

The Classroom Teacher and the Silent Epidemic

By Kenneth R. Lutz

Hearing impairment (reduced hearing sensitivity), a dysfunction that affects at least one out of every 15 Americans, frequently enters the classroom. More people suffer from this condition than from heart disease, cancer, blindness, tuberculosis, venereal disease, multiple sclerosis, and kidney disease combined. Though a larger percentage of afflicted individuals are in older age groups, its impact is felt at every age level. When a school-age child is afflicted, academic achievement is involved. This problem has been described as a silent epidemic.¹

The degree of hearing impairment varies from mild to profound. Those with a mild impairment hear and understand conversational-level speech but have difficulty in understanding faint speech, whispering, speakers at a distance, or speech with noise in the background. When hearing is moderately impaired, the victim has difficulty in understanding unless the speaker talks louder or gets closer. Additional problems are evident when the listener is tired or inattentive. If impairment is severe, the listener is aware of moderate sounds if they are close, as well as of loud voices. Conversation must often be shouted and is frequently misunderstood. An individual is considered deaf if hearing is impaired to the extent that

speech cannot be understood even if a hearing aid is used.

Though some children in Seventh-day Adventist schools may be severely hearing impaired, this article's scope will be limited to problems of children with mild hearing impairment. More of these children will be seen in the regular classroom, and the potential for successfully mainstreaming them is much greater.

Theoretical Considerations

Psychological Functions of Hearing

The impact of hearing loss on a child's life, social development, and academic progress may best be understood in the light of the three basic psychological functions that hearing provides.² The first of these may be termed the *primitive*

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By observing the child's responses, the audiologist can determine the quality of her hearing.

psychological function of hearing. Though below the level of conscious perception, sounds such as the tick of a clock, the roar of traffic, or vague sounds around the house give us a sense of belonging to the world around us. Background noises are constantly changing. Though they may not claim our conscious attention, they are constantly monitored and analyzed, and we are thereby alerted to react to our environment.

The second psychological dimension may be termed *signal-aesthetic hearing*. Signal hearing is conscious. Sounds are associated with their sources, so we can define our environment, even when it is out of our line of sight. Sounds of music, birds twittering, and the roar of thunder are aesthetic experiences.

The basis of developing and maintaining social relationships is provided by the third psychological dimension of hearing—*symbolic hearing*. Acoustic pattern sequences have symbolic values denoting objects, actions, and relationships. These pattern sequences are the words and sentences used for speech communication.

Speech and Acoustics

The close relationship between hearing ability and mastery of speech is evident when consideration is given to some of its acoustic characteristics. For example, many consonant sounds are no louder than the quietest whisper. On the other hand, the acoustic signal for vowels is from ten to ten thousand times greater than consonants. Vowels also have tone quality, when most consonants sound like noise. The vowels are made up of two or three simultaneous tones that vary in pitch.

Vowels and consonants play separate roles in speech. Vowels provide the energy pulses for speech and are essential for the production of every syllable. Syllable stress and inflection are communicated by changes in the pitch, duration, and intensity of each syllable.

Consonants provide most of the information necessary to differentiate one word from another. They also provide essential clues regarding the syntactic structure of spoken language. The child's ability to hear the acoustic features of the consonants and cues to syntax is essential for the development of

language competence.

Attention and Hearing

Sound is processed as background, a signal, or a symbol. When a stimulus is not heard well enough to have signal or symbolic value it is frequently processed as background. Thus a pattern of not attending to stimuli is developed. On the other hand, when conscious effort is given to the stimulus, the signal or symbolic significance is recognized and processed, thus motivating continued attention.

Redundancy

Spoken messages must be processed at the rate used by the speaker, and often a listener will miss words of the message. When this happens, the listener is guided in identifying the missing word by (1) its context in the utterance, (2) the course of the ongoing conversation, or (3) a variety of cues in the environment. The extent to which contextual cues determine the correct identity of any word is referred to as redundancy. When redundancy is high, the context provides the information needed for correct identification of a word. Sometimes redundancy is low, and the word cannot be identified unless it is heard correctly. On the other hand, the context may provide information that leads to incorrect identification. This misleading information is called "noise."

