

Introduction to Accessibility & Assistive Technology Quick Start

Level Access | Northeastern University

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Please note:

- Today's training session will be recorded.
- Live captions and transcript are available for this session.

November 20th, 2024

level
access

Housekeeping and Accessibility Notes

1. Today's training session is being recorded.
 - The recording will be available for review for 120 days.
2. Accessible presentation best practices will be modeled to the best of my ability.
 - **Are there any accessibility practices that will help you?**
3. Live captions and transcript are provided.
4. Slides to be provided for your review.
5. Engagement is encouraged!
 - Use the chat for comments.
 - Use the Q&A for questions and anonymous engagement.
 - Comments off mute and on video are also welcome.
6. Please share feedback in the survey provided at the end of the session.

Learning Objectives for Introduction to Accessibility & Assistive Technology Quick Start

At the conclusion of this training, learners will be able to...

1

Define and discuss terminology and definitions related to accessibility.

2

Recognize the benefits of accessibility.

3

Distinguish between different disability types and the corresponding assistive technologies.

Accessibility Terminology & Concepts

Key Terminology

- Web Accessibility
 - Web Content Accessibility Guidelines (WCAG)
- Disability
- Assistive Technology



“Web accessibility means that websites, tools, and technologies are designed and developed so that people with disabilities can use them.”

W3C Web Accessibility Initiative

Web Accessibility



Web Content Accessibility Guidelines (WCAG)

The Technical Standard for
Web Accessibility

4 Principles: POUR

- **P**erceivable
 - **O**perable
 - **U**nderstandable
 - **R**obust
-
- 12 Guidelines
 - Dozens of Success Criteria
-
- WCAG 2.0, 2.1, and 2.2
 - Levels A, AA, and AAA

Defining Disability

Medical Model of Disability

“A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions).”

[Centers for Disease Control and Prevention](#)



Social Model of Disability

“Disability is ... not just a health problem. It is a complex phenomenon, reflecting the interaction between features of a person’s body [*or mind*] and features of the society in which he or she [*or they*] lives.

Overcoming the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers.”

[World Health Organization \(WHO\)](#)



What's the true problem?

A. The stairs

B. Her disability

C. The wheelchair

The true problem is...

A. The stairs

B. Her disability

C. The wheelchair

What are some possible solutions?

What disability models do these solutions fall under?

Medical Model Solutions

Fix the disability
Have someone else
carry the




Social Model Solutions

A. Build ramps

B. Provide an elevator



Accessibility: Required for some. Beneficial for all!



I am supposed to take these files to Mr. Jones on the 12th floor.

My knee is really aching from my fall over the weekend.

I am nervous about the interview; I am so glad I don't also have to worry about getting to the 4th floor!

“Any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities.”

Assistive Technology (AT)

Different tools to achieve the same access.



Questions about Accessibility Terminology & Concepts?



Benefits of Accessibility

1 Right Thing to Do

“Do what is right, not what is easy!”



2 Better Experience

- Designing for blind or Deaf customers helps with discoverability and SEO.
- Designing for people with low-vision or mobility disabilities helps mobile users.
- Designing for someone with cognitive disabilities helps everyone understand your content.



3 Buying Power

\$500 Billion

Total disposable income for working-age individuals with disabilities!



4

Unnecessary Costs

- Integrated Quality Assurance (QA) Testing: 1:10:100 rule
- Accessibility Testing: 1:10:100:1000 rule




Questions about Benefits of Accessibility?



Types of Disability

Disability Umbrella Categories

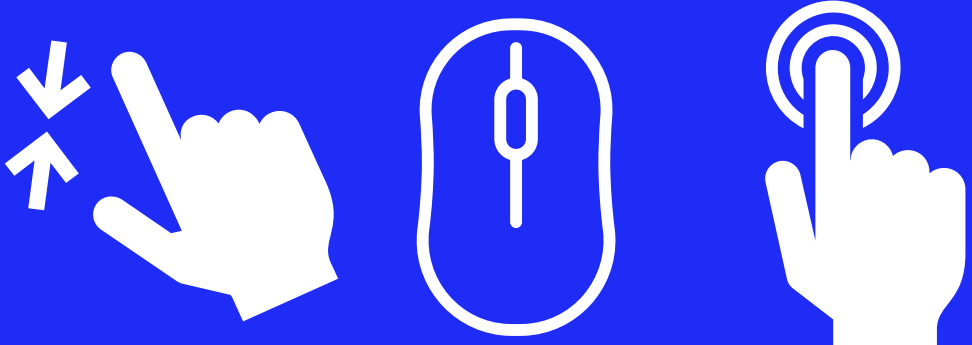
Visual

A white icon of a pair of glasses on the left and a white icon of an eye with a diagonal line through it on the right, representing visual impairment.


Auditory

A white icon of a speech bubble on the left and a white icon of a human ear on the right, representing auditory impairment.

Mobility

Three white icons: a hand with arrows pointing outwards, a computer mouse, and a hand with a target symbol, representing mobility impairments.

Cognitive

A white icon of an open book on the left and a white icon of a head profile with two gears inside on the right, representing cognitive impairments.

