

A person with a beard and headphones is sitting at a desk in a library, working on a laptop. There are several books on the desk in front of them. The background is filled with bookshelves. The text is overlaid on the image.

ENHANCING THE DIGITAL EXPERIENCE FOR LIBRARY PATRONS WITH DISABILITIES

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AGENDA

Understand People with Disabilities (PWDs)
and How They Use the Web

Benefits & ROI of Accessibility

Accessibility Standards & Regulations

Common Barriers Faced by PWDs,
Accessibility Issues & Solutions for Libraries

THE DISABILITY MARKET



1.3 Billion people with disabilities globally.



1 in 4 adults in the US live with a disability. Disability types include:

- Physical
- Cognitive
- Auditory
- Visual



Friends and family represent another **105 million** individuals who have an emotional connection to a disability.

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
- Amelia



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



What is Accessibility?

- **Accessible** [ak-ses-uh-buhl] *adjective*
 1. Easy to approach, reach, enter, speak with, or use.
 2. That can be used, entered, reached, etc.
 3. Obtainable; attainable.
- Accessibility is all about our ability to engage with, use, participate in, and belong to, the world around us.

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?

ASSISTIVE TECHNOLOGY



ASSISTIVE TECHNOLOGY FOR THE WEB

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

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



Focus on Barriers, Not Disabilities

- Physical Access

- Ramps
- Doorways
- Restrooms
- Desks
- Bookshelves

- Digital Access

- Websites
- Databases
- Technology

- Disability Types

- Physical/Mobility
- Sensory
- Cognitive
- Psychological

- Barriers

- Physical
- Attitudinal
 - People First Language



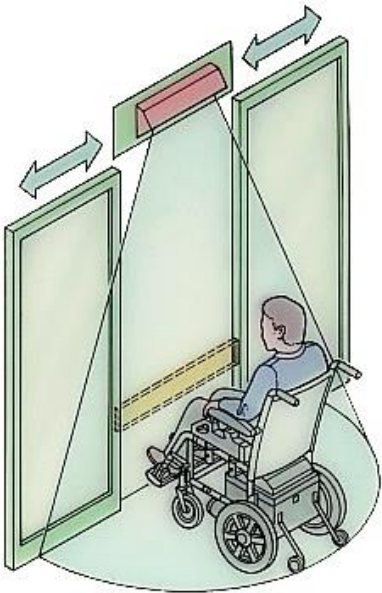
UNDERSTANDING ACCESSIBILITY STANDARDS AND REGULATIONS

THE REGULATIONS

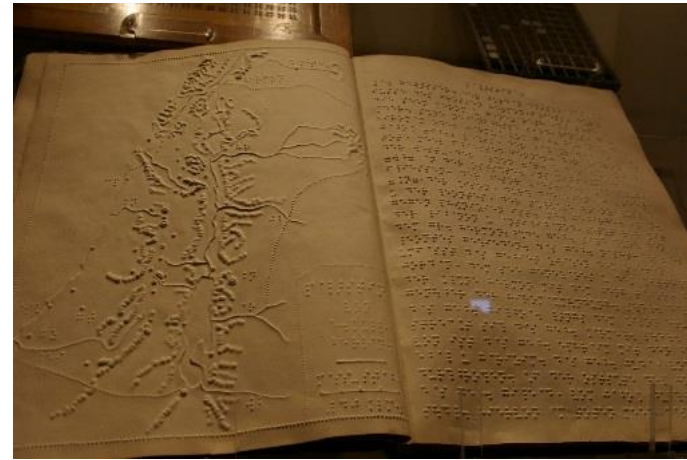
- **Americans with Disabilities Act (ADA):** signed into law in 1990, the ADA makes it illegal in the US for any government or business to provide goods and services to the public that are not also accessible to people with disabilities.
- **Accessibility for Ontarians with Disabilities Act (AODA):** Public and private organizations in various industries and capacities follow accessibility standards in five areas (information & communications, customer service, transportation, employment and design of public spaces) of doing business or interacting with the public.
- **Federal Procurement (Section 508):** This law ensures that all federal government departments and federally funded agencies give fair treatment to people with disabilities.

