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Reaching student communication and learning needs through web accessibility

Greetings Everyone!

My name is Alex B. Criswell. I am a graduate candidate for a Master of Arts in Communication with a concentration on interpersonal and organizational communication as well as a Master of Science in Education with a focus on Instructional Design & Technology at Purdue University Calumet in Hammond, Indiana.

Welcome to my concurrent of "Reaching student communication and learning needs through web accessibility."

Welcome!

- This presentation will examine web accessibility and how it relates to the learning and communication needs of students in a technology-driven society.
- Web accessibility information, examples of compliant and non-compliant content, as well as accessibility tools will be provided.

As educators, we always want to entice our students to learn new things. In a technology-driven society, many of us have turned to the world-wide web for learning and collaboration.

With the changes in technology, it has required us to focus on meeting the needs of all end-users. So, for instance; let's say you create a website with a wealth of resources to use during your teaching. I have some questions for you though: Is it accessible? Do you know what accessibility is?
Are you aware that an inaccessible website may not reach all of your student's learning and communication needs? "HTML, Alt text, accessibility, section 508, WCAG" might all be terms that sound familiar; but how do they come all together to reach your student's needs?

Web accessibility is a hot topic in education today as all students must have content that is accessible to them, no matter their disability, learning deficiency, or device.
This means that whether you're flipping your classroom, or just providing a place for students to post work and communicate with one another, the tools you require them to use must be accessible to all.

This presentation will briefly cover information regarding web accessibility, Section 508 standards, document (Office documents and PDF) accessibility, and the Web Content Accessibility Guidelines (WCAG). Let's get started!

What is a disability? As noted by Pam Riesmeyer, Purdue University Calumet's Web Accessibility & Coordinator; the short definition of a disability is "a limitation."

As noted by the US Department of Labor (2013), a disability "is a physical or mental impairment that substantially limits one or more of a person's major life activities.

A disability need not be obvious; such conditions as learning disabilities, psychological illnesses, asthma, or infection with HIV may qualify as disabilities under the law."

Accessibility techniques focus on individuals with visual disabilities in the past, but remember that visual disabilities are not the only disabilities known.

Major categories of disabilities include:
- Motor (Inability to use a mouse, slow response time, or limited fine motor control)
- Cognitive (Learning disabilities, distractibility, inability to remember or focus on large amounts of information)
- Visual (Blindness, low vision, or color-blindness)
- Auditory (Deafness or hearing difficulties)

As noted by the Employment & Disability Institute of Cornell University, a major life activity includes things, such as:
Seeing
Hearing
Eating
Sleeping
Walking
Standing
Lifting
Bending
Speaking
Breathing
Learning
Reading
Thinking
Communicating
Working
And, Interacting with others

And many other tasks that we use everyday.

Reasonable Accommodations

- An adjustment or auxiliary aid
  - No fundamental alteration in the function of a program or service
  - Does not impose an undue financial or administrative burden to the institution/organization.

Often, as educators we are required to provide reasonable accommodations for an individual with a disability.

It could include extended test times, transcripts for video lectures, or outlines of specific content.

An accommodation is classified as an adjustment or auxiliary aid that has no hardship on the operating entity or requires a complete alteration of the services provided.

You're not alone.

- It is not just about a disability.
- Accessibility relates to different...(Riesmeyer, 2013)
  - Abilities
  - Devices
  - Situations

The world is DiFFERENT.
Community is inclusive.

Accessibility is not just relating to a disability; it reaches out to different abilities, devices, and situations.

These three different words mentioned will affect how we experience our world physically and online.

Different abilities include how well we read, how fast we take in knowledge, and whether we are visual or auditory learners.

Different devices include desktop and laptop computers, mobile phones, tablets and iPads, mice and trackballs, keyboards, and screen readers.

Different situations can vary. For instance, studying in a quiet library or café may not be a good time to listen to a video lecture or podcast. This is where closed captioning or a transcript can make a huge difference.

World Wide Web/Internet

- How is it used?
  - News
  - E-mail
  - Shopping
  - Entertainment
  - Education
  - Communication
- Does everyone use/access/view the Internet the same way?

