Module 5- Computer and built-In

Accessibility

This course entitled "Foundation in Assistive Technology " was prepared and designed by Mada Center, Qatar.

Course outline

- Learning Objectives / Outcomes
- What are the built-in accessibility features?
  - Common accessibility features
  - Web accessibility with Microsoft Edge browser
  - Explorer Windows 11 Accessibility
  - Explorer iOS accessibility features
  - Explorer Chrome OS Accessibility Features
- Learning activities/ Instructional strategies
- Assessment Methods
- Resources and additional materials

Learning Objectives / Outcomes

- Define the Accessibility features

- Overview common built-in accessibility features

- Learn built-in Web accessibility features by the browser

  a. Learn about web accessibility features with Chrome browser

  b. Learn about web accessibility features with Microsoft Edge browser

- Learn built-in accessibility by the different operating systems

  a. Windows 11 accessibility

  b. iOS accessibility

  c. Chrome accessibility

  d. Android accessibility

What are the built-in accessibility features?

Accessibility features are designed to help people with disabilities use technology more easily. Most accessibility features of the computer or the

mobile devices are part of the operating system. Those features can be viewed, trialed, and enabled from the settings of the application on the personal device. These built-in accessibility features are often simple solutions for people with disabilities to access technology to learn, work, or do daily tasks independently without additional specialized technology solutions or minimizing the additional technology needs.

For example, a text-to-speech feature may read text aloud for people with visual impairments. A speech recognition feature may be useful for people with limited mobility to control the computer using their voice instead of using the traditional input devices.

- Empowering people with disabilities with the use of built-in accessibility features (sharing the videos)
a. Windows 11 accessibility - https://youtu.be/U6pERykJh88?si=TSg0ScY9aXGlbZbM

b. iOS accessibility with Sandy - https://youtu.be/XB4cjbYywqg

Common accessibility features

a. The **text-to-speech feature** (Screen readers) is one of the useful features for users with low vision or cognitive disabilities to access a computer, by hearing what is on the screen instead of reading it. This also describes the interactions between the user and the device and tells the user about any alerts or notifications in spoken language.
   This feature is known as VoiceOver on iOS, TalkBack on Android, and Narrator on Windows 11.
b. The **speech-to-text feature** allows users to type by speaking rather than using a keyboard typing. This feature is useful for users with physical, cognitive, or visual impairments to create documents, write emails, or do any written tasks using the devices.
c. **Voice control** is a tool for people who cannot control their input devices to use their computer, so they can use their voice to manipulate the computer. Simply you control your device by telling it what to do. This feature is useful

for people with limited upper limb mobility or dexterity to interact with your device by your voice commands.

d. **Personal or virtual assistance** allows a user to control their smart device using voice commands and speech recognition. This feature is useful for individuals with vision, mobility, and cognitive disabilities. The Voice control can complete full tasks with just one command, for example, asking for telling you the weather, looking up stuff on the internet, setting alarms, or making phone calls or sending text messages, etc. "Siri" for iOS devices, "Hey Google for Android, and "Cortana" for Windows

e. **Color contrast and screen enlargement** can allow users to change and control the display setting. It can be changed the invert colors, enable greyscales, change text size and font, or change the contrast of text, etc.

f. **Switch Controls** allow the user to control the device easier by connecting with external switch accessories or built-in features and buttons to control the devices.

g. **The Mono Audio** feature allows the user with hearing impairments to hearing the full sound from the stereo audio.

Web accessibility with Microsoft Edge browser

a. **Vision**
o Adjust text size
o Read aloud the web (Immersive Reader)
o Adjust High Contrast
o Reading view to clear the page

b. **Mobility**
o Keyboard shortcuts to easier navigate the web
o Reading view to clear the page
o Read aloud the web (Immersive Reader)

- **Web accessibility with Chrome browser**

a. **Vision**
o Explore the web with TalkBack screen reader
o Access to images with image descriptions

- o Zoom in the page
- o Adjust text size and face
- o Adjust color contrast and color theme
- o Change text, image, and video sizes

b. Hearing
- o Play the media with Live Caption

c. Mobility
- o Use keyboard shortcut for easier access
- o Change text, image, and video sizes

d. Use Google accessibility extensions
- o Caret Browsing to navigate the website using the keyboard
- o Color Enhancer to adjust webpage colors
- o High Contrast to adjust or remove colors
- o Long Descriptions in Context menu

Explorer Windows 11 Accessibility

a. Vision
- o Adjust size and color of text and screen
- o Turn on high contrast
- o Adjust size and color of the mouse pointer and cursor
- o Magnify the screen
- o Use Narrator to navigate the PC

b. Hearing
- o Use text or visual alternative to sounds
- o Live captioning and Closed captions
- o Change sounds in one channel
- o Longer notification appearance

c. Learning
- o Improving reading comprehension with learning tools
- o Word predictions
- o Use Dictate for typing
- o Type use the onscreen keyboard