Accessibility vs. Accommodation

Accessibility



Accommodation



How do Libraries apply?

All libraries need to comply with ADA and Section 508's requirements for accessibility of public information and technologies for both their patrons and their employees.

What is an "accessible" information technology?

Technology with a user interface that is accessible to individuals with disabilities.



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.

Guidelines at a Glance

P.O.U.R

Perceivable, Operable, Understandable and Robust

Perceivable

- Provide [text alternatives](#) for non-text content.
- Provide [captions and other alternatives](#) for multimedia.
- Create content that can be [presented in different ways](#), including by assistive technologies, without losing meaning.
- Make it easier for users to [see and hear content](#).

Operable

- Make all functionality available from a [keyboard](#).
- Give users [enough time](#) to read and use content.
- Do not use content that causes [seizures](#) or physical reactions.
- Help users [navigate and find content](#).
- Make it easier to use [inputs other than keyboard](#).

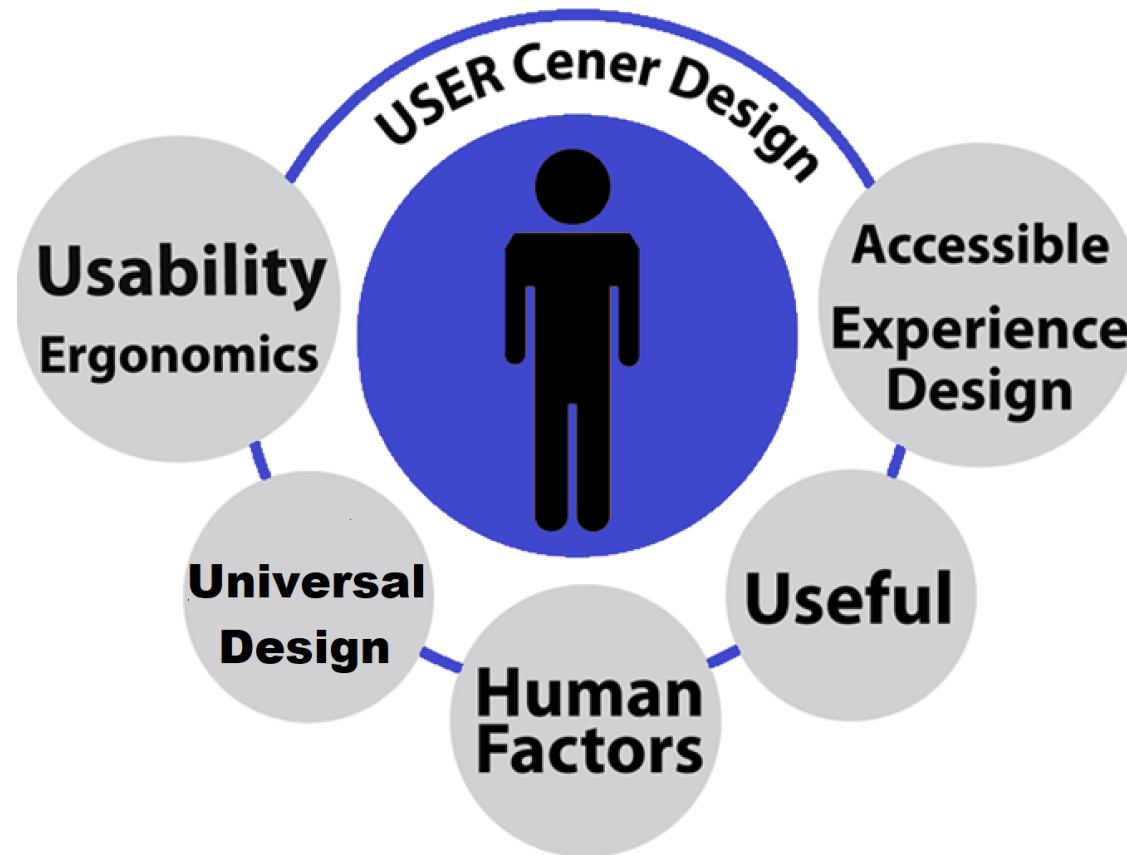
Understandable

- Make text [readable and understandable](#).
- Make content appear and operate in [predictable](#) ways.
- Help users [avoid and correct mistakes](#).

Robust

- Maximize [compatibility](#) with current and future user tools.

Accessibility + Usability + Universal Design = Equal Access



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?**



A close-up, low-angle shot of a wooden fence made of vertical planks. The sun is high, casting long, dark shadows of the planks onto the ground and the fence itself. The perspective is from a low vantage point, making the fence appear to recede into the distance. A large, semi-transparent white circle is overlaid on the right side of the image, containing text.

Consider the Effects of Perspective

Is this a Fence or a Bridge?

Business Case for Accessibility

- Groups that integrate accessibility are more likely to be innovative, inclusive enterprises that reach more people with positive brand messaging that meets emerging global legal requirements.
- Accessibility is closely related to general usability – both aim to define and deliver a more intuitive user experience.
- Accessibility provides options that are useful to all customers in various situations.



Accessibility and SEO go hand in hand

*What is easier for a human to understand
is easier for a machine to understand & present
and vice versa*

- Valid Markup and semantic usage of Markup
