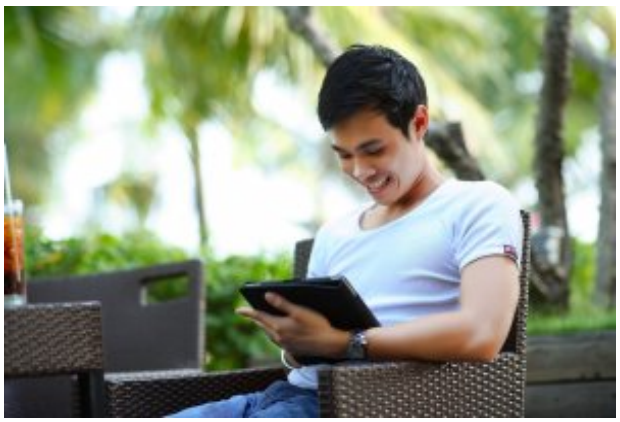
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Online Learning Success for Students with Hearing Loss

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Pam Millett, PhD, Reg CASLPO



In December 2019, amid discussions between the Ontario Ministry of Education and the secondary school teachers' union, I wrote an article about the ministry's proposal to make it mandatory for all high school students to complete 4 online courses to graduate. Online learning creates unique challenges for students with hearing loss, and my concern was that not enough time and attention had been paid to issues for students with special needs. It is now spring, and because of COVID-19, it is no longer the question of whether students should be learning in online classes. All students are now required to learn exclusively in an online environment, and everyone (teachers, parents, and students) are scrambling to make that happen.

In this issue, I'd like to talk about what online learning should look like for our students, and how we ensure that everyone's needs are met to experience academic success. First and most importantly; parents are now effectively being required to home school their children, while often trying to work from home themselves in new and difficult ways, all in an environment where the entire family is living and working in tight quarters with few opportunities to even go outside. Many families are experiencing financial stresses. Students miss their teachers, their friends, and the routine of school, and teachers miss their students. Everyone is anxious, stressed and tired. In education, we are doing our best to carry on with school, and ensure that some learning happens (or at least that students have some structure, some sense of engagement with teachers and classmates, and some distraction). We are all carrying on in ways that we did not anticipate, under almost impossible timelines, and school is no different. We need to do this while setting the bar low on our expectations of what parents and students can realistically do over the next few weeks, being kind, empathetic and supportive, and planning for the day when life returns to normal.

Educational audiologists across Canada (and across the US), along with teachers of the deaf and hard of hearing, have been working very hard over the past month. Canadian educational audiologists have been collaborating online to put together an online bank of resources, and to discuss recommendations to school boards for best practice. Some of the changing roles and

responsibilities of educational audiologists and teachers of the deaf and hard of hearing that have emerged in our new online learning context have included:

Develop a plan and processes to support classroom teachers who have Deaf and Hard of Hearing (DHH) students in their online classes

DHH students will struggle to a greater or lesser degree with online learning in three areas, depending on their degree of hearing loss, language, literacy, and socioemotional skills: (i) access to audio and video materials, (ii) literacy skills and (iii) self-management skills (organization and self-advocacy)

i. Access to audio and video materials. We anticipate that teachers will want to use audio/video materials in three ways – i) in live sessions with students (e.g., through Google Meet), ii) with materials that they record themselves for students to work on independently (e.g., a narrated Powerpoint lesson), and iii) with audio/video materials from the Internet (e.g., YouTube videos). Audio and video quality for all of these sources can range from excellent to very poor but is never as good as face-to-face interactions. Even with technology options such as connecting a hearing aid streamer or FM system to a computer, many students will still struggle to hear instruction clearly in an online environment, particularly since there may or may not be visual cues. In a live class (using Zoom, for example), participants often turn off their video either because they do not feel comfortable with video on or because bandwidth begins to become a problem if many people on a conference call are using video, resulting in deteriorating audio and video quality as time goes on. Many teachers are using options such as recording a short lesson using Powerpoint; however, they are unlikely to also include video of themselves, so students are relying entirely on the audio signal with no opportunities to speechread. For students who cannot hear audio signals clearly enough for effective learning, captions may be an option. However, even if automated speech-to-text captioning were as accurate as marketed (and they are not), the technical details of adding captions even for something as simple as a recorded Powerpoint can be daunting. Post-production captioning can be relatively simple for someone experienced in this area; providing real-time captioning in a live video conferencing situation increases the level of difficulty, and often the cost, exponentially. Few IT support staff have any knowledge of captioning, and so, it will fall to educational audiologists and teachers of the deaf and hard of hearing to provide leadership in this area. For students who use sign language to communicate, the challenges are even more daunting. Even in a situation where the online classroom consists of a self-contained class of only students with hearing loss, AND the teacher is fluent in sign language, providing instruction in sign language in an online learning environment is extremely difficult. Video quality is rarely "television" quality, there can be a mismatch between auditory and visual information, lighting is rarely optional, aside from the fact that a 3-dimensional language is being presented in 2 dimensions. For situations where the student had been mainstreamed with a full-time sign language interpreter (not a common educational placement, but not unheard of either), scheduling challenges alone need to be managed by someone other than the classroom teacher. For students who usually have a full-time educational assistant, this support is missing at home, and school boards are working extremely hard on solutions for supporting very high needs students.
ii. literacy skills. Online learning may be more heavily text-based than in a regular classroom. Even something as simple as the instructions for completing an assignment will likely now be presented almost entirely through text. In a face to face classroom, instructions would be presented verbally, likely with text support, with opportunities for students to ask questions in the moment. Students with lower literacy skills may require more support to use these materials.