Hearing-impaired listeners experience gaps in the message when acoustic elements of the signal are not heard. For this reason, they are particularly dependent upon redundancy to understand the message. Because they rely on environmental factors to increase redundancy, they are particularly vulnerable to misleading information ("noise") that may be present.

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Indicators of Possible Hearing Loss

- *Child is unresponsive to environmental sounds.*
- *Child responds only when "hollered at."*
- *Child frequently says "What?"*
- *Child is unattentive.*
- *Child fails to follow instructions correctly.*
- *Child is inconsistent in responding to conversation.*
- *Child has frequent earaches.*
- *Child pulls, rubs, or picks at ears.*
- *Child displays delayed or abnormal speech and language development.*
- *Child uses defective speech and language patterns.*
- *Child turns up volume on radio, stereo, or television.*
- *Child is unexplainably irritable.*
- *Child talks and plays loudly or accessably quiet.*
- *Child wants to play alone.*
- *Child does poorly at school.*

Herald Pub. Assn., 1945), p. 184.

⁴⁵ *Ibid.*

⁴⁶ Ellen G. White, *Spiritual Gifts* (Washington, D.C.: Review and Herald Pub. Assn., 1945), vol. 3, p. 34.

⁴⁷ *Selected Messages*, Book 1, pp. 304, 305.

⁴⁸ *Desire of Ages*, p. 786.

⁴⁹ *Selected Messages*, Book 1, p. 304; *Desire of Ages*, p. 786.

⁵⁰ *Desire of Ages*, p. 786.

⁵¹ *Selected Messages*, Book 1, p. 305.

⁵² *Early Writings*, p. 184.

⁵³ *Ibid.*; *Desire of Ages*, p. 786.

⁵⁴ *Selected Messages*, Book 1, p. 305.

⁵⁵ *Selected Messages*, Book 1, pp. 306, 307.

⁵⁶ Daniel 12:1, 2; Matthew 26:64; Revelation 1:7; 14:13.

⁵⁷ *Early Writings*, p. 285; *Great Controversy*, p. 637.

⁵⁸ LeRoy Edwin Froom, *The Prophetic Faith of Our Fathers* (Washington, D.C.: Review and Herald Pub. Assn., 1954), vol. 4, pp. 1021-1048.

⁵⁹ "Sabbath Conferences," *Seventh-day Adventist Encyclopedia*, p. 1255.

⁶⁰ Cited in *Spiritual Gifts*, vol. 2, p. 93.

⁶¹ Ellen G. White, *Life Sketches of Ellen G. White* (Mountain View, Calif.: Pacific Press Pub. Assn., 1915), p. 110.

⁶² *Selected Messages*, Book 1, p. 206.

⁶³ *Life Sketches*, p. 111.

⁶⁴ *Comprehensive Index to the Writings of Ellen G. White* (Mountain View, Calif.: Pacific Press Pub. Assn., 1963), vol. 3, p. 3214.

⁶⁵ *Selected Messages*, Book 1, pp. 206, 207.

⁶⁶ *Life Sketches*, p. 111.

⁶⁷ *Selected Messages*, Book 1, p. 207.

⁶⁸ *Ibid.* Italics supplied.

⁶⁹ *Ibid.*

⁷⁰ *Life Sketches*, p. 111.

⁷¹ Froom, *op. cit.*, pp. 1046, 1047.

⁷² For a more detailed step-by-step analysis of the formulation of our doctrines, see Froom, *op. cit.*, pp. 1021-1048; and Arthur L. White, *Ellen G. White, Messenger to the Remnant* (Washington, D.C.: Review and Herald Pub. Assn., 1969), pp. 34-37.

⁷³ *Testimonies*, vol. 5, p. 691.

⁷⁴ *Ibid.*, p. 67. Italics supplied. The use of "merely" should alert the reader to the fact that Ellen White was not claiming that she never got ideas or materials from the writings of others, but rather that what she wrote was always in harmony with the messages God gave her in vision.

⁷⁵ *Testimonies*, vol. 5, pp. 667, 668.

