
Summit to Create a Cyber-Community to Advance Deaf and Hard-of-Hearing
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Coordinators of Support Services
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Introduction

Postsecondary education institutions are faced with the challenge of serving an increasing number of individuals who represent more diverse backgrounds and interests. As the student population changes and more students who are deaf or hard of hearing enroll in a wide variety of courses and majors, the challenge further expands to provide quality access services from a relatively small pool of resources. One possible solution is to provide access services from remote locations using internet access to connect the service provider with the learning environment. These may include sign language interpreting, speech-to-text transcription, or notetaking services. This paper will briefly review the available services, provide information about the current use of these services in various learning environments, discuss issues that need to be considered when implementing remote access services, and list resources that may be helpful to coordinators of support services.

Overview of Remote Access Services for Students who are Deaf and Hard of Hearing

Interpreting

Sign language interpreting services have traditionally been provided in educational settings as onsite classroom access services. Sign language interpreters translate spoken comments into sign language and signed comments into spoken English. In recent years, access to technology has had an impact on how these services might be offered. Through the use of web cameras, microphones, computers and monitors, and an internet connection, interpreting services may be provided from a remote location. This is commonly referred to as video remote interpreting, or VRI (Berke, 2008). Although the deaf and hearing participants are often in the same location, the interpreting services are provided from a remote site (Lightfoot, 2005), such as by staff from the institution or from an interpreting services agency with VRI capability. The student views the interpreter on a computer monitor or laptop computer, and the web camera in the classroom enables the interpreter to voice any comments or questions the deaf student may have.

Captioning

The term “captioning services” can encompass several types of services that portray the spoken word in print format. The most common ways of providing captioning for a classroom lecture or

discussion are communication access realtime translation (CART), non-verbatim meaning-based speech-to-text systems, and voice recognition technologies.

Communication Access Realtime Translation (CART)

CART is described as a “word-for-word text interpreting service” (National Court Reporters Association, 2001). It is the instant translation of the spoken word into text which is displayed on a computer monitor or other device. The service is performed by a CART provider who uses a stenotype machine, notebook computer and specialized software. The CART provider may be in the classroom or at a remote location. For remote access, the CART provider listens to the lecture through a telephone or microphone for a Voice over Internet Protocol (VoIP) connection. Internet access is essential for this service; both the student and the CART provider are logged into a realtime account on a website (National Court Reporters Association, 2002). There are several ways in which the lecture material can be transmitted and shared, including the use of shared applications, such as WebEx or NetMeeting, or through the use of streaming text. Standard dial-up telephone lines are not recommended because there may be a delay in the transmission.

Non-verbatim meaning-based speech-to-text systems

In recent years, there has been growth in the use of meaning-for-meaning speech-to-text applications, such as TypeWell and C-Print, which are also referred to as text interpreting services. Service providers may be referred to as captionists or transcribers, and they use a laptop computer and specialized software to provide a condensed version of the spoken information (Aylesworth, 2005). Remote access can be provided in a manner similar to what is used for CART.

Voice recognition technologies

Known also as automatic speech recognition (ASR), this technology blends the capabilities of speech recognition software and a voice captioner who “echoes” what is presented orally (Eilers-crandall, Gustina, & Campbell, 2004). In some systems, the voice captioner can also make corrections in the text, as needed. Resources that are currently available include Caption Mic and C-Print with Automatic Speech Recognition. Commands are included to help format the text. The result is a realtime display of the lecture or discussion on a computer screen or other display device. Voice captioners typically participate in short training activities to enable the software to recognize the speaker’s voice. Remote access can be provided in a manner similar to what is used for CART.

Notetaking

Computer assisted notetaking services may be provided onsite or through a remote interface. While not specifically designed to facilitate communication among hearing and deaf participants in a classroom, it may provide support to students in this setting (Gallaudet University, 2007). Remote access can be provided in a manner similar to what is used for CART.

Coordinating Services

Traditionally, access services for students who are deaf or hard of hearing are coordinated through the campus office of disability services (DS) (Association on Higher Education and Disability, 2004). Depending on the number of students to whom services are provided, the campus may have staff interpreters and speech-to-text providers, or they may contract with external agencies or individuals to provide services. One of the DS staff members may be responsible for only coordinating services for

students who are deaf or hard of hearing, or that service coordination may be part of a larger, more varied set of responsibilities (Hochgesang, Dunning, Benaissa, DeCaro, & Karchmer, 2007).

When considering the use of remote services, it may be necessary to involve additional members in the coordinating team. Because on-campus interpreters or speech-to-text providers may provide services to remote or satellite sites within the same campus system, working closely with campus personnel, such as information technology (IT) or audio-visual (A-V) personnel, is advised. Ensuring that the equipment is working properly in both the classroom and the service studio is critical, and other campus personnel may share their expertise to support these endeavors. Other campus staff members, such as those who schedule classroom space, may also be involved when considering various classroom features, such as access to internet services or phone lines, adequate lighting, etc.; it may be necessary to relocate a class to ensure that the technology and setting will be sufficient to provide good access for the student.

