

# Human Centered, Inclusive, and Accessible Design

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# 3 Different Designs



Prompt used:

“Human  
Centered/Inclusive/Accessible  
Design”

1. Human Centered Design
2. Inclusive Design
3. Accessible Design

# GROUP ACTIVITY!



Prompts used:

“Interactive with the class activity less than 5 minutes”

“Something else”



Research

inspiration!

design  
is for

EVERY-  
ONE!

BRAIN-  
STORM

idea





# Part 1 / 3

## Vending Machine Design

- What does it look like?
- How do people use it?



# Part 2/3

## Design Changes for Specific User Groups

- User Groups
  - A child who can't reach the top buttons
  - A person in a wheelchair
  - Someone who is visually impaired
  - A user who doesn't speak the default language
- One key design change

# Part 3/3

Share & Discuss

- Share your idea in **one or two sentences**

What happens when  
designers don't think  
about  
HC/Inclusive/Accessible  
design?



# We get... BAD DESIGNS!



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**CLICK HERE TO SIGN YVETTE'S GUEST-BOOK !!**

**Yvette's Fashion Model!!**

**Yvette's has Gorgeous Gowns full figure!!** [click here](#)

**Jewelry, Pearls, Swarovski Crystals, Necklaces, Earrings, Bracelets, Aurora Borealis Stones,** [click here](#)

visit our friend Michael @

Miss Sunshine Pageant Pageants

**Welcome to Yvette's !!!**

**Yvette's moved to a NEW LOCATION, please click here !!**

**Мы любим Россия.**

**Yvette's sells Kitty Chen Couture**

**Nous aimons la France.**

**Tuxedo rentals starting @ \$65.00 ~\***

**Yvette's phone number: (850)~871-3000**

**Monday thru Saturday 10:00 a.m. ~ 6:00 p.m.**

**ENTER YVETTE'S**

**~\*Pink Links to Your DESIGNERS~\***

**Follow the Pink Links to Yvette's !!**

**Yvette's sells tuxedos !!**

850-871-3000

gown Panama City

gowns panama city

**Established 1980**

**Sensational !!**

**Yvette's Bridal Gowns**

**Yvette's is here for YOU !!!**

**let's Celebrate! it's Prom 2010 !!!**

**Apple Pie , please click here**

**Psychological Thriller !!**

**please click here !!**

**Yvette's habla poquito espanol !!**

**Yvette's Paintings for sale !!**, please click here !!

**Call to Artists !!**, please click here !!

**BRIDAL FORMAL PAGEANT PROM HOMECOMING CRUISE HOLIDAY CELEBRATE**

**Lauren, Brooke & Brittany trying on Gowns @ Yvette's, click here**

**Invitations !!**

[please click here](#)



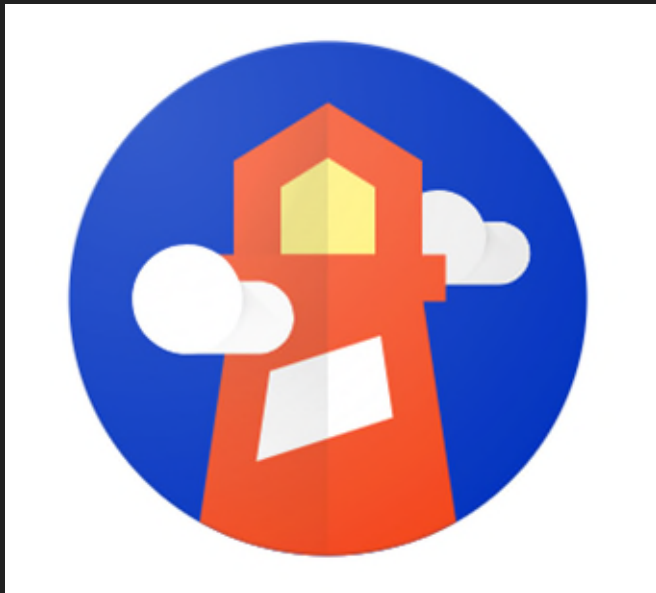


# Not so obvious accessibility flaws



*Welcome to CityLights! [Inaccessible Home Page]*

# Lighthouse (Web Accessibility Tool)



Browser window showing the Lighthouse accessibility audit results for a demo page.

