
Curriculum Access Through Technology

by Rob LeFebvre, education specialist, SESA

Everyone would like to stay current and synchronized with today's technology for our homes, offices, or schools. Each new product beckons us to run out and buy the latest and greatest software, hardware, or system, hoping it will benefit our students with disabilities. The web is full of hundreds of pages, all begging for the purchase of a hot, new item. New technologies are introduced every day that will allow many more students access to meaningful and successful participation in their schools and communities.

Why do we do this? Why do we consider using technology with students with disabilities? First and foremost, technology should be chosen that assists individual students to access their curriculum. By law, all students have a right to access the general education curriculum, or at least a modified version of that curriculum. On a more practical note, why should special educators reinvent the wheel by creating curriculum that is already available in the general education classroom?

Students come in a variety of shapes, sizes, learning styles and preferences, as do we all. Students with disabilities are no different in this regard. The trick to finding out what type of technology a student might need is to start with the activity itself. Ask the following questions: What are the other students in the class expected to do? What is the student with an IEP expected to do? What are the learning goals for this activity or lesson? How might the student best access the information? How might he/she best show that the information was learned? What are the student's strengths? How do those strengths get functionally used?

These questions help teachers get answers as to what actual supports are needed by a particular student. All too often, teachers and care providers start with the technology available and only then examine the student's specific needs and abilities. Unfortunately this approach does not work for a student with disabilities. The technical equipment then becomes a very expensive knick-knack collecting dust in the classroom.

How do we avoid this? How do we ensure that a technology solution is effective and efficient for a student to use? We begin with the above questions, deciding what the student needs in terms of support for his or her learning. Then, we evaluate the effectiveness of the proposed solution. When possible, we get input from the student as well as from his/her parents, teachers, and peers. Peers can often be a good "reality-check" for our assumptions about a particular support solution.

Let's continue remaining interested and informed about the latest, greatest technology. Let's keep our eyes on the future, because technology just might provide the key to expand possibilities and broaden a student's ability to learn, communicate, and enjoy a fulfilling life. All students can learn, and many benefit from technology supports in the classroom. When discovering new technological solutions to supporting students, define the activity and expectations clearly BEFORE the technology is applied. Test your solution and keep track of the improvements in the student's learning and quality of life.

Remember, technology use is not the goal for students with disabilities. Technology is the support that helps students achieve goals and outcomes that previously were not a possibility.



The Student Access Map

Ensuring access to the general curriculum

by Maureen Dacey, Kristen Eichleay, and Jack McCauley

“My student needs a laptop.” “I need this software program.” How many times have you heard these or similar requests from a teacher, parent or therapist? Unfortunately, when you ask questions such as, “What is the specific skill that has been identified as a challenge for this student?” or “What else has been tried?”, people often have difficulty answering. Teaching others how to approach assistive technology from a needs-based perspective and recognizing the range of tools and strategies that are part of this process are two of the main reasons we created the Student Access Map.

The Student Access Map, or SAM, resulted from work on two grants that the Boston Public Schools Access Technology Center at Emmanuel College (ATC) received from the Massachusetts Department of Education. It is a framework for determining appropriate assistive technology supports to aid students in addressing the curriculum standards. Its concise format with extensive supporting handouts, guides IEP teams through the process, providing an efficient and effective tool for documenting the team’s efforts to devise a plan for implementing assistive technology strategies and tools.

With the creation of the SAM, we attempted to address many of the needs that had been expressed within the Boston Public Schools related to assistive technology assessments. The format had to be short and user-friendly. It also needed to be applicable in a variety of settings for both formal and informal assessments, and by any team member, including assistive technology assessors, related service providers, special educators and regular educators. As the format developed, we also recognized the need to include supporting documents that offer guidance for conducting task analyses, a crucial part of the process that may not be familiar to all educators. In addition, a wide variety of ideas for possible supports gathered over many years by ATC were included to offer a starting point of things to try and to promote awareness of the range of supports available to students from no tech, low tech, and all the way to high tech.

