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

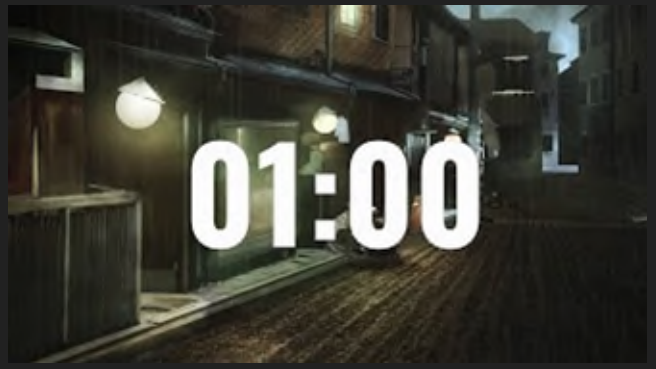
GROUP ACTIVITY!

Prompts used:

“Interactive with the class activity less than 5 minutes”

“Something else”

Research
BRAIN-
STORM
design
is for
EVERY-
ONE!
inspira-
tion!
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

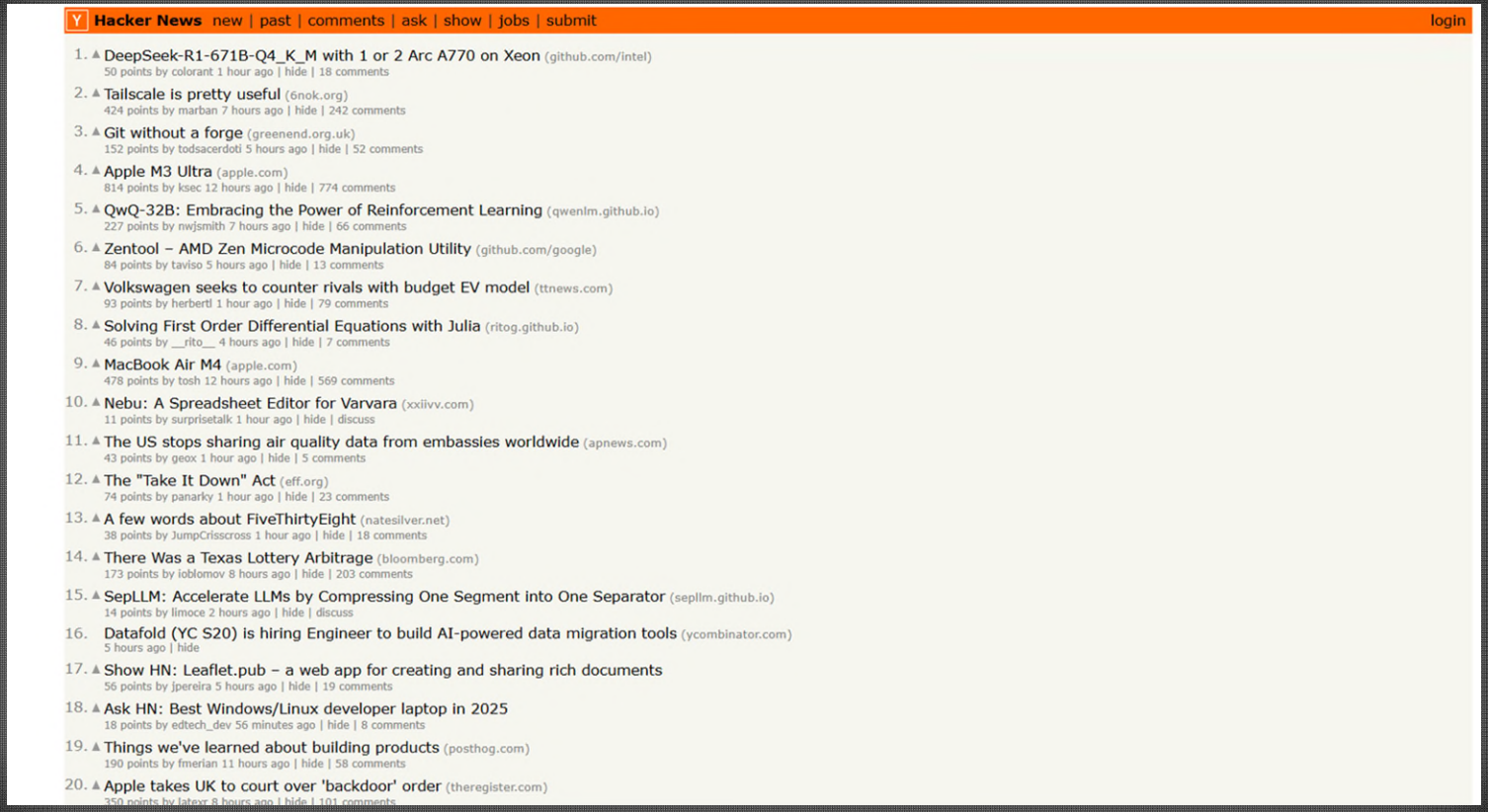
