?

Test Yourself

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://pressbooks.justwrite.in/accessiblecontent/?p=34#h5p-1

Accessibility Checker in Microsoft applications

An Out look message, a MS Word document, an Excel spreadsheet, or a PowerPoint presentation can use Accessibility Checker to make sure your content is accessible.

What is accessibility checker? Accessibility checker is a free tool available in Word, Excel, Outlook, OneNote, and PowerPoint on Windows, Office for the web, or Mac, and Visio on Windows. It helps you find most accessibility issues and explains why each might be a potential problem for someone using with assistive technologies like screen reader. It also offers suggestions on how to fix each issue.

Although the tool catches various types of accessibility issues in the document, there might be some issues It is not capable of detecting. For example it can detect missing alternative text and suggest text, but it cannot be accurate. That's why it's important to review your work visually to find the issues hiding from the Accessibility Checker.

Using accessibility checker

The Accessibility Checker checks your file against a set of criteria to find any potential problems for making the it accessible. Then the Accessibility Checker classifies each problem as an error, warning, or tip. Then information on Why to fix is also provided to make you understand the accessibility issue.

- Problem in the document that makes it difficult or impossible to read and understand for people with disabilities is classified as **an Error**
- A problem in the document in most (but not all) cases makes the document difficult to understand for people with disabilities is classified as a **Warning**
- A suggestion that will help to improve the user's experience and make the document readable and accessible is classified as a **Tip**

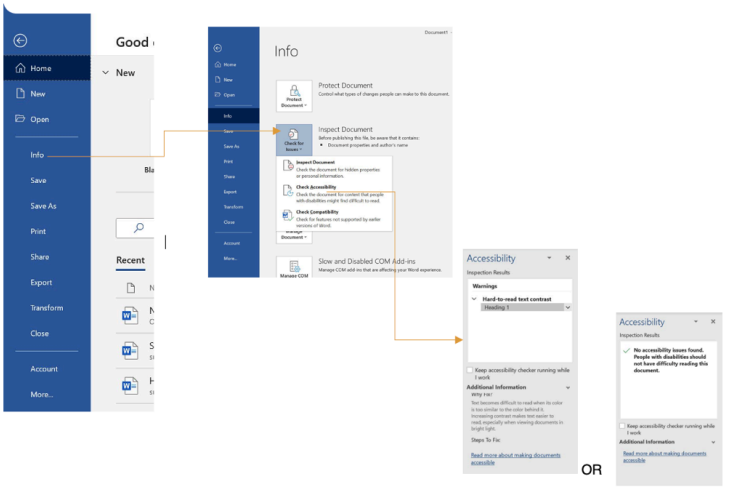
You can see the list of errors, warnings, and tips with how-to-fix recommendations for each in the **Accessibility** pane.
Observe the screenshots given below.

If you are using Windows machine,

1. Click on File in MS Word / MS PowerPoint application
2. Click on Info
3. Click on small downward arrow Check for any issues and select check Accessibility
4. A window opens with issues (errors, warnings and tips) and fix options if there are any issues or the text in window says no accessibility issues found.

5. Or You can access the Accessibility checker from Review Menu
   Or you can access Accessibility checker from the search option above menu bar of MS Word / MS PowerPoint application too

Accessibility checker from Review Menu



6. If you are using MAC system you can access the Accessibility checker from Tools menu

   Accessibility checker from Tools Menu in MAC

Accessibility Checker with Errors

Accessible Documents_Good and Bad Practice

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https://pressbooks.justwrite.in/accessiblecontent/?p=40#h5p-2

Did you try?

1. Did you ever try accessibility checker with your documents? (prior to this course) or used it for the first time? What is your experience?
2. Also what is your checklist as a guideline for creating accessible Word documents?

Useful links

- Best practices for making Word documents

accessible

- A set of posters on how to design for accessibility

Creating accessible audio content

Here are some simple steps to consider your audio content to be accessible. Please refer the links in Additional Resources page of this book for detailed information.

