



Texas School for the Blind & Visually Impaired Outreach Programs

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Minimal Losses...Major Implications

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Webster's dictionary defines minimal as "the least possible degree or quantity." Unfortunately, this can imply that something is without consequence, insignificant, or requiring the least possible intervention. When it comes to vision and hearing losses this could not be further from the truth.

A dual sensory loss effects incidental learning. This is the learning that takes place just because you happened to see or hear something while you're hanging out, the way most of us learn most things. The problem with most incidental learning is that you can only learn what you can see or hear.

If you have a vision and hearing loss incidental learning is tremendously reduced. What happens when it is a peer's turn to read in a typical classroom, if you can't quite see him and you also can't quite hear him? You miss out on most of what he reads, comments he makes about what he read, and perhaps the feedback from the teacher and other students. When class discussions are out of sight and/or hearing range, the student with mild hearing and vision losses may spend more time daydreaming.

A common question that is asked is, " Won't the student let the teacher know if he can't hear or see clearly?" The answer is usually, "NO!" As Dr. Seuss might say:

You don't hear what you don't hear
And you don't know what you didn't hear....
You don't see what you don't see
And you don't know what you didn't see!

Do you know that a student can be on the deafblind census if he has documented hearing and visual losses that are minimal or mild? Even though these losses may not meet the requirements for auditory impairment or visual impairment if considered individually, if the combination of the losses adversely affects the student's education performance, they could be included on the deafblind census. When would that occur?

Problems occurring with a mild visual impairment

A mild visual impairment is not easy to quantify. We generally think of someone with a visual acuity of 20/60 _ 20/100 as mildly visually impaired. However, someone with Retinitis Pigmentosa might have 20/20 vision and better than 30 degrees of field vision and not qualify for vision services. This student would probably do fine visually. That is until the lights dimmed and the overhead went on or until they came inside from the bright sunlight into a dark hallway. Then they would experience visual impairment that was fairly significant for a time. Another

scenario would be the student who had vision only in one eye. Normally that wouldn't be a problem, but if he also had a hearing loss in one ear on the same side as the vision loss, sound localization would be hard, and travel safety might be impacted. Making a call on the impact of the vision impairment has a lot to do with how the child functionally uses his vision to do educational tasks. If a child is experiencing educational difficulties that appear to be related to problems with his vision, he should be seen by an ophthalmologist and possibly referred to the vision teacher for a functional vision evaluation and learning media assessment. If the child has a hearing loss, even a minimal one, and is experiencing difficulty in school, we would encourage the school to complete a functional vision evaluation and learning media assessment. There may be a need to make some specific modifications in programming or materials, even if the child does not need direct vision services. Part of the reason we say this has to do with the impact of the hearing loss. Please read on.

Problems occurring from a minimal or mild hearing loss

A minimal or mild hearing loss would fall into the range of 16-40 dB. Even without a vision loss, a slight hearing loss can cause a number of significant problems, especially in an educational setting:

- Problems hearing faint or distant speech
- Problems hearing subtle conversational cues
- Problems tracking fast paced conversations
- Problems hearing the word-sound distinctions

What kind of impact might this have on the mildly hearing impaired student who has a vision loss in a typical classroom?

Trouble hearing faint or distant speech

If a student has trouble hearing faint or distant speech, more than 25% of classroom instruction could be missed. (Flexer, 1997) Add a vision loss and imagine the percent of missed instruction that would likely occur. The child with a mild vision impairment and mild hearing loss probably relies on the information he can pick up from watching the speaker's lips to confirm what he thinks he is hearing. This is especially true if he is not using a hearing aid. Distance is his enemy for both his vision and his hearing.

Missing subtle conversational cues

Students with minimal or mild hearing losses often miss subtle conversational cues that cause them to respond inappropriately. They may appear immature and be more fatigued than peers with normal hearing because of the extra effort they make to hear. (Flexer, 1997) Students with mild vision and hearing loss miss out on this information, too. They also experience added stress and may appear socially immature. Not only can they miss auditory information; they may also miss additional conversational cues of a visual nature such as facial expression or gestures because of the vision problems. On top of that, their ability to use speechreading to support what they are hearing is impaired in many instances because of the vision problems.

Problems following classroom discussions

Another issue for the student with any type of vision and hearing loss is trying to follow a fast-paced conversation of a typical classroom discussion. About the time you locate the speaker and get focused auditorily and visually, he is no longer speaking and the girl behind you has the floor. You shift around to see her face, which you can actually see pretty well and you can also

hear her pretty well. After about five seconds the teacher, who has moved to the window aisle, responds. She happens to be in front of the window with the sun coming in and beside the rattling air conditioner. After about twenty minutes of this activity imagine the impact on the student's attention and behavior. This also has great impact on his ability to participate in many types of social and extracurricular activities.

Misses morphological markers for plurality, tense, possessiveness

Try a little experiment. Put some earplugs in your ears. Have a friend stand across the room and in a quiet conversational voice say a series of words like, "hit, hitting, hits, rat, ram, dogs, dog's, dog, see, sees, seen." Did you hear all the different final sounds or did the words mostly sound the same? Now try it again, only this time, have a television or radio playing in the background. How did that work? Now do it without looking at his face. Next, add another friend across the room taking turns with the first speaker reciting a different series of words. What happens then? Chances are you could not tell exactly what words were being said with any accuracy. Imagine your entire day being like this. Do you think the student dealing with these conditions would be more fatigued and/or frustrated than the average hearing/sighted student? How would this impact his ability to get the information being presented?