Page URL: <https://microsoftedge.github.io/Demos/devtools-a11y-testing/>

Lighthouse Score: 76

**Accessibility**

These checks highlight opportunities to [improve the accessibility of your web app](#). Automatic detection can only detect a subset of issues and does not guarantee the accessibility of your web app, so [manual testing](#) is also encouraged.

**NAMES AND LABELS**

- ▲ Image elements do not have `[alt]` attributes
- ▲ Form elements do not have associated labels

These are opportunities to improve the semantics of the controls in your application. This may enhance the experience for users of assistive technology, like a screen reader.

**CONTRAST**

The demo page content includes:

- Animal shelter header with search bar and navigation links (Home, Adopt a Pet, Donate, Jobs, About Us).
- Buttons for Cats, Dogs, Sheep, Horses, and Alpacas.
- Donation section with buttons for 50, 100, 200, and a "Donate" button.
- Donation Status section with "Dogs" and "Cats" options.

Bad accessibility design  
goes beyond vending  
machines, stairways, and  
websites...it also includes  
games!

# Bad Accessibility in Gaming



60  
FOV



90  
FOV



120  
FOV





# Accessibility in Gaming



# Accessibility in Gaming



# Accessibility in Gaming



# Accessibility in Gaming

- Statistics on Accessibility Challenges
  - 2010 study: 2% of U.S. population unable to play games due to impairment.
  - 9% experience reduced gaming experience.
  - PopCap study: 1 in 5 casual gamers have a physical, mental, or developmental disability.
- Barriers to Game Accessibility
  - Sensory impairments: Difficulty receiving audio or visual feedback.
  - Motor impairments: Difficulty using conventional input devices.
  - Cognitive impairments: Challenges in understanding gameplay mechanics.
- Categories of Accessible Games
  - Audio games: Designed for blind gamers with sound-based gameplay.
  - One-switch games: Adapted for users with severe motor/cognitive impairments.
  - Learning disability-friendly games: Designed for players with low literacy or coordination difficulties.
  - Universally accessible games: Offer multiple interfaces for different impairments.
- Strategies for Improving Accessibility
  - Game accessibility guidelines exist but sometimes conflict with game design goals.
  - Organizations like IGDA, Medialt, AbleGamers, and CEAPAT provide guidelines.
  - AbleGamers' Accessible Player Experience (APX) increases accessibility expertise in game studios.

Good

HC/Inclusive/Accessible  
design goes beyond  
entertainment, but also  
education!

# Accessibility & Inclusive Design in Education



# Visual Accessibility Issues

- Improperly scanned documents and image-based PDFs
- Poor color contrast and small text
- Lack of Alt Text or navigation for screen readers

## Screen Readers May Read Out Ugly Filenames for Images Without Alt Text



Without Alt Text



IMG\_584792.png



With Alt Text



Cute cat



use subtitles  
or provide  
transcripts for  
videos



## Auditory Accessibility Issues

- Lack of captioning, transcripts, or sign-language interpretation
- Audio-only content without text alternatives
- Noisy learning & testing environments

## Motor Accessibility Issues

- Projects that require in-person or physically demanding participation
- Learning Management Systems that don't allow for keyboard-only navigation
- Any time handwritten assignments and tests are required

design with  
mobile and  
touchscreen  
in mind







## Cognitive Accessibility Issues

- Rigid Deadlines and Required Attendance
  - *Disadvantages students with executive function challenges and chronic illnesses*
- Participation grading based solely on speaking or group work
  - *Students with speech disabilities, social anxiety, or neurodivergent communication styles may struggle*
- Timed Exams
  - *Disadvantages students with processing disorders, ADHD, or test anxiety*

