IMPROVING USABILITY WITH ACCESSIBILITY

Kim Vassiliadis, UNC-Chapel Hill
Hello

I’m Kim Vassiliadis
Quiz!
How many people in the U.S. are estimated to have disabilities?

A. Hundreds
B. Thousands
C. Millions
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56 Million people / 19% of the population
Which company had a web accessibility suit filed against them?

A. Peapod  
B. E*Trade  
C. Winn Dixie  
D. Five Guys  
E. Netflix  
F. Target  
G. Miami University  
H. Seattle Public Schools  
I. H&R Block  
J. All of the Above
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J. All of the Above

Test your knowledge
Which statement is true?

A. It’s recommended to use text whenever you can, versus using an image of text.
B. Text should be able to be resized to 100% and be seen in a full-sized window without having the user scroll horizontally to read the information.
C. As long as the foreground and background are different colors, it’s considered accessible.
D. Form instructions should be at the end of a form.
Which statement is true?

A. *It's recommended to use text whenever you can, versus using an image of text.*

B. Text should be able to be resized to 100% and be seen in a full-sized window without having the user scroll horizontally to read the information.

C. As long as the foreground and background are different colors, it’s considered accessible.

D. Form instructions should be at the end of a form.
The law

- Public Institutions have a legal requirement to make digital resources accessible.

- Subject to many requirements, chief among them:
  - Section 504 of the Rehabilitation Act of 1973
  - Section 508 of the Rehabilitation Act Amendments of 1998,
  - Title II of the Americans with Disabilities Act of 1990

- Expectation: Meeting Web Content Accessibility Guidelines (WCAG) 2.0
  - international guidelines established by the Web Accessibility Initiative (WAI) of the Worldwide Web Consortium (W3C)
“Provide the same means of use for all users: identical whenever possible; equivalent when not.”

From the Seven Principles of Universal Design, NC State University College of Design
In the physical world......
Wilson Library
Wilson Library Side door

Equivalent access but sub-optimal user experience.
Undergraduate Library
“It’s easier to build a new building correctly than to renovate an old one. New buildings have to be created with elevators and ramps to assist people with disabilities, and websites should be thought of in the same way.”

Elizabeth Pyatt, Instructional Designer
Penn State University
In the digital world...
Accessibility myths

- Accessibility only benefits blind or vision impaired users.
- Accessibility means text-only, dull, and boring sites.
- Building an accessible site is expensive.
- People should view a website the way the designer intended.
Eat your veggies approach to accessibility
Four Principles of Web Accessibility:

- **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.

Web Content Accessibility Guidelines (WCAG)
Accessibility improves usability

“While accessibility focuses on people with disabilities, many accessibility requirements also improve usability for everyone.

W3C - Web Accessibility Initiative
Disabilities are not binary

- **Permanent**: A defining characteristic of the person's body.
- **Temporary**: An injury, sickness, or short-term impairment.
- **Situational**: A condition or context that limits a person's ability.
Mobility/touch ability spectrum

PERMANENT
A person who cannot use their hands

TEMPORARY
A person with an arm injury

SITUATIONAL
A person holding a baby
Visual ability spectrum

PERMANENT
A person who is blind

TEMPORARY
A person with dilated eyes from an eye exam

SITUATIONAL
A person driving and looking at a device
Auditory ability spectrum

PERMANENT
A person who is hard of hearing

TEMPORARY
A person with an ear infection

SITUATIONAL
A person at a concert
Accessibility improves usability

By making your website accessible, you are ensuring that all of your potential users, including people with disabilities, have a decent user experience and are able to easily access your information.

usability.gov/what-and-why/accessibility.htm
Captioning

We cultivate innovative faculty and student leaders
Touch targets

- Appropriate padding
- Tiny touch target
- Too small
Color contrast

Weak Contrast
Makes Things
Invisible

Strong Contrast
Makes Things
Legible

https://www.brandeis.edu/web-accessibility/best-practices/color.html
Bad accessibility = bad usability
Bad accessibility = bad usability

