Accessibility in Project-Based Learning

Presenter Info

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WYOMING ACCESSIBLE EDUCATIONAL MATERIALS

Learning Objectives

- Define "Project Based Learning (PBL)"
- Identify at least two possible barriers to PBL
- Understand how to analyze projects for accessibility

What is Project-Based Learning?

What is PBL?

Learning through real-world projects that involve problem-solving, collaboration, and active engagement.

Importance of PBL for All Learners:

PBL fosters critical thinking, creativity, collaboration, and real-life skills that benefit all students, including those with disabilities.

Challenges of PBL for Students with Disabilities

Common Barriers in PBL:

- Physical Barriers: Limited mobility or dexterity can make it difficult for students to participate in hands-on activities.
- Cognitive Barriers: Complex instructions or abstract problemsolving may overwhelm students with intellectual or learning disabilities.
- Communication Barriers: Students with speech, hearing, or language impairments may struggle with collaborative aspects.
- Sensory Barriers: Visual or auditory impairments may limit access to certain types of project materials or information.

Quick Recap

Accessible Educational Materials:

Educational materials provided in alternate formats to students with print disabilities

Universal Design for Learning

Provide multiple means of engagement, representation, and action and expression for all learners

Creating accessible documents/teacher-made materials

Consider font, color contrast, layout and formatting, alternative text, accessible formats

Sample Project

Bridge Design Project

Project Prompt

As a team, build the cheapest and strongest bridge within the given constraints using the Westpoint Bridge Software. You will also build a scaled model of your bridge to meet given constraints, and then break the model to find the max load it can take.

Team Jobs

Your team will be doing several different jobs to accomplish this design process;

- ▶ 1) Decide on a truss design
- > 2) One person begin the design of your bridge on Westpoint Bridge Software.
- ▶ 3) One person begin the design of your truss on MDSOLIDS.
- 4) One person begin building the scaled model of your bridge, using the chosen material.
- ▶ 5) One person begin the media campaign.
- Once the scaled model is built, weigh it and then run it through the Vernier Logger Pro truss breaker machine. Collect data on max force needed to break your scaled model.

Discussion

What are the various components of this project?

- What tasks do each of the activities entail?
- What barriers might be presented with each of these activities?
- How can we mitigate these barriers?

Component 1: Westpoint Design







Component 2: MD Solids Design



Component 3: Scale Model Design



Component 4: Presentation



About the software: MD Solids

- Ability to create or erase members, support points, and loads
- · Shows forces for each member
- Works only for statically determinate trusses







- Failed at one of the upper joints
- Minor crack in a base layer, but still very stable
- Held 82.14 lbs
 - 82.14/(2.597 oz/16) * 100% = 50,609.98% efficient

Other Components?

> Are there other aspects of this project we need to address?

Reminders

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- Certificate of attendance upon request