

Universal Design with Accessibility in Mind



Kara Zirkle

Training and Compliance Manager



Eric Feinberg

Chief Marketing Officer



Poll Question:

How familiar are you with accessibility?

- 1) Very familiar. I'm an accessibility professional and it's a primary part of my job.
- 2) Somewhat familiar. I know what accessibility is but I want to learn more.
- 3) Not familiar. That's why I'm on this webinar!

Definition of Accessible – Webster's Dictionary

- **1a:** capable of being reached a remote region *accessible* by rail *also* : being within reach fashions at *accessible* prices
- **1b:** easy to speak to or deal with a friendly, *accessible* boss
- **2:** capable of being used or seen: information that should be *accessible* to everyone The collection is not currently *accessible*.

 **3: capable of being understood or appreciated: the author's most *accessible* stories an *accessible* film**

- **4:** capable of being influenced: people who are *accessible* to new ideas

 **5: easily used or accessed by people with disabilities: adapted for use by people with disabilities**

1.3 Billion People
With Disabilities Globally

Over **60 Million** People
With Disabilities Make it the
Largest Minority Group in Us

19.3% of Americans Self-
identify as Having a Disability

Friends And Family Represent Another
105 Million Consumers Who Have an
Emotional Connection to Disability

People With Disabilities Control
\$2 Trillion in Income Globally

“I might be young
but I speak for an
aging population.”

-Stef

esSENTIAL
ACCESSIBILITY.



“Disability for me is not
a word, because I see
him do a lot of stuff that
normally we don't do.”

-Juan Sr., father of Juan Jr.



esSENTIAL
ACCESSIBILITY.



Getting to Know People with Disabilities

esSENTIAL
ACCESSIBILITY.

Disabilities come in many forms



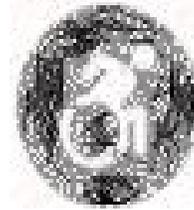
Vision

- Cataracts
- Sun glare
- Color blind
- Low vision
- Blind



Hearing

- Noise
- Ear infection
- Hard of hearing
- Deaf



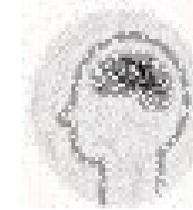
Mobility

- Hands full
- Broken arm
- Spinal cord injury



Speech

- Ambient noise
- Speech impediment
- Unable to speak



Cognitive

- Sleepy
- Distraction
- Migraine
- Learning disabilities
- Autism
- Seizure



Neural

- Depression
- PTSD
- Bipolar
- Anxiety

Situational
requirement

Temporary
impairment

Permanent
disability



Microsoft's Design Toolkit

	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver
Hear	 Deaf	 Ear infection	 Bartender
Speak	 Non-verbal	 Laryngitis	 Heavy accent

Design and Content Etiquette

1. Include an accessibility statement for individuals with disabilities to reach out if there are barriers.
2. Provide multiple ways for individuals to gain knowledge, demonstrate knowledge and interact goes a long way towards making a course accessible.
3. Consider the target audience and the wide variety of characteristics within that audience, especially with respect to ability to hear, see, speak, understand the content and ease of maneuvering through the course.
4. Accessibility efforts benefit all users, not just those with disabilities!



How Individuals with Disabilities Use the Web

 **esSENTIAL
ACCESSIBILITY.**



All The Same Mini-Documentary



Watch later



Share



Learning the Lingo

- W3C – World Wide Web Consortium
- WCAG – Web Content Accessibility Guidelines
- AODA – Accessibility for Ontarians with Disabilities Act
- Section 508 – US Federal government web accessibility requirement
- EN 301 549 – Europe web accessibility requirements
- ADA – Americans with Disability Act (Has different Titles)
- Section 504 – Civil Rights Law (Rehabilitation Act)
- HTML – Hypertext Markup Language
- HTML5 – The latest version of HTML
- CSS – Cascading Style Sheets
- ARIA – Accessible Rich Internet Applications
- VPAT – Voluntary Product Accessibility Template
- HOH – Hard of Hearing
- A11y – Accessibility (11 letters between A and Y)
- AT – Assistive Technology
- UD – Universal Design

Assistive Technology

Assistive technologies are designed to help people with disabilities navigate the digital world. Examples include:

- Screen reading software such as JAWS, NVDA, Browesealoud or Readspeak
- Screen magnifiers such as ZoomText
- Speech recognition software such as Dragon, Siri, Alexa, etc.
- Keyboard and mouse replacement tools such as Tobii Dynavox
- Touch replacement software for mobile phones



Adding accessible functions to assistive technologies

Assistive Technology Limitation	Solution
Emulates the keyboard but may not fully emulate the mouse	Design websites and software to operate with the keyboard alone
Cannot read content presented in images	Provide alternative text
Can tab from link to link	Make links descriptive
Can skip from heading to heading	Structure the content with hierarchical headings
Cannot accurately transcribe audio	Caption video and transcribe audio

UNIVERSAL DESIGN

*Principle One:
Equitable Use

**Principle Two:
Flexibility in Use

***Principle Three:
Simple and Intuitive Use

****Principle Four:
Perceptible Information

****Principle Five:
Tolerance for Error

****Principle Six:
Low Physical Effort

*Principle Seven: Size and
Space for Approach and Use

USABILITY

***Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?

****Efficiency: Once users have learned the design, how quickly can they perform tasks?

***Memorability: When users return to the design after a period of not using it, how easily can they reestablish proficiency?

****Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?

****Satisfaction: How pleasant is it to use the design?

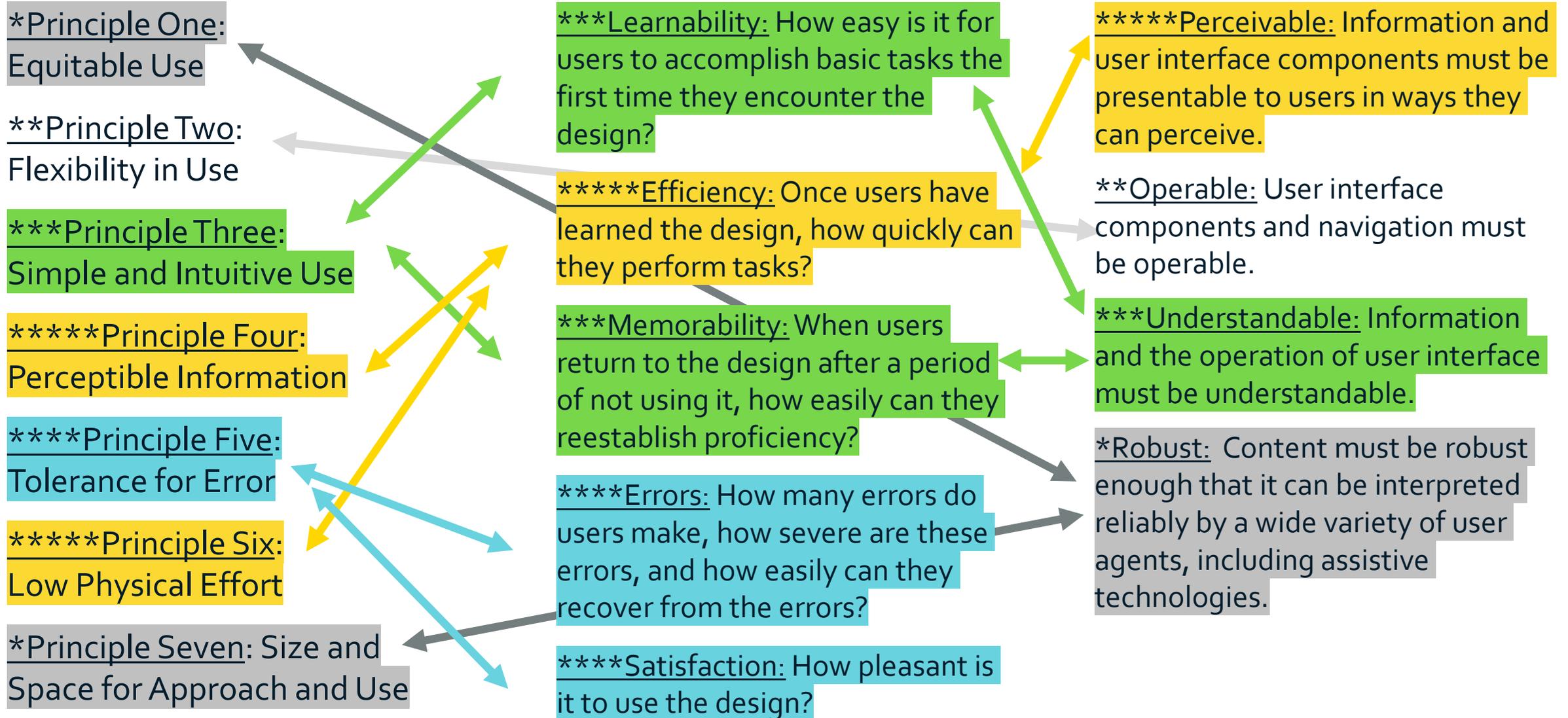
WCAG

****Perceivable: Information and user interface components must be presentable to users in ways they can perceive.

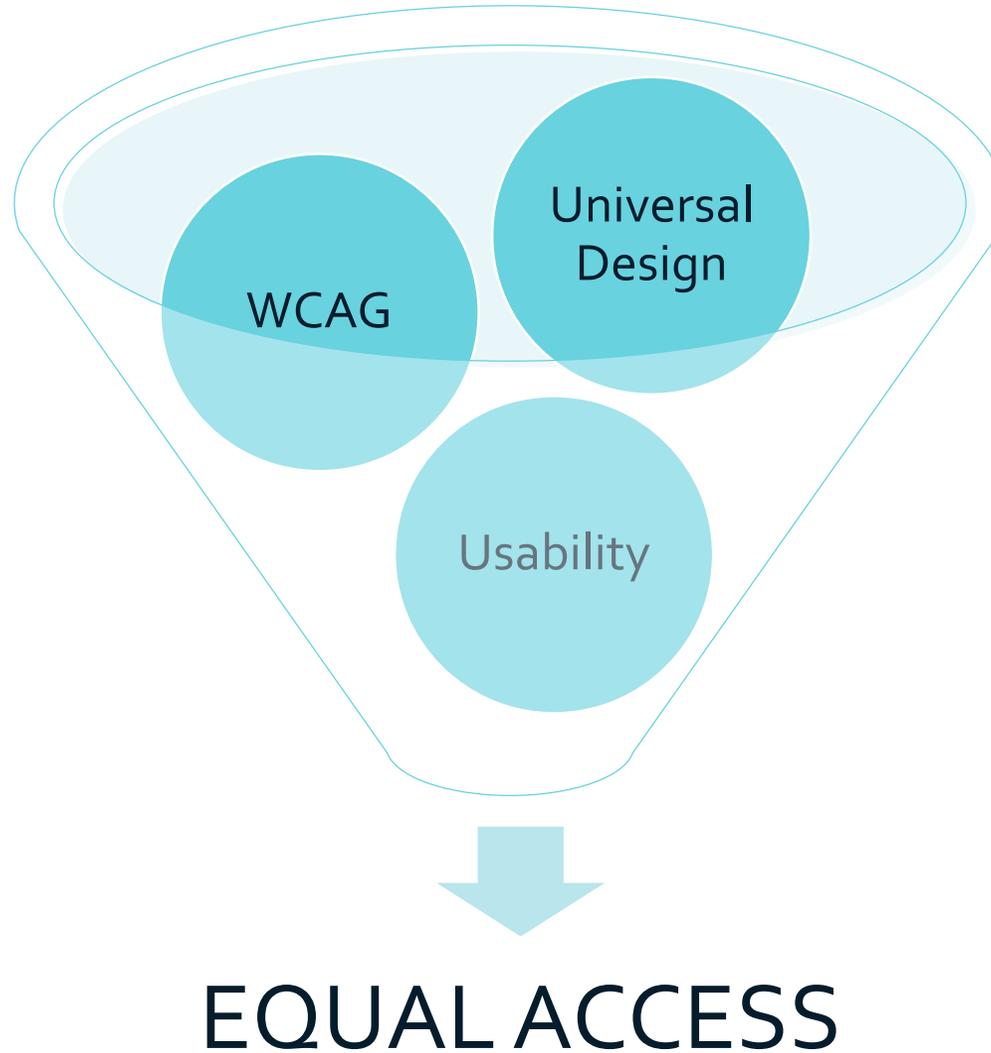
**Operable: User interface components and navigation must be operable.

***Understandable: Information and the operation of user interface must be understandable.

*Robust: Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.



WCAG alone is not enough!



Universal Design Everyone Benefits from Accessibility

How many times have you used voice recognition or text to speech on your phone?

Have you ever zoomed in on a webpage to increase the text to a readable size?

Have you ever used word prediction when typing or texting?