- Important information is stuck in a slider
- Important information is an image
- Poor color contrast
Bad accessibility = bad usability

- Important information is stuck in a slider
- Important information is an image
- Poor color contrast
- Not Responsive!
UNIVERSITY OF N.C. AT CHAPEL HILL

First state university to open its doors, 1795. Chartered in 1789 under the Constitution of 1776.
ITS – Digital Services is a centralized service
What we do

18K+ Sites

Support the network

Not the content
Around campus

Support their network

Manage their content
When it comes to websites... 

...the University is the wild west
Eat your veggies approach to accessibility
Digital Services’ work

- Accessibility audit of ITS owned sites
- Began building our own awareness/skillset
- Consulting with groups on campus
OCR Complaint
Now

- Evangelizing to the community
- More consults with more groups
Adding accessibility to the workflow

- Support
- Assistance
- Redesign
- Development

Accessibility
Original Carolina Blue

Color Contrast Checker

Home > Resources > Color Contrast Checker

Foreground Color: #7BAFD4
Lightness

Background Color: #FFFFFF
Lightness

Contrast Ratio: 2.35:1

Normal Text
WCAG AA: Fail
WCAG AAA: Fail
The five boxing wizards jump quickly.

Large Text
WCAG AA: Fail
WCAG AAA: Fail
The five boxing wizards jump quickly.

Explaination
Updated color palette

FOR ALL WEB APPLICATIONS:
In 2017, the University adopted a new policy for web accessibility. Follow these color guidelines to ensure your website meets WCAG 2.0 AA accessibility standards. For more information regarding accessibility, visit access-web.unc.edu.

- Web Carolina Blue
  Hex #4B9CD3
  RGB 75, 156, 211

- Link Blue
  Hex #007FAE
  RGB 0, 127, 174

- Athletics Navy
  Hex #3394B
  RGB 19, 41, 75

- Light Gray
  Hex #E1E1E1
  RGB 225, 225, 225

- Dark Gray
  Hex #767676
  RGB 118, 118, 118

- Black
  Hex #353535
  RGB 21, 21, 21
Accessibility analysis report
01/19/18    Phil Daquila, ITS Digital Services

> unc.edu

Violation: Elements do not have sufficient color contrast.
Issue description: Ensures the contrast between foreground and background colors meets WCAG 2 AA contrast ratio thresholds for those with low vision or color blindness.
Impact: Serious. Low-contrast text is difficult or impossible for some users to read.
Requirements: 4.5:1 for text 14pt (19px) and smaller
3:1 for text 18pt (24px) and larger, or 14pt (19px) bold and larger

Please fix the following items:

Element has insufficient color contrast of 3.00. Expected contrast ratio of 4.5:1.
Foreground color: #4b9cd3, background color: #ffffff, font size: 13.5pt (18px), font weight: normal.
Solution: Either darken background color or increase font size.

Visit the GAA website for (multiple occurrences of this style)
Example page: https://unchome-prod.sics.unc.edu/alumni/
Element has insufficient color contrast of 3.91. Expected contrast ratio of 4.5:1. Contrast requirement is in place even if link is underlined.
Foreground color: #3b7ca7, background color: #eeeeee, font size: 12pt (16px), font weight: normal.
Solution: Darken foreground color or lighten background color.

FIXED

OPEN GALLERY

Element has insufficient color contrast of 3.00. Expected contrast ratio of 4.5:1.
Foreground color: #4b9cd3, background color: #ffffff, font size: 13.5pt (18px), font weight:
Chrome tool
Accessibility from the start

Remediation is complicated.
Remediation is expensive.
"Accessibility is like a blueberry muffin—you can't push the berries in there afterward."
-- Cordelia McGee-Tubb
THANK YOU!

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