Speech

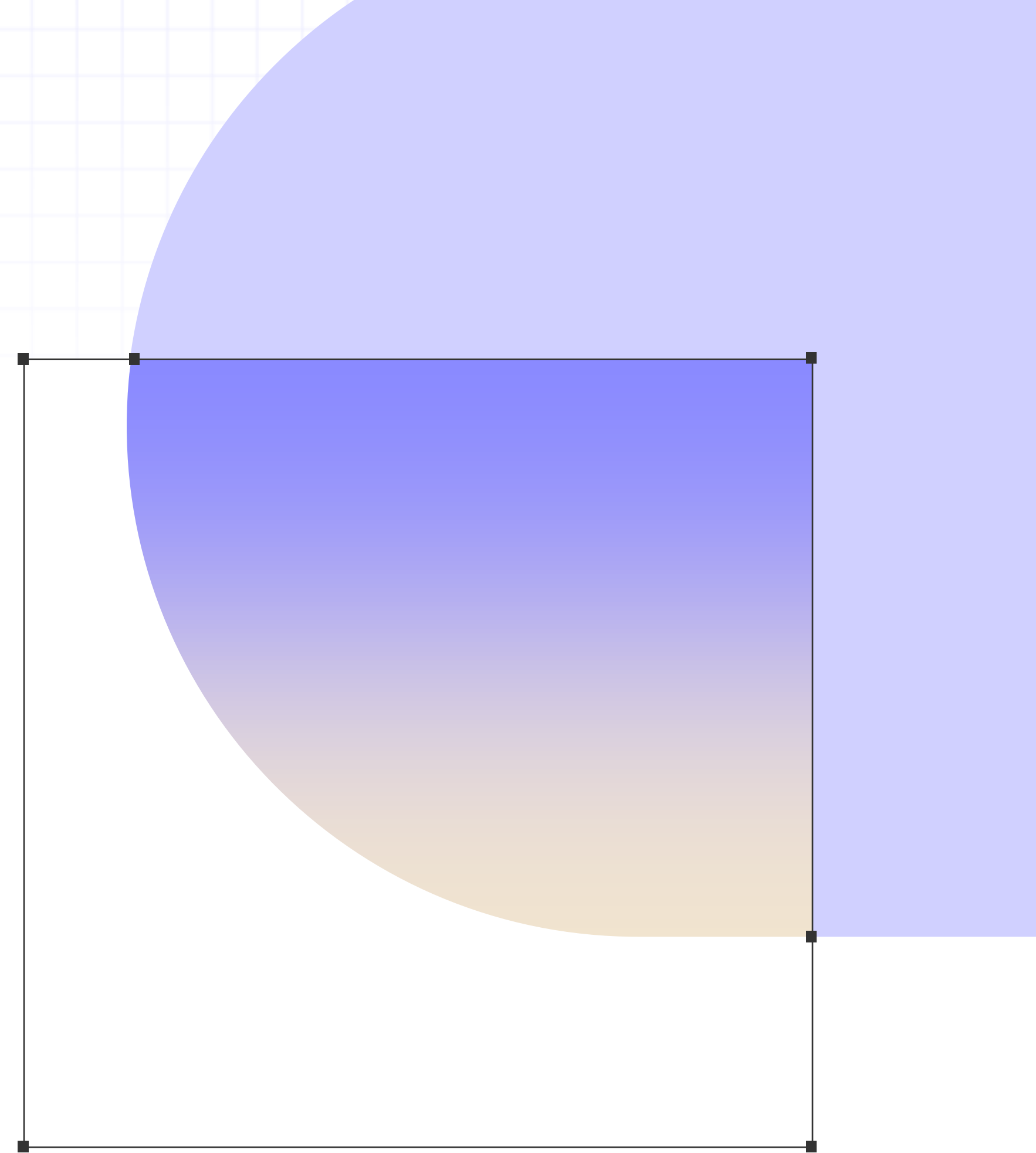
A white icon of a sound wave on the left and a white icon of a microphone on the right, representing speech impairments.

Other

Three white icons: a person holding a clipboard, a pill bottle, and a person lying in a hospital bed with a heart rate monitor, representing other types of disabilities.

Disability...

- is a **spectrum...**
- varies in its **degree...**
- can be **situational, episodic, temporary,**
or **permanent...**



What kind of AT is in this video?



Visual Disabilities and Assistive Technologies



Blindness Definitions

Totally Blind

Complete lack of sight

Legally Blind

Vision that is 20/200 or less in one eye

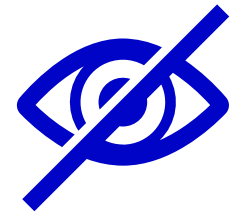
Partially Sighted

A person that has partial vision, either in one of both eyes

Statistics

18.4% of adults over 18 in the US
([NCHS Interactive Statistics 2024](#))





AT: Screen Readers

- **Windows**

- JAWS (\$)
- NVDA (Free)

- **Mac and iOS**

- VoiceOver (Built in)

- **Android**

- Accessibility Suite (TalkBack)





AT: Braille Display





AT: Audio Descriptions

Disney
THE
LITTLE
MERMAID



TEASER TRAILER

Low Vision Definition

Low Vision

A severe visual impairment with acuity below 20/70 and not improved with corrective lenses.

What conditions?