Share & Discuss

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

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

We get… BAD DESIGNS!

Hacker News



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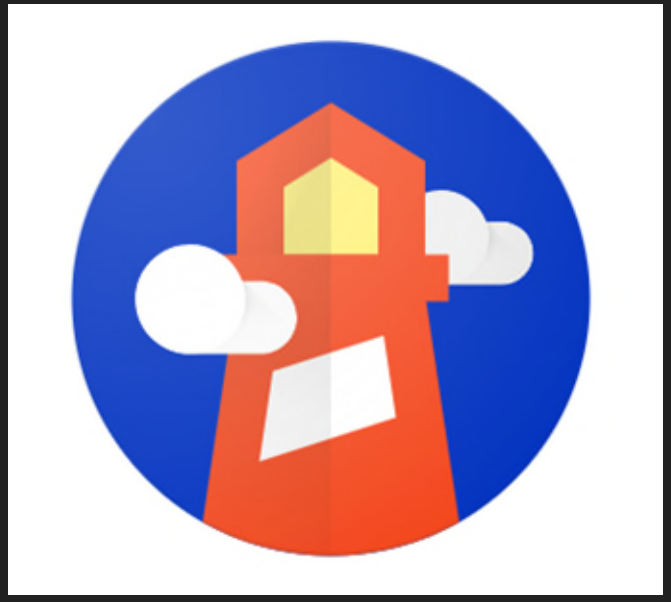
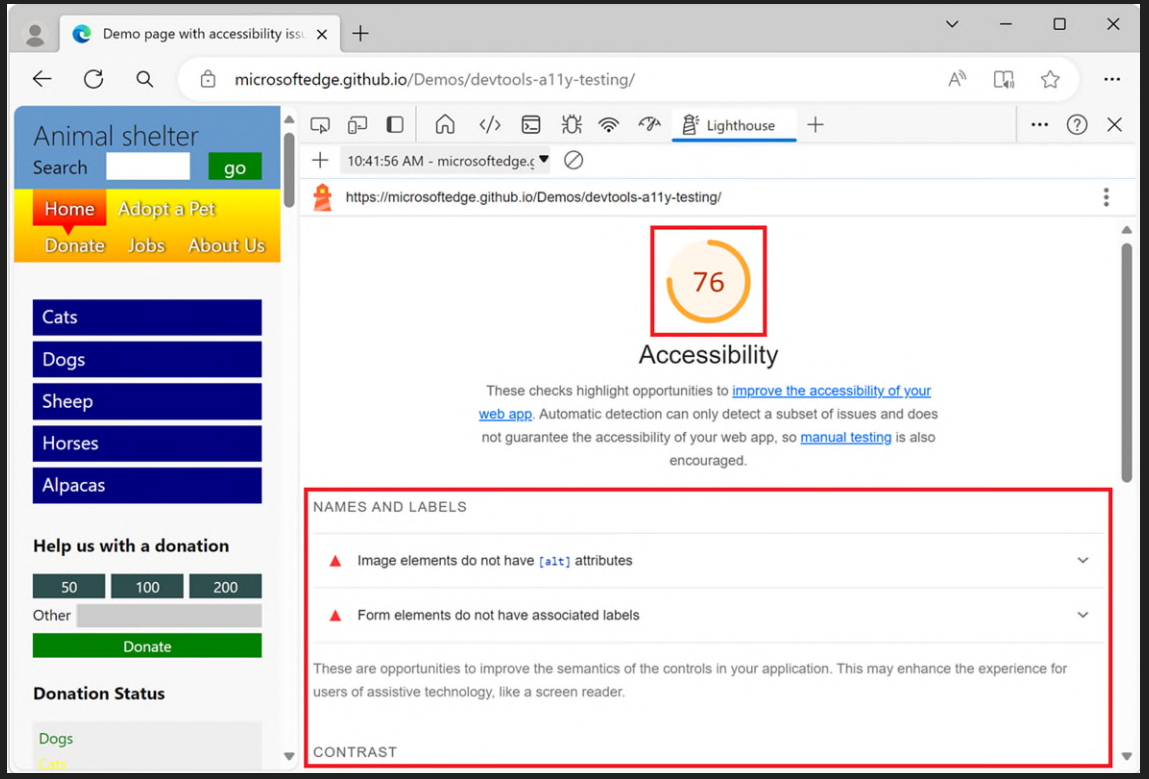
Yvette's Bridal & Formal