iii. self-management skills (self-advocacy and organization). DHH students often struggle in these areas in regular classrooms, they are more likely to fall behind in an online learning environment, and less likely to speak up if they are lost. In a regular classroom, teachers usually have little difficulty spotting students who are confused, disengaged or inattentive, because they have the advantage of body language, facial expression, behavior, and the ability to use comprehension checks. None of these are likely to be present in an online learning environment, and it is very easy for students to drop off the radar.

Develop a Plan and Processes To Support DHH Students and Parents

This needs to be very individualized, since students will struggle in different ways, depending on the specific online learning context for each classroom. There is little consistency across classrooms in terms of how teachers are providing online learning – some teachers are making extensive use of live classes with students in real-time (for example, through Zoom or Google Meet), while others are creating their own video materials to be used asynchronously by students, while others are providing instruction primarily through text. At one end of the e-learning spectrum, some teachers have been using an online learning platform extensively before COVID-19 (such as D2L, Moodle or Google Classroom). At the other, some teachers have never taught in an online learning context, and are using primarily email to interact with students. A grade 12 high school student who is very tech-savvy, used to connecting his personal amplification to other devices, and who has very good literacy and organizational skills, may do fine in an online learning environment. Providing effective online learning activities for a kindergarten student with hearing loss who has very delayed language and behavior issues requires an entirely different plan.

Consider the Question of School FM Systems Being Used At Home for Hearing Access

Many students use technology to access computer work in the classroom through their SEA equipment (e.g., transmitters patched to their laptop or tablet) – at least in the short term, students will not have access to this. Some students have assistive hearing technology that was purchased by parents but don't know how to use it for online learning. Many school boards are considering (or already implementing) the option of sending school FM systems home for students to use there. There needs to be support for classroom pickup to make sure the person picking up the equipment from the school gets all of the pieces. More importantly, students vary widely in their comfort level and skill in connecting FM systems to computers, tablets, and other devices. Parents almost certainly have no experience connecting an FM system to audio devices. Therefore, a great deal of time and effort is being put into creating video resources and handouts for both basic FM system use, and for more advanced options to connect to audio devices.

In the Longer Term, Develop a Plan and Processes To Address Infection Control Concerns for Student Hearing Technology

At some point, the school will resume, and staff will likely have concerns about infection control. FM system transmitters are not really an issue, since only the teacher uses that, but we will need to think about recommendations for pass-around microphones used by students, and for situations in which classroom teachers have helped students with technology (e.g., helping a kindergarten student change a hearing aid battery, or put an earmold in). FM system manufacturers have been very proactive in developing infection control guidelines for FM systems. School board administrators, classroom teachers, and students will need support in implementing these guidelines so that everyone is protected, and feels confident about using the technology again.

How Can Clinical and Educational Audiologists Partner To Support Online Learning for Students?

These are unprecedented times for everyone, and we recognize that most clinical audiologists are not able to offer services in their offices at all. We know that many clinical audiologists have been very proactive in recommending hearing aids that have options for accessibility (such as streamers or Bluetooth capability). In a home environment, we anticipate that although the listening environment might be quieter at home than at school, the listening demands remain high because of the uncertain quality of audio and video materials in an online classroom. While some school boards can send school FM systems home, we do not believe that an FM system is necessarily required. Solutions such as plugging a streamer into a laptop, connecting to a tablet via Bluetooth or even (for many students), simply using headphones, may provide as much access and clarity as patching a personal FM system. Educational audiologists and teachers of the deaf and hard of hearing may need to reach out to clinical audiologists in obtaining technical details about a particular child's hearing aid capabilities or to answer questions about wireless connectivity. Parents may also be reaching out with questions to their clinical audiologists about accessibility options.

COVID-19 has meant that everyone has had to step up their game in terms of creativity, flexibility, communication, and patience, and we are all learning many new skills and coming up with new ideas that will carry over into the future. I’d like to end with hope for everyone to stay safe and healthy, and look forward to the day we can be together again.