The Student Access Map (SAM) process consists of five handouts: the SAM Flow Chart, SAM Fill-in Chart, Sample SAM, SAM Instructions, and Supports List. The SAM Flow Chart and SAM Fill-in Chart both depict the five main sections that comprise the Student Access Map: Standard, Goal or Activity; Student; Barrier; Supports; and Plan. The remainder of this article will guide you through the process of using the Student Access Map, looking at each section in detail and showing you how the different handouts complement the process.

Section one contains three fields that are possible “entry points” for the Student Access Map: Standard and Objectives, IEP Goal, and Instructional Activity. Although we focused on using this Map for addressing a standards-based curriculum, we wanted this tool to be flexible enough that we could use it to look at activities where the standard is not necessarily explicitly stated. That is why we included an opportunity to start with an IEP goal or an Instructional Activity. Regardless of which field you choose, the entry point for the map provides us with our focus, answering the questions: What is it that we want the student to be able to do? and Why is the team looking for supports? We identify the standard, IEP goal or activity where the student is having, or will have, difficulty.

“SAM is a framework for determining appropriate assistive technology supports to aid students in addressing the curriculum standards.”

Once this target has been identified, determine what specific skills are necessary to participate in and successfully complete the task. Break down the task into discreet steps, and record this information as brief descriptions in point

format. Our list of some possible task requirements in SAM Instructions includes academic skills, e.g., reading, writing, comprehending, and organizing; personal skills, e.g., listening, cooperation, and communication; and information related to the learning environment, e.g., level of assistance, setting, and materials. At this point you are looking at the task without any supports or accommodations.

The last thing we need to do in section one is to identify the goal of the activity. What is the main purpose of this activity? What is the essential skill that is being targeted? This is one of the most crucial steps, as you want to be sure that your suggested supports do not negatively impact the intention of the activity.





In the next section, we look at the student. Here we refer back to the skills listed in section one and describe the student’s abilities in each of those areas. What are the student’s skills as they relate to skills required for the targeted standard, goal or activity? Also consider including the student’s interests, related services, medical issues or medications, and any strategies or tools that are in place or have been tried. Note when the student is successful, as well as where they encounter difficulties.

In section three we can more clearly identify what the problem area is, or the barrier. Which required skill might prevent him/her from participating fully in or successfully completing the activity? Given the skills required for the task, which are a challenge for this student?

The SAM continued on page 3

Student Access Map (SAM) Fill-in Chart

Student: _____ Date: _____ Location: _____ Person completing this form: _____

<input type="checkbox"/> Standard/Objective <input type="checkbox"/> IEP Goal/Benchmark <input type="checkbox"/> Instructional Activity <ul style="list-style-type: none"> • List academic skills, personal skills, and environmental factors. • State primary goal of the activity. 	Student  <ul style="list-style-type: none"> • List the student's strengths and challenges as they relate to the requirements of the activity 	Barrier  <ul style="list-style-type: none"> • Which required skill/factor impedes the student's participation or success? 	Supports: Tools & Strategies  <ul style="list-style-type: none"> • List all possible no tech, low tech, mid tech, or high tech supports to help students perform the task. 	Plan  <ul style="list-style-type: none"> • List/prioritise steps of your implementation plan • Identify time line and persons responsible • List criteria for success

Adapted from: "Wisconsin Assistive Technology Initiative Environmental Observation Guide" 9/98
 Boston Public Schools Access Technology Center at Emmanuel College in collaboration with Maureen Dacey, M.S. CCC-SLP; Easter Seals of Massachusetts, as part of Massachusetts DOE Technology Lighthouse Adoption Grant 2000-2001

In section four we are ready to generate ideas for possible assistive technology supports to help the student overcome the barriers. Given the problem(s) listed in the previous section, list *all* of the possible solutions that might help the student successfully engage in the activity. Consider the range of tools without yet making any decisions, and be sure that your suggestions for supports and accommodations directly relate to your identified barrier(s) *and* do not alter the intent of the stated goal of the activity. If you came up with more than one barrier and they are similar or would generate similar supports, you can create a single supports list. If you identified very different needs, you may need to generate different supports lists, and then different plans in section five as well.

The Supports List handout can be a good starting point for generating your ideas. This handout of tools and strategies is a document that we have been developing for a number of years, and for the most part represents supports and techniques that we have used in the Boston Public Schools. Each list has also been subdivided into the continuum of no-tech, low-tech, mid-tech and high-tech. This document is constantly evolving, and we appreciate your suggestions/feedback.