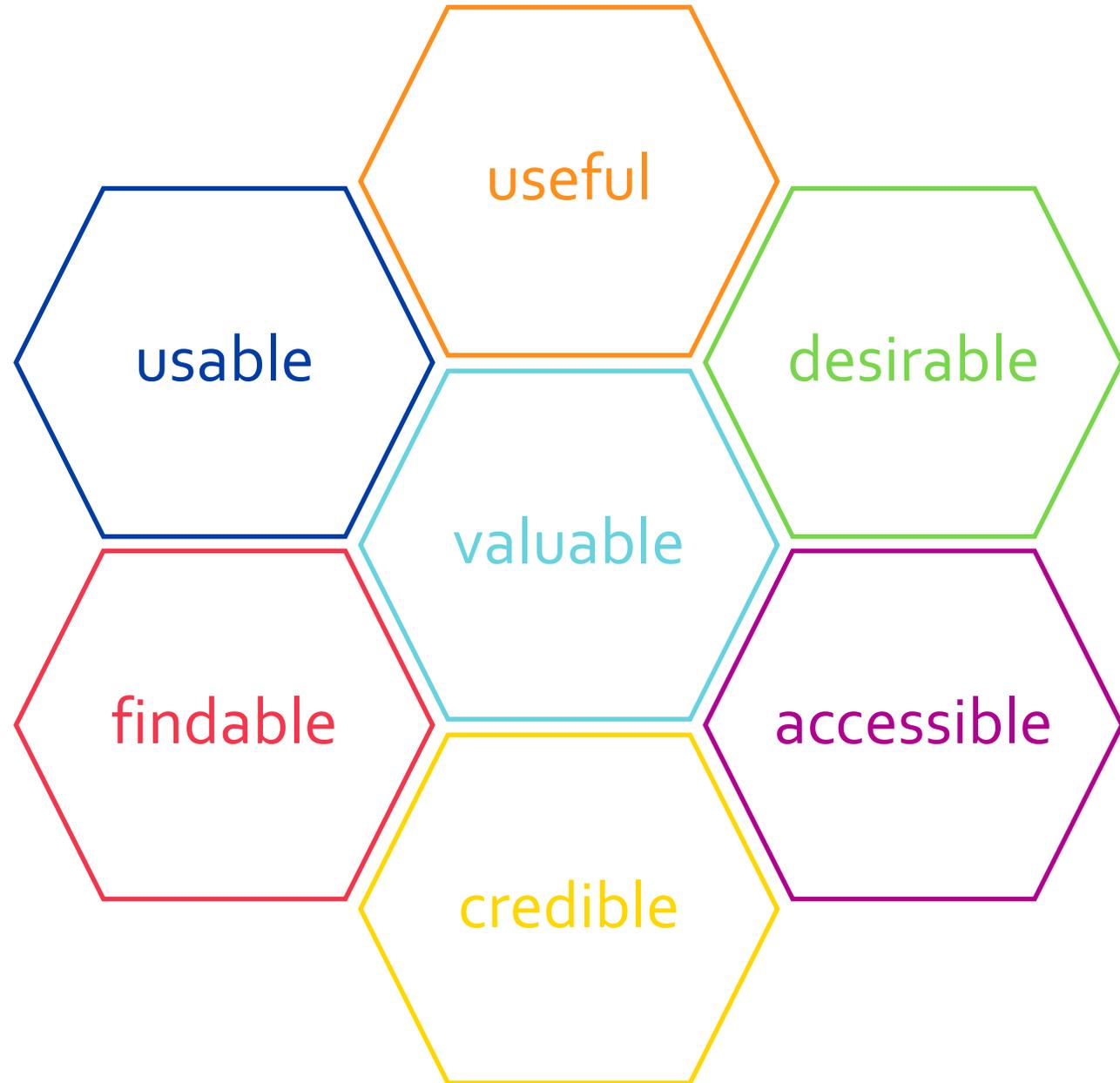
Have you ever noticed your cell phone automatically adjust the brightness