- Always make a transcript available for audio content
- Record audio using a microphone and in a calm and quiet ambience (a place with minimal background noise) Also take care to have a a good modulation and moderate, consistent pace with required pauses that make the audio more meaningful and understandable
- When you mix your audio tracks, make sure the main audio track is in higher level of decibels than background track
- Allow volume adjustment, playback speed variation, and pausing for embedded audio
- Always make your audio content short in duration or if it is a long file, chunk it into short chapters or sections
- When you offer a download link for the audio file, make sure it is in a universally acceptable format that is MP3 or MP4

Creating accessible video content

Videos are great content type and most popular ones among many used in teaching learning environments. It is important to make sure that videos are accessible.**How to make videos accessible?** By providing captions and downloadable transcripts / audio descriptions to the video file. Captions are text versions of the audio of the video content in sync with it.There are two types of captions.

- **Open captions** are part of the video and cannot be turned off
- **Closed captions** are not part of the video and can be turned off and on

Usually when you upload a video to YouTube, it can automatically generate captions but they need to be manually checked to fix errors.

- You have to provide a transcript file for the video you use along with captions for the video you created
- Do you know that YouTube uses speech recognition technology to match the transcript file to the video

Also you have to make sure that you use accessible media player to deliver your video content

Useful Links

1. Caption and description editing tool (Link Open in new window)
2. Captions and why they are useful (Link Open in new window) – This and below Videos are created by Jessica Kellgren-Fozard
3. How To Caption Your Videos On YouTube (Link Open in new window)
4. Don't Do This! – How to do captions right! (Link Open in new window)
5. The Secret Language of Captions DECODED (Link Open in new window)

Video Accessibility Key Terms to know

Audio descriptions are added to a video by a voice-over narrator in order to describe important visual details that cannot be understood from the main soundtrack alone. The goal with audio description is to make the visual information in media accessible to people who are blind, but others may benefit from the explicit explanations as well.

CART (Communications Access Real-Time Translation) is usually provided for live events, such as conference presentations, classroom lectures, or webinars. Typically a stenographer types the captions in real time and the text appears on a separate screen near the speaker.

Closed captions are a text alternative for the audio portion of a video program. They are usually shown at the bottom of the screen (in the lower third) as light text on a dark background, but most video players now allow them to be customized. Closed captions are added to the video as a separate track that can be shown or hidden as needed for maximum flexibility. Closed captions include not just the dialogue, but also speaker identification and a textual representation of any sound effects and other audio that is important for understanding the video content (a police siren, an alarm clock going off, etc.).

Open captions are similar to closed captions in function, but they are always in view and cannot be turned off. The person editing the video chooses how the captions are displayed, and they are "burned" into the video file. As a result, the viewer does not have the option of adjusting the text size and other properties.

Subtitles are intended for translating the content of a video from a foreign language.

Subtitles for the deaf and hard of hearing (SDH) combine the

information of both captions and subtitles. Like captions, SDH can include non-dialogue audio and speaker identification, but like subtitles they can also be translated into other languages. SDH also support digital connections used in newer DVD and Blu-ray players, such as HDMI, while captions do not.

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WCAG guidelines for audio and video media

Watch a video on **Web Accessibility Perspectives: Video Captions** from W3C Web Accessibility Initiative (WAI)

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Accessible videos are a classic example of the universal design philosophy, which states that "what is essential for some, is almost always helpful for all. " For example, videos with captions can help everyone when:

- People are in noisy public environments such as airports, gyms, and restaurants.
- A person wants to watch a video while another person is sleeping or studying quietly.
- A speaker in the video has a strong or difficult to understand accent.
- A video includes specialised or unfamiliar vocabulary (legal, medical or scientific terms).
- A sound system is not working, or the sound quality is poor.