With the topic of web accessibility in mind, let's first talk about the World Wide Web.

How is it used? We all tend to have different priorities and reasons for using the web such as news, e-mail, shopping, entertainment, education, and communication.

The internet, while convenient, is vastly different to a user with disabilities. Think about it, the world is available to us with a computer screen and a mouse.

Of course, this isn't the case for someone who cannot use a mouse, read a screen, or hear media over speakers or a headset.

What is web accessibility?

- Web Accessibility refers to the regulations regarding accessible content on the World Wide Web.
- "The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect." – Tim Berners-Lee (W3C, 1997)

Web Accessibility refers to the regulations regarding accessible content on the World Wide Web.

Though the regulations were formed for individuals with disabilities, these guidelines can be used in a universal fashion to make content accessible to all and to ensure that websites are usable by all individuals whether a disability is present or not.

Tim Berners-Lee; director of the World Wide Web Consortium states: "The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect."

Origin of Web Accessibility

- In the United States, applicable laws include:
  - ADA-Americans with Disabilities Act (1990)
  - IDEA-Individuals with Disabilities Education Act (1997)
  - Rehabilitation Act (1973)
    - Section 504 & 508
- Web Accessibility is centered around:
  - WCAG-Web Content Accessibility Guidelines
    - W3C (World Wide Web Consortium)
  - Section 508
    - Rehabilitation Act of 1973

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- ADA-Americans with Disabilities Act (1990)
- IDEA-Individuals with Disabilities Education Act (1997)
- Rehabilitation Act (1973)
    - Section 504 & 508

Web Accessibility information is centered around:
- WCAG-Web Content Accessibility Guidelines
    - W3C (World Wide Web Consortium)
- Section 508
    - Rehabilitation Act of 1973

Assistive Technology

- Assistive Technology has primarily been used by individuals with disabilities, which includes examples such as:
  - Alternative input devices
  - High contrast features available on computers and mobile devices
  - On-screen keyboards
  - Screen readers such as JAWS and Orca
  - Text enlargers
  - Transcriptions
  - Voice recognition software such as Dragon Naturally Speaking

Assistive Technology, what is it?

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Screen Reader Example

- Neal Ewers
- Trace Institute
  - University of Wisconsin
- Use of a screen reader/speech synthesizer

- http://www.youtube.com/watch?v=VvWCnFjAGgo

This is a video demonstration of how an individual with a visual disability uses a screen reader, which is an assistive technology. Neal Ewers, who is with the Trace Research Institute at the University of Wisconsin, demonstrates how a screen reader is used with the web and documents.

http://www.youtube.com/watch?v=VvWCnFjAGgo

With all this talk about accessibility and disabilities, where do you begin? First, review the literature.

These Regulations, such as Section 508 of the Rehabilitation Act of 1973 and the Web Content Accessibility Guidelines (WCAG 2.0); and recommendations and tips on web accessibility by other developers are great resources.

Section 508 tends to focus more on the technology provided to the end-user, and less on the user experience. Web Content Accessibility Guidelines have the opposite effect and they focus on the user experience versus the technology. These guidelines are expected to be revised by the end of the year 2015.

Next, Build it! Create your Website/Document.
You aren't restricted to certain templates for accessible products, but it's best to refer to accessibility checklists in order to make your product accessible in the end.

Thereafter, Test your product. We're bound to make mistakes, including your speaker. That's what testing is for. Without it, I wouldn't be able to provide you accessible products in this workshop, which includes this PowerPoint.

Finally, Revise & Distribute. Make your revisions to your product, ensuring there are no accessibility errors and distribute it.

What rules should I follow?

SECTION 508
- Non-text elements
- Multimedia
- Color
- Styles
- Image Maps (outdated)
- Data Tables
- Frames
- Flicker
- NoScript (outdated)
- Links to plugins
- Skip Navigation
- Redirects

WCAG 2.0
- Principle 1: Perceivable
  - "Information and user interface components must be presentable to users in ways they can perceive."
- Principle 2: Operable
  - "User interface components and navigation must be operable."
- Principle 3: Understandable
  - "Content and controls must be understandable."
- Principle 4: Robust
  - "Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies."