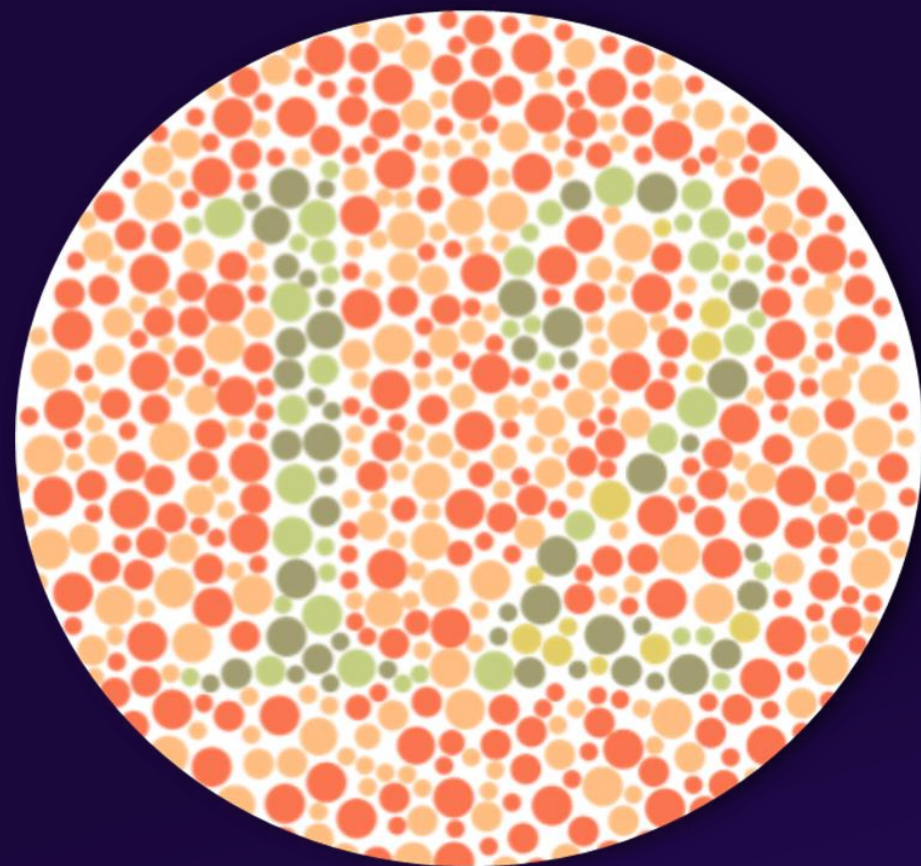
Broad category encompassing a variety of conditions with varying degrees of vision impairment.

Examples include:

- Cataracts
- Diabetic Retinopathy
- Glaucoma



Color Blindness Definition



Color Blindness

Difficulty in seeing difference between certain colors.

Types

- Red-green
- Blue-yellow
- Complete (no colors)

Statistics

- 4.5% of the population
 - 1 in 12 men
 - 1 in 200 women



AT: High Contrast Themes

W3C® Web Accessibility Initiative WAI

Strategies, standards, resources to make the Web accessible to people with disabilities

Get Involved About W3C WAI

Search



[Accessibility Fundamentals](#)

[Planning & Policies](#)

[Design & Develop](#)

[Test & Evaluate](#)

[Teach & Advocate](#)

[Standards/Guidelines](#)

Making the Web Accessible

Hide Section -

Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities.



W3C

The World Wide Web Consortium (W3C) develops international standards for the Web: HTML, CSS, and many more.



WAI

The W3C Web Accessibility Initiative (WAI) develops standards and support materials to help you understand and implement accessibility.



You

You can use W3C WAI resources to make your websites, applications, and other digital creations more accessible and usable to everyone.

News

Current Work

(updated monthly)

See [What We're Working On - Accessibility Activities and Publications](#)

WCAG 2.2 in Italian: Authorized Translation Published

(2023-12-05)

[Linee guida per l'accessibilità dei contenuti Web \(WCAG\) 2.2](#), the Italian Authorized Translation of [Web Content Accessibility Guidelines \(WCAG\) 2.2](#), is now available, following completion of the [W3C Authorized Translations process](#). Other translations of WAI resources are listed in [All WAI Translations](#). WAI encourages translations in all languages. If you might be interesting in translating resources, please see [Translating WAI Resources](#). Thank you to all who contribute to translations.

See what we have for you:

Get Resources for...

- [Getting Started](#)
- [Content Writers](#)
- [Designers](#)
- [Developers](#)
- [Evaluators, Testers](#)
- [Managers](#)
- [Policy Makers](#)
- [Trainers, Educators](#)
- [Web Users, People with Disabilities, Advocates](#)
- [Everyone \(All WAI Resources\)](#)
- [Other Languages](#)

Zoom Tools, Enlarged Text, and ZoomText

W3C® Menu ☰

Making the Web work

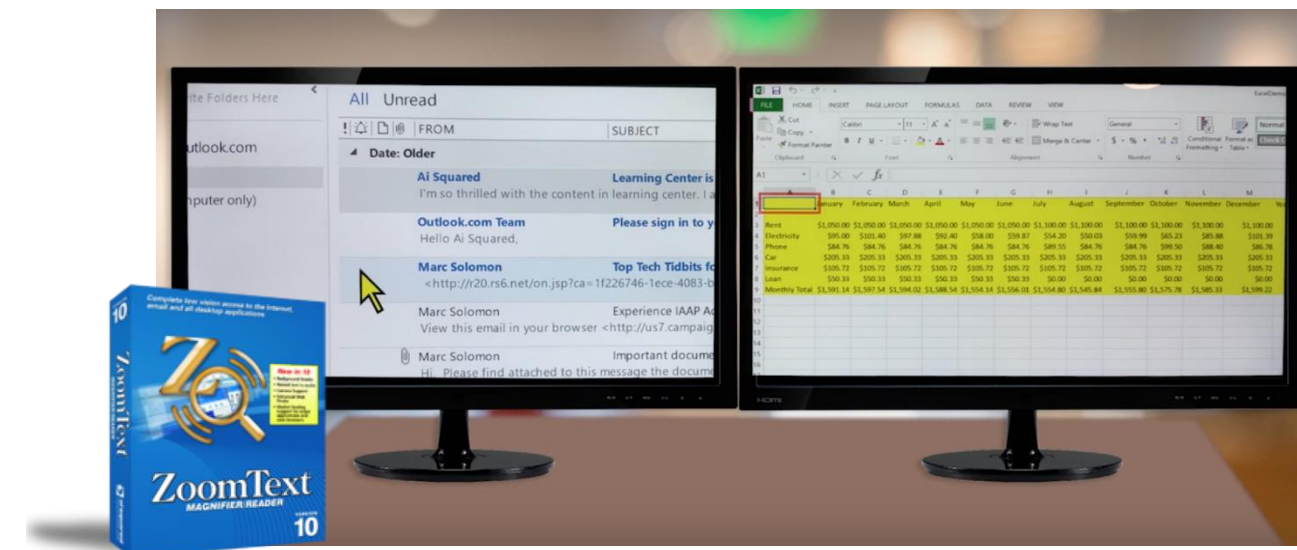
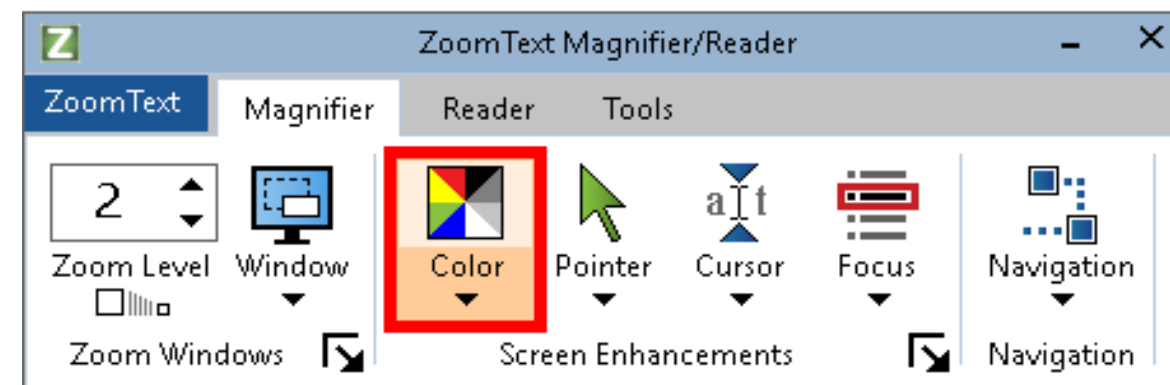

