



# Supporting Success

## for Children with Hearing Loss

*Mission: To improve the futures of children with hearing loss.*

## White Paper:

### Estimating the Level of Communication Effectiveness / Access

The purpose of this White Paper is to provide recommendations to school personnel on how the level of communication effectiveness in comparison to class peers can be identified, as is required per ADA. As exemplified by the case study on a student with hearing loss provided in the [ADA Frequently Asked Questions document](#) (Appendix A, page 24)<sup>1</sup>, grades cannot be used as a measure of communication effectiveness.

The opportunity to access to all classroom instruction and peer-to-peer communication is a key assumption of regular education and of 504, IDEA and Title II of the Americans with Disabilities Act (ADA). A [November 2014 policy guidance](#) from the US Department of Education and US Department of Justice clarified that, under Title II of the ADA, *schools are required to ensure that communication for students who are deaf and hard of hearing are as effective as communication for others through the provision of appropriate aids and services, thereby affording an equal opportunity to obtain the same result to gain the same benefit as that provided to others and to participate in and enjoy the benefits of the district's services, programs, and activities*<sup>1</sup>. The ADA requirements restate the principles stated under Section 504, which is often seen as the means used to fulfill the requirements of ADA. Per the U.S. Department of Justice<sup>2</sup>: *Public entities must not discriminate against, deny the benefits of, or exclude qualified individuals with disabilities from participation in any service, program, or activity. The aids, benefits, and services provided to persons with disabilities must be equal to those provided to others, and must be as effective in affording equal opportunity to obtain the same results, to gain the same benefit, or reach the same level of achievement as those provided to others*. These requirements apply to all school-related communication for children with known hearing, vision or expressive speech impairments, ages 3 through 22, who are educated in public schools, including charter and magnet schools.

**It is assumed that a person knowledgeable about the educational impact of hearing loss will be at the forefront of assessing a student's level of communication effectiveness.** IDEA defines qualified personnel as "personnel who have met State approved or recognized certification, licensing, registration, or other comparable requirements that apply to the areas in which the individuals [provide services]" (34 C.F.R. § 303.31). Qualified teachers of the deaf/hard of hearing have the experience, knowledge, and skills to design an educational program that will help the student be involved in, and progress in, the general curriculum. The inclusion of such a professional is necessary to meet the Every Student Succeeds Act (ESSA) requirement that States ensure equitable access to excellent educators (ESSA, Title II, Part A). Therefore, a teacher of the deaf/hard of hearing, an educational audiologist, and/or a speech language pathologist who has specialized training and experience in the needs of this population are the most appropriate professionals to assess level of communication access. These advanced degrees, which typically include training in assessment and interpretation, allow these professionals to appropriately perform the described assessment procedures.

**Procedures for estimating the level of access, or communication effectiveness, will depend on the student's communication mode.** Procedures differ for students who are primarily auditory learners and those who are visual learners. What must be established is the student's level of comprehension of classroom communication in his or her preferred method of communication and/or the method of greatest communication expertise. The following information provides recommendations for auditory learners first, followed by recommendations for learners via visual communication modalities.

### **Suggestions for Determining the Level of Communication Effectiveness for Students who are Hard of Hearing (*Those who use listening and speech as primary avenues for education.*)**

The vast majority of students with hearing loss have some useable hearing through which they primarily access verbal instruction and peer-to-peer communication. Amplification devices do not restore normal hearing. In group-learning conditions listening at a distance greater than 3 feet with typical classroom noise levels present, students with hearing loss typically miss fragments of verbally-presented speech. This puzzling out the meaning of speech with acoustic elements missing requires a greater effort for listening, which then reduces the amount of cognitive resources available to comprehend what was said, integrate it into the knowledge base and into long-term memory<sup>3</sup>. In order to determine how effectively students with hearing loss perceive classroom communication, the level of each student's fragmented listening needs to be explored under different conditions of distance and noise. Specifically, a student's precision listening ability and functional listening ability need to be assessed and compared to the expected performance of typically hearing students. Indications of a student's level of effort and fatigue, and the resulting impact on attention/distractibility also need to be taken into account when determining communication effectiveness.

1. **Classroom observation** by a professional with expertise in the learning needs of students with hearing loss (i.e., teacher of the deaf/hard of hearing; educational audiologist). Classroom listening conditions, pace of instruction, management of classroom discussion and group learning activities, and existing accommodations all need to be noted and shared with appropriate personnel. As an example of a form, consider the *Observational Record of Behavior of Deaf/Hard of Hearing Students*<sup>4</sup>. Student performance in terms of attention/distractibility, level of hesitation before beginning work, application of self-advocacy skills, indicators of level of comprehension of instruction and peer-to-peer interactions should all be noted.