of your screen for different environments?

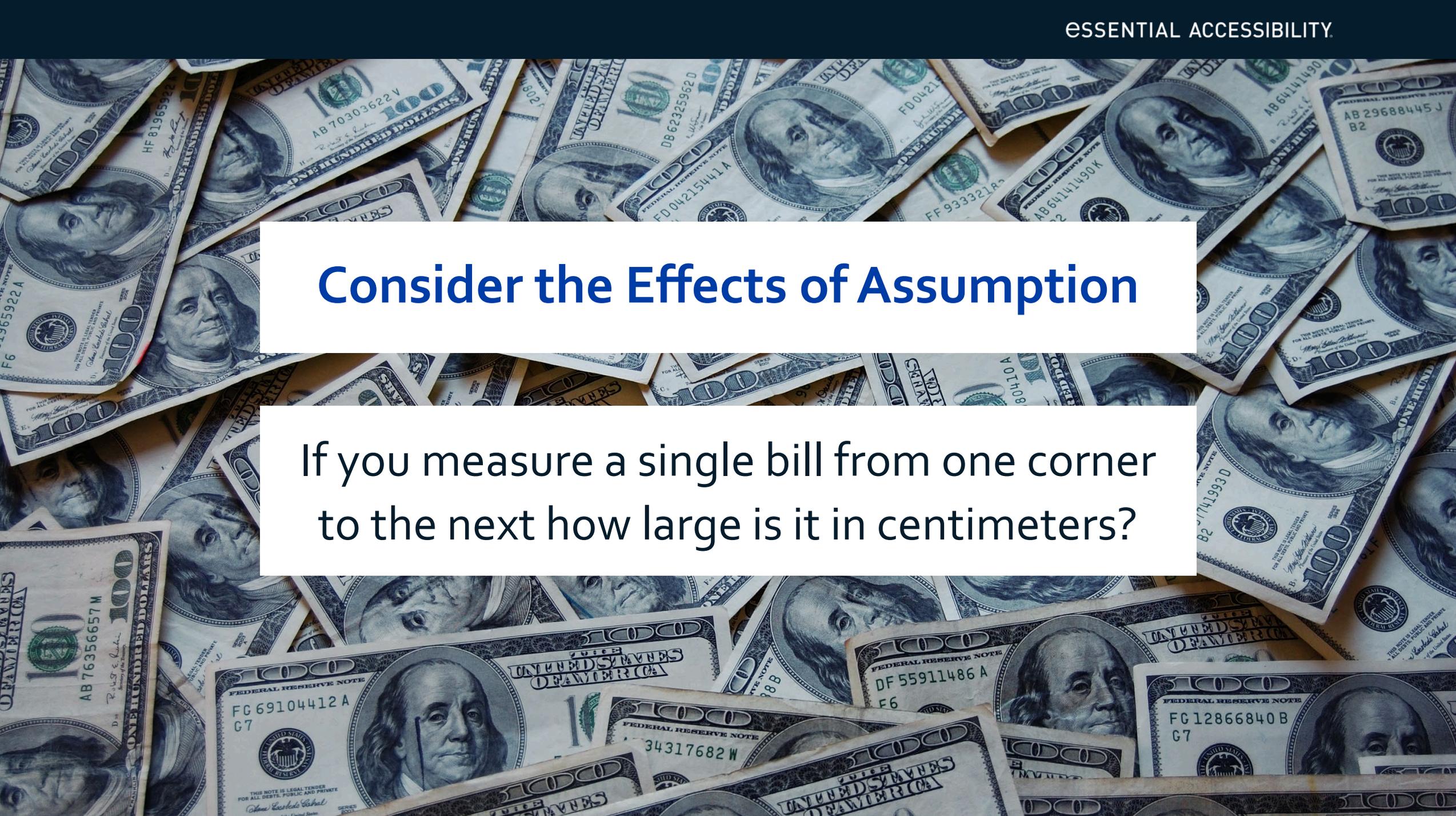
What is Usability?