⁷⁶ *Ibid.*, p. 667.

⁷⁷ *Ibid.*, p. 668.

⁷⁸ Ellen G. White, *Christ in His Sanctuary* (Mountain View, Calif.: Pacific Press Pub. Assn., 1969), p. 10.

⁷⁹ *Testimonies*, vol. 5, p. 83.

⁸⁰ *Ibid.*, p. 671.

⁸¹ *Ibid.*, p. 64.

⁸² *Ibid.*, pp. 687, 688.

⁸³ Ellen G. White, *Gospel Workers* (Washington, D.C.: Review and Herald Pub. Assn., 1948), p. 302. Italics supplied.

⁸⁴ _____, *Selected Messages* (Washington, D.C.: Review and Herald Pub. Assn., 1980), Book 3, p. 52.

⁸⁵ *Ibid.*, p. 38.

⁸⁶ *Ibid.*, p. 32.

⁸⁷ Letter 50, 1906; cited in Graybill, *Ministry*, *op. cit.*, p. 9.

⁸⁸ *Selected Messages*, Book 1, p. 161.

⁸⁹ *Ibid.*, pp. 161, 162.

⁹⁰ *Testimonies*, vol. 5, p. 691.

⁹¹ *Ibid.*, p. 79.

⁹² *Ibid.*, p. 675.

⁹³ *Ibid.*, pp. 675, 676.

⁹⁴ *Ibid.*, p. 674.

⁹⁵ *Ibid.*, p. 672.

⁹⁶ *Ibid.*, p. 691.

⁹⁷ *Ibid.*, p. 66.

⁹⁸ *Ibid.*, p. 674.

⁹⁹ *Ibid.*, p. 664.

¹⁰⁰ *Ibid.*, p. 678.

¹⁰¹ *Ibid.*, p. 680.

¹⁰² *Ibid.*, p. 668.

¹⁰³ *Ibid.*, p. 66.

¹⁰⁴ *Selected Messages*, Book 3, p. 84.

¹⁰⁵ Ellen G. White, *Counsels on Sabbath School Work* (Washington, D.C.: Review and Herald Pub. Assn., 1938), p. 84.

¹⁰⁶ _____, *The Story of Prophets and Kings* (Mountain View, Calif.: Pacific Press Pub. Assn., 1943), p. 626.

¹⁰⁷ Arthur L. White, "The Position of 'The Bible, and The Bible Only' and the Relationship of This to the Writings of Ellen G. White," unpublished document, Ellen G. White Estate, General Conference of SDA, Washington, D.C., January, 1971, 37 pages.

¹⁰⁸ *Ibid.*, pp. 19, 20. The appendix material in this monograph is especially helpful, consisting in part of reprints of periodical articles by J. N. Andrews, Uriah Smith, and Ellen G. White.

¹⁰⁹ *Review and Herald*, January 13, 1863; cited in Robert W. Olson, *101 Questions on the Sanctuary and on Ellen White* (Washington, D.C.: Ellen G. White Estate, 1981), p. 40. The entire editorial appears as Appendix D in the Arthur White monograph.

¹¹⁰ *Review and Herald*, June 9, 1874; cited in White monograph, p. 12.

¹¹¹ *Questions on Doctrine*, p. 89.

¹¹² *Selected Messages*, Book 1, p. 201. Italics supplied.

The Silent Epidemic

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Identifying Impairment

Certain signs can alert us to hearing impairment. A list of 15 indicators is given in the accompanying box on page 15. If a child displays one or more of these indicators, assessment is imperative. Pure threshold audiometry should be performed. Appropriate medical evaluation is indicated if the puretone audiogram shows deviation from the normal range.

Where can a puretone threshold audiogram be obtained? In the United States the public schools are mandated by Public Law 94-142 to evaluate all children with suspected or known impairments. The school or conference nurse can probably arrange for a puretone threshold audiogram to be administered.

Applying Audiogram Results.