2. **Precision listening ability** should be estimated. Specifically, the accuracy of the student's ability to repeat all elements of speech when presented at 3 feet in quiet (no visual cues) should be assessed. This information can be obtained via the *Iowa Medial Consonant Test*<sup>5</sup> and/or repetition of age appropriate lists of single words or nonsense syllables. This process will identify which speech sounds are inconsistently heard in this optimal condition (baseline hearing fragmentation). To determine the impact of distance and noise on precision listening ability the *ELFLing*<sup>6</sup> can be used. The Ling sounds (aw, oo, ee, sh, s, m) represent the speech spectrum and are commonly presented to students who are asked to indicate when a sound is heard (awareness), repeat it or point to a picture representation (identification). Presentation of the randomly spoken sounds starts at 15 feet and is repeated at 10, 6, 3 feet, 1 foot and 6 inches in quiet and then the process is repeated for listening in noise. The *ELFLing* identifies how close a student needs to be to the speaker to perceive the complete speech spectrum in quiet and noise, and at what distance each of these sounds become (in)audible. Children with typical hearing perceive all Ling sounds at 15 feet in quiet and at 10 feet in low background noise.

**3. Functional listening ability** provides the most useful information to estimate a student's level of communication access. The Functional Listening Evaluation (FLE) is a procedure<sup>7</sup> that presents speech, preferably sentences, at 3 feet and 12 feet, in quiet and noise, when the student is watching the speaker's face and also auditory only. The resulting percentage-correct scores are then compared to results of students with typical hearing who score 95% or better in quiet and at least 90% in noise, even when the speech level is soft and the loudness of the noise and speech is identical (0 dB S/N)<sup>8</sup>. Close quiet listening scores represent the best functional ability which occurs in situations like 1:1 pull-out instruction. Results at 3 feet in noise represent paired learning, small group learning or informal social interactions. Results at 12 feet in quiet represent the most intensive instructional periods, when the classroom is relatively quiet and students are engaged in the instructional process. Results at 12 feet in noise represent classroom discussion situations. All of these should be considered for equal access to classroom communication. Again, students with typical hearing perform at 90% or better, even in very noisy listening conditions. For children who are too young to reliably perform the FLE or when additional information is desired, the parents can complete the Children's Home Inventory of Listening Difficulties (CHILD)<sup>9</sup>. The CHILD items relate to ability to hear and understand in typical home and community environments which will provide information about the student's ability to perform in quiet, noise, social, distance situations and when listening to media; all of which are applicable to functioning in the educational environment.

**4. Student and/or Teacher Reflections:** The *Listening Inventory For Education – Revised*<sup>10</sup> is a suite of assessments. The *LIFE-R Student Appraisal* is a self-report measure of 15 typical school situations. It is appropriate for students grade 3 and above. The *LIFE-R Teacher Appraisal of Listening Difficulty* provides classroom teacher input on a student's ability to listen in various classroom situations.

**5. Other measures:** If it is evident that the student's access to communication is not as effective as typically hearing students the following measures are suggested to further quantify the extent of these issues in comparison to age peers and to provide ideas for potential accommodations or supports.

- a. *Informal Assessment of Fatigue and Learning*<sup>11</sup> can provide insight into the level that hearing loss is causing educational significant fatigue. This checklist can be administered in an interview format with the student or completed as a checklist by the student. It can be used across age groups, however data for quantitative scoring has been obtained on children grades 4-9.
- b. *Developmental Test of Auditory Perception*<sup>12</sup> (DTAP) is a norm-referenced test that requires the student to identify phonemes in isolation, word discrimination, rhyming sounds, tonal pattern, and environmental sounds. Responses from these 5 subtests are divided into two auditory scales: Language Auditory Perception Index and Nonlanguage Auditory Perception Index resulting in the Composite Auditory Perception Index. Ages 6.0 to 18 years.
- c. *Tests of Listening Comprehension*<sup>13</sup> (elementary or secondary versions) assess listening through natural classroom situations rather than evaluating listening through simple repetition or discrimination tests. It is norm-referenced and has 5 subtests: Main Idea, Details, Reasoning, Vocabulary, Understanding Messages.
- d. *Oral Passage Understanding Scale*<sup>14</sup> (OPUS) assesses listening comprehension in a natural context. Students are presented with age-appropriate passages, each with associated questions. It evaluates the ability to integrate and apply knowledge and use of words and word combinations, grammar and use of language in which meaning is not directly available from the surface information. Norm-referenced. Ages 5.0 to 21 years.

## Suggestions for Determining the Level of Communication Effectiveness for Students Who are Visual Learners *(Those who use sign language, cued speech, captioning, AAC, etc. as primary avenues for education)*

1. Video record the student during verbal instruction, subsequent class discussion and instructions for completing an assignment. For the length of the recorded observation, time the visual tracking and convert into percentage of total time. Who is the student watching (visually tracking)?