When working with an outside agency to provide remote access services, the campus office of disability services must also coordinate services with the agency and related personnel. Because ensuring good communication access is essential, the DS office must also work with the agency to arrange appropriate interpreting or speech-to-text services. The on-campus technology team may also work closely with the technology support that may be available through the outside agency.

No matter how the services are provided, it is essential that feedback from the student be gathered on a regular basis. As remote access services continue to expand, the experiences shared by the consumer can help improve the quality and shape the scope of future developments.

Using Remote Services in Various Learning Environments

Due to the rapidly changing technology and the growing use of what is currently available, specific information about remote technology use for classroom access may not be described in the available literature. Consequently, the work group conducted a survey of coordinators of support services during Spring 2008 to better understand how remote services are currently being utilized. Thirty professionals responded to the survey. Fourteen respondents used remote CART services; seven respondents used remote C-Print or TypeWell services; three respondents used remote voice-writing services; and five respondents used remote sign language interpreting services. One respondent was a nationally Certified Realtime Reporter who provides remote CART.

There is much overlapping in regard to successful practices, barriers and issues, and solutions identified in all the various learning environments of Traditional Classroom Instruction, E-Learning, Laboratory Settings, Field Trips/ Off-Campus Learning Settings, and Student Practicum/Internships.

Traditional Classroom Instruction

In the traditional classroom setting, the instructor shares course content through lecture and demonstration. Course enrollment may range from a small group of students in a classroom to several hundred students in an auditorium. The environment is usually controlled. In this setting, students typically remain in their seats and are able to watch the instructor and any audio-visual materials included as part of the lecture.

Successful practices identified (13 responses):

- Training (prior to the start of each term) on the use of technology (laptop computer, web camera, microphones, internet connection);
- Develop troubleshooting skills for students, disability services staff, faculty, and IT/AV staff;
- Work closely with IT/AV staff to troubleshoot issues with campus security or firewalls;
- “Test runs” to introduce students and faculty to the technology;
- Work with disability services and the registrar’s office for priority registration to ensure early notification about classroom use, internet access, and access services;
- Once the term has started, share preparatory materials with service providers;
- When using video remote interpreting, use a web camera to send visual information (e.g., PowerPoint slides; blackboard information) to the service provider;
- Importance of a back-up plan in case of technical failure or ineffectiveness.

Barriers/issues identified (15 responses):

- Quality of sound transmitted from the classroom to the remote location. The quality of some microphones/ sound systems often is not sufficient;
- Reluctance of faculty to use a microphone appropriately;
- Classroom discussions difficult to hear due to lack of additional microphones in the classroom;
- The service provider, in a remote location, is unable to see what occurs in the classroom, what is on the blackboard, or facial expressions/ body language;
- Not all captioning software programs are able to portray scientific notation or mathematical equations;
- Bandwidth may not be sufficient to provide smooth transmission of video relay interpreting;
- Wireless connections may not have the strength of a hard-wired connection;
- Equipment (e.g. web cameras and laptops) may not be compatible;
- Using cell phones or internet-based phone communication systems not always dependable;
- Campus security, firewalls, ongoing internet maintenance and system upgrades can affect services;
- Logistics and collaboration with various offices can pose a challenge;
- Students may be reluctant to use remote technology;
- Faculty may be reluctant to relocate from a regularly-assigned classroom to one that offers the access needed.

Solutions identified (12 responses):

- Need for good communication, good preparation, and ongoing training;
- Essence of good working relationship with provider agency and their technology support;
- One respondent indicated desire for a nationwide database of available remote captionists/ interpreters;
- Maintenance/ care for equipment purchased to ensure high quality/ dependability;
- Use an FM system and in-class notetaker as back-up strategies if the remote connection fails. Service coordinators should look for portability when considering how remote services can be provided.

E-Learning (online learning/web-based classes/distance education):

Under the generic title of “e-learning” there are a variety of approaches that may be used in the college environment. Students may be in a traditional class that is supplemented by online activities; or they may be enrolled in a course that has no scheduled time or day to meet but the course information, including lectures and discussions, is posted on a website and discussion board. Some of these materials may be video or audio materials that may not be captioned prior to posting. The learning environment may be more flexible than in a traditional classroom; students may choose to participate in class at any time that suits their schedule.

Successful practices identified (8 responses):

- Working closely with technology support staff;
- Developing strategies for troubleshooting;
- Training opportunities for students and faculty;
- Working closely with remote services providers and conducting pre-term equipment testing.

Barriers /issues identified (5 responses):

- Two main issues highlighted are audio components and software compatibility;
- Web content, such as streaming videos, podcasts, or other audio components, often is not captioned;
- Software incompatibility may occur when technology for one purpose, such as classroom speech-to-text services, is used in a different manner, such as providing captions for a web conference. Service providers need to ensure that captions can be included as part of a live broadcast, and not added in a postproduction process that would delay access.