 - h1-h6 for headings
- Special attribution for structured data
 - Microformats → schema.org (Person, Event, Location, ...)
 - Open Graph Protocol

Establish a minimum set of technical standards (e.g., WCAG 2.0 A, AA, Section 508, etc. and break them down into actual actions such as captioning of videos, labeling of images, heading structure, etc.) with respect to the accessibility of information technologies used.

Encourage inclusive design practices amongst all areas of the library (Marketing – website, IT – applications, physical setup, etc.)

Ensure equivalent access to any areas where accessibility is being designed (24/7 chat or phone for equal information).

Improve strategies for marketing and promoting the design, development, and purchase of accessible information technologies and partnerships.

Consistently incorporate accessibility policy and language into contracts and software license agreements to ensure compliance with guidelines established in both company policy, WCAG 2.0, etc.

Make available support and funding for technology solutions that make it easier to comply with disability legislation. i.e. Purchase movies with CC and AD already included.

Where Do I Start?

Procurement

- Procurement
 - Media/Video
 - Databases/ Bibliography Software/Applications/Add ons
- Ask vendors for Voluntary Product Accessibility Template (VPAT)
 - This is essentially a checklist to show the level of compliance a vendor meets.
- Ask the vendor to turn on all free enhanced features.
 - Ask for a list of these features.
- Add language to the contracts to allow for access to make it accessible when needed.
- Ask vendors if they provide closed captioning on videos.

Other Questions to Ask Vendors

Enhanced Features

- Ask the vendor to turn on any enhanced features, such as:
 - HTML (text)
 - Closed Captioning (audio/video)These are features that are free, but sometimes outside the box of what is typically submitted/offered to the purchaser. Request that the vendor provide you with a list of all enhanced features. The sharing of the list is a required part of submission for a vendor.

Considerations for Video/Audio

- Is the multimedia captioned or have a transcript?

What if they say “NO”?

If a vendor declines all of the above:

Is it the only vendor that can provide what we need? If not, we move to a different vendor. Are they more accessible?

If it is the only vendor it is considered sole source; discuss an exception route with your Disability or Accessibility departments and see if there is a way to provide an alternative accommodation to still provide access.