The results of the audiogram will be reported either as numbers showing the threshold hearing level (HL) at each of the puretone frequencies tested, or as a graph. The most important information for the teacher is the level at which the child hears stimuli in the frequency range of 2000-4000 Hz. Though a person with hearing levels in the 24-45 decibel hearing range for the lower frequencies (250-1500 Hz) will experience difficulty because vowel, rhythm, and inflection patterns are not clear, consonants will not be differentiated if the hearing involves the higher frequencies.

Applying the Theory^{3,4,5}

The preceding theoretical considerations provide essential background of understanding the problems the hard-of-hear-

ing child encounters. They also provide a foundation for dealing with those problems. Approaches fall into four general areas: (1) sound signals, (2) visual listening, (3) curriculum, and (4) interpersonal relationships.

Sound Signals

The Intensity of the Sound. The loudness of the signal at the point where it reaches the listener's ears is important. This will be determined by the loudness of the signals at their source, the distance between the source and the listener, and the acoustic characteristics of the room.

*Hearing Aids.*⁶ The use of a hearing aid is one approach that helps provide an adequate signal to the ear. When a child wears a hearing aid, the teacher should become familiar with it
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never ceased to watch for his return. Our heavenly Father watches with tender pity the young person who is confused and depressed. During the years Jesus ministered to the people on this earth, He showed compassion to the miserable and the unfortunate.

An erring student often displays undesirable deportment just to get attention. He wants someone to "notice me; I can do things too." This student needs a teacher to take an interest in him and gain his confidence, finding a common denominator on which to build a friendship.

Students often need more than routine discipline. An effective solution to many problems is an understanding friend on the staff; someone who is willing to understand the home situation, and from there, build confidence between the student and teacher, and finally, the school.

Troubled students are infuriated with discipline that is not worthy of the name. It is unwise to punish a student by requiring him to do free labor that is not going to better himself or the school in some way. Administrators and teachers can expect rebellion when the work assigned is degrading, that is, if it does nothing to better any portion of the school plant or the surroundings. It would be far better to assign the necessary work and have the job supervised by a member of the staff, preferably a person the young offender respects.

Students often respond favorably when the principal requests them to visit his office once or twice a week for several weeks. These visits give the principal an opportunity to get acquainted with the student and to discover common ground on which to build friendship with and confidence in the administration.

When possible, the student's pastor should be invited to be

present when the case is discussed. The student will thus be assured that the school really cares about him and that they want to be fair in dealing with his situation.

Discipline problems are greatly reduced in schools where teachers display a caring attitude toward their students. The youth need to know that their teachers are interested in them as individuals as well as in the importance of getting the subject matter across successfully.

As educators, we must blend firmness with gentleness; always encouraging and protecting the faithful student who observes and upholds the standards from those who tear down and destroy. But in so doing, we must ever remember that Jesus Christ dealt in love with the wayward.

Finally, when students must be separated from the Christian school, we should make absolutely certain that everything was done to save the "bruised reed . . . and . . . smoking flax."

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and the way it works so that she can check to be sure the aid is worn as well as turned on to the appropriate volume.

Signal Intensity. Consideration also must be given to the integrity of the signal. Spoken sounds reflect the precision of the lip and tongue movements. Although every teacher cannot be as precisely articulate as a network newscaster, he or she can work to produce clearer speech signals. For example, downward movement of the jaw with the production of each syllable will improve the level of the signal, result is more forceful movement of the tongue and lips, and provide better consonant cues. Students can also be encouraged to

employ the above strategies.

Noise in the listening environment serves as an interference signal. Since selecting a message signal from a noise background is especially difficult for the hearing impaired child, noise should be minimized.

Auditory Attention. Because speech is near the threshold of audibility for the hearing impaired, it is often processed as background. When the listener's attention is directed toward the stimulus, its symbolic significance is then recognized and processed. For these reasons, measures must be taken to gain the attention of the hearing-impaired listener and to direct it toward speech messages. Calling a child by name or using visual cues are valuable approaches.

Visual Listening

Hearing-impaired children develop superior ability to utilize the visual components of communication. Movement of the jaw gives important information regarding the syllable and rhythm patterns of an utterance. Movements of the lips, and what can be seen of tongue movement, provide important clues about the way consonant sounds are produced. These cues are particularly valuable to the hearing impaired who have difficulty in discriminating consonants. Many hard-of-hearing people complain that speakers play hide and seek with them by moving their jaws and lips as little as possible. Conscious jaw movement in syllable production can improve the visual information provided.

