Establishing Guidelines for Access of STEM Resources Online

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Affiliations

- Deaf STEM Community Alliance

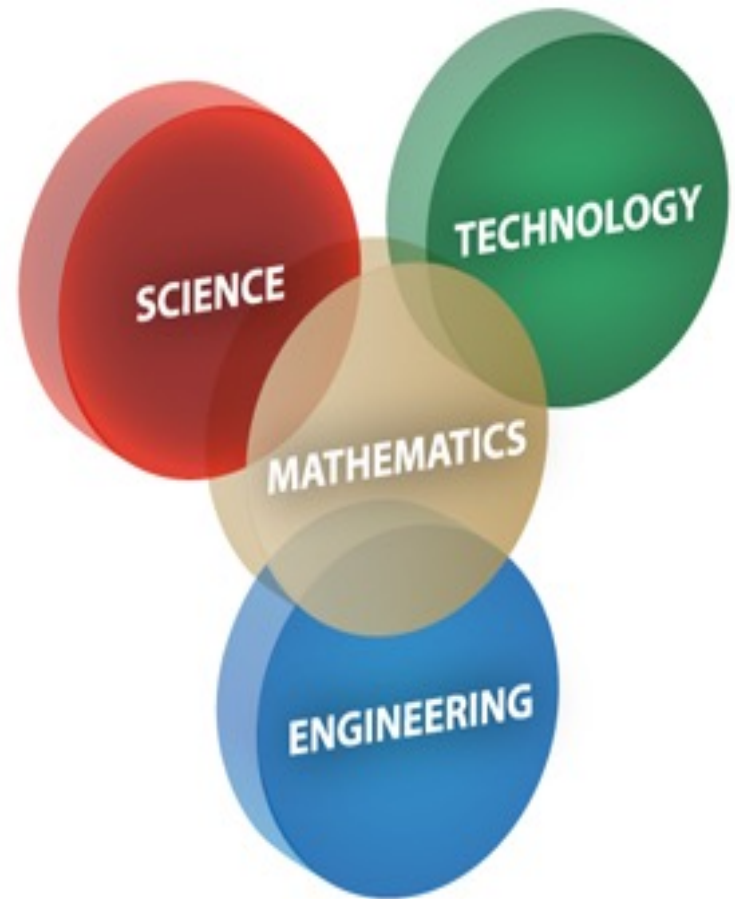- National Science Foundation (NSF)(HRD-1127955)

Overview

- Science, Technology, Engineering, and Mathematics (STEM)

- Accessibility
  - 3 Groups

- Digital Libraries
  - Good vs. Bad
  - Curation
  - Recommendations

- Virtual Academic Community (VAC)

STEM

- Description

- Deaf STEM Community Alliance
  - Virtual Academic Community (VAC)

Accessibility

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."
– Tim Berners-Lee, inventor of the World Wide Web

- Groups
  - Deaf & Hard-of-Hearing
  - Blind & Low Vision
  - Mobility Impaired
- Tools
  - Web site testing
  - Browser accessories

Accessibility

Deaf & Hard-of-Hearing

- ASL users must be presented with information that is easily understood.

- Users must be presented with content that is very visual.

- High Frames Per Second Rates (FPS) are required when communicating via teleconferencing.

- Mild: 26-45 db.

- Moderate: At 46-65 db.

- Severe: At 66-85 db.

- Profound: Anything over 85 db.

Accessibility

Blind & Low Vision

- Users require computer programs and accessories

- Users face unique challenges in approaching visual media

- Partially sighted: Mild vision problems.

- Low vision: Severe visual impairment.

- Legally Blind: Very limited field of vision.

- Totally Blind: No vision

Accessibility

Mobility Impaired

- Users typically have limited or no ability to use a mouse.

- The users must be able to access all parts of a web page using something other than the mouse, such as the keyboard.

- Level 1: Slightly impaired mobility.

- Level 2: Intermediate impaired mobility.

- Level 3: Severe impaired mobility.