The World Wide Web Consortium (W3C) develops standards and guidelines to

W3C® Standards ▾ Groups ▾ Get involved ▾ Resources ▾ News and events ▾ About ▾ Q Sign in 👤

Making the Web work

The World Wide Web Consortium (W3C) develops standards and guidelines to help everyone build a web based on the principles of accessibility, internationalization, privacy and security.

[Read more about W3C](#)





Questions about Visual Disabilities and ATs?



Auditory Disabilities and Assistive Technologies



Auditory Disability Definitions

Deaf

Diminished or total loss of hearing, including difficulty understanding speech and distinguishing foreground and background noise.

Hard-of-Hearing

Includes cases that are not severe enough to impact spoken language comprehension.

deaf vs. Deaf:

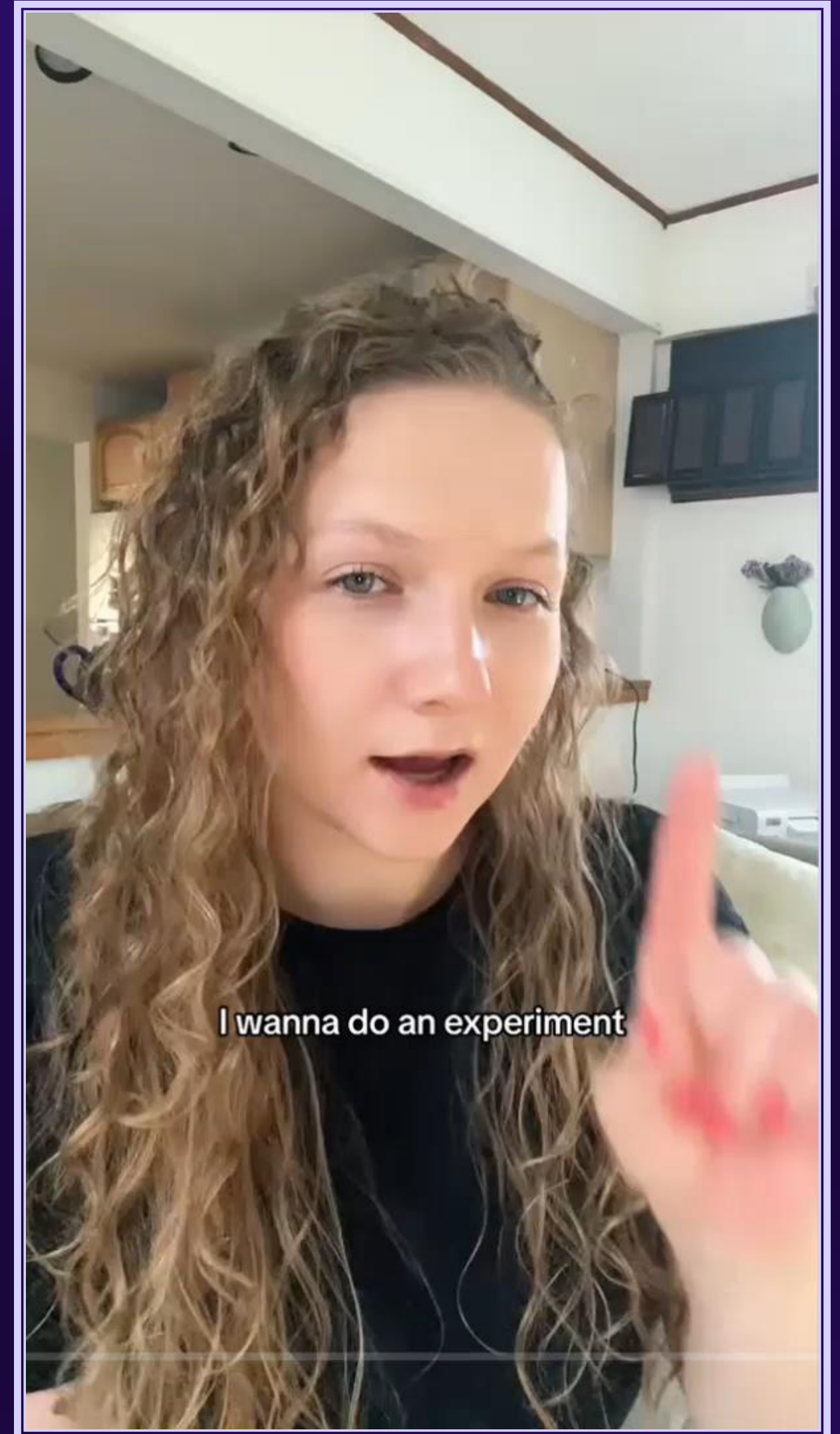
condition of deafness vs. Deaf Culture (medical vs. social identity models of disability)





AT: Captions & Transcripts

Require captions and transcripts for audio and video content.