The last step of this process is the plan. What is the team's plan for implementation of the suggested assistive technology supports? Here is where we choose which supports to start with, and address how the supports will be implemented, maintained, and assessed for success. When choosing where to begin, it often makes sense to use the resources that are available first, often the no-tech or low-tech ideas, then move to the solutions in the mid- or high-tech areas.

Some of the questions to be answered in this section will be: Who will be responsible for obtaining and training with the support? When in the day will the support be used, specifically? With what frequency? In what setting will the support be tried? How long will the support be used to determine its usefulness? Who will maintain and program the support? Who will maintain the documentation for the intervention? What are the criteria for success of the support? Who will make this determination? Include as much information as is necessary to ensure that every variable has been discussed with the team and a consensus has been reached.

We encourage you to use the Student Access Map in any way that makes sense for you and your students. It can be used as a "mental template," walking through the steps without necessarily recording the information. It can help to maintain running records or serve as part of the IEP process of considering assistive technology. The Student Access Map materials were developed through the Boston Public Schools Access Technology Center at Emmanuel College. They are available online at the Boston Public Schools' Web site <www.boston.k12.ma.us> under Teaching and Learning, then Technology, then Access Tech Center; or for the most updated versions of the materials, e-mail us directly at <atc.boston.k12.ma.us>. Your feedback and suggestions about any of the materials are welcome.

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Best Practice

by Kirsten Haugen

Participation Plan

What -

A Participation Plan is a one page sheet that describe how a student with special needs participates in a given activity. For example, a plan may explain how a nonverbal student participates in circle time using a voice output device programmed by a peer, where to position the device, and what natural cues or prompts the student needs to communicate using the device. It may even include alternative strategies if the device is unavailable.

A student may have one or several Participation Plans, depending upon the number of daily activities that need modifications for the student to participate. Each plan:

- describes the typical activity
- summarizes related IEP goals
- explains special preparation, strategies and materials (including where they're located)
- show how the student participates at each step
- indicates alternative activiti(es), if appropriate

We've used Participation Plans in full inclusion settings, resource rooms, special day classes, lunchrooms, playgrounds, or any setting where a student needs an alternative plan to participate. Using Participation Plans helped us make sure each child could participate in a given activity to the fullest extent possible, using the tools and strategies related to their IEPs. Students also received consistent and appropriate support, regardless of who was working with

them, because we had a way to share vital information in an efficient, respectful, and confidential manner. The Participation Plans "worked" even when they didn't work because following the plan on a regular basis helped us stay conscious of our goals and strategies, and we could modify the plans as needed.

How -

1. Develop your own Participation Plans using the blank template and the sample as a guide. Modify the Participation Plan format to suit your own class needs.
2. Prioritize according to need! Begin writing Participation Plans for the most frequent or frustrating activities, then develop plans for other activities.
3. Develop Participation Plans with input from the whole team. Therapists, teachers, parents, even peers or the student herself can contribute ideas to improve learning opportunities and success.
4. Organize Participation Plans so they're easy to access. Keep all Participation Plans for one student in a binder at his desk or in his backpack. Or, keep each Participation Plan with the materials used for that activity.
5. Share the Participation Plans with any staff who'll be working with the student. Go over Participation Plans with substitutes, interns or volunteers before they work with a student.
6. As a student's skills evolve, set dates to review and revise the Participation Plans.

Student Profiles

What -

A Student Profile is a one-page summary about a student in your class who has an IEP. The Profiles provide a quick way to review or share key information about each student. Depending upon who has access to the Profiles, your version may include:

- a photo of the student
- student strengths and interests (this is critical!)
- special learning needs or medical needs that impact learning
- special equipment and strategies
- brief summary of each IEP goal
- key student & team contact information

We kept our Profiles binder in a locked drawer in our classroom. The teacher, regular aides and administrators had access to the drawer. We shared the binder with substitute staff before the students arrived. The binder also included other information for staff and substitutes, including the daily schedule, our discipline policy, a map of the school, and our emergency response plan for accidents or disasters. We later added a page of staff photos, with names and room numbers, again to help orient substitutes and new staff.

