Summit on Cyberinfrastructure

Remote Captioning and Interpreting for STEM Students: Recommendations of a National Summit

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20 March 2009

CSUN Conference

The Summit was led by RIT and the University of Washington (UW) and supported by the National Science Foundation under Award No. OCI-0749253

Project Team

- E. William Clymer
  - RIT/NTID, Center on Access Technology
- James DeCaro
  - RIT/NTID, Center on Access Technology
- Richard E. Ladner
  - University of Washington
- Jorge L. Diaz-Herrera
  - Rochester Institute of Technology

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Project Information

- Led by Rochester Institute of Technology (RIT) National Technical Institute for the Deaf (NTID) and University of Washington (UW)
- Supported by the National Science Foundation (NSF)
- Held on Campus of RIT immediately following NTID Technology Symposium
- 50 leaders of support service provision for postsecondary deaf students in STEM (Science, Technology, Engineering, and Mathematics) programs

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Goals of Summit

- Report on the current state of online remote interpreting and captioning
- Identify the benefits and challenges associated with implementing a multimedia cyberinfrastructure to support students in STEM mainstreamed classrooms

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Background and Need

- Increase in number of students mainstreamed in STEM programs throughout United States
- 10% US population (or 28 million) significant hearing loss
- 1-2 million use ASL
- 300 mainstreamed in STEM programs at NTID/RIT
- Approx. 400 mainstreamed in STEM in over 100 different universities

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Background and Need (con't)

- Growing need for skilled interpreters and captioners competent in STEM programs
  - Beginner, intermediate, and advanced levels
- Lack of easy access to interpreters, captioners and support services knowledgeable with scientific and technical language

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Proposal to NSF
Based on a Unique Collaboration

- Richard Ladner's work with Cyber-community at University of Washington
- Jorge Diaz-Herrera's interest in the RIT Center for Advancing the Study of Cyberinfrastructure (CASCI)
- NTID's Interest in the Evaluation, Research and Development of Remote Services

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Project WWW Site

- http://www.ntid.rit.edu/cat/summit/resources.html

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Plan of Execution

50 leaders divided into 6 constituency groups

- Educational, Linguistic & Sign Language Researchers/ Developers
- Coordinators of Support Services
- STEM Faculty
- Cyberinfrastructure Specialists
- Educational Captioners & Interpreters
- Students

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Plan of Execution

- Each group to present to Summit gathering benefits and challenges associated with developing a multimedia cyberinfrastructure specific to area of expertise
- Break into groups to address challenges and develop recommendations on how to implement a multimedia cyberinfrastructure for students mainstreamed in STEM
- Each group to present to Summit participants their recommendations for review

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Constituency Group Leadership

Facilitators assigned to each group

- Educational, Linguistic & Sign Language Researchers/ Developers
  - E. William Clymer, NTID/RIT, PEN-International
- Coordinator of Support Services
  - Denise Kavin, NTID/RIT, PEN-International
  - Marcia Kolvitz, PEPNet-South, University of Tennessee
- STEM Faculty
  - Richard Ladner, University of Washington
  - Caroline Solomon, Gallaudet University

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Constituency Group Leadership

- Cyberinfrastructure Specialists
  - Jorge Diaz-Herrera, RIT
  - Gurcharan Khanna, RIT
- Educational Captioners & Interpreters
  - Rico Peterson, Northeastern University
  - Mike Stinson, NTID/RIT
- Students
  - Ellie Rosenfield, NTID/RIT
  - T. Alan Hurwitz, CEO NTID
  - Joshua Beal, Student Support

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Researchers and Developers

Benefits

- Utilization of Cyberinfrastructure would provide new areas of research and evaluation related to education, linguistics and cognitive development.

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Researchers and Developers

Challenges

- Match student with technology
- Preference vs. performance
- Elements of a successful business model
- Determining best practices

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Researchers and Developers

Recommendations

- Measure long term costs and benefits of technological solutions
- Further research on social and literary effects of technologies
- What are the effects of cohort differences and technological savvy
- Compare the advantages and disadvantages of synchronous vs. asynchronous services

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Coordinators of Support Services

Benefits

- Rural school access to interpreting and captioning
- 24/7 Access

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Coordinators of Support Services

Challenges

- Identifying and locating remote service providers
- Retaining service providers
- Effectively interpreting terminology, diagrams and graphs for STEM students
- Gaining support of faculty/administration

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Coordinators of Support Services

Recommendations

- Establishment of service hubs
- Development of websites/databases to support remote services
- Development of remote service materials
- Technology equipment

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STEM Faculty

Benefits

- Improving educational experience for deaf students
- Keep students interested and engaged
- Maximize learning

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STEM Faculty

Challenges

- Visual dispersion
- Access to appropriate accommodation
- Barriers to classroom participation
- Barriers to after-class activities

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STEM Faculty

Recommendations

- Need to adjust teaching style
- Create a faculty website
- Use of technology agreement
- Part-time faculty

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Cyberinfrastructure Specialists

Benefits

- Develop approaches, methods and techniques
- Provide system integration, operation and administration
- Supplement existing facilities
- Ensure effective design

Cyberinfrastructure Specialists

Recommendations

- Create an experimental platform and test bed
- Requirements gathering
- Design process
- Platform independence is a challenge

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Educational Captionists & Interpreters

Benefits

- On-demand services
- Coverage during a variety of times
- Variety of places
- Support of group communications

Educational Captionists & Interpreters

Challenges

- Technical/logistical
- Communicative/linguistic
- Pedagogical

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Educational Captionists & Interpreters

Recommendations

- On-demand national agency
- Funding to support certification training
- Need for varying display captions

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Students

Benefits

- Online database & centralized repository for STEM Signs
- Teaching tools of Educators
- Accessibility Guidelines
- Best Practices

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Students

Challenges

- Respect and recognize diversity
- Cost of technology and service provider
- Availability of technology due to marketplace demand
- Educating the provider

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Students

Recommendations

- Empower students
- Develop social networking opportunities
- Focus on STEM vocabulary and discourse
- Shared access to deaf-friendly STEM instructors across universities

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Evaluation & Research

- Self advocacy / empowerment
- Mobility
- Remote service training forum for educators and students
- Online training for interpreters and captioners in STEM
- Communicating access needs to organizations that develop technology
- Centralized service provider database/clearinghouse

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Reporting

- http://www.ntid.rit.edu/cat/summit/resources.html
- Summary Report, Initial Draft (September 15, 2008, 40 pages)
  - Summary of the group discussion and recommendations from the June 2008 Summit at RIT
- White Papers & Group Recommendations (June 28, 2008, 110 pages)
  - The members of each constituency group are listed, along with pre-summit whitepapers and recommendations generated at the Summit

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Reporting (cont)

- http://www.ntid.rit.edu/cat/summit/resources.html
- Participant Evaluation Report (September 15, 2008, 12 pages)
  - An analysis of the feedback and suggestions offered by Summit participants.
- Bibliography on Remote Interpreting and Captioning (May 2008, 300 pages)
  - References used to support discussion at the Summit.

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Next Steps

- Expand dissemination and recommendations at two national conferences by August 2009
- Seek ongoing support to focus on Cyberinfrastructure and Cyber Community by
  - Building a Cyber Community to Support STEM Students
  - Refine internet-based communication modules to provide classroom support

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Participant Evaluation Report: What Participants Had to Say…..

- Interaction, brainstorming great ideas, positive advances in STEM education on various fronts.
- Well organized! Good job soliciting and collecting ideas.
- Publicize the work and recommendations…

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