Specific Challenges for Libraries

- Web-based Material
 - Websites and Applications
 - Navigation, Images, Links, Tables, Headings, Forms
 - Tools: Color contrast checker, WAVE, SiteImprove, Tota11y
 - Bibliography Tools
- Obtaining Information
 - Online Journals or Reserves
 - Image vs Searchable PDF vs HTML
 - Hard copy books, old slides, newspapers, etc.
- Media
 - Sample of a [fully accessible video](#)
 - Sample of [Auto Caption fail](#)
- Physical Structures
- Open to the Public
- Procurement of items
 - Databases
 - Media

Anatomy of an Accessible Webpage

The Anatomy of an Accessible Page

Heading 1 → Syllabus

Heading 2 → DL 101 - Introduction to Online Learning


Heading 3 → Course Information:

- Course Title: Introduction to Online Learning
- CRN: 12345
- Credits: 3
- Term: Winter 2014

Format lists as proper lists

Heading 3 → Instructor Information:

Hello! My name is John Doe, and I'll be your instructor for this course. I've taught this course online for the past two years. Each time I teach it, I learn something new.



Add Alternative (Alt) text to images

John Doe
Instructor

Heading 3 → Assignments/Assessments:

Heading 4 → Grading Scale

Grade	Grading Scale by Points	Grading Scale by Percentages
A	202 - 225 +	90 - 100%
B	180 - 201	80 - 89%
C (or P)	157 - 179	70 - 79%
D	135 - 156	60 - 69%
F (or NP)	< 134	< 59%

Table Column Header

Table Row Header

Heading 4 → Late Work & Make-up Policy

Assignments must be completed on time in order to earn full credit.
(Late assignments will earn 50% credit.)

Sufficient Color Contrast

page 1/2

Write meaningful link texts

Heading 3 → Special Accommodations:

Students who experience disability-related barriers should contact [Disability Services \(www.pcc.edu/disability\)](http://www.pcc.edu/disability). If students elect to use approved academic adjustments, they must provide in advance formal notification from Disability Services to the instructor.

Heading 2 → DL 101 - Online Learning Best Practices

Heading 3 → Best Practices when using complex graphics:

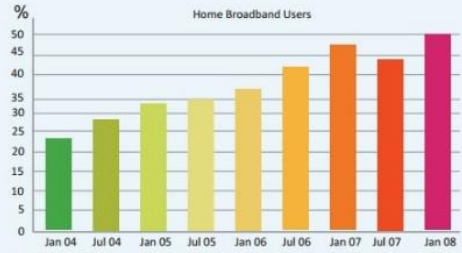


Table Column Header

Table Row Header

This graph summarizes the growth using home broadband during the period of January 2004 to 2008. The percentage increased from 22% in 2004 to 48% in 2008.

When using complex images, include Alt text as you would for any other image but also include additional description as a caption. If more description is needed, include it in the content of the page.

page 2/2

Document courtesy of *Portland Community College*: <http://www.pcc.edu/resources/instructional-support/access/documents/OnlineAccessibilityHandbook-loRes.pdf>

LibGuide and Web Considerations

- Text
 - Consistent Navigation, Proper Use of Headings, Color and Emphasis to Convey Meaning,
- Graphics, Tables and Links
 - Images have Descriptions, Tables have summaries and headers, links are descriptive
- Media and Other non-HTML Content
 - Captions and/or Transcripts
 - Audio Description

Reading Order

Links

- Use the Tab key to jump from link to link
- Links should make sense when read out of context
- Distinguishing information should be at the start of the link
- Skip navigation speeds up the reading process
 - Helps users distinguish between the main navigation and the main content.