These rules can be rather complicated and complex to understand; however, Pamela Riesmeyer (2013) summarized these rules in an very easy to understand format.

In reference to section 508, Non-text elements, Multimedia, Color, Styles, Data Tables, Frames, Flicker/Flash Rate, Links to plugins, Skip Navigation, and Redirects are covered.

WCAG has a embodiment of four principles, which include Perceivable, Operable, Understandable, and Robust.

While there are regulations in-place, things still are not crystal clear in reference to policy. Currently, it's still up to the educational institution or business.

The federal government is at work now and has been for some time rewriting Section 508 and it is expected to be more in line with WCAG 2.0 AA . The earliest we anticipate these guidelines becoming law – 2015.

Quick Tips

- Use relative font sizes on web pages/documents
  - Headings: H1, H2, H3, H4
  - Paragraph
    - Try to avoid **Bold** text for headers, use the H settings instead
- Web Links
  - Links are always underlined.
    - Do not underline normal text unless it is a link.
  - Use meaningful names
    - "Click Here" isn't a meaningful link

Some quick tips, I will give you are:

Use relative font sizes on web pages and documents. Instead of making headings bold, use the heading tags; such as h1, h2, h3, and h4.

Web Links are always underlined. Refrain from underlining text unless it is a link.

Be sure to use meaningful names for links and not a generic term, such as "Click Here."

Quick Tips

- Alternative Text (ALT Text)
  - Required for all graphics and objects
  - Be descriptive, yet concise
    - Unacceptable ALT: A cute dog
    - Acceptable ALT: A small, ten-pound dog with brown, white, and black markings and is of the Pomeranian and Papillon breeds

Alternative text is required for all graphics and objects.

It's best to be descriptive in your alt text, but still word it in a concise manner as alt text should be 125 characters or less.

For example, if I were to describe a photo of my dog; I couldn't just say "A cute dog," even though she is. How would a user using a screen reader know how cute she is without some features about her?

I might want to say "A small, ten-pound dog with brown, white, and black markings and is of the Pomeranian and Papillon breeds."

We've covered a lot of things about web accessibility, but let's not forget that accessibility extends to your documents for your learners as well.
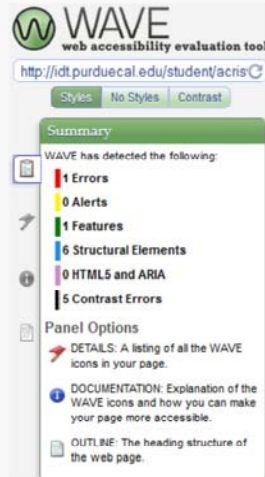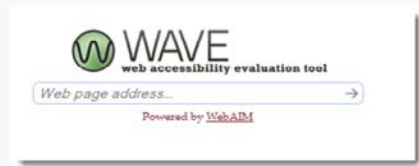
Some good tips for accessible documents include:

Utilize the styles in the word-processor. These can be customized to any font you wish, as the Heading tag is what is important.

Refrain for hitting enter for extra spaces, and use the paragraph style and spacing instead.

As mentioned earlier, how can we assure our products are accessible?

Well, we test!

One of my favorite web checkers is WAVE. This is available from anywhere online, or as a toolbar in Firefox.
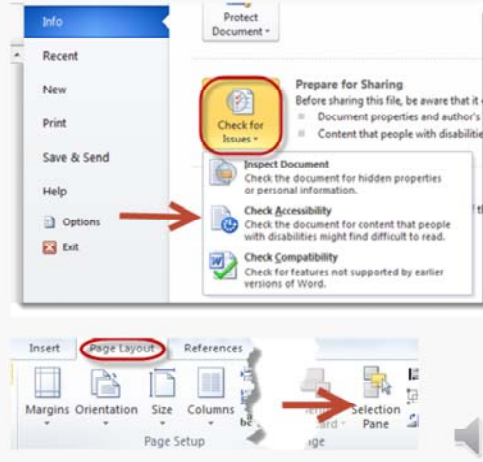
It's very easy to use, as you can just paste your web link into the field and let Wave do the work for you!

