Auditory Comprehension: Can You Hear and Understand Me?

Many children who have learning disabilities struggle to read and comprehend, yet they are able to succeed when they receive differentiated instruction tailored to their learning profile. Sometimes, however, despite specialized instruction and small classroom settings, a few students may not make expected progress. These students often struggle to keep up with their coursework and frequently need directions repeated and one-on-one support to meet academic demands. When called on in class they frequently say they don’t understand or can’t remember despite explicit instruction and modeling. At times a teacher may wonder where the students were when the concepts were taught. Could it be that they were distracted or could something else be responsible for interfering with their ability to hear or process the information provided in a lesson?

Research suggests that many of these students may indeed be more than distracted. In fact, “up to four million primary and secondary school children in the US alone may be experiencing some form of listening disorder or auditory processing difficulty in school.” (Prescod, 2012) These students can hear the instruction but they are not able to accurately process what they hear. This inability to process auditory input will directly impact their ability to follow classroom instruction. Flexer, Millen and Brown (1990) highlight that “most classroom management and instruction is oral, with the underlying assumption that pupils can and must detect and attend to the teacher’s speech.” The ability to effectively listen is necessary for a student to succeed in the classroom.

Mary Jalongo (2004) explained that “listening is more than hearing; it is the necessary, interactive process that enables the brain to construct meaning from the sounds that are heard.” According to Carol Flexer (as cited by Arnold and Canning, 1999) “speech may be described as audible if its presence can be detected but it is only intelligible if the sounds are easily discriminable.” To help the students who struggle to accurately listen, we must determine: what can impede a student’s ability to accurately process auditory input? How can classroom teachers and schools help improve a student’s ability to attend to speech?

What is the primary factor in a classroom setting that inhibits the student’s ability to accurately process auditory input?

There are many factors that make it difficult for students to effectively listen in the classroom, but research highlights background noise as a primary concern. According to Crandell and Smaldino (as cited in Flynn, Flynn, & Harvey, 2004) “background noise affects speech recognition, academic performance, reading and spelling skills, concentration, attention and behavior in all children, whether they have normal hearing or a profound hearing impairment.” Crandell and Smaldino’s (2000) research found that “the higher the background noise level of the classroom, the poorer the reading scores exhibited by students in the classroom.” There are many different types of background noise that can cause difficulties for students in a classroom. Some typical examples include the tapping of a pencil on the desk next to a student, a cough, a noise outside of a classroom and background talking when the teacher is talking. In the article “Can children with (central) auditory processing disorders ignore irrelevant sounds?”, Elliott, Bhagat, & Lynn (2007) conclude that the processing of speech in children diagnosed with (central) auditory processing disorders is not as automatized as that of the other children, and this may be responsible, in part, for some of the difficulties these children experience. This evidence suggests that these children are not able to segregate speech sounds from other sounds as easily as their typically developing peers. This difference may help to explain some of the performance decrements that are apparent in the classroom when children diagnosed with (C) APD must attempt to process speech sounds in noisy conditions, or in other situations when confronted with multiple sources of input.

Clearly, the students with auditory processing difficulties have a hard time discriminating a teacher’s voice in the presence of background noise. They are unable to distinguish the teacher’s voice from the other noises that are being heard at the same time. These auditory signals are not processed differently; they are processed as one big blurred sound.

Research highlights that “there is increasing evidence that poor classroom acoustics can create a negative learning environment for many students, especially those with hearing impairments, learning difficulties or where English is an additional language.” (as cited in Dockrell & Shield, 2006). Research implemented by Gertel, McCarty & Schoff (2004) concludes that “as many as one third of all students
they found the background noise present in most classrooms to be a significant distraction. For these students, the inability to listen or hear the teacher inevitably leads to their “tuning out” the lecture. Above all, the student’s desire and ability to learn diminishes due to the student’s incapacity to distinguish directions and failure to stay on task. Poor listening environments require increased effort to learn, and thus reduce the energy available to perform other higher-order cognitive functions.

Nelson & Soli’s (2000) research emphasizes appropriate classroom acoustics and a favorable signal to noise ratio are vital for all instructional coursework, especially reading. The phonetic markers for identifying words from one another and the correct pronunciation of unknown words are just two examples of the strong reliance hearing plays in reading instruction.

At Delaware Valley Friends School detailed attention has been given to the auditory environments of each classroom. To limit the reverberation of sound, all classrooms have carpet on the floor and homasote bulletin boards. The glass windows are insulated to provide an effective barrier to outside sound and each window has louvered mini blinds to reduce the sound reflection off the glass. The walls in many of the rooms are constructed with two separate staggered arrays of 2 x 4 studs that are further separated from each other by batts of sound insulation woven sinuously between them. Extra-thick, high-density drywall is installed asymmetrically with two layers on one side and only one on the other. These measures collectively limit sound transmission by or through the walls, and the entire sound-dampening structure is extended to the floor deck above. All of these measures limit the extraneous sound in the classrooms.

References