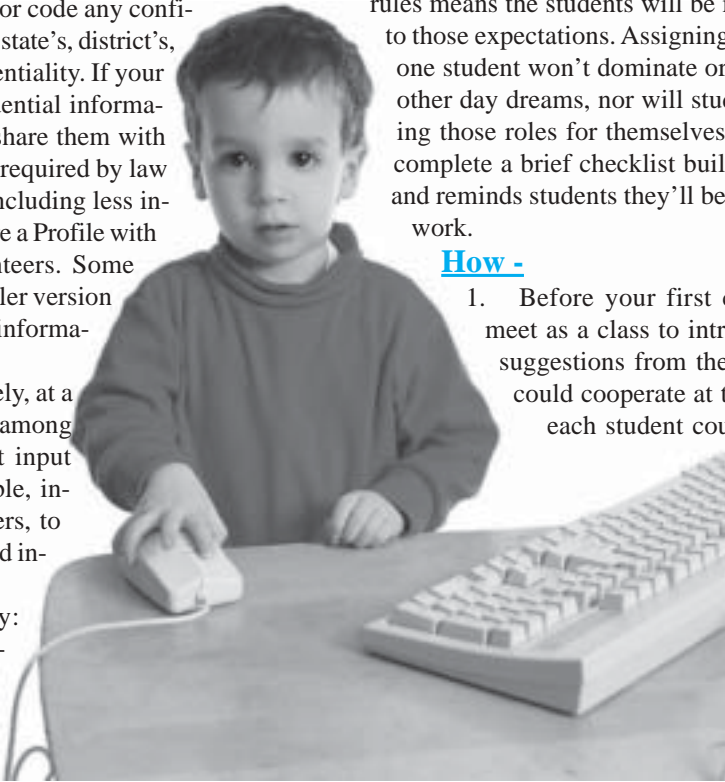
WWW WEBSITES

- <http://www.lburkhart.com/main.htm>
- <http://www.closingthegap.com/>
- http://www.intellitools.com/Activity_Exchange/home.htm
- http://trace.wisc.edu/world/computer_access/
- <http://www2.edc.org/NCIP/>
- <http://www.techconnection.org/links.html>

Best Practice continued on page 5

How -

- 1 Develop your own Student Profile using the blank template and the sample as a guide. Modify the Profile format to suit your own class needs. Only include the “quick look” information your team needs.
- 2 Decide whether to keep, delete or code any confidential information. Check your state’s, district’s, and school’s policies on confidentiality. If your Student Profiles include confidential information, you may only be able to share them with qualified staff, and you may be required by law to keep them in a locked file. Including less information may allow you to share a Profile with more helpers, including volunteers. Some teams have made a second simpler version so they can share helpful basic information with anyone.
- 3 Write each Profile collaboratively, at a team meeting or by sharing it among team members. It helps to get input from as many people as possible, including the student and his peers, to describe a student’s strengths and interests.
- 4 Improve teaching consistency: Use Profiles to keep all staff current on strategies, adaptations and materials. Always have new or substitute staff review the Profile before working with a student.
- 5 Update student profiles regularly, as a part of your IEP meetings and whenever you review or modify a student’s program. Invite student, peer and parent input.



Expectations, (b) assigning and rotating jobs within each group, and (c) having student groups complete a simple self evaluation form to report on their successes, challenges and progress at the end of each session. Enlisting student input in creating ground rules means the students will be more invested in living up to those expectations. Assigning jobs and rotations insures one student won’t dominate or do all the work while another day dreams, nor will students waste time negotiating those roles for themselves. Requiring each group to complete a brief checklist builds self management skills and reminds students they’ll be held accountable for their work.