Headings

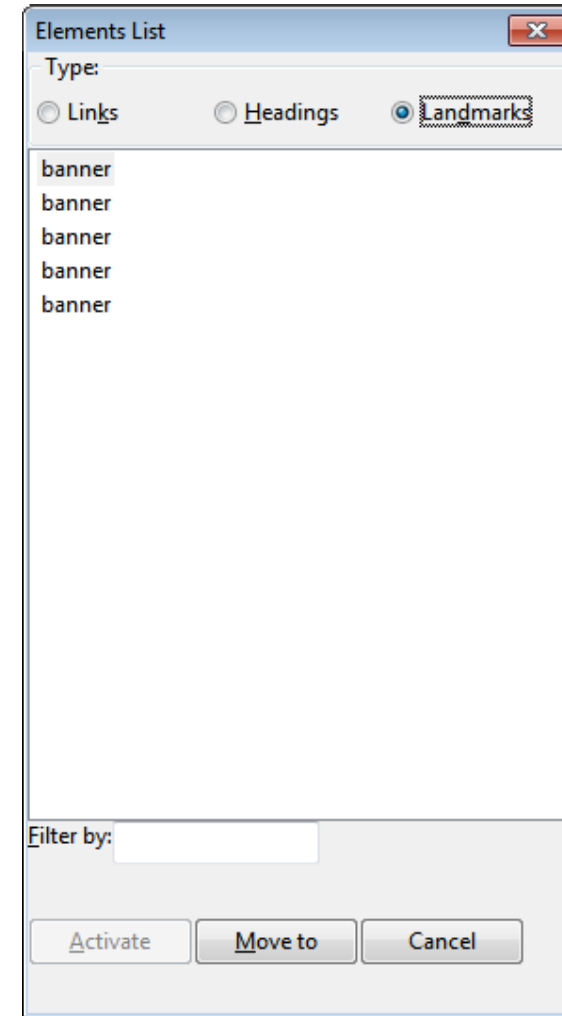
- Navigate from heading to heading. Users hear an outline of the page's main ideas
- Without headings, this method of skimming through content is completely useless

Landmarks and page sections

- Users can navigate via ARIA landmarks and HTML5 sectioning elements, such as <main>, <nav>, <header>, etc.
- Define appropriate ARIA landmarks and use HTML5 elements appropriately

Paragraphs and page elements

- Users can jump from paragraph to paragraph or from element to element, such as <div> tags, links, form elements, list items, or other units of content.

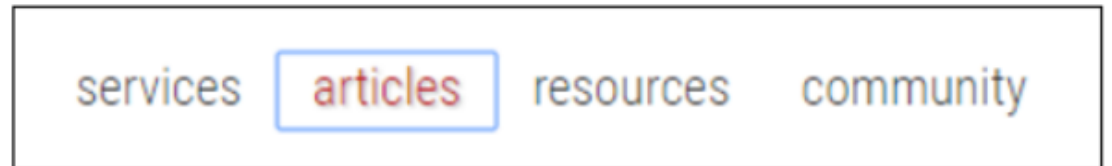


Keyboard Navigation and Visible Focus

- When text fields receive focus, a vertical bar is displayed in the field, indicating that the user can insert text, OR all of the text is highlighted, indicating that the user can type over the text.
- When a user interface control receives focus, a visible border is displayed around it.



Lorem ipsum dolor sit amet, con
[This is a link within some text](#)
sed mi. Etiam efficitur purus et v



Color and Contrast

- **High contrast color scheme**
- **Background does not overpower text**
- **Color schemes used consistently**
- **Avoid color coding**





Color Blindness

Examples: Use of color alone

✘ Color only

Required fields are in red

Name

Email

✔ Color and symbol

Required fields are in red and marked with an *

Name

Email *

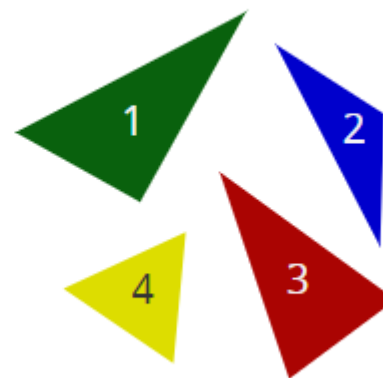
✘ Color only



Which is the right-angled triangle?