Only those elements of speech production that are visible to the observer can be utilized in speech reading (lip reading). The movements are visible for about one-third of the sounds we use. Of this small group of speech sounds, visual information alone does not permit the observer to differenti-

ate between the voiced and unvoiced cognate of such pairs as f-v or the three bilabial cognates, p-b-m.

Other Visual Cues. The extent to which other visual teaching materials are employed in the classroom must also be considered. Utilization of the chalkboard, overhead projector, and other visual devices supplies information that is redundant to the speaker's message. This increases the hearing-impaired child's likelihood of understanding. It is important, however, that all modalities complement one another.

Visual Attention. The child must learn to utilize visual learning techniques by watching for redundant information in the visual environment. Special strategies may be needed to cue the child to begin giving visual attention.

Written Assignments. The manner in which assignments and directions are given is vital to the child's progress. To avoid confusion the child should receive all assignments and directions in writing. The teacher may find it necessary to ask the child how the assignment will be done. If there are misunderstandings, they can be cleared up at this point.

Seating. A question commonly asked is, "Where should a hearing-impaired child sit?" This depends on the organization of the classroom, where the most important speakers are going to be, and the extent to which hearing is critical to academic success. Visibility of speakers and visual instruction materials must also be considered. A third factor in planning for selective seating is whether the child's hearing in one ear is significantly better than in the other. If so, the better ear should be nearer the source of important sounds. The guiding principle should be to arrange the child's seating so that he has

optimum access to both visual and auditory signals.

Curriculum

Hearing impairment may require changes in instructional methods. For example, spelling in Joe's written compositions was good. Yet in the sixth grade he failed spelling tests when the test words were pronounced one after another. In the seventh grade, however, the teacher said the word and then repeated it imbedded within a sentence. The redundant information helped Joe to be certain that he knew the test word, even though he could not understand the sound configuration he heard.

Some of the syntactic components of sentences occur in unstressed syllables and therefore are frequently not perceived by the hearing impaired. The read-written modality may be used to help the child who can read in mastering the rules that govern these syntactic structures. Rhythm exercises and speech choir activities may be employed to develop prosodic patterns.

Interpersonal Relationships

Interpersonal relationships are fostered through communication. The efficiency of the natural channel of communication is reduced for the child with hearing impairment. Frequent mistakes made in understanding what is said lead to breakdowns in communication. These may lead the child to withdraw from the social milieu or to employ undesirable compensatory strategies.

The reaction of the child's peers may range from an innate human tendency to shun what is different to overt rejection. The teacher should monitor peer reactions. Efforts should be made to create an atmosphere in which the children recognize that it is acceptable and safe to be different,

limited, and to make mistakes. Gradually the children will come to understand that it is inhumane to condemn or reject a person because of personal limitation.

A primary goal in fostering psychological development is to develop a reasonable objective to the impairment and its limitations. Compensation for these areas is certainly desirable, but there are limits to which it may be effective. Learning to recognize and accept limitations is necessary.

The Child With Short-term Hearing Loss

The previous paragraphs are directed toward the situation in which a child has a permanent hearing loss, but a more common problem is the child who has a temporary hearing impairment. When a child has a temporary hearing loss, it is important to recognize that neither he nor the teacher has developed the strategies for compensating for the hearing loss that are evident when a child has a permanent hearing impairment. Temporary problems are commonly caused by upper-respiratory or middle-ear infections, irritability, reduced mental alertness, and the problems of not feeling well add to the frustration.

Summary

Strategies for dealing with the hearing-impaired child have been discussed in terms of what could be done to give the child the best auditory stimulus, as well as complementing audition by means of visual and other modalities. When a child with hearing impairment is present in the classroom, the goals are to provide the best acoustic environment possible, to compensate as much as possible for the limitations imposed, and to accept with dignity the limitations that remain. This is a goal for the teacher and other stu-

dents as well as an attitude for the child to accept for himself.

