

DCL: Synthesis & Design Workshop: Designing STEM Learning Environments for Individuals with Disabilities

AccessCyberlearning 2.0

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AccessCyberlearning



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Driving Questions / Purpose

1. **What challenges** do students & instructors with different types of disabilities face in using current & emerging cyberlearning tools & engaging in cyberlearning activities?
2. **How do current digital learning research & practices** contribute to the exclusion & marginalization of individuals with disabilities?
3. **What advances** in design are required to support cyberlearning that is accessible to, usable by, & inclusive of students & instructors with disabilities?
4. **What specific actions** can digital learning researchers, educators, funding agencies, & other stakeholders take to systematically address cyberlearning access issues with respect to disabilities?

Participants

- Thus far, 22 individuals have directly contributed to the development of the white paper through our workshop & community of practice; by the end of the project more than 150 individuals will have had opportunities to provide input.
- Participants include individuals with disabilities, cyberlearning technology & pedagogy researchers, computing faculty & doctoral students, cyberlearning instructors & designers, leaders of K-12 & postsecondary cyberlearning projects, IT accessibility experts, & Center for Innovative Research in Cyberlearning (CIRCL) staff.

Process

At the workshop & in an online community of practice, collaborators:

1. **Synthesize & integrate** existing research relevant to the accessibility of digital learning to students with a variety of disabilities.
2. **Produce a white paper** which addresses research questions & contributes to the development of forward-looking, highly adaptable, distributed, collaborative, digital environments that can personalize learning for diverse learners that include individuals with disabilities.
3. **Develop guidelines** for how researchers & educators can address disability/accessibility-related issues with respect to (a) designing & testing new technologies, (b) analyzing & reporting outcomes, & (c) designing project activities & resources.

Findings

- US civil rights legislation requires access to educational opportunities, including those that make use of IT, to students with disabilities (K-12 & postsecondary: Section 504 of the Rehabilitation Act of 1973, Americans with Disabilities Act of 1990 & its 2008 Amendments; K-12: Individuals with Disabilities Education Act).
- There is little evidence that cyberlearning technology & pedagogy research & practice routinely address access issues for individuals with disabilities.
- Established principles, guidelines, & practices currently exist to guide the development & use of accessible, usable, & inclusive cyberlearning technology & pedagogy.

Principles

Principles that can guide the accessible design & practice of cyberlearning technology & pedagogy include

- 7 principles of universal design (UD) of the National Center on Universal Design,
- 3 principles of Universal Design for Learning (UDL) established by the Center for Applied Special Technology (CAST), &
- 4 principles of the Web Content Accessibility Guidelines of the World Wide Web Consortium (W3C).

Surprises & Tensions

- Disability is not always addressed as a diversity issue, even in projects focused on broadening participation.
- Many cyberlearning products being developed may not comply with civil rights legislation under which educational institutions are covered entities. At current rate, more than 500 complaints per year are filed with the US Department of Education Office for Civil Rights over inaccessible technology.
- To achieve systemic change toward more accessible, usable, & inclusive cyberlearning, multiple stakeholder groups must be engaged (e.g., researchers, instructors, instructional designers, computing faculty, IT companies, funding agencies).

Recommendations

- **Immediate:** Develop & share guidelines for the accessible design of cyberlearning tools & pedagogy; develop & offer training & resources tailored to cyberlearning researchers, educators, & other stakeholder groups regarding the engagement of people with disabilities & their perspectives & the application of UD, UDL & WCAG principles in their work.
- **Near-term (3-5 years):** Continue developing resources & offering training to stakeholder groups; for researchers, promote inclusion of accessibility issues in their workflows (e.g., consider the needs of *all* learners when designing research & instruction; include individuals with disabilities in research studies; share results for people with disabilities in reports.)
- **Longer term:** Researchers routinely implement an iterative design process that includes users with disabilities in all phases of the research.