- Green
- Blue
- Red
- Yellow
- Don't know

✔ Color and number



Which is the right-angled triangle?

- Green (1)
- Blue (2)
- Red (3)
- Yellow (4)
- Don't know

WHAT ARE THESE 3 IMAGES?

Image_Blank

1

Image: 1234.jpg

2

C://My Pictures/logo

3

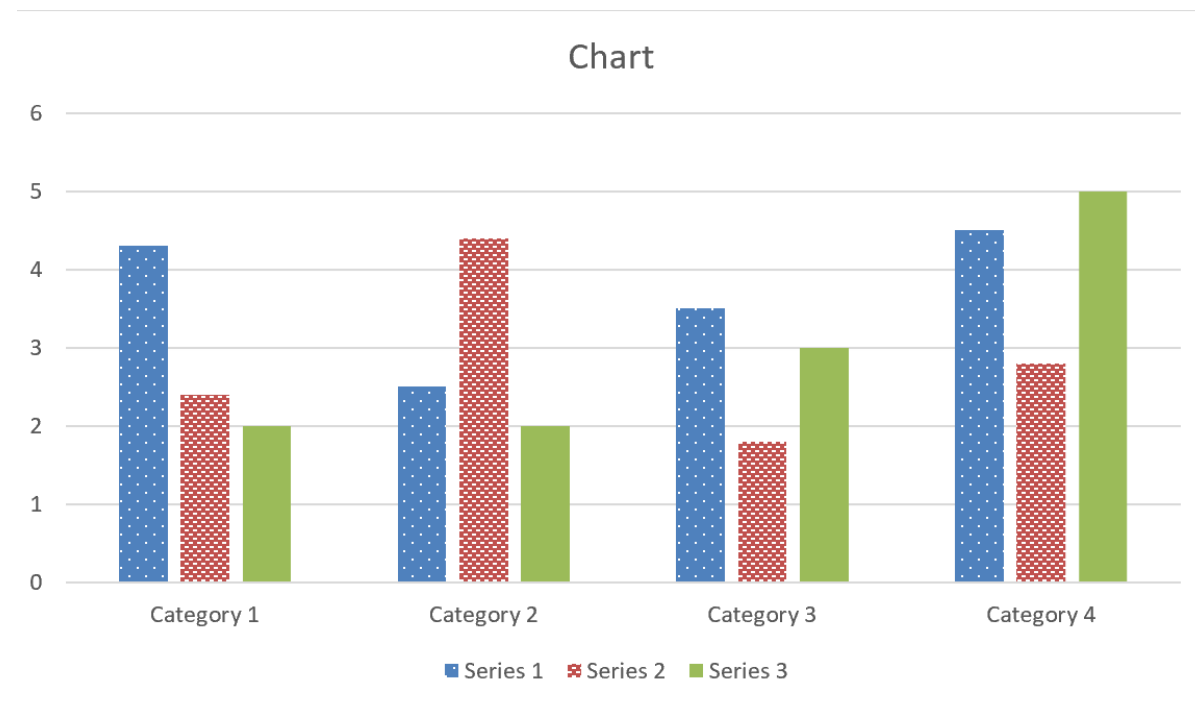
Consider Context

- **1) Website Content**
alt = “Yellow tulips blooming in the Spring”
- **2) Horticulture Class**
alt=“Tulipa gesneriana”
- **3) Image is a Link**
alt=“Tulip Society of America”
- **4) Image is Decoration**
alt=“”



Complex Images

- Ensure charts, graphs and tables have summaries or descriptions.
- Repeat the chart or graph as a table
- Ensure that color is not the only means of interpretation add things such as patterns to the table.
- Always ensure there is a Legend.