Tools

- Web Site Testing
  - Accessibility Rating

- Browser Accessories
  - Deaf & Hard-of-Hearing
    - Subtitles, Captions, Improve Readability
  - Blind & Low Vision
    - Screen Readers, Change Font Size, Keyboard Shortcuts
  - Mobility Impaired
    - Tabbing, Voice Recognition Software

Digital Libraries

- Good Design vs. Bad Design

- Curation

Good Design (Accessible)

Good Design (Accessible)

Bad Design (Not Accessible)

Curation

"A curator is an information chemist. He or she mixes atoms together in a way to build an info-molecule. Then adds Value to that molecule." – Robert Scoble
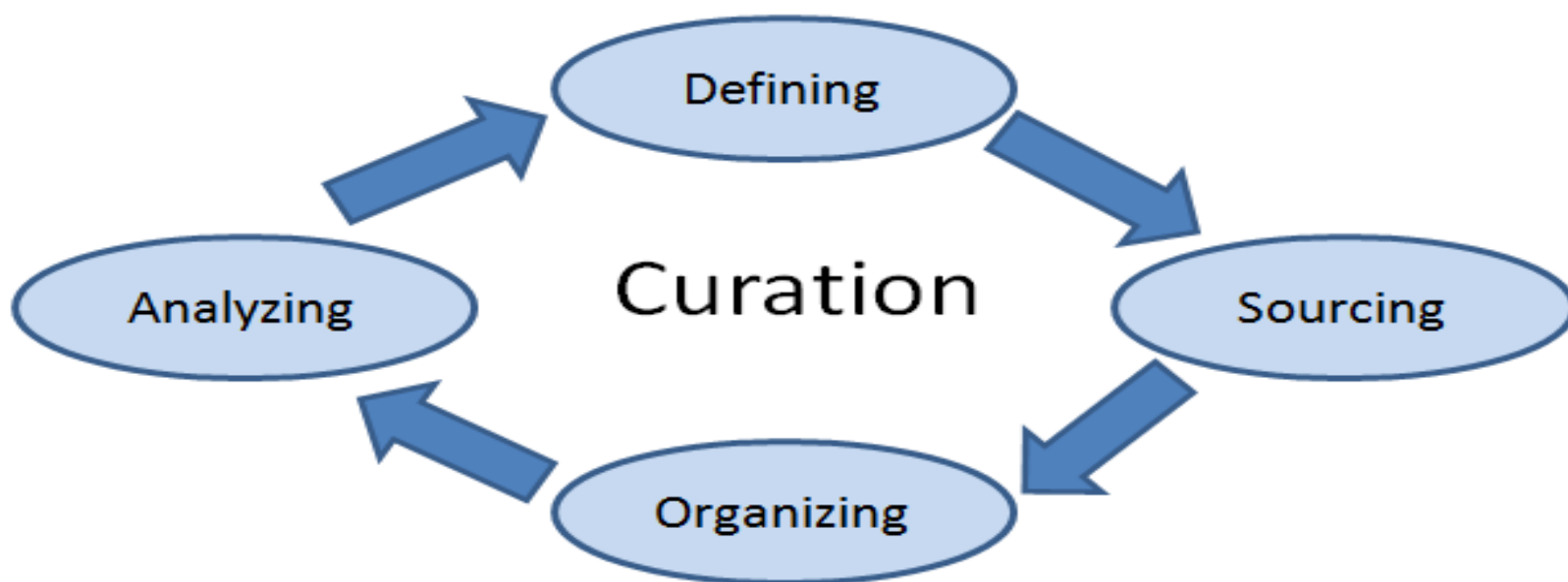
Design Recommendations

- Full Accessibility: Satisfy needs of all 3 groups

- Curate a design that utilizes common accessibility tools

- Use open source Web development platform

Virtual Academic Community

Conclusion

- Requirements
  - Accessibility
  - Appealing

- Curation
  - Efficient organization of information

- Applications to the VAC
  - www.dhhvac.org

Additional Information

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- VAC WEB
  - http://www.rit.edu/ntid/dhhvac/

Q & A

Abstract

This presentation will describe the development of guidelines for an online academic community which is designed specifically to accommodate persons with diverse communication and access needs. The online community is a project of the Deaf Science, Technology, Engineering, and Mathematics (STEM) Community Alliance, that is funded by the National Science Foundation (NSF).

Persons with diverse access and communication needs include individuals who are Deaf & Hard-of-Hearing, Blind & Low Vision, and Mobility Impaired. Team members are developing an online community that compiles information and resources for topics involved in STEM. The goal is to make learning and communication easy for people who face challenges accessing STEM resources and learning online. Many of the Web sites and resources available today don't provide the necessary tools for learning. Ultimately, we are designing a website that incorporates all of the necessary tools and resources to meet our accessibility requirements.

The process of discovering and compiling this information is ongoing. This presentation will describe Internet access needs for diverse groups of users, examples of accessible websites, and examples of accessible STEM resources. Documentation of required guidelines is being created for future team members to follow in the next 4 - 5 years. The outcome of this research project will create an online community that can benefit anyone with diverse access and communication requirements.