How -

1. Before your first cooperative group effort, meet as a class to introduce the idea and solicit suggestions from the students about how they could cooperate at the computer, what role(s) each student could play, and what ground rules should apply. Use their suggestions to adapt the sample job tags and self-evaluation included below. Incorporate their suggestions for ground rules, but be sure to include the following:
 - (a) It’s always okay to ask your teammates for help with your job.
2. Two to four participants per group seems to work best, as long as you provide enough space at the computer for all participants and model the roles and strategies for participants ahead of time.
3. Provide each participant with a specific role. For example, in a three-person group, the Captain does the keyboarding and fills out the evaluation, the Author comes up with ideas and controls the mouse, and the Reporter gathers materials and makes a report back to the class. You can create your own roles and responsibilities, but try to shape them so that all students need to participate and cooperate to succeed individually and as a group.
 - (a) Divide up essential tasks (e.g. keyboarding & mousing) so that students must cooperate to succeed.
 - (b) Give the the Captain a checklist to evaluate the group performance
 - (c) Rotate roles regularly (within one session or from session to session) so each student takes on each part.
 - (d) Provide appropriate support to enable students of all abilities to participate. In some cases, this may include talking word processors, spell-checkers, word prediction, alternative keyboards, etc.

Facilitating Cooperative Groups at the Computer

What -

Cooperative learning groups can make computer-based activities more productive for the students and less daunting for the teacher. From a purely practical point of view, when students work in groups of three per computer, the teacher faces only one third the potential technical challenges!

More importantly, when students work in structured groups, they are often able to help each other work through both instructional and technical challenges, and they learn a great deal from the negotiations that result. All students, and those with disabilities in particular, benefit from opportunities to share difficult tasks and observe how others investigate, problem-solve, organize, compose and edit. At its best, cooperative work also allows students with disabilities to share their strengths while supporting their areas of need.

Three key strategies play a role in running successful cooperative learning groups: (a) establishing ground rules and ex-

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Educational Technology

Accessible to ALL

Educational technology plays an important role improving learning for all students. However, students with disabilities frequently face basic physical and product access barriers that prevent them from using educational technology to benefit their learning. How does a student who is blind access the Internet? How does a student who is deaf receive information from the audio of a multimedia program?

Access solutions exist. Screen readers that voices the text on the screen of each web page can overcome barriers to accessing the Internet encountered by students who are blind. Captions built into multimedia programs can overcome barriers for students who are deaf. Some access solutions, using principles of universal design, are built right into the hardware or software, such as captions. Other solutions require add ons, such as screen reader systems.

School districts need to ensure that the educational technology they purchase and use in their districts is accessible to all students, including students with disabilities. Purchasing and installing technology that is designed to be accessible is both responsive to students' needs and cost effective. It can help avoid the wasteful expenditure of time and money needed to retrofit systems that have not been planned to meet the accessibility and compatibility needs of all students.

There are several points during the planning and implementation process that are key to assuring that educational technology is accessible.

- **Planning.** School districts and local school technology plans must address access issues to meet current and future needs of students with disabilities. It is imperative to include special education professionals on planning teams at both the district and individual school level. At all levels, questions

should be asked to how students with disabilities will be able to use the technology.

- **Purchasing.** Accessibility should be a consideration when purchasing any educational technology (i.e., wiring, hardware, or software) for the school's instructional program. Schools need to ask some basic questions to determine if the technology they are considering is powerful and flexible enough to support accommodation needs.
- **Support:** District teachers need not only awareness knowledge regarding technology accommodations but also hands-on familiarity with assistive technology. Schools that establish and maintain technology support services for teachers can boost adoption and integration of specific technology accommodations in classrooms.

Examples of Technology Adaptations

- For Students with Visual Impairments - Screen reading program and speech synthesizer, Braille embosser and printer
- For Students with Motor Impairments - Alternative keyboard such as trackball or joystick, ultrasonic pointer device, voice recognition for input
- For Students with Hearing Impairments - Visual icons that replace sound cues on the computer, video captioning

Laws that Address Equal Access

All recipients of federal funds, including local school districts, are subject to anti-discrimination legislation. Ensuring that technology is accessible avoids potential legal problems.

Individuals with Disabilities Education Act (IDEA).

This statute guarantees students with disabilities with a "free, appropriate public education." School districts are required to provide assistive technology devices and services to individual students if a student's individualized educational program (IEP) team determines that the student needs them.

Section 504 of the Rehabilitation Act (Rehab Act).

Section 504 states that no person with a disability shall be excluded from participation or denied benefits or otherwise be subjected to discrimination because of their disability.

Americans with Disabilities Act (ADA).