“hands-on” instruction and experience.

FOOTNOTES

¹ Roun Tunley, “Deafness—the Silent Epidemic,” condensed from *The Lion in Reader’s Digest* (March, 1974).
² D. A. Ramsdell, “The Psychology of the Hard of Hearing and Deafened Adult,” in Hallwell Davis and Richard Silverman (eds.), *Hearing and Deafness* (New York: Holt, Rinehart, and Winston, 1970), pp. 435-445.
³ Hayes Newby, “The Handicap of Hearing Impairment,” in *Audiology* (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1978), pp. 391-425.
⁴ *Ibid.*, pp. 426-450.
⁵ Phyllis Gildston, “The Hearing Impaired Child in the Classroom,” in Wingred H. Northcott (ed.), *The Hearing Impaired Child in a Regular Classroom* (Washington, D.C.: The Alexander Graham Bell Association for the Deaf, Inc., 1973), pp. 37-43.
⁶ Raymond A. Stassen, “I Have One in My Class,” Northcott, *op. cit.*, pp. 24-31.

Boarding Academies and Balanced Education

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mathematics electives aid the student in certain college majors, and in some cases are required for college entrance into such departments as engineering.

With the recent availability of inexpensive computers, instruction in programming has become a possibility in 12 of the denomination’s residence academies. Ten of these schools include enough content to offer one unit of credit. Computer programming is a growing vocation, and those academies not teaching it should study the feasibility of doing so in the near future.

The Sciences

Science subjects such as biology, chemistry, general science, physics, physical science, and life science dominate the course offerings. Twenty academies offer their students an advanced subject above the general listing; two academies teach a college-credit course, one in biology, the other in anatomy and physiology. Sixteen academies specify that the science requirement is valid only if it has a regular laboratory period when each student receives

Business Education

The subjects in business and business education, their corresponding units of credit, and the number of academies teaching each are listed in Table 2. These subjects are all electives, but seem to be well patronized by the students. Shorthand appears to still be popular despite the prevalence of electronic dictating devices. Notice also that Typing I is taught in all of the schools, with many schools having to open two or even three sections to accommodate the demand. The usefulness of such a course is surely beyond question.

Psychology

Two academies offer an elective course in general psychology; one confers college credit, while students who take the other course must pass an external examination before the college credit is granted. Psychology is usually offered only for seniors.

Physical Education

Physical education (PE) is mandated for each year in attendance by only 13 of the academies. Twenty-six schools sponsor a tumbling team or a gymnastics class. A one-semester course in health is included in the graduation requirements in this area in 31 of the academies; three require two semesters, two require only a half-semester. Three academies waive courses in PE in lieu of industrial work experience. There is a direct correlation between the size of school and the number of courses in PE.

Music

The music curricula in SDA residence academies is important to the church. Thirty-seven academies have a concert choir; 29 give instruction in voice

Table 2
Business Education Courses

Subject	Units	Number of Schools
Accounting	2	2
	1	32
	½	2
Business Education Seminar	1	1
Business Machines	1	5
	½	4
Consumer Economics	1	4
	½	6
General Business	1	6
	½	2
Office Practice	1	22
	½	5
Record Keeping	1	4
	½	3
Shorthand	1	33
	½	3
Typing I	1	40
Typing II	1	26
	½	6

culture. All but five of the schools have a concert band, and 33 give instrumental lessons. Organ instruction is offered in 27 academies; piano lessons in 31.

Nursing

Nursing is a subject primarily reserved for higher education. However, six academies offer a course in the survey of nursing or nurse’s aid training. Table 4 lists two campuses close enough to hospitals so that students may obtain employment there. This kind of arrangement should be more broadly utilized in the training of SDA youth.

Vocations and Industries

For ease of reference, vocational subjects are listed in Table 3. Courses in home economics and auto mechanics are prominent entries.

Next in consideration are school industries at residence academies. These are also listed in Table 4. Although these are included under the topic of vocations, only 12 of the schools grant academic credit for employment in the work program. Granting credit and grading performance can be work incentives. Usually, the credit offered is half a unit per