

Designing for Disabilities

Accessible UX



WCAG Level AAA
Recommendations
for Mobile Applications



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Web vs. Mobile

57%
of Americans

Read the news on **mobile devices**.

30%
of Americans

Read the news on **desktops and laptops**.

19.4%
of non-institutionalized
Americans
are disabled.



Audio

Visual

Accessibility

Time Sensitive

Text Considerations

WCAG was created to make **web** content more accessible, especially for disabled users.

But how well does it work for **mobile** content?

"I knew there were limitations in apps from my own interactions, but I'd never heard of the WCAG."

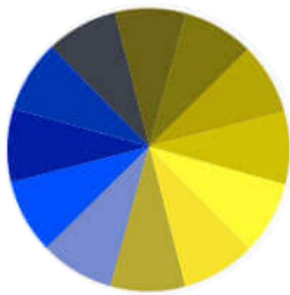


Eddie, Graduate Student

"I'm a visual learner, so I need contrast that's not stressful for my eyes."



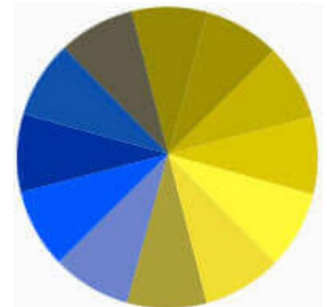
Tony
Student, Researcher with
red-green colorblindness



Protanopia



Tritanopia



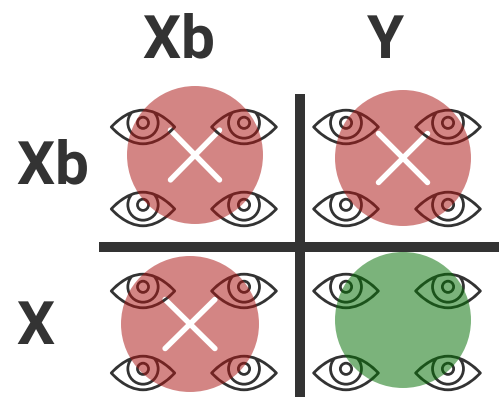
Deuteranopia

Visual Presentation

1.4.8

Level AAA Success Criteria recommend user-selected foreground and background colors.

People with XY chromosomes are more likely to be colorblind because the gene for colorblindness lives on the X chromosome. People with XX chromosomes may have one non-colorblind coded X and a colorblind coded X that cancel each other out, whereas with XY, the person is subject to the coding of the single X chromosome present.





"I get vestibular migraines... They (flashing lights) can bring on a migraine or compound one that is already happening... I tend to quickly leave websites that have fast flickering images or text."

Alice
Student, Researcher
with Migraine + vertigo

Seizures and Physical Reactions

2.3.2

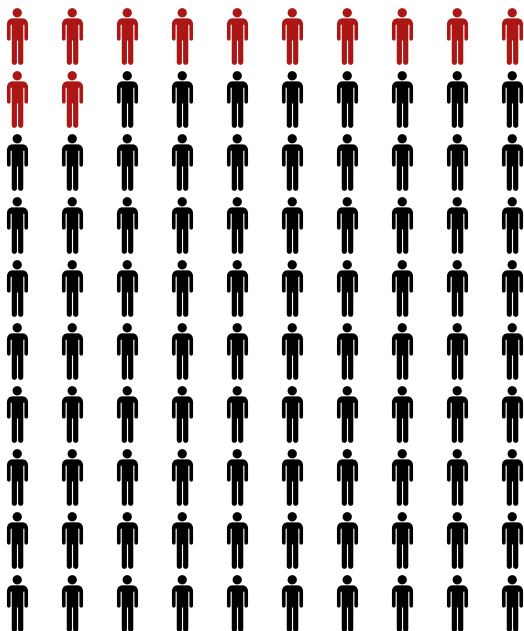
Level AAA Success Criteria recommend web pages do not contain anything that flashes more than three times in any one second period.

90%
of sufferers

are unable to function normally during an attack

12%
of people

experience migraines



"I'm concerned with the amount of time it takes for me to enter information. I cant hold my phone with one hand and enter info with the other.

When I can, I try to use my pointer fingers to do things.

It hurts to manually input information, and I find myself turning the phone sideways to make it bigger for typing, then back vertically for things like maps."