Mild losses equal major problems in a typical classroom

Speech-to-noise ratio

The American Speech-Language-Hearing Association (ASHA) gives the following guidelines: ambient noise should be no louder than 30-35 dBA in an empty room; reverberation time should not exceed .4 seconds; Signal-to-Noise (S/N) ratios should be no lower than +15dB. Yet research has repeatedly found: the average unoccupied classroom (no children) noise levels are 41-50 dBA; the average reverberation times are .52 seconds; S/N ratios are only +4 dB, and may be worse than 0 dB. (Crandall and Smaldino, 1994)

Vision and hearing losses, even very mild ones, when combined can create some major problems. If you have a mild hearing loss you may not always function as if you have a mild hearing loss. How your hearing functions depends on the situation and the S/N ratio. We all have had the experience of being able to hear something without being able to understand what is being said. Think of the drive-thru at MacDonald's or Jack-in-the-Box, a busy gate at the airport, or a noisy restaurant. Your ability to hear has little to do with how loud something is said, but rather how loud it is compared to everything else is in the environment around you.

Adults with normal hearing sensitivity and language abilities don't need as high of a S/N ratio as children. Typical adults need speech to be twice the sound pressure level of the background noise. (Flexer, 1997) Typical children need better speech-to-noise ratio than an adult to hear and develop the crucial word/sound distinctions of language. (Flexer, 1994) Persons with any kind of hearing loss need an even more favorable S/N (even when wearing hearing aids). Speech needs to be at least 10 times the level of background noise for them. (Flexer, 1997) If you factor in noise, reverberation, and frequent changes in teacher and pupil locations in the average classroom, the typical speech to noise ratio is less than ideal even for the child with normal hearing.

While we are mentioning reverberation or echo, did you know that longer reverberation times reduce the signal-to-noise ratio? (Scott, 1997) Reverberation time increases with high ceilings, bare walls, and hard-surfaced, uncarpeted floors. Think about the design of most classrooms, especially in older buildings.

Busy visual environments

Although there is not an equivalent vision-clutter ratio, there is a similar phenomenon that occurs. You know it well, too. Think about the last time you were in an unfamiliar store trying to find a specific item or the last time you had to find a friend in a crowded room. Figuring out where and what to look at is tricky. If there is a lot going on visually and you can't see anything very clearly, do you find yourself getting frustrated or feeling overwhelmed? Now look at the typical classroom. Is it a busy place visually with lots of clutter and competing visual demands?

Let's move that child up front

A typical remedy for a child who does not hear very well and does not see very well is to move him up front, so he will be closer to the teacher. She is the learning signal we most want him to pick up, right? Well, not necessarily, not in a group discussion. This solution also assumes that the teacher is nailed to the floor in front of the child. How many teachers do you know who teach that way? Besides all of that, you are required to periodically look at your book, a handout, and the overhead or map. Preferential seating is a less-than-perfect solution for this child.

Problems and Solutions

Helping the child with combined mild or minimal hearing and vision loss

There are several things that should be considered for this child. First of all, has appropriate assessment been done to determine the impact of the vision and hearing loss on education? Even if the ophthalmological and otological evaluations from the doctors do not qualify them as visually impaired or hearing impaired under SBOE definitions, education may still be impacted. A functional vision evaluation should be done. Specific hearing assessment related to listening in differing environments may also be helpful in evaluating hearing functioning for educational purposes.

Making simple and appropriate modifications to the classroom can also make a huge difference. Acoustic modifications can be as simple as:

- installing carpet;
- putting rubber tips or tennis balls on desk/table/chair legs;
- installing curtains;
- installing acoustical ceiling tiles;
- maintaining ventilation systems, doors, lighting, and windows.

Additionally, a Sound-Field FM System allows for the control of the acoustic environment facilitating accessibility of teacher instruction for ALL children in the classroom. An assistive listening device may also be appropriate. Those students who do not qualify for special education due to a minimal hearing loss or because they have not failed enough may be able to qualify for S/N ratio enhancing technology through Section 504 of IDEA using "Acoustic Accessibility."

In addressing mild visual impairments there are also some simple modifications:

- Additional time with "hands on" exploration in order to internalize what others grasp incidentally;
- Reduced visual clutter;
- Low vision devices;
- Eccentric and varied viewing positions and seating positions;
- Improved lighting and glare control;

- Reduced use of overheads and chalkboards unless the student has the information on paper in front of him;
- Additional staff to assist with accessing information in group settings;
- Use of strategies such as a talking stick or raised hands to control the pace of group discussions and to provide more clues to who is speaking.

Conclusion

The needs of the child with minimal or mild combined vision and hearing loss can be major. Too often, these children must fail to have the support and modifications they need in educational settings. Many of the things we can do to improve the classroom for these children will also improve the classroom for the other students as well. It is important not to let these children fall through the cracks and miss out on the education they need. They are just too valuable to our future to overlook their needs.

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