Tables Properly Coded

- **Caption**
 - Title
- **Headers**
 - Column Headers
 - Row Headers
- **Data Cells**
- **Summary**
 - Describes organization of table
- **True Tables**

Reading Order

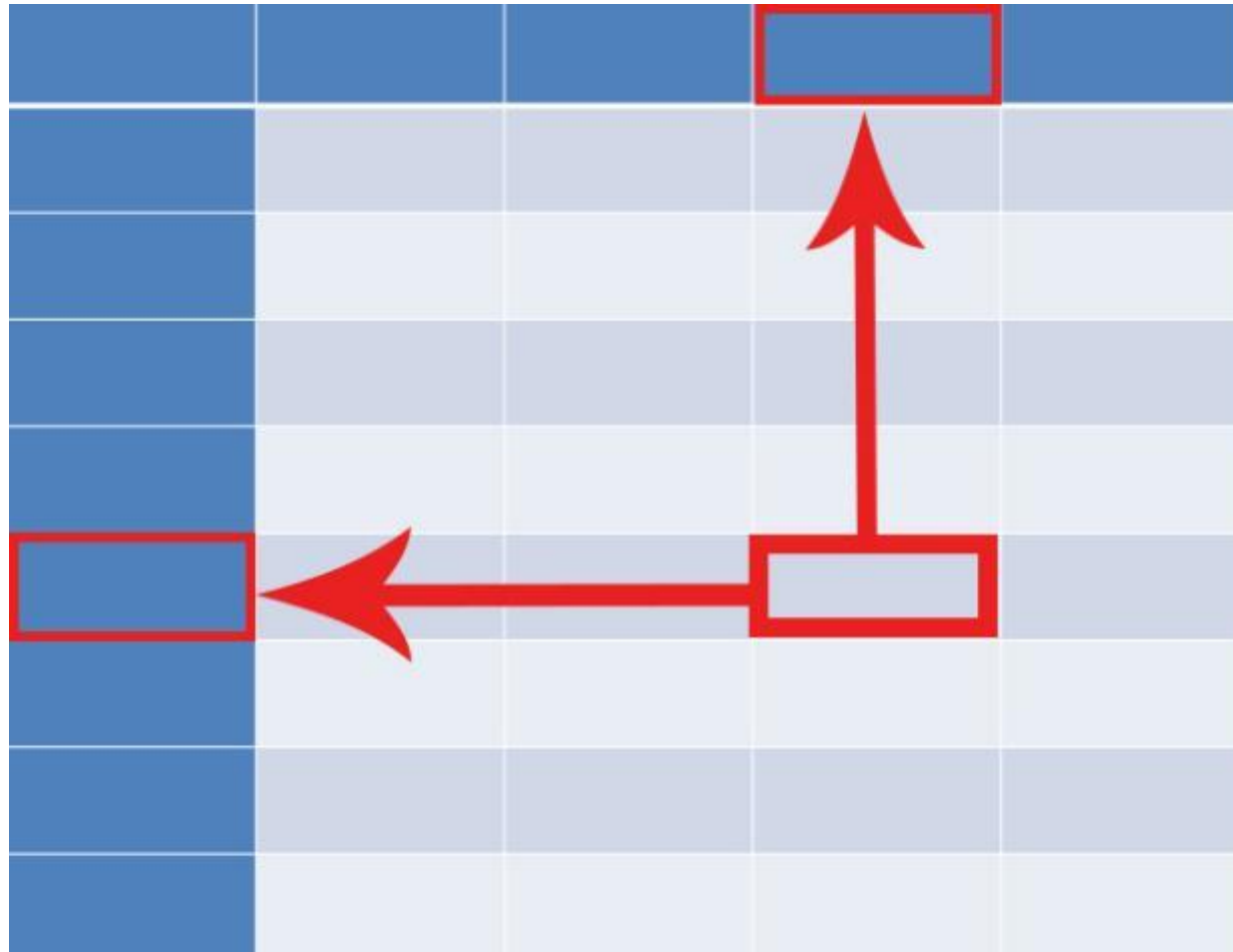
- **Makes sense when read from top to bottom and left to right**



Row and Column Headers

The diagram shows a table with a red border highlighting the header rows and columns. The table has 5 columns and 10 rows. The first row is a row header, and the first column is a column header. The remaining 9 rows and 4 columns form the data body of the table.