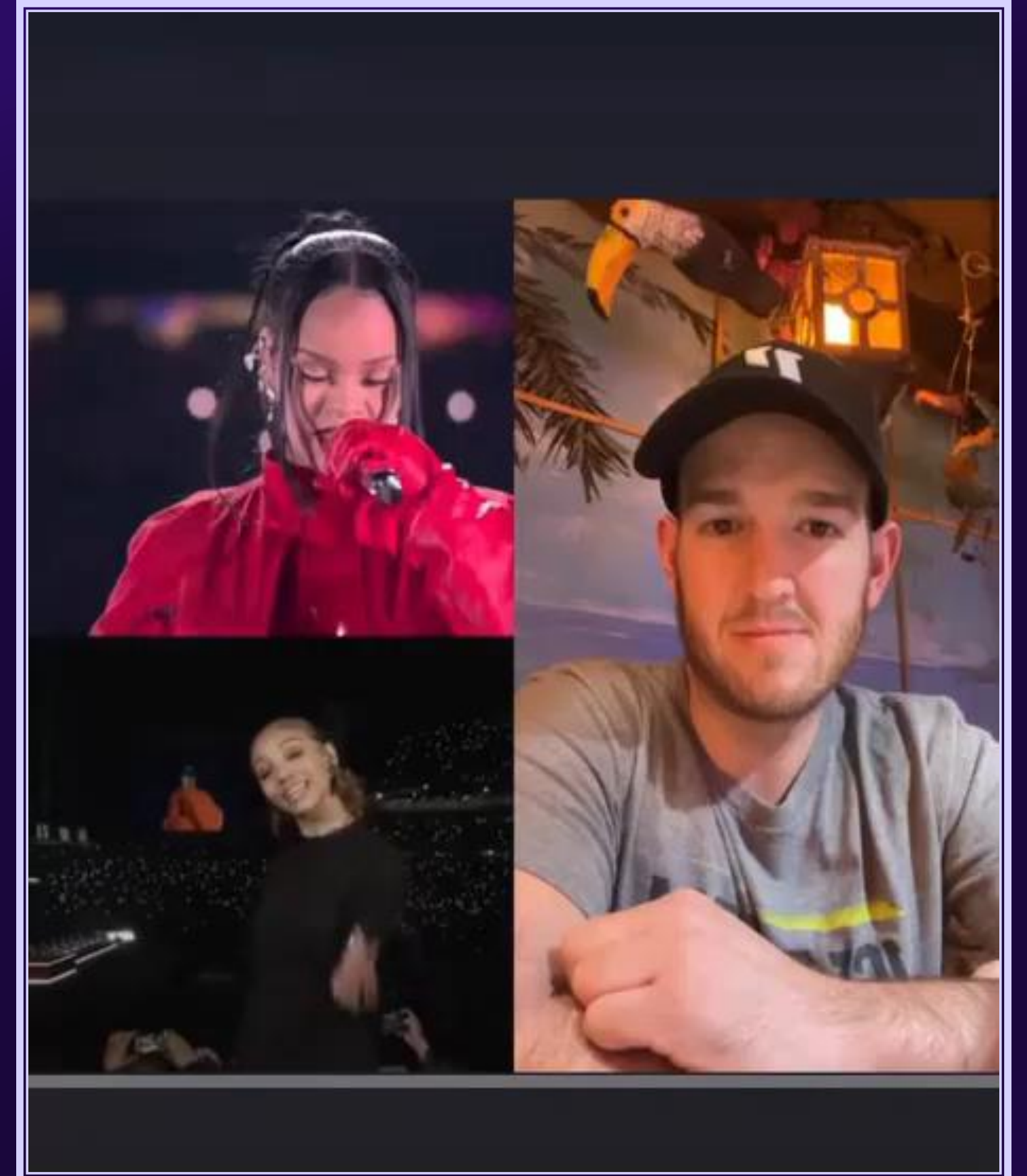




AT: Sign Language

Provide sign language in addition to captions and transcripts.

Note: Video includes no audio.

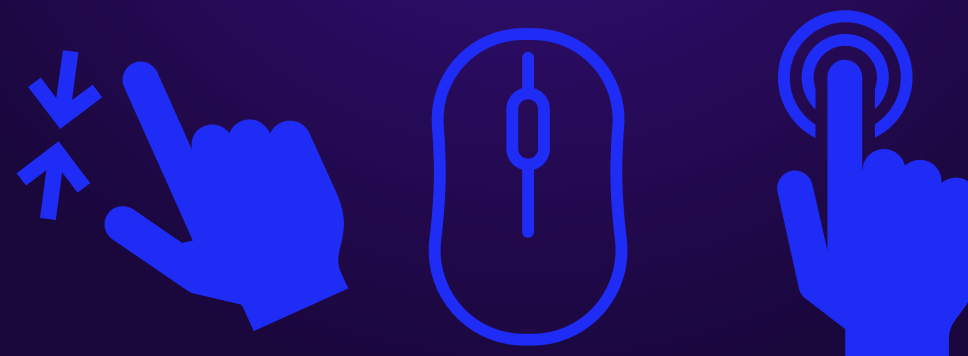




Questions about Auditory Disabilities and ATs?