Not so obvious accessibility flaws

Welcome to CityLights! *[Inaccessible Home Page]*

Lighthouse (Web Accessibility Tool)



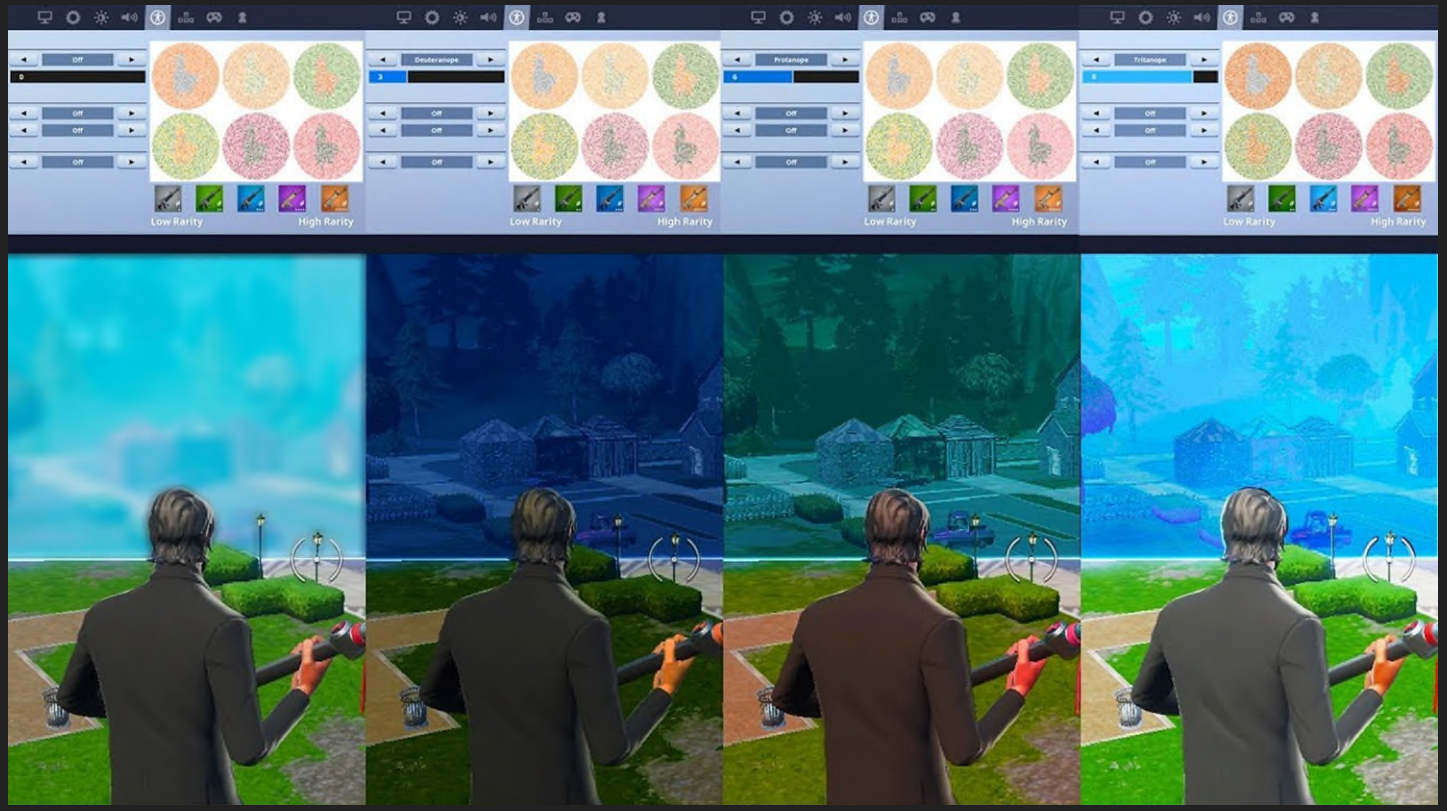


Bad accessibility design goes beyond vending machines, stairways, and websites…it also includes games!