Title II of the ADA is similar to Section 504, in that local county, or state governments must make facilities and services accessible when needed by people with disabilities.

In addition, manufacturers of telecommunication equipment and service providers are subject to provisions of the Telecommunications Act of 1996. This Act requires manufacturers and service providers to address the access needs of people with disabilities, as they design and fabricate equipment and services, if it is "readily achievable."



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Curriculum Access Through Technology

Deaf and Hard of Hearing

by Krista Galyen, education specialist, SESA

He is a well-behaved student. She sits quietly and doesn't make trouble. He looks like he understands the material. Time passes and it seems they are successful in their learning environments until they are asked a question or turn in an assignment. Lo and behold, they have missed out on a ton of information, or their knowledge base is "hit and miss."

Such is the situation of many deaf and hard of hearing (D/HH) students. It is the rare student, as many of you know, who will self-advocate. More often than not, classrooms and D/HH students are being equipped with appropriate technology to present and access the curriculum. However, teachers as well as students are not aware of *how* to use and teach with the technology they currently have in order to better enable student success in the general classroom. There are also new technologies being made available that are discussed below.

Technologies for Accessing Sound

Hearing Aids

Most students with a hearing loss will benefit from hearing aids. Yet, hearing aids do not correct hearing like glasses correct vision; they only amplify the surrounding sound, including unwanted sounds. However, the more technologically advanced digital hearing aids are equipped with directional microphones which enable the user to select the direction in which s/he wants to listen. This technology is costly and requires careful consideration.

Tips for hearing aids:

- It is important that the student or adult take care and clean his/her hearing aids on a regular basis. A hearing aid care kit is essential to have on site.
- If a child is young (K-3), it is recommended that an adult listen to the hearing aid periodically to make sure it is working properly by using a sound test (mm, ah, ee, oo, sh, ss).
- Seat the child appropriately in the classroom (front), and face the classroom when speaking.



Personal FM Systems

Hearing aids amplify all surrounding sounds. As a result, the student might be hearing the students sitting next to him/her more than the teacher's voice. With an FM system, the teacher

is equipped with a microphone and transmitter and the student is equipped with a receiver and either an FM neck loop (the child places it around his/her neck) or boots (the student connects them to his/her hearing aids). Digital FM systems are completely wireless (no wires from boots or loops), allowing the user to "blend in." By using an FM, the student can better tune in to the desired speech signals while blocking out noise.

Tips for using an FM system in the classroom:

- Seat the child appropriately in the classroom (front), and face the classroom when speaking.
- Make sure the student knows how to use the FM system and has his/her hearing aids turned to "T" (telecoil) if using the neck loop.
- Make sure the lapel microphone is clipped toward the center of the body, no further than six inches from the mouth.
- Keep items from rubbing against the microphone.
- When helping other students, the teacher should turn off the system. Otherwise, the student will hear these conversations while s/he is trying to work.
- During classroom discussions, either have the student set their FM system to environmental and FM, or repeat student comments. Otherwise, the student will not hear the other students' contributions to the discussion.

Sound-field or Classroom Systems

Classroom acoustics have plenty of background noise and reverberation (echoing). Just as an FM system has a speaker wearing a microphone and transmitter, so does the sound-field system. The difference is the receiver is connected to loud speakers placed in the classroom. Sound-field systems typically place the speaker's voice 10 to 20 dB above ambient classroom noise (compared to the typical 0 to 5 dB above in regular classrooms without sound-field systems). The benefits are ease of use, as well as the fact that these benefit all children, not just the students with the hearing loss. This may be the only amplification needed for children who have a mild hearing loss. The tips for using the personal FM system microphone and transmitter are the same for sound-field systems.

Technologies for Accessing the Curriculum

Interpreters

For those who use sign language as a part of their communication, interpreters play a vital role in the facilitation of communication and accessing the curriculum. Often they are also the ones who will significantly contribute to the student's language base. Students will vary between relying solely upon their interpreter for comprehending material, to glancing periodically at his/her interpreter when speech was missed.