Usability is a **quality attribute** that assesses how easy user interfaces are to use.

The word "usability" also refers to methods for improving ease-of-use during the design process.

Basic User Experience





Consider the Effects of Assumption

If you measure a single bill from one corner to the next how large is it in centimeters?

Which 2 corners
would you have
measured?



Consider the Effects of Perspective

Is this a Fence or a Bridge?

Poll Question:

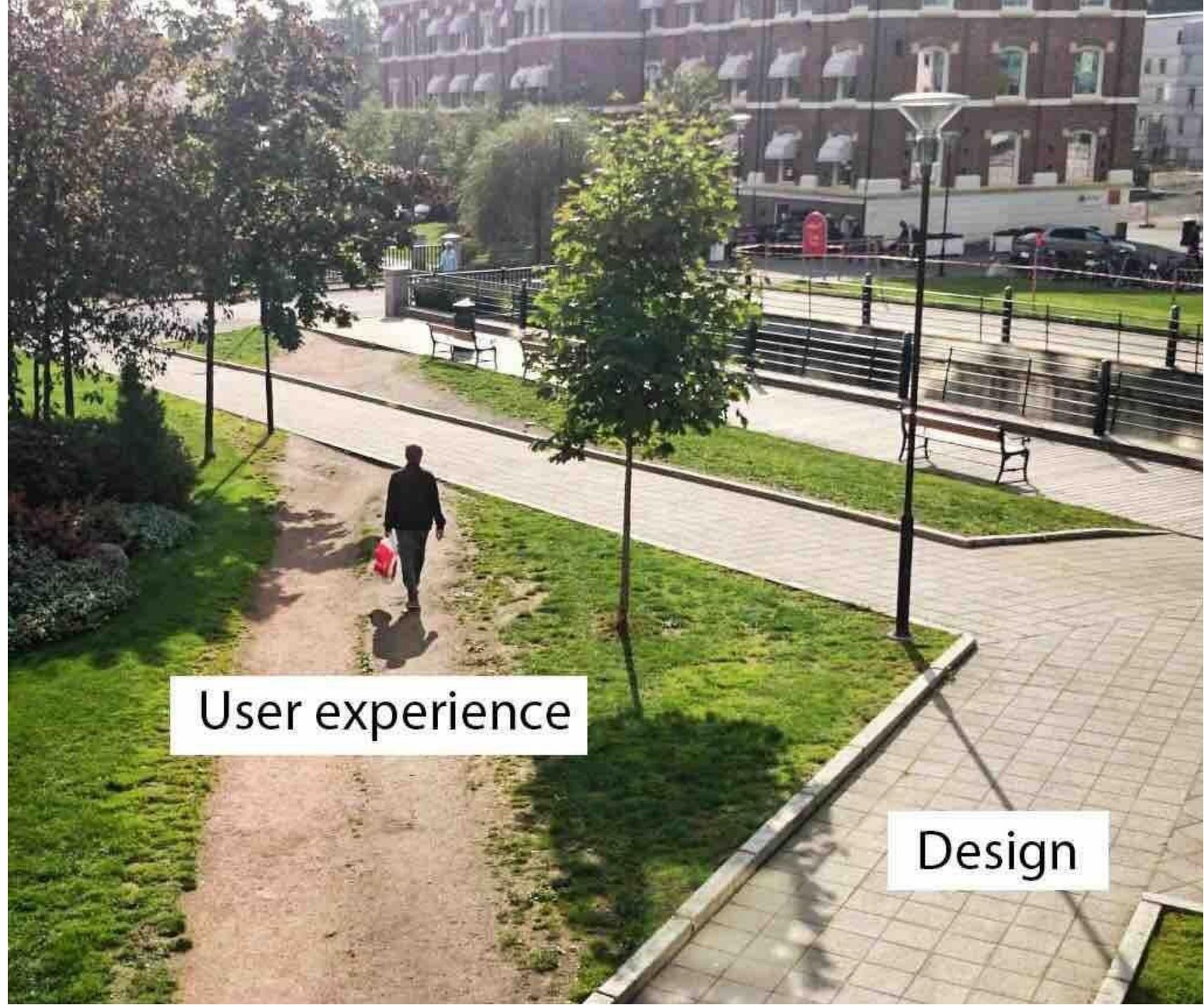
Do you see a bridge or a fence?