Mobility Disabilities and Assistive Technologies



Mobility Disability

Mobility disabilities are...

Conditions that impact a person's physical movements, whether whole body movement, limb movement, or fine motor movement.

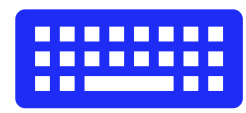
Includes...

Conditions present since birth as well as injuries or disease acquired later in life.

6.7% or...

20.9 million people (not institutionalized) in the US with **ambulatory** disabilities ([ACS 2022](#))





AT: Keyboard-only Navigation

Develop digital properties for users that prioritize keyboard use over mouse use, including use of various adaptive keyboards.

- TAB key used to move through interactive content.





AT: Mouth Stick & Head Pointer

- **Mouth Stick:** A pointer device held in the user's mouth.
- **Head Pointer:** A pointer device secured around the user's head.



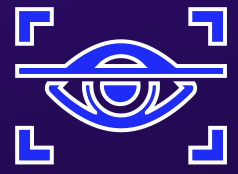


AT: Voice Recognition Software

How did we observe voice recognition software in the first Apple video?

Software program or hardware device that decodes the human voice.

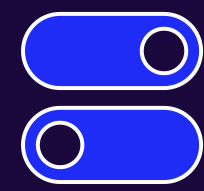
Commonly used to operate a device, perform commands, or write without having to use a keyboard, mouse, or press any buttons.



AT: Gaze Interaction

A computer access method that allows those with disabilities to **navigate and control their computer with their eyes**, similarly as an everyday computer user uses a mouse (e.g., activate, select, zoom, scroll, etc.) to control their computer.

Includes eye gaze software and eye tracking software.



AT: Switch Devices



Single Switch



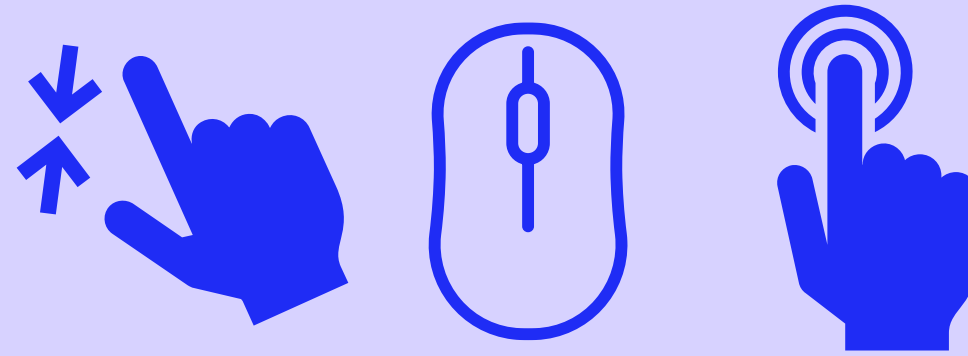
Sip/Puff



Dual Switch



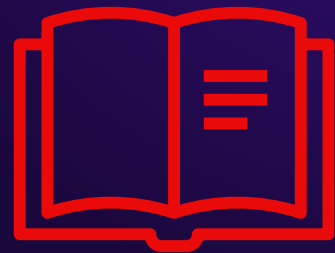
Eye Blink



Questions about Mobility Disabilities and ATs?



Cognitive Disabilities and Assistive Technologies



Cognitive Disability

Most common type of disability...

And often **least understood.**

Includes...

Wide variety of conditions and experiences, such as autism, dyscalculia, and depression.

Impacts a person's...

Memory, learning, concentration, communication, thinking, etc.





AT: Readability Checkers

Used to simplify complex and/or lengthy written content.

From frustration...	...to understanding
You will soon speak more eloquently about a greater number of contentious contemporary issues due to your erudition.	You will soon speak more beautifully about more argument-causing modern topics due to your (amazing knowledge).