- Teacher (during verbal instruction, during class discussion, during description of assignment)
- Peers (during verbal instruction, during class discussion, during description of assignment)
- Interpreter (during verbal instruction, during class discussion, during description of assignment)
- None of the above/off task (during verbal instruction, during class discussion, during description of assignment)
- Make notes about how visually accessible information was beyond watching the speaker(s) (i.e., SmartBoard, maps, other visuals)

2. Extend the Functional Listening Evaluation for students with some residual hearing who use visual language representations, such as Total Communication/Simultaneous Communication (SimCom)/Conceptually Accurate Signed English(CASE), American Sign Language, or Cued Speech/Cued Language. The student's modality of visual communication can be added to the 4 auditory conditions and 4 auditory + visual (speechreading) conditions. Controlled 5-word sentences are typically used in the Functional Listening Evaluation. Results are scored in percent for each word repeated accurately (i.e., HINT sentences). This same could be applied to SimCom users/Cued Speech users. ASL or CASE users would be scored for accuracy of repeating the concept of each of the Functional Listening Evaluation sentences as it has been signed to them. Whether auditory and/or visual, use of 5-word controlled vocabulary sentences provide a simplistic over estimation of functional performance. Requesting the student to explain in his or her own words what each sentence means is one method to check the comprehension level of the students in addition to their ability to repeat the sentences presented.

SimCom	Close (3 ft) Auditory	Close Auditory + Speechreading	Close Sign (+ Auditory)	Far (12 ft) Auditory	Far Auditory + Speechreading	Far Sign (+ Auditory)	Hearing Peer Standard <sup>8</sup>
Quiet							95%+
Noise							90%+

Sign Only	Close (3 ft) Sign	Class Interpreter Distance Sign	Hearing Peer Standard <sup>8</sup>
Quiet			95%+

2. Listening comprehension materials available for non-native English language populations may also be used to check access/comprehension levels of students who are visual learners. For example worksheets to to: <https://en.islcollective.com> (must register to download free worksheets). To use, the interpreter signs what is heard on the YouTube video and the student answers the questions provided. To simulate classroom situations, the student would be able to view both the person speaking (on YouTube) and the interpreter. For evidence based practice, a minimum of 2-3 'typical' learners in the same class who have

watched the same YouTube video and answered the questions to provide a comparative sample for comprehension/access expectations.

3. Other measures: The *Test of Listening Comprehension*<sup>13</sup> and the *Oral Passage Understanding Scale*<sup>14</sup> described in the previous sections can be administered to the student in his or her preferred mode of visual communication. With this adaptation, normative results must be viewed as an estimate. Results will broadly indicate how the student's ability to comprehend information that is typical of classroom comprehension expectations. For greatest fidelity, it is important that the person providing the visual communication version of the test stimuli do so in a manner that is as close as possible to the level and completeness of information that is typically provided to the student in the classroom environment. Results of either or both tests can then be used as an estimate of not only what the language level the student is being presented, but also the degree to which the student comprehends the information.

### **Suggestions for Determining the Level of Communication Effectiveness for Students with Expressive Communication Impairments (*Those who do not or cannot use spoken language to participate in class discussion, small group or paired learning, communicating with school staff and class peers, etc.*)**

The [Common Core Standards](#) make it clear that it is necessary for students to be active participants during all classroom learning opportunities. This is especially challenging for students who are not able to effectively communicate using verbal language. To accommodate participation, teachers will often need to allow more time for students to provide their comments during class discussions and to ensure active participation during group learning opportunities. The following activities are suggested to assess the student's ability to participate fully in classroom situations.

1. Video record the student during verbal instruction, subsequent class discussion, instructions for completing an assignment, small group work, any requests for clarification, etc. Record how the student's expressive communication occurs for each opportunity given to the class to express themselves. Identify what the student does, given the number of participation opportunities provided. How successful is the student's two-way communication (including participation) in comparison to class peers for following communication means such as:

- a. Through interpreter
- b. Student voicing
- c. Student texting
- d. Nonverbal gestures
- e. Passing handwritten notes
- f. Other method used in class
- g. Also collect information on any methods used for expressive communication for homework other than written assignments (i.e., VLOG)

2. The skill level of the interpreter is also an important consideration when estimating access to classroom communication for students who use visual language representations, such as Total Communication/ Simultaneous Communication (SimCom)/Conceptually Accurate Signed English(CASE), American Sign Language, or Cued Speech/Cued Language. Under-qualified interpreters inadvertently undermine

development of language competence and contribute to idiosyncratic use of sign language, low literacy rates, and poor academic and social outcomes for many d/Deaf students ([NIEC Needs Assessment Report, 2016](#))<sup>15</sup>. The need to assess interpreter skill level is supported by research as the academic information received by visual communicators is reliant on the skills of their sign language interpreter or cued speech transliterator.

A [2005 study](#)<sup>16</sup> evaluated 2100 educational interpreters in the US using the Educational Interpreters Performance Assessment. The results found that about 60% of the interpreters evaluated had inadequate skills to provide full access. The study suggested that many students receive interpreter services that seriously hinder reasonable access to class curriculum and social interaction. A [2009 study](#)<sup>17</sup> focused on the accuracy of translation as measured by number of key science words included in a Communication Access Realtime Translation (CART) transcript or in videos of sign interpretation. "Best" interpreters/CART providers were selected who understood that the study was about accuracy. Participants transcribed or signed three science videos by the National Aeronautics and Space Administration (NASA). The accuracy of interpreters for the three videos was 81%, 80.1%, 62.7%. The accuracy of the CART providers was 98.5%, 96.9%, 97.2% resulting in an average accuracy of 75% for interpreters and 97% for CART transcription.

Sufficient "through the air" access to verbal instruction