- 1) Bridge
- 2) Fence

Perspective is
Everything!



**It doesn't
always turn
out how we
thought.**



User experience

Design



Understanding WCAG

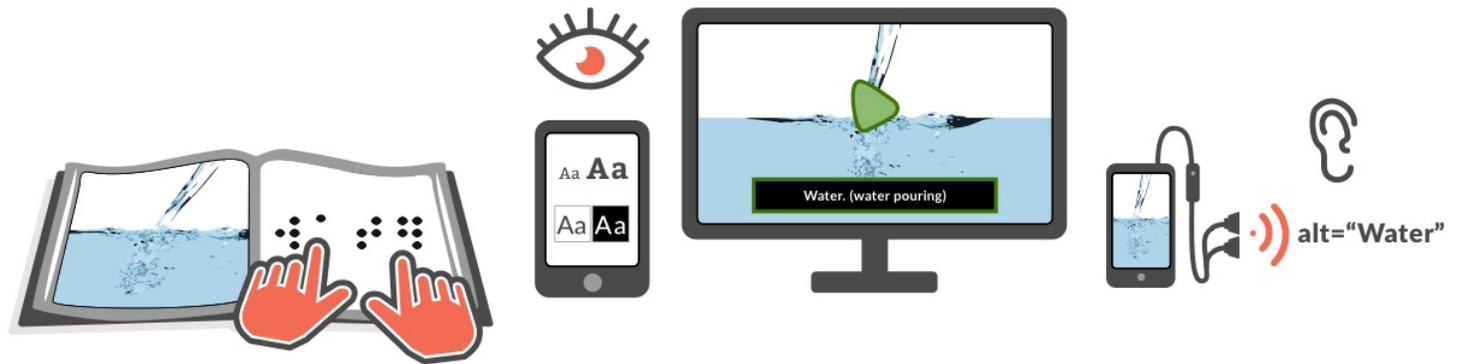
Web Content Accessibility Guidelines

- The World Wide Web Consortium (W3C) is an international community where member organizations, a full-time staff, and the public work together to develop web standards.
- WCAG 2.0 was published in 2008, and is the most universally accepted set of web accessibility guidelines available today. There are 12 guidelines that are organized under 4 principles. For each guideline, there are testable success criteria, which are at three levels: A, AA and AAA.
- International standards harmonizing to WCAG 2.0 such as AODA and EN 301549
- A new update, four years in the making was published on June 5th. WCAG 2.1 does not replace version 2.0. It's an extension (add-on), tackling some additional accessibility barriers that aren't addressed by 2.0 alone, and is backwards compatible.

Perceivable

To make sure learners can see and hear your content, you will learn how to:

- Add [alternative text](#) to images and other visuals
- Close caption videos or provide transcripts
- Provide sufficient color contrast between text and its background
- Make sure content does not rely on color alone



Operable

To make sure learners can interact with your content with a variety of tools, you will learn how to:

- Provide a clear structure with properly marked up headings
- Create descriptive links that make sense out of context
- Provide sufficient time for interaction and response
- Avoid content that can trigger seizures



Understandable

To make sure learners can understand your content and enjoy a predictable experience, you will learn how to:

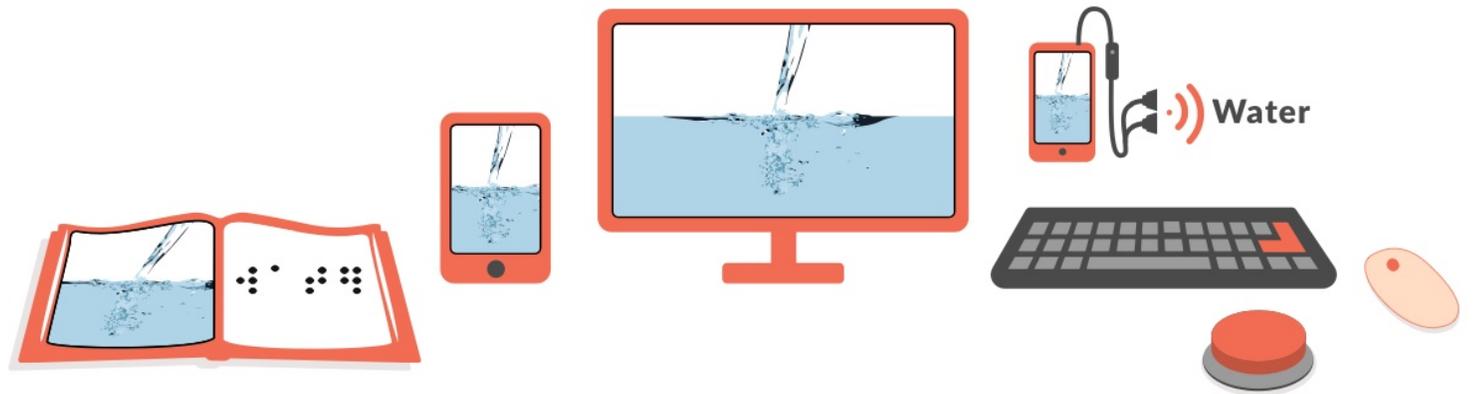
- Clarify expectations through clear directions and models
- Follow conventions to ensure a predictable and consistent experience
- Use plain language
- Indicate the language of your content



Robust

To ensure your content works well with current and future [technologies](#), you will learn how to:

- Add [metadata](#) to make content easier to find and use
- Perform an accessibility check
- Perform basic assistive technology testing



Benefits of Accessibility

Maximize	Maximize reach, revenues, and ultimately profits
Retain	Retain your current investment in resources
Tap	Tap into new pool of knowledge workers – those with disabilities
Increase	Increase productivity for all
Generate	Generate a positive media response
Use	Use as a competitive differentiator
Increase	Increase customer loyalty
Support	Support corporate social responsibility
Attract	Attract not only those people with disabilities, but their families, friends, co-workers, health care professionals

Designing with Accessibility in mind is easier and cheaper! – can you make more visual?

- **Designing for Accessibility is Much Easier (and results in a better design) than Retrofitting for Accessibility**

Oftentimes accessibility is one of the last things that organizations plan for in their web projects. Some people think that accessibility is easy and trivial enough that it can wait until the last minute of the development process after all of the other work is done. They assume that bolting on accessibility to a finished product is good enough. There are some big problems with this mindset:

- **A last-minute bolted-on approach usually results in a bad design, and a bad user experience.**
- **Adding accessibility at the end can be difficult.**
- **Accessibility might never get done at all.**
- **The cycle is self-perpetuating.**
- **A last-minute approach exposes systematic neglect.**
- **Poor planning is a legal liability.** If an organization is constantly producing web designs that fail accessibility standards, the organization is constantly at legal risk for discriminating against people with disabilities, in violation of applicable laws.

Barriers and Accessibility



Focus on the Barrier – NOT the disability

A barrier to accessibility is anything that limits or prevents a person from being able to receive information, services and goods, and access space or activities. Barriers may prevent access to housing, transportation, community participation, employment or education.

Barrier Examples:

- Attitudinal (Attitudes can be the biggest barrier.)
- Informational and Communication
- Technological
- Business (Policy, process, and procedures)
- Physical and architectural

Common barriers for this group include: Blind, Low Vision or Color Blind

visual content that has no text alternative or degrade when magnified

functional elements that cannot be controlled with a keyboard

overly complex or excessive amounts of content

inability to navigate within a page of content

content that is not structured

inconsistent navigation

time limits (insufficient time to complete tasks)

unexpected actions (e.g., redirect when an element receives focus)

Low Contrast (or use of color alone)