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Read the **standards** for audio and video media in Web Content Accessibility Guidelines (WCAG) (opens in new window)

Did you ever try to create ***subtitles and captions in Youtube?***

Visit help documentation and captions and learn to create subtitles and captions to YouTube videos

Resources for Captions and Transcripts creation

Read more about captions and subtitles. (Link Opens in new window)

Below is a select list of several user-friendly resources to caption and subtitle videos.

Key: CC: closed captions, **OC:** open captions, **S:** subtitles, **F:** free, **$:** paid, **D:** download, **W:** web

Amara (**CC** , **S** , **F** , **W**)

Amara is a free, web-based program for creating subtitles. The site promotes and permits collaborative work. Subtitles created at the Amara web site can be linked to videos uploaded to other web sites (such as YouTube). Subtitles can be created and viewed in approximately 60 languages.

Camtasia (**CC** , **OC** , **S** , **F** , **$** , **D**)

Camtasia is a commercial screen capture program (Camtasia Studio for Windows and Camtasia for Mac for Macs) that creates video as a hybrid between a slide show (such as may be created with PowerPoint) and traditional video, where computer screen content, audio, overlaid visuals, and other computer "desktop activity" can be recorded and viewed as a video.

CaptionTube (**CC** , **S** , **F** , **W**)

CaptionTube is a free, web-based tool specifically for adding captions to YouTube videos. Users must have a YouTube account and a CaptionTube account. Videos uploaded to YouTube are imported to CaptionTube and captioned there in one or more languages. Captions are visible to viewers of these YouTube videos after permission to connect the two has been granted by the account holder.

M4V Captions for Mobile Devices (**CC** , **OC** , **S** , **F** , **D**)

WGBH's National Center for Accessible Media (NCAM) offers a short

series of online tutorials for captioning M4V format videos, primarily for use with Apple devices including iPods, iPads, and iPhones.

MAGpie (**CC** , **OC** , **S** , **F** , **D**)

Created by WGBH's National Center for Accessible Media (NCAM), MAGpie is a free tool for creating captions and audio descriptions for video.

MovieCaptioner (**CC** , **OC** , **S** , **$** , **D**)

MovieCaptioner is a commercial program for Windows and Macs for creating video captions. It can import and export text files as well as SCC, STL, XML, SRT, QT Text, Adobe Encore, and SUB formats caption files; export of other file formats are also available (for example, HTML , JW Player, Flash).

QuickTime (**CC** , **OC** , **S** , **F** , **$** , **D**)

QuickTime is a media player developed by Apple, Inc. for recording and watching videos on Windows and Macs. There are two major versions: QuickTime 7 Pro and QuickTime X (QuickTime 10). At present, QuickTime 7 Pro is more widely used for creating captions and subtitles.

Windows Media Player (**CC** , **OC** , **S** , **F** , **D**)

Windows Media Player is a media player developed by Microsoft that displays videos with captions and subtitles. Captions and subtitles that are supported by this player can be created using Synchronized Accessible Media Interchange (SAMI) files , Windows Media Encoder , or Microsoft Expression Encoder , which are all free to download from Microsoft's web site.

YouTube (**CC** , **OC** , **S** , **F** , **W**)

YouTube is a free, video sharing web site that streams videos with automatic and user-generated captions and/or subtitles. Upload a pre-existing transcript with or without timecodes or caption/subtitle videos within the tool. YouTube's voice-recognition technology helps sync transcripts without timecodes, but it is recommended to edit them further for timing and visual presentation after the initial sync. Note that YouTube's

automatically generated captions and translations currently remain in development and are not yet of high quality.