Define Relationships



UDL Example – Library Databases (Full-text HTML)

◀ Result List | Refine Search | 21 of 647 ▶

Inglés/Português [Translate]

Title: Providing Access to Engagement in Learning: The Potential of Universal Design for Learning in Museum Design. By: RAPPOLT-S
Issue 3

Database: Education Research Complete

[Providing Access to Engagement in Learning: The Potential of Universal Design for Learning in Museum Design](#)

Listen [American Accent] [Settings] [Download]

Following passage of the Americans with Disabilities Act of 1990 (ADA), many museums improved the accessibility of their facilities. Universal Design for Learning (UDL) provides an alternate model for the design of museum programs not only physical but also access to engagement in learning. In this article we argue that UDL has the potential to improve the probability that engagement will occur as i

DISABILITY
DESIGNED ENVIRONMENTS AND THE CONCEPT OF DISABILITY
WHAT IS UNIVERSAL DESIGN FOR LEARNING?

ARTICLE
The development and cultural reach of the exhibit offer... relevance is critically important to the success of people with disabilities. The addition of wheelchair ramps, lowered counter... and implemented by the New Hall of Science in 200... provided. While the addition of such accommodations has had a substantial and positive impact on the accessibility of individuals with...
Accessibility solutions provide for the improved physical presence of people with disabilities (e.g., low vision). But accessibility does not, on its own, allow for the engagement of people with...

Ability to translate text

Downloadable mp3 file

Also available as separate PDF

Built-in text-to-speech capability

Text Highlighting

UDL Example – *Films on Demand* (Captions and Transcripts)

The screenshot displays a video player interface for the film 'Inside Tolkien's The Hobbit'. The video player shows a scene with a man speaking, and a caption overlay reads: "Marking school examinations in the summertime". A green callout bubble labeled "Captions" points to this overlay. To the right of the video player, there is a search interface with a search bar and a search button. Below the search bar, there is a transcript titled "Interactive Transcript Tutorial". A green callout bubble labeled "Interactive Transcript" points to this transcript. Below the transcript, there is a search bar labeled "Search Video" and a search button. A green callout bubble labeled "Searchable Video Content" points to this search bar. The video player interface includes a progress bar, a play/pause button, and a volume icon. The transcript includes the following text: "The actual beginning, though it's not really the beginning, but the actual flash point was, I remember very clearly. I can still see the corner in my house - 20 Northmoor Road where it happened. I had an enormous pile of exam papers there marking school examinations in the summer - is an enormous-- very laborious and unfortunately also boring. And I remember picking up a paper and actually I nearly gave an extra mark for it, extra five marks, actually because on page on this particular paper was left blank. Glorious. Nothing to read scribbled on it-- I can't think why-- "It was on the ground lived a hobbit." I think it was eventually published in 1937. As regards the... of The Hobbit it's very... linguist... did an

Resources

- [Disability Etiquette](#)
- Color Contrast Checker – In WAVE Checker
- [Site Improve](#)
- [Audio Described on Netflix](#)
- [Audio Described on iTunes](#)
- [ASCLA Assistive Technology: What you Need to Know Library Accessibility Tip Sheet](#)
- [ASCLA Blindness and Low Vision: What you Need to Know Library Accessibility Tip Sheet 14](#)
- [Library Accessibility: What Trustees Need to Know](#)

College & University Resources

- [Big 10 Academic Alliance – Library E-Resource Accessibility](#)
- [AIMHub](#) – collaboration of accessible online material
- [AMAC library of books](#)
- [AccessText](#)
- [Bookshare](#)



Questions

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