# UDL: Universal Design for Learning

## ***Multiple means of representation:***

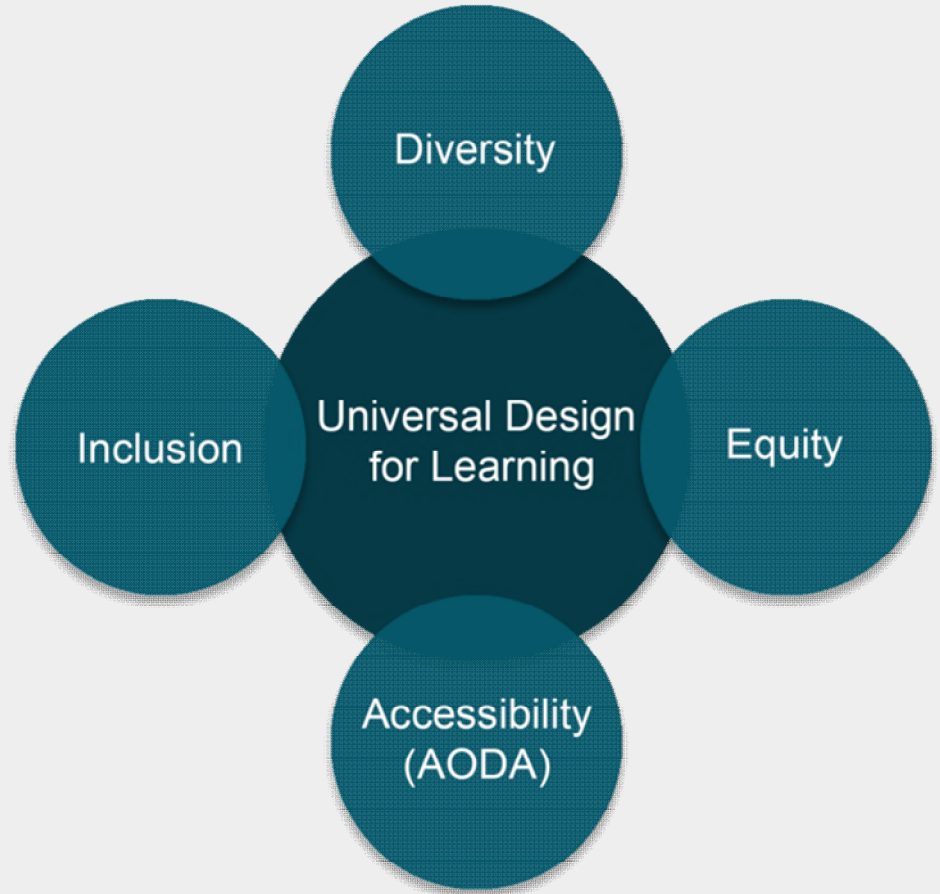
give learners various ways of acquiring information and knowledge

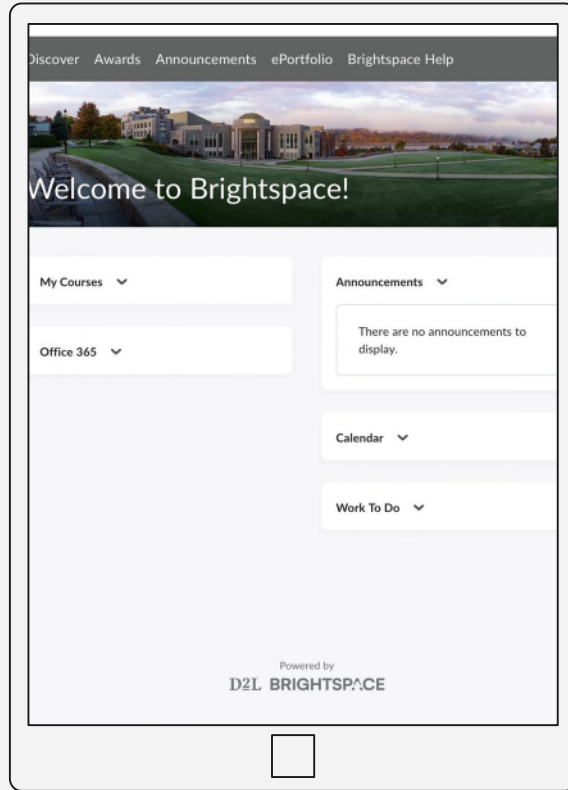
## ***Multiple means of expression:***

to provide learners alternatives for demonstrating what they know

## ***Multiple means of engagement:***

to tap into learners' interests, challenge them appropriately, and motivate them to learn





# Brightspace

Conforms with the  
international Web Content  
Accessibility Guidelines.

# How Brightspace helps:

- Built-in accessibility checker
- Auto-generate alternate formats
- Works with assistive technologies
- Quiz and test accommodations



# Human Centered, Inclusive, and Accessible Design