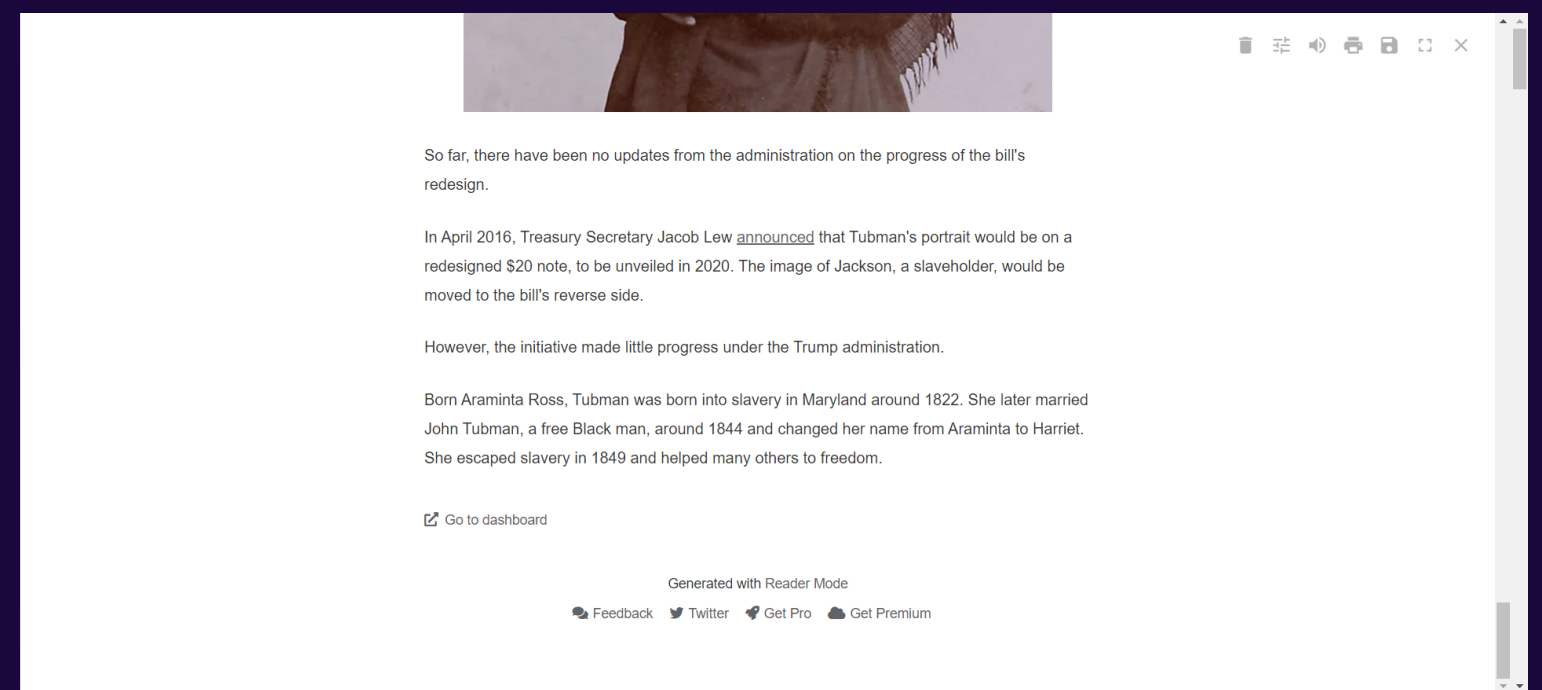
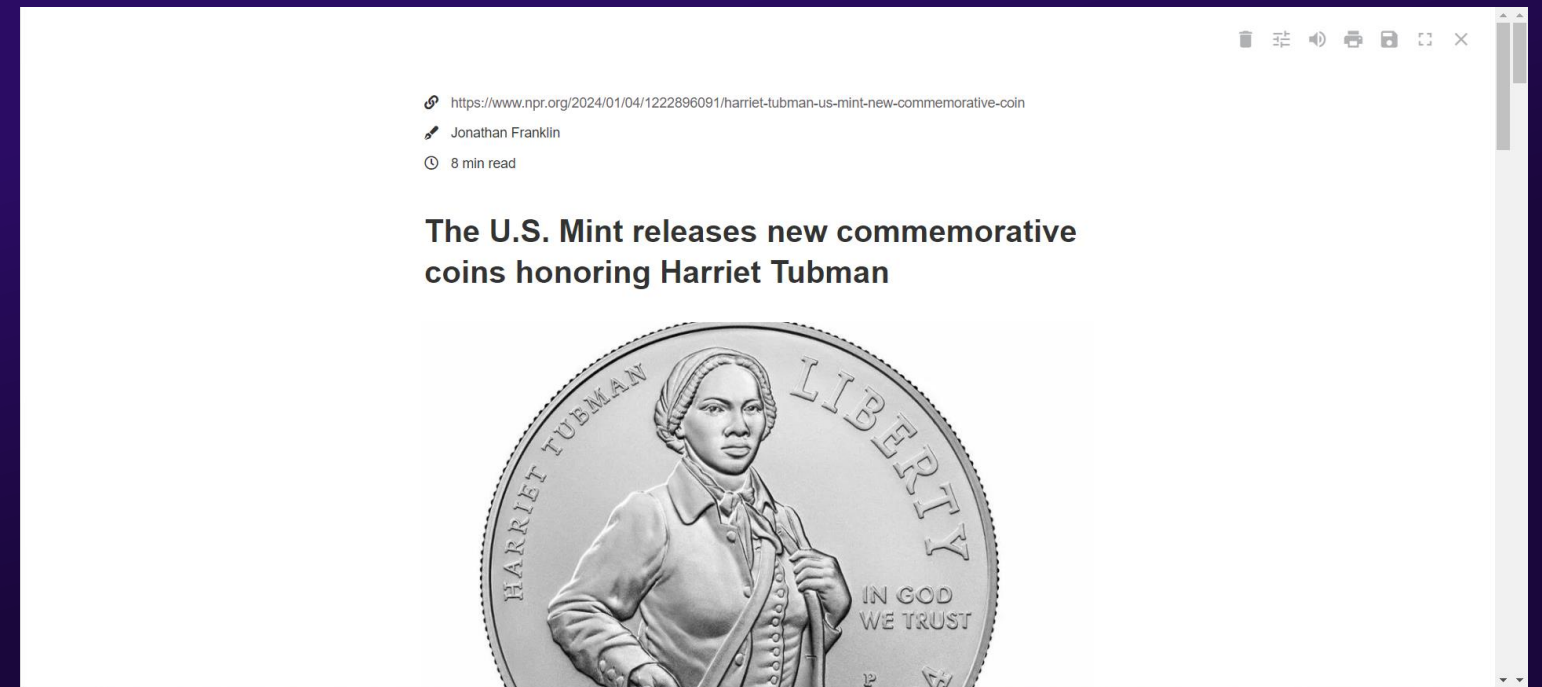
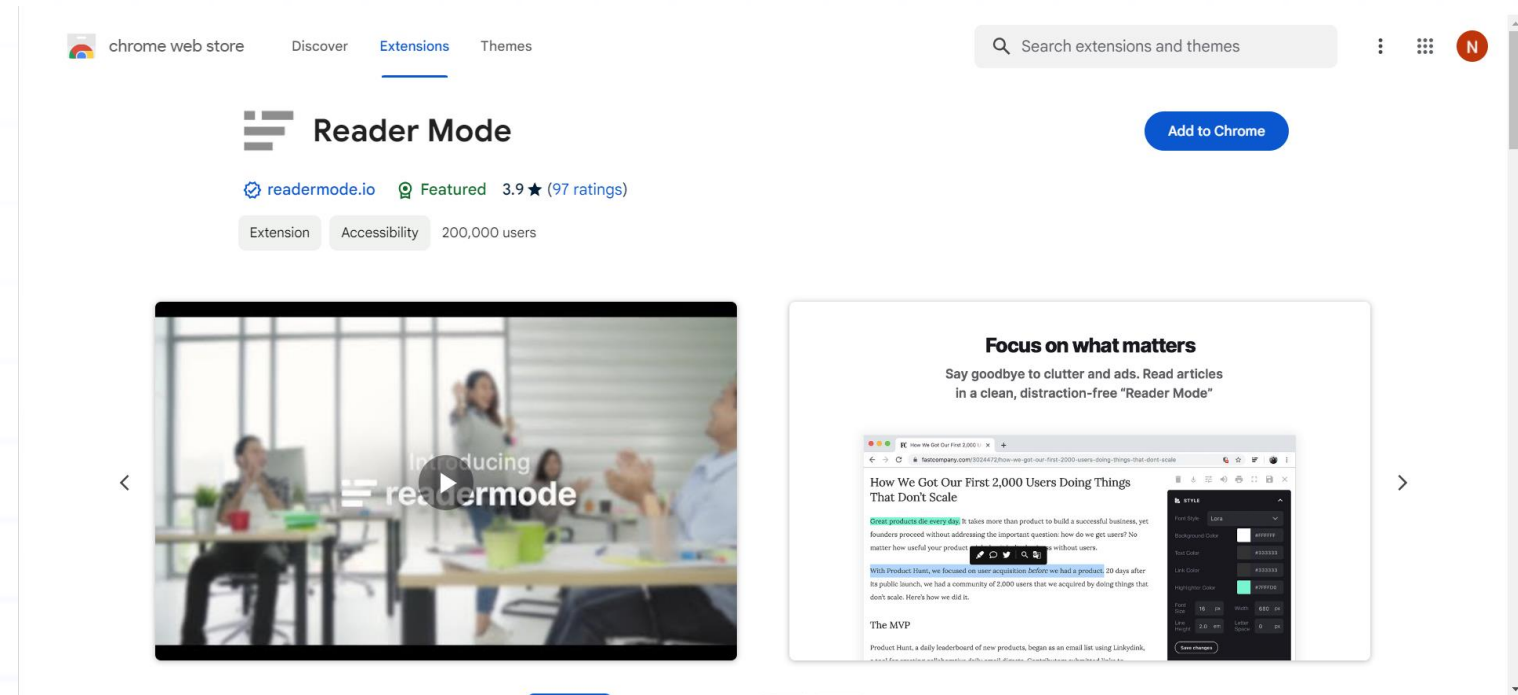
Rewordify: Understand what you read.