Margarita

Volunteer and Teacher with small motor skill disabilities and arthritis

Over
20%

of adults in the United States have arthritis. 1 in 4 adults report significant pain in their hands.

Enough Time

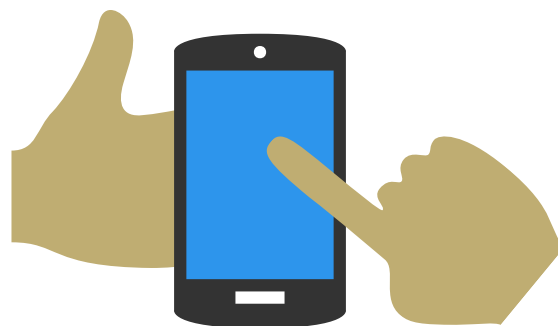
2.2.5

Level AAA Success Criteria recommends web pages can continue to operate after authentication expires.

Error Prevention

3.3.6

Level AAA Success Criteria recommend web submissions can be reversed, checked, or confirmed before submission.





Homonyms. Homophones. Homographs.
Aunt. Ant. Tear. Tier. Dew. Do. Due.
Knight. Night. Band. Banned.
Shear. Sheer. Roll. Role. Doe. Dough.
Break. Brake. Fir. Fur. Accept. Except.
Are. Our. Passed. Past. Bare. Bear.
Precede. Proceed. Principle. Principal.
Right. Write. Sense. Since. Sight. Site.
Threw. Through. Duel. Dual. Whether.
Weather. Forebear. Forbear. Grisly. Grizzly.
Loath. Loathe. Advice. Advise. Assent. Ascent.

"If an application doesn't have text to speech options, I would never know that I misspelled the word. Text-to-speech can also trip me up for words that the text reader pronounces the same but are different, such as '*pronounce*' and '*pronouns*.'"

Lucy
University Professor and
Research with Dyslexia

Unusual Words

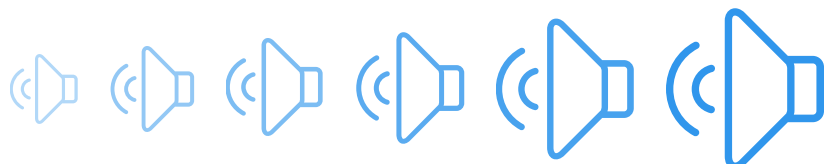
3.1.3

Level AAA Success Criteria recommend mechanisms for identifying definitions of unusual jargon or idioms

Pronunciation

3.1.6

Level AAA Success Criteria recommend mechanisms for identifying specific sounds



"On apps I have, there are things I need to close out before it will load, but you cant X out because it's too small. That makes it difficult to get to the important information quickly."

"When icons are too small, it makes it difficult to get to the important information quickly. If I couldn't get to my glasses during an emergency and needed to access information, it could be dangerous."

Wayne, Visually Impaired

3%
of Americans

aged 40 years and older are either legally blind or visually impaired

2.4.9 LINK PURPOSE

A mechanism is available to allow the purpose of each link to be identified from link text alone, except when the purpose of the link would be ambiguous to users in general.

2.5.5 TARGET SIZE

The size of the target for pointer inputs is at least 44 x 44 pixels.

15% of Americans

are 65 or older.