Tips when working with an interpreter:

- Speak at a normal, regular pace. Do not say “tell her, tell him.” Look directly at the student you are speaking to.
- Give the interpreter a copy of your outline/lecture as well as an extra student textbook. This will help the interpreter better prepare in advance.
- Inform the interpreter of any upcoming technical vocabulary.
- Make sure the student can see both the interpreter and the speaker without too much turning of the head. As the student gets older, this should become more of his/her responsibility.

Closed and Open Captioning

When possible, use closed captioning on all videos shown in classes with D/HH students. Open captioned videos (videos where the captions are printed on the screen, as in foreign movies) are available free of charge from the Captioned Media Program (CMP). More information is available on their website at <http://www.cfv.org>. The CMP provides a free-loan media program of over 4,000 open-captioned titles (videos, CD-ROM, and DVD). Deaf and hard of hearing persons, teachers, parents, and others may borrow materials. There are no rental, registration, or postage fees. This is a wonderful resource, but plan early and order ahead of time.

Tips for using captioned videos:

- If the student is wearing an FM system, place the microphone transmitter near the television.
- If the student is a signer, uses an interpreter, and has low reading skills, have the interpreter sign the video. Be sure to inform the interpreter so s/he can preview it.

Use of Visuals

The use of *Microsoft Power Point*, overhead projectors, videos, graphs, drawings, and demonstrations are all beneficial to students, especially those with a hearing loss. The key is to not combine more than one message at a time; speak, then show or show, then speak. Showing a graph and speaking at the same time forces the student to choose between looking at the visual aid and hearing what is being said.

Mimio

Mimio is a tool that can be used on classroom whiteboards or flip charts. It is an excellent tool that allows a student to record notes, drawings, or any written material on whiteboards or flip charts. With *Mimio*, everything you write and erase is captured onto a personal computer in color and realtime. A student is able to play back and review the notes at a later time. He/she can drag and drop notes, diagrams, or drawings into *Microsoft Office* or other software applications. Notes can be exported to HTML, PICT, JPEG or even *QuickTime* and *iMovie* formats. More information is available on their website at <http://www.mimio.com>.

Automatic Speech Recognition Software

The technology for these systems are developing at a rapid rate. For voice input, the teacher will wear a headset microphone that is connected to a computer. As the teacher speaks,

the computer will “recognize” the voice and translate the speech into written text. The drawback is a significant amount of time to train the speaker’s voice so the program can accurately read it. The two main programs are *Dragon Naturally Speaking* (<http://www.scansoft.com/naturallyspeaking>), which is a Macintosh based program, or the PC version *Via Voice* (<http://www-3.ibm.com/software/speech/>).

Recently available is *iCommunicator*, developed by Interactive Solutions, Inc. The *iCommunicator* states it can efficiently and simultaneously convert speech into three distinct formats:

1. Speech to Text
2. Speech to Computer-Generated Voice and
3. Speech to American Sign Language (ASL) Video Clips

iCommunicator is available from a variety of sources online.

More information is available on their website at <http://www.isi-communicator.com>

Writing Software

Since many D/HH students may have trouble with spelling, writing becomes a chore and software spellcheckers are often not helpful since the word is often not phonetically close. Although not a complete solution, a helpful tool could be *Co-Writer*, a word-prediction software program which decreases the number of key strokes needed to complete an intended word. More information is available on their website at <http://www.wata.org/resource/learning/writing.htm>. If spell check and grammar check are used, one needs to train the student how to use, understand, and pick the most appropriate word or phrase.

Reading and Notetaking Software

Inspiration is a notetaking program often used to organize thoughts and take notes. Although commonly used separate from reading, it can be used to help a student glean information from the text. Many D/HH students have problems with reading from typical classroom textbooks, especially science and social studies texts. When provided with instruction on expository text structure and organization, the student, with questions as guidelines, can create an outline from the reading which summarizes main points and ideas. This will help the student by providing a focus, guiding them in a search for specific information and displaying it visually. More information is available on their website at <http://www.inspiration.com>.

Summary

With all of the advances in technology currently available, nothing can take the place of sitting down with the student and asking what is needed. What would make life easier? Is there anything that would benefit the student? Make sure that the student feels that he/she is part of the class and ask for his/her contributions. With appropriate accommodations, you will find that D/HH students will be an invaluable component in your classroom.