d. Mobility

o Type with your voice using Dictate

o Eye control to use the PC using an eye-tracking device

o Adjust mouse and keyboard setup

o Type and navigate with your voice using Speech Recognition

e. Mental health

o Reduce visual distractions

o Organize your to-dos

o Personalize the theme with your preferred color theme

Explorer iOS accessibility features

a. Vision

o Screen reading using VoiceOver and VoiceOver with Braille

o Spoken content using Speak Screen

o Simplify onscreen movements with Reduce Motion

o Organize Accessibility tools using Accessibility Shortcut

o Adjust Text size

o Adjust Display settings

o Enlarge the screen using Zoom

o Use the camera app as a magnifier

o Use Audio descriptions

b. Hearing

o Boost and make clearer sounds with AirPods Pro

o Notify and detect the sound with Sound Recognition

o Customize the headphones with headphone accommodations

o Communicate using sign language with FaceTime

o Connect the hearing aids to the iOS mobile devices

o Control the background noise with Live Listen

o Convert the sounds to visual and vibrating alerts

o Make and receive Real-time text (RTT) calls

o Customize the Closed Captions

c. Mobility

o Navigate and commend the device using Voice Control

- o Navigate the device using Switch Control
- o Navigate the devices using Assistive Touch
- o Use the device with Alternative input devices (i.e., a head mouse or joystick)
- o Custom shortcuts for commonly used words or phrase
- o Control the screen with Touch Accommodations
- o Type using Dictation
- o Use word predictions with Predictive Text

d. Cognitive/Learning

- o Control the background sounds
- o Enhance reading and writing with Spoken Content
- o Focus on reading with Safari Reader
- o Focus on the task with Guided Access and Do Not Disturb
- o Adjust the screen scheme with Dark Mode
- o Type using Dictation
- o Use word predictions with Predictive Text
- o Convert the scribbling letters to typed text using Scribble

Explorer Chrome OS Accessibility Features

a. Vision

- o Zoom in or magnify the Chromebook screen
- o Adjust color and text size
- o Read the screen with ChromeVox
- o Connect the braille devices to the Chromebook
- o Describe the image in multiple languages (English, German, French, Hindi, Italian, and Spanish)
- o Read aloud the screen content

b. Hearing

- o Audio and video live captioning

c. Mobility

- o Type and handwrite with the Onscreen keyboard
- o Adjust the cursor actions with automatic clicks
- o Navigate the Chromebook with Switch Access
- o Unique key features of Chromebook keyboard

- o Words dictionary
- o Auto corrections of spellings
- o Word predictions

Explorer Android Accessibility Features

a. Vision

- o Hear what is on the screen with TalkBack
- o Magnify the text and icons with Magnification
- o Adjust the color theme to easier access with Color correction
- o Explore the environment with Lookout
- o Interact with Android devices with Voice Access
- o Adjust the notification alerts with Time to take action
- o Connect your Braille display with BrailleBack

b. Hearing

- o Boost sound and filter noise with Sound Amplifier
- o Connect the hearing aids to the Android devices
- o Adjust the caption – Live caption, Live transcribe, sound notifications, and Real-time text (RTT)

c. Mobility

- o Navigate the device with Switch Access
- o Control the device with Voice Access

d. Android Accessibility Suite
(https://play.google.com/store/apps/details?id=com.google.android.marvin.talkback)

- o Allows users to add-on the suite to more accessible

Learning activities/ Instructional strategies

- **Hands-on demonstration**

  In order to learn and understand the built-in accessibility, the learners will participate in hands-on activities to explore the variety of

accessibility features across the different OS systems and web browser

- **Online lecture**: the lecture will provide an overview of accessibility and how the accessibility features can support individuals to use the computer.

- **Comparison paper:** Choose one common feature between 2 different OS systems or 2 web browsers. Try the feature to navigate the device and write a paper of the comparison of the selected features including a. function of the feature, b. who can benefit by using it, c. compares the usability such as easy to use, any challenges, and any suggestions to improve

- **Group discussion**: During the session, learners will participate in the group discussion regarding what are the benefits of the use of built-in accessibility features.

Assessment Methods

- **Comparison paper:** Choose one common feature between 2 different OS systems or 2 web browsers. Try the feature to navigate the device and write a paper of the comparison of the selected features including a. function of the feature, b. who can benefit by using it, c. compares the usability such as easy to use, any challenges, and any suggestions to improve

Resources and additional materials

Windows 11 system

- Windows 11 Accessibility:

https://youtu.be/U6pERykJh88?si=TSg0ScY9aXGlbZbM

- How to use Windows 11 Narrator: https://www.microsoft.com/en-us/windows/learning-center/how-to-use-narrator#:~:text=There%20are%20two%20quick%20ways%20to%20initiate%20Narrator,open%20Narrator%20settings%20menu.%20Toggle%20on%20Use%20Narrator.

- Narrator Shortcuts: Appendix B: Narrator keyboard commands and touch gestures - Microsoft Support

Windows Voice Access: https://support.microsoft.com/en-us/windows/windows-speech-recognition-commands-9d25ef36-994d-f367-a81a-a326160128c7 https://support.microsoft.com/en-us/topic/set-up-voice-access-9fc44e29-12bf-4d86-bc4e-e9bb69df9a0e

iOS Devices

- Apple accessibility: https://www.apple.com/accessibility/

Android Devices

- Android Accessibility: https://www.android.com/accessibility/

- Android Accessibility by Google:

https://support.google.com/accessibility/android/answer/6006564?hl=en&ref_topic=6007234

Chrome Accessibility

- Chromebook:

https://support.google.com/chromebook/answer/177893?hl=en

Chrome browser: https://www.google.com/accessibility/products-features/

– Chromebook accessibility guide by Call Scotland:

https://www.callscotland.org.uk/downloads/posters-and-leaflets/chromebook-accessibility-and-learning-tools/

Microsoft Edge browser accessibility

https://support.microsoft.com/en-us/microsoft-edge/accessibility-features-in-microsoft-edge-4c696192-338e-9465-b2cd-bd9b698ad19a

Accessibility Video Links

    a. Windows 11 accessibility –
https://youtu.be/U6pERykJh88?si=TSg0ScY9aXGlbZbM

    b. iOS accessibility with Sandy – https://youtu.be/XB4cjbYywqg