42% of seniors

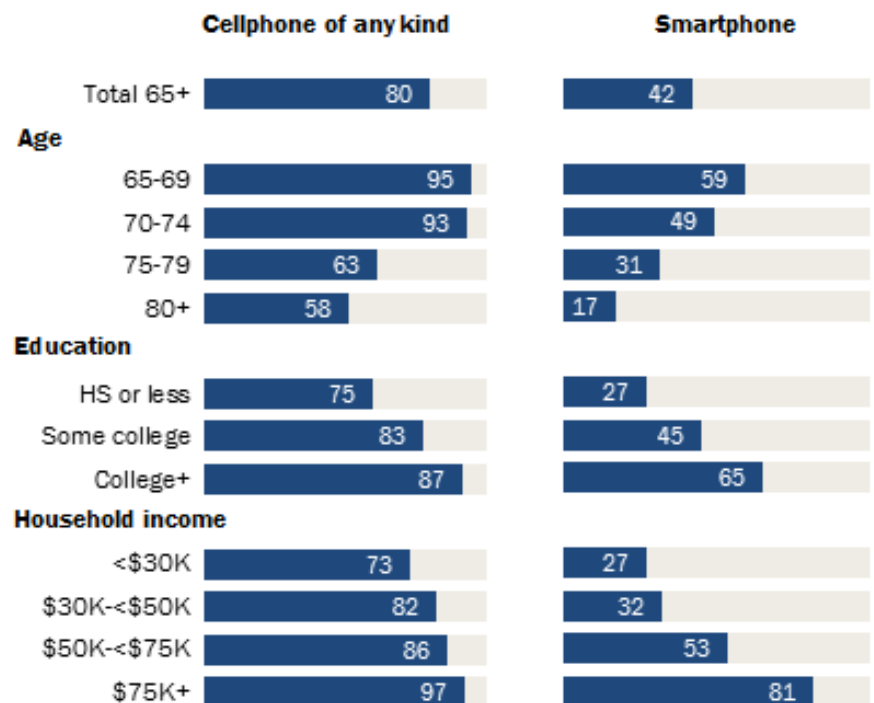
own smartphones.

67% of seniors

use the Internet

Roughly four-in-ten seniors are smartphone owners

% of U.S. adults ages 65 and older who say they own the following ...



Source: Survey conducted Sept. 29-Nov. 6, 2016.
"Tech Adoption Climbs Among Older Adults"

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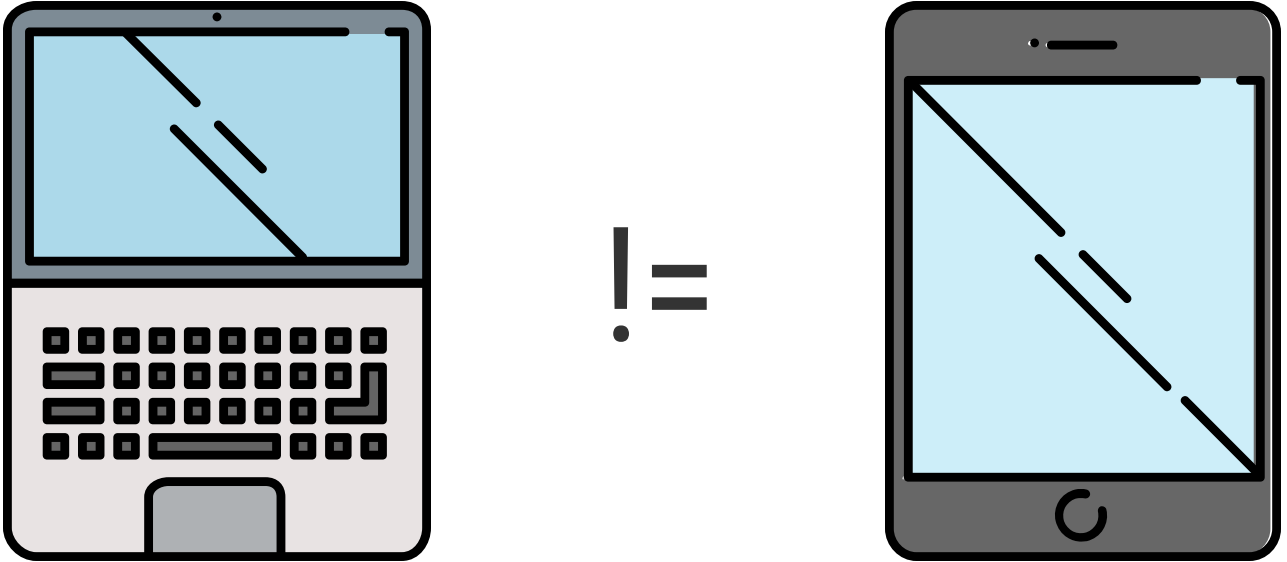
1.4.8 VISUAL PRESENTATION

Text can be resized without assistive technology up to 200% in a way that does not require the user to scroll horizontally to read a line of text on a full-screen window.

2.4.10 SECTION HEADINGS

Section headings are used to organize the content.

Key Takeaways



An app is not simply a website shrunk down to phone size.

Personal computers and mobile devices are very different tools with different input methods.

The standards that have worked for web design aren't going to cut it in a mobile environment.

Compiling data like the testimonials we've presented here is a critical step towards creating a new set of design standards specifically for mobile devices.