Unit 4

Programs

Accessibility of Various Online Sources

Accessibility Issues with Computers and Online Information

A common goal shared by many organizations and individuals is making computing, the internet, and its advantages accessible to everyone. Many social and ethical issues arise when pursuing this goal.

Adaptive Technology for Individuals with Special Needs

Many millions of dollars are spent designing of user interfaces of computer systems. Most user-interface devices are designed with the assumption that users can see, hear, and have fine motor control. An issue then arises when we consider how to make computational devices accessible to the many blind, deaf, and motor-impaired individuals.

Technologies for the Visually Impaired

For those who have difficulty seeing computer monitors or the letters on the keyboard, there are many technologies designed to make computers accessible. A few are listed below:

- Accessibility Tools included in Operating Systems
  Tools like the Windows magnifier and Narrator make it possible for users to magnify certain portions of the screen. The Windows Narrator will read any text aloud for the user. Other options exist, such as using high-contrast themes and changing the size of icons. Most operating systems include similar tools.
- Specialized Hardware
  Specialized hardware is made with extra-large, high-contrast keys that make it easier for individuals with vision impairments to see the letters on the keyboard. The picture below is an example of such a keyboard. Very large, high-contrast monitors are also examples specialized hardware for those with vision impairments.

Technologies for the Hearing-Impaired

For those that are deaf and hard of hearing, there are technologies that exist that allow users to perceive sound output from computers. A few are listed below:

- Assistive Listening Devices (ALDs)
  ALDs are not new technology. Typically, they come in the form of conventional hearing aids. Other ALD's include devices designed to dampen background noise that makes it hard to hear the sound output of a computer.

- Closed Captioning and Automatically Generated Captions
  Many online video streaming services like YouTube allow users to caption their videos for viewers that may be hearing-impaired. Closed captions are not a new technology, but YouTube deploys software with the ability to automatically generate closed captions for videos that do not have hand-created captions. These automatically generated captions are often inaccurate, but are a large step forward in making videos accessible for the hearing impaired.

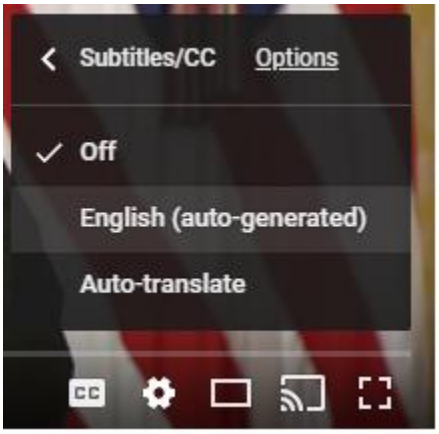
  Below is an example of a thumbnail from a video on the YouTube Channel, JunsKitchen. Notice the 'CC' in the bottom left, showing that the Channel's creator has included pre-written captions for the video.

Sushi for Cats

7.1M views • 9 months ago

CC

  When watching a video without pre-written captions, it is possible to enable auto-generated captions by clicking the gear in the bottom right of the video player. This is demonstrated in the picture below.

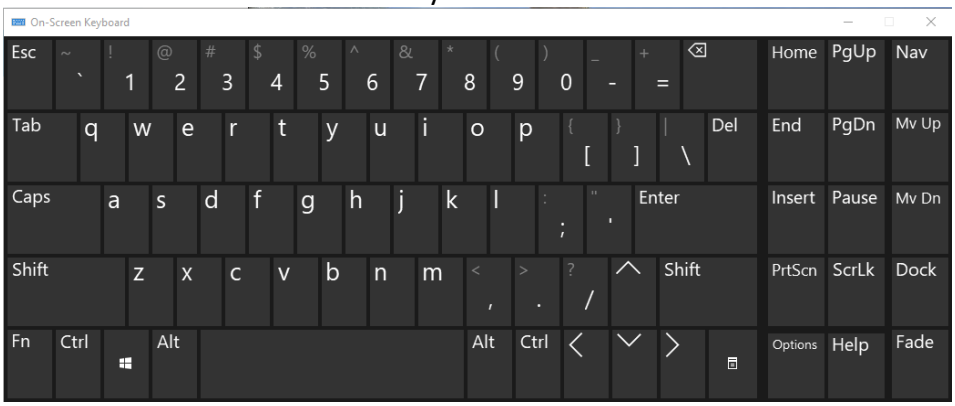


Technologies for the Motor and Dexterity Impaired

A wide variety of technologies exist for those without the fine motor control needed to type on a keyboard or use a mouse.

- On-screen keyboard

If a user has enough mobility to use a mouse, but not a keyboard, most operating systems provide an on-screen keyboard that can be operated with the mouse. Below is a screenshot of the on-screen keyboard in windows 10.



- Oversized trackball mice
  These mice operated the cursor with a large ball that is rolled to move the cursor instead of dragging a traditional mouse around the table.
- Sip and puff switches
  For those with severely limited motor skills, a special type of switch exists that allows users to sip and puff into a tube. This switch allows them some rudimentary control of a computer system.

Censorship and Reliability of Various Online Sources

Issues with Censorship

In some parts of the world, information censorship is a real problem. This is not as much of a problem in countries like the United States where freedom of speech is a right. In countries like China, however, the internet is heavily censored. The issue of whether governments should censor content on the internet that they deem inappropriate remains a hotbed of social and political debate.

Reliability of Various Online Sources

With the global exchange of information both cheap and commonplace, the spread of misinformation also occurs. Because of this, it is important to analyze the reliability of online sources when conducting online research. A general guideline is provided below to help verify the reliability of any online source. Many of these points can be used to evaluate the reliability of other sources of information.

- Look for the Author of an Online Source
  If the author of an article is not listed, the reliability of the article should be in question. If an author is listed, attempt to verify his or her authority on the subject. Verify any credentials the author may have listed such as degrees. Try to determine if the author is affiliated with a reputable organization

- Avoid Forum and Discussion Threads
  Forum and Discussion threads are often very poor sources of reliable information because nearly anyone can contribute to them.

- Look for the Citations in Wikipedia Articles
  Wikipedia has a reputation for sometimes containing misinformation. However, Wikipedia articles almost always contain citations that link to sources containing reliable information.

- Look at the Ending of the URL from which the Information is retrieved.
  If a URL ends with .gov, the website belongs to a government organization. If a URL ends with .edu, the website belongs to an educational organization like a university. Resources with these endings are typically reliable. Websites ending with .com, .net, or .org can be registered by private entities including businesses and non-profit organizations. These websites should be analyzed more closely to determine their reliability.

- Note the Objectivity and Purpose of Information
  Read the information and use common sense to evaluate its purpose. Oftentimes, if the purpose is to persuade politically, facts will be stretched. If the information is published by an organization known for biased information and propaganda, the information may well be unreliable. Note how much of the information is opinion and how much is verifiable fact. If the purpose is to simply inform, facts are less likely to be stretched.

- Be wary of Misleading Statistics and Correlational Studies
  "100% of people who drink water die. Shouldn't we ban water?" Statistics are often misconstrued in attempts to mislead and persuade. The most commonly used statistical fallacy is quoting correlational studies. Think of how many times you have heard "A study found that X was linked to higher rates of Y." These studies simply show that two variables are correlated, but not that one thing causes the other. In short, correlation does not imply causation.

- Note the Accuracy and Veracity of the Information
  Look for spelling and grammar errors. Attempt to verify any facts, studies, or statistics presented.

- Note the Age of the Information
  The internet has been around since the early 1990's. Look for publish dates to verify that information is current.