multimedia without audio description

Common barriers for this group include: Deaf and HOH



AUDIO WITHOUT A
TRANSCRIPT

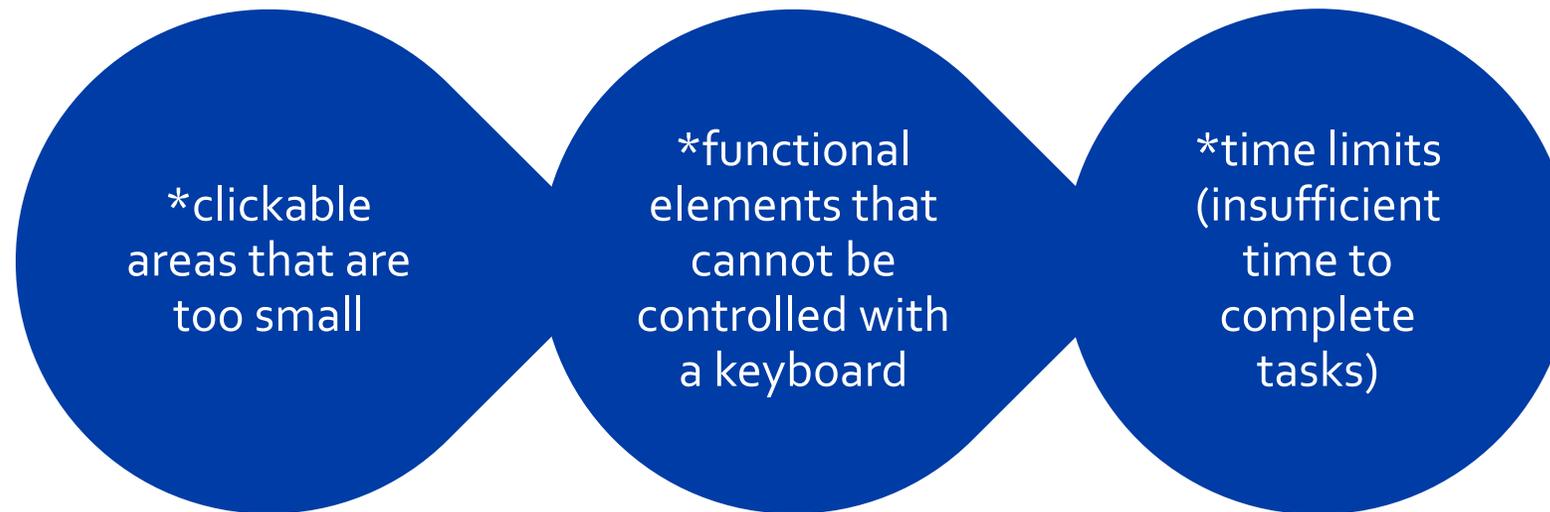


MULTIMEDIA WITHOUT
CAPTIONS OR TRANSCRIPT



LACK OF ASL INTERPRETATION
(FOR ASL/DEAF COMMUNITY)

Common barriers for this group include: Mobility Related



Any item marked with an asterisk(*) is also a barrier to a different disability

Cognitive and Learning

Common barriers for this group include:

- *use of overly complex/advanced language
- *inconsistent navigation
- *overly complex or excessive amounts of content
- *time limits (insufficient time to complete tasks)
- *unstructured content (no visible headings, sections, topics, etc.)
- *unexpected actions (e.g., redirect when an element receives focus)

More specific disability-related issues include:

- reading: text justification (inconsistent spacing between words)
- *reading: images of text (not readable with a text reader)
- *visual: visual content with no text description
- math: images of math equations (not readable with a math reader)

Any item marked with an asterisk(*) is also a barrier to a different disability

7 COMMON BARRIERS

- Images missing text alternatives (alt-text)
- Proper use of tables
- Insufficient color contrast ratio
- Accurate Headings
- Descriptive Links
- Forms without proper labels or logical reading order
- Absence of keyboard support or visual focus

EFFECTIVE LINKS

Hyperlinks that are good for both accessibility and usability use **descriptive text** and retain the standard **underline** style.

✓ **GOOD**

Visit [WebAIM's Link Text article](#) for details.

✗ **BAD**

[Click Here](#) for details.

✗ **UGLY** (and unclickable)

https://webaim.org/techniques/hypertext/link_text

Some people cannot read text if there is not sufficient contrast between the text and background. For others, bright colors (high luminance) are not readable; they need low luminance.

Free Newsletter (optional)

To receive our free newsletter fill in the following details:

Name:

Email Address: Retype Email:

First name: <input No Match id="firstbad" Error>

Last name: <input No Match id="lastbad" Error>

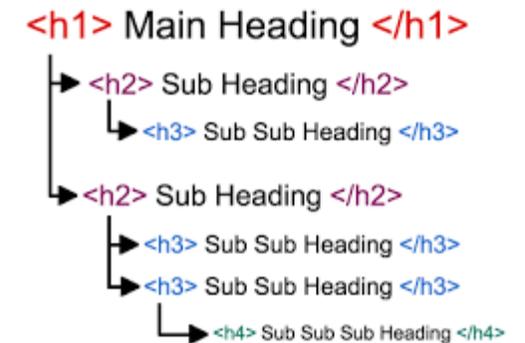
<label for="datebad"> Date: (dd/mm/yyyy) <input id="datebad">

<input No Match id="phonebad" Error> Phone number:

<input No Match id="mobilebad" Error> Mobile

<input No Match id="homebad" Error> Home

<input No Match id="workbad" Error> Work



Top 10 Web Accessibility Topics

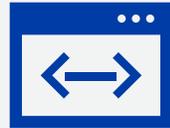


Work Smarter Not Harder



CLEARING A PATH
FOR PEOPLE WITH SPECIAL NEEDS
CLEARS THE PATH FOR EVERYONE!

Principles for Designers



To design for accessibility means to be inclusive to the needs of your users. This includes your target users, users outside of your target demographic, users with disabilities, and even users from different cultures and countries. Understanding those needs is the key to crafting better and more accessible experiences for them.



Design for the diverse set of users who will interact with your products.



“Good accessible and usable design happens when you view your design from many different perspectives.”