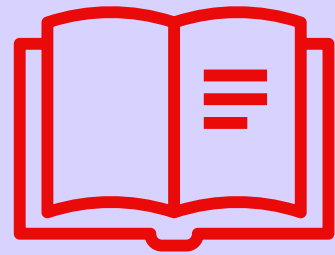


AT: Simple Layouts & Reduced Animations

Simplify layouts for greater readability.

Reduce animations that can trigger reactions.





Questions about Cognitive Disabilities and ATs?



Speech Disabilities and Assistive Technologies



Speech Disability

Definition

A person who has difficulty with articulating words, or the inability to produce or organize speech sounds.

Includes...

A wide range of conditions and can include:

- Stuttering
- Cluttering
- Non-speaking
- Minimal speaking





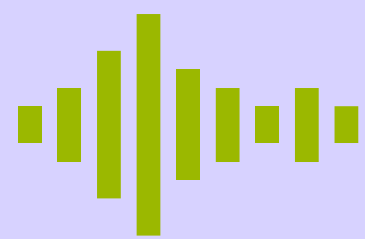
AT: Augmentative and Alternate Communication (AAC)

Communication devices, systems, strategies, and tools that replace and/or support natural speech (electronic or non-electronic).

Options include...

- Speech generating devices.
- Picture-based devices.
- Use with eye-gaze software.





Questions about Speech Disabilities and ATs?



Wrapping Up

Who owns accessibility?



We all do!




Together!

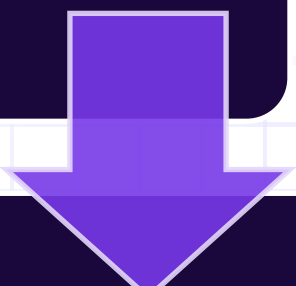
Introduction to Accessibility & Assistive Technology

Quick Start Takeaways

Building accessible spaces recognizes that barriers disabled people face are environmental and social (social model of disability).



Accessibility is the right thing to do, creates better experiences for all users, and supports the financial goals of businesses.



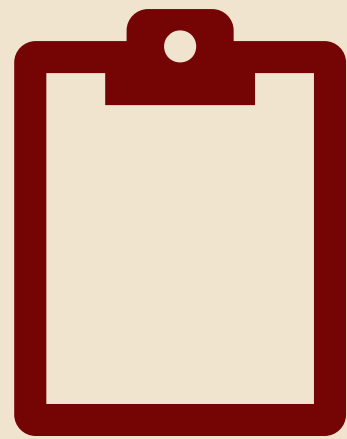
The disability experience is diverse in many ways, including in the use of assistive technologies.

Questions? Comments?



What did you think?

Please complete our [post-training survey](#)!



For question 3, For which course are you providing feedback?, select “**Quick Start Training**”.

For question 4, select “**Introduction to Accessibility & Assistive Technologies Quick Start**”.

Thank you!