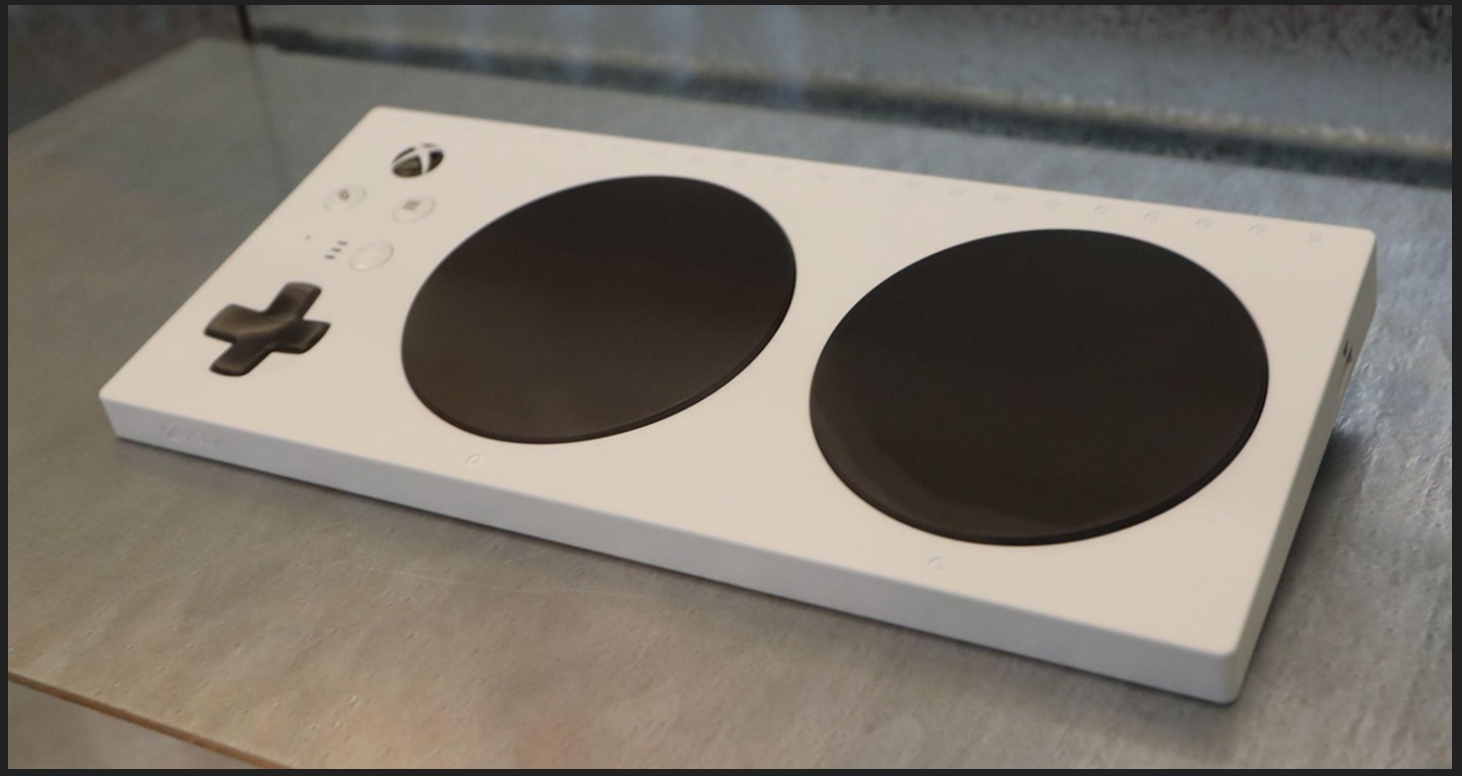
Bad Accessibility in Gaming

60
FOV
CALL·DUTY
WARZONE
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.

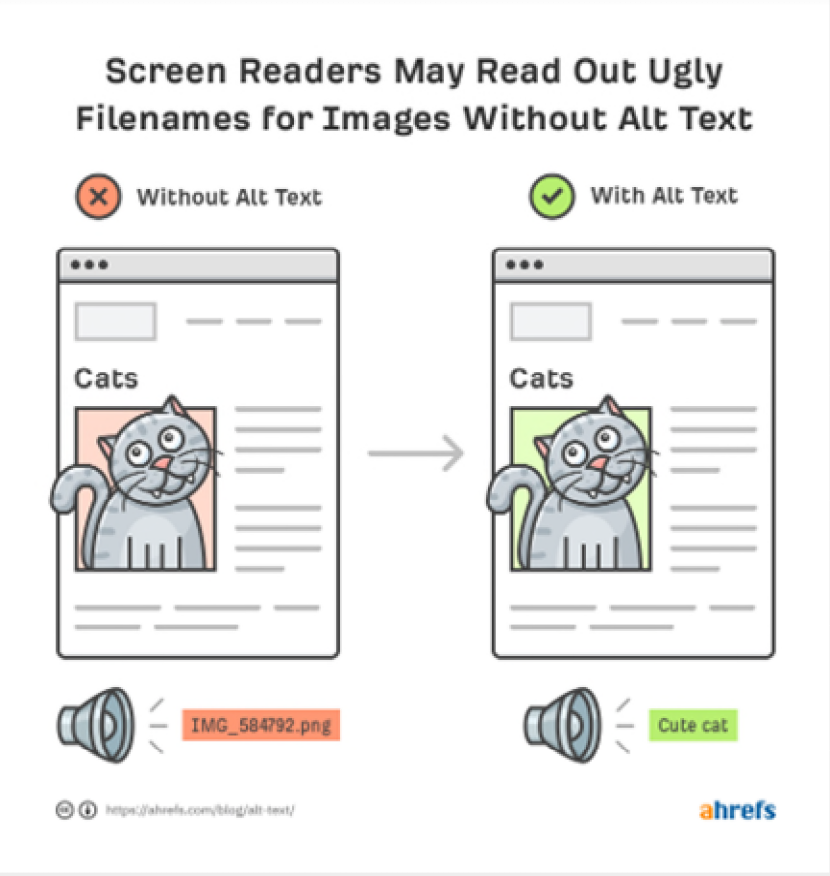
- Strategies for Improving Accessibility
  - Game accessibility guidelines exist but sometimes conflict with game design goals.
  - Organizations like IGDA, Medialt, AbleGamers, and CEAPAT provide guidelines.
  - AbleGamers' Accessible Player Experience (APX) increases accessibility expertise in game 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



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

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:

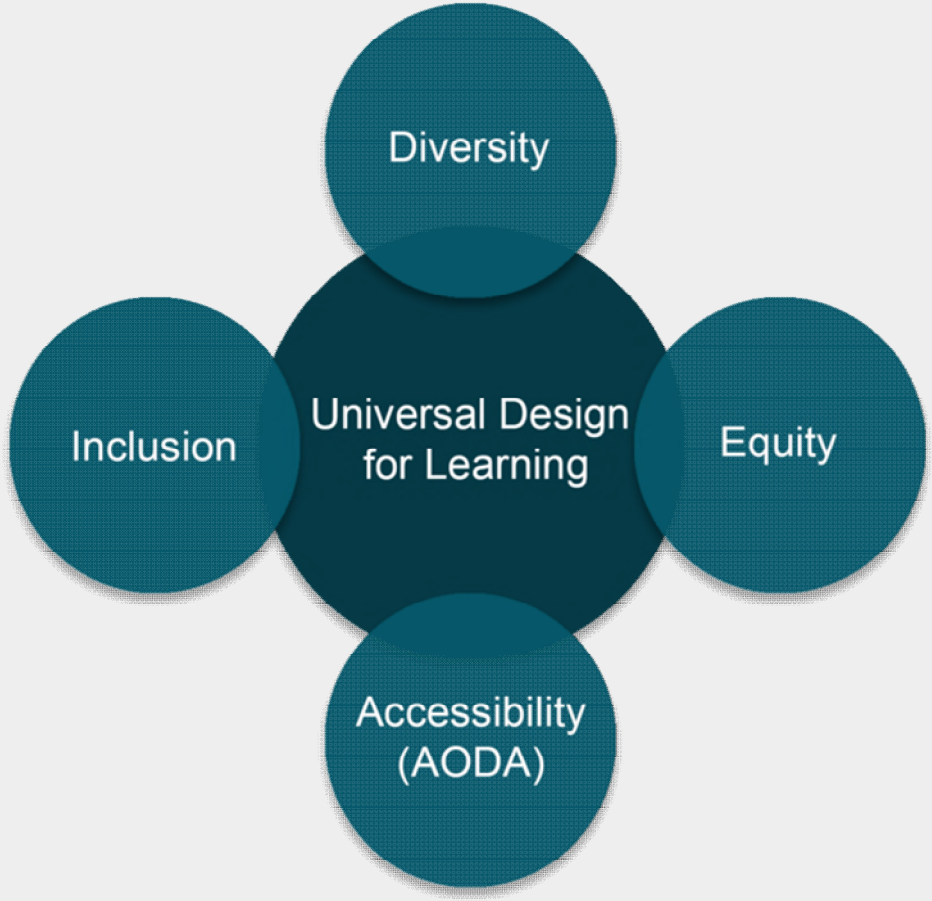
give learners various ways of acquiring information and knowledge

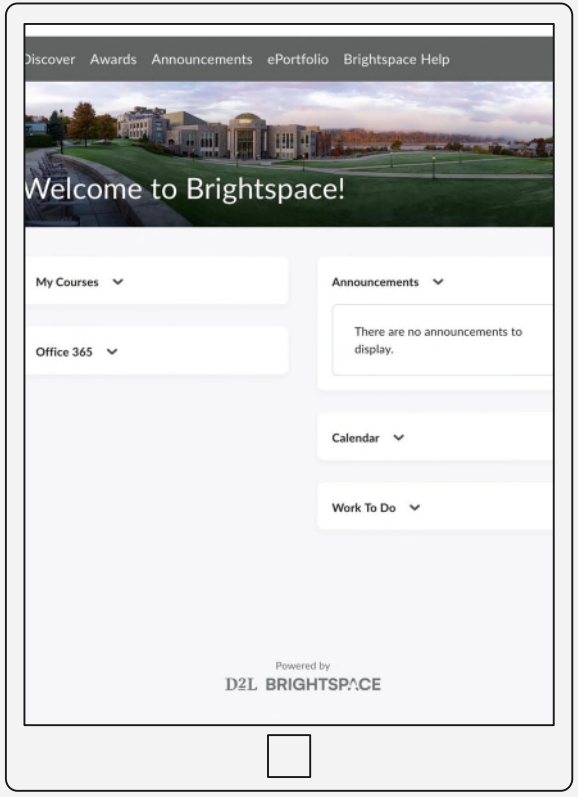
Multiple means of expression:

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

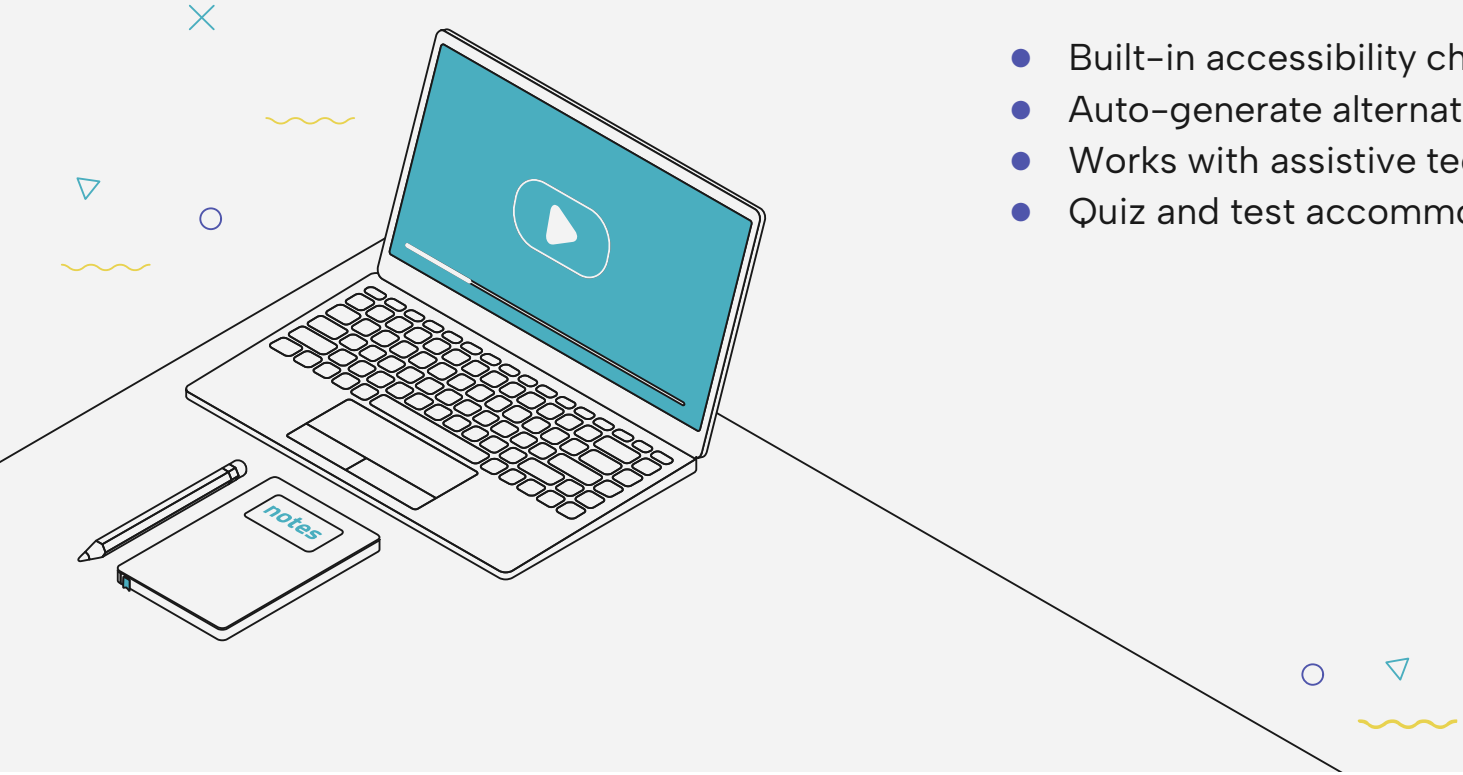




Brightspace

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