ASSISTIVE TECHNOLOGIES - BASICS

List of assistive technologies generally we come across are

- Alternative Keyboard
- Alternative Mouse
- Head Wand
- Mouth Stick
- Refreshable Braille Display
- Screen Magnifier
- Screen Reader
- Voice Recognition software

Example tools:-

1. NVDA (opens in new window)– free and open source screen reader for the Microsoft Windows operating system.
2. JAWS(opens in new window) – A popular screen reading software. Uses internal speech synthesizer and computer's sound card to read info from computer screen aloud.
3. You can also use ChromeVox (opens in new window) extension a screen reader for chrome browser
4. Virtual magnifying glass (opens in new window)

Watch an interesting video below on Assistive or Accessible technology by David banes. This video is licensed under Creative Commons Attribution license (reuse allowed)

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Previous activity

Web Accessibility Standards, Checks

There are a wide variety of web accessibility checking tools available online. These tools range from web browser plugins and online services, to software applications. Here is a small list:

1. AChecker (Opens in new window)
2. WAVE (Opens in new window)
3. Pa11y (Opens in new window)
4. Axe (Opens in new window)
5. Tingtun Checker (Opens in new window)
6. Accessibility Check (Opens in new window)

Go through a multi-page resource (opens in a new window) that shows an inaccessible website and a retrofitted version of this same website.

Additional reference (opens in new window)

SOME THOUGHTS AND EXPERIENCES FROM PARENTS OF SPECIAL CHILDREN AND SPECIAL EDUCATORS

Ms Reshma Bhown – Assistant Professor Special Education

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Transcript:

Hi Every one, I am Reshma Bhown working as a special educator.

I feel the understanding of accessibility is somehow limited to the physical infrastructure.

If you have a lift if you have a ramp it's all what takes for people to call its accessible.

Coming to digital accessibility which means access to technology products resources and services across hardware and software is yet to be popular.

A prominent challenge comprises constraints in limitations imposed by technology itself or this can also be considered as human inability to catch technology. I feel that major challenge around digital accessibility concerns is its inability to cover diverse types of disabilities.

People with temporary and physical disabilities have been the focus of accessibility solutions.

Where as cognitive disabilities have proven difficult to access having said that digital accessibility is important in all aspects of life, especially in valued education allowing everyone access to the same online content virtual experiences and digital services.

It is the only way like literally the only way we can move forward in the moment thank you

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Ms. Vasudha Dikshit – Parent of a special child

https://www.youtube.com/shorts/wPZ7Q_Krkt8

Transcript:

Hello my name is Vasudha dixit. I am a mother of 14 year old child with special needs. I feel yes our community should be

I feel yes our community should be aware of accessibility concepts.

As it's an important step towards building awareness about children or people with some special needs.

Our schools and colleges do not have adequate or in-fact I have never seen any digital resources when it comes to accessing information on special needs.

And yes, I strongly believe that institutions must follow all prescribed accessibility guidelines, thank you.

Below are the thoughts shared by Mrs. Ganesh, mother of a special kid when asked about accessible digital content and its availability

- Every community should to be well aware of all government schemes, policies ,acts and stipends. Especially about special needs people and their requirements. These things should be

widely displayed and advertised to create awareness among community.

- All schools now a days are putting efforts to incorporate digital resources in schools, but I feel these efforts are not sufficient as they are not 100% inclusive. It should be mandatory thing in schools to address diverse learners. Some govt. operated schools are even more lagging behind in these digital resources compared to international schools.
- My sincere request as per government policy “education for all”, educational institutions must put extra efforts to make content/curriculum accessible to all.
- Being a normal person we are having some privileges like in smart phones, most of websites /apps are available in mother tongue too, for uneducated persons voice search is also available. Similar kind of options to be made available when it comes to digital educational content in schools
- Font size adjustment, zooming content, easy brightness adjustment in a digital content will be helpful for not only special children/people but also elderly people.

Additional Resources

1. Try this Colour blindness simulator
2. Guidelines for Indian Government Websites
3. Web Accessibility Laws & Policies around the world
4. *Success stories from the National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities. (link opens in a new window)*
5. Assistive Device listed in *National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities. (link opens in a new window)*