Solutions (6 responses):

- Need for good communication, preparation, and ongoing training for all people involved;
- Importance of working closely with distance education technology staff through all phases- preparation, implementation and follow-up. Involving them creates a better understanding of universal design, thus broadening the potential audience beyond that of students with disabilities.

Laboratory Settings

Laboratory settings offer students the opportunity to apply what they’ve learned in the traditional classroom setting in a hands-on manner. Although students may be assigned to lab stations, the setting may be much less structured than a traditional classroom. The instructor may gather students for a demonstration, or comment on what some of the students may be doing. Labs may be held in conjunction with a traditional class, or scheduled for a regular, separate time.

Successful practices identified (4 responses):

- Only one indicated that remote captioning services were offered for a laboratory setting. Another respondent indicated that while on-site captioning services were provided, remote services had not yet been implemented;
- Two respondents indicated that students only used in-class notetaking services or one-to-one communication with the instructor through written communication in the lab setting instead of using remote services.

Barriers/issues identified (4 responses):

- Room set-up can be a barrier to providing effective services. While instructor and students may move around the room, the microphones may not be able to pick up a clear message;
- The laptop needs to be located where it's easy to see the captions without interfering with the lab exercises;
- Lab sections are frequently taught by teaching assistants, so there is ongoing need to provide training to a larger group of professionals.

Solutions identified (3 responses):

- Asking the professor for handouts, books, or other materials to share with the service provider is helpful in preparing
- Providing an in-class notetaker when remote services were unavailable.

Field Trips / Off-Campus Learning Settings

Participating in field trips or other off-campus learning activities offers students an opportunity to learn from sources that cannot be experienced in the classroom. Field trips may be short, lasting a portion of a day, or they may extend over several days or weeks. They may include a wide variety of settings, ranging from urban indoor areas to remote outdoor locations.

Successful practices identified (1 response):

- Although outdoor settings may pose a challenge to providing remote access services, one institution purchased a sub-notebook computer that could be carried anywhere;
- Using battery power and a wireless connection enables captions to be transmitted.

Barriers /issues identified (3 responses):

- Bandwidth cited as a critical issue, especially when other users tap into the internet with large applications;
- Sound transmission issues - group settings may have competing sounds, such as more than one speaker or background noise.
- Scheduling issues, e.g. field trips may include extended class periods or unusual hours; utilizing campus staff to provide remote services may result in scheduling problems for on-campus courses.

Solutions identified (2 responses)

- As technology continues to change, equipment may be available in smaller sizes. Eventually, an institution may be able to choose equipment the size of a pager to provide remote captioning services;
- When available bandwidth is an ongoing issue, negotiate a higher priority for using available bandwidth for access services.

Student Practicum / Internships

As students approach the end of their formal education, some programs of study include a student practicum or internship experience in a work setting as one of the graduation requirements. These experiences give students the opportunity to apply their classroom knowledge to a real-world experience. The student intern may shadow a professional or assume limited job responsibilities. The setting may vary a great deal, depending on the role of the intern and job situation.

Successful practices identified (4 responses):

- Working closely with staff at the internship site, including clarifying communication strategies and policies;
- An unexpected benefit to providing remote access services was that students reported a more positive experience without an additional person (the service provider) onsite.

Barriers /issues identified (3 responses):

- Difficulty managing the flow of conversation so the service provider could hear the information being shared, access to high quality microphones, and access to dependable internet service. In addition, because the service provider was not onsite, one respondent indicated that the student intern's co-workers often forgot about the need for access and did not follow appropriate communication protocol.

Solutions identified (1 response):

- Students need to assume responsibility to manage the flow of conversation and be a self-advocate;
- DS staff may provide printed explanations about the technology and discussion management protocol.

Setting up a Cyberinfrastructure System

Potential Benefits

- Benefit to remote schools where there is a lack of available interpreters and captionists;
- More flexibility and being able to draw from a larger pool of local and national resources for providing such services.

Challenges, Issues and Needs of Coordinators of Support Services

- No central location to get information about remote services. Current information is scattered about. Coordinators often don't know where or how to go about gathering and sorting through information and options;
- Not being able to identify and locate remote service providers;
- Challenges retaining service providers;
- Challenges with terminology, diagrams and graphs for STEM students;
- Concerns regarding ability to evaluate quality of such interpreting or captioning services;
- Gaining support of technical support staff at the college/ university who may be resistant to the idea of remote services;
- Possibility of over-accommodating- determining reasonable accommodations;
- Money issues- paying for such services, or unjustified fear of the high cost of such services;
- Gaining support of administration who may be reluctant to try services out of fear of financial cost, firewalls, or simply lack of knowledge;
- Difference in resources between small and large programs (rural versus urban);
- Determining eligibility for such services, writing policy to determine priority requests;
- Lack of awareness among students regarding remote services;
- Dealing with last-minute requests and prioritizing requests;
- Copyrights regarding captioning of materials, ownership of captioning notes.

Future trends and issues

1. Growing number of d/hh students with diverse needs (oral, signing, cochlear implants)

Resources (to be expanded)

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