Some things you will want to look for are general errors and contrast errors. Alerts are important as well, but examine those on a case-by-case basis; such as when you have documents or PDF's linked to your site.

So we've covered a web tester, but what about documents?

In Microsoft Word 2010, an accessibility checker is available where it will alert you of heading text, alt tags, and reading order.

Remember, a disability has been defined as "a limitation." This can be a limitation from a major life activity.

Accessibility is the tools available for users with disabilities to perform major life activities without limitation.

With the emergence of technology, we have found accessibility has needed to adopt regulations to govern accessibility with the world wide web and ever-changing technology.

Assistive technology is available for users to navigate the web and use technology efficiently. In fact, the telephone, typewriter, touchscreens, and scanners are actually devices that began as assistive technology.

What other devices do you think are in society that began as an assistive technology?

In order for a user to use technology, we have to make our products accessible to them. We know our products are accessible by using the tools and resources available, such as accessibility checkers.

How would you know?

- Websites

- Let's check! (WAVE)
  - Example A
  - Example B

I have two websites to test with the WAVE checker.

Please take a moment to review and test these websites. These links are available on my ICE website.

Can you tell the difference of which one is accessible and which one is not?

Through our tests, we found that Example A was not accessible and Example B was.

How would you know?

- Documents

- Example A:
  - Document

- Example B:
  - Document

I have two documents to test with the Word Accessibility checker.

Please take a moment and review these documents and test them for accessibility. These documents are available on my ICE website.

Can you tell the difference of which one is accessible and which one is not?

Through our tests, we found that Example A was accessible and Example B was not.

Here is another example of an assistive technology, which is Dragon Naturally Speaking 12.

I chose to provide this demonstration after our review because this demonstration includes an everyday student who uses assistive technology, even though they do not have a major disability.

Please take a moment to view this presentation, which is available as a link on my ICE homepage.

So after viewing this presentation, does it make you think "I wish I had that during my years of school!"

I actually thought the same thing, when I was first introduced to the concept of accessibility about a year ago. I would have loved having speech-to-text software for all of my assignments for my first year of graduate school and all of undergraduate school.

I wish I would have been aware of accessibility and assistive technology earlier in my life.

Behind those eyes...

Someone with a disability:
- Attention Deficit Hyperactive Disorder
  - Visual & Hands on Learner
- Closed Captioning:
  - Auditory Processing Delay
  - Hearing Loss
- Carpal Tunnel
  - Dragon Naturally Speaking 12

Behind our own eyes, can be a disability, and sometimes it is not blatant.

As an individual with a disability, I have ADHD, which was a bit troublesome for me prior to college.

Closed captioning has helped me greatly as I have an auditory processing delay and a slight hearing loss. Dragon Naturally Speaking 12 helps with research and graduate coursework for I have carpal tunnel syndrome.

So, even though I may not always require accommodations and my disability does not completely inhibit me from performing daily tasks; it doesn't mean we should ignore it.

It's always best to keep accessibility in mind. You never know who may come into your classroom that has special needs or may be the face in front of a disability.

Accessibility & You

- Where would be we in society without accessibility or assistive technology?

- We all can benefit from accessibility and assistive technology.

- Adopting Accessibility into your curriculum is easy.

As educators, we need to ask ourselves: Where we our society be without the use of assistive technology or accessibility? Where would my learners be? Where would I be?

As noted earlier, while accessibility was originally designed for users with serious disabilities; we all can benefit from the regulations, assistance, and technology available regarding accessibility.

We have found through this presentation that accessibility has tips, tricks, and a wide variety of tools available to help us create, test, and deploy our products.

By adopting accessibility into our teaching or training practices, we will be reaching all of our learners needs.

As a supplement to this presentation, I was planning on providing resources within this presentation; however, my resource list has become rather extensive throughout my research.

Instead, I have provided this list in a separate document for easy reference and distribution.

I want to thank you all for joining me today. I hope you have learned a wealth of information from this presentation and will able to use this resource list in your own research, teaching, and learning.

I encourage you to spread your acquired knowledge of accessibility to others so we all can reach the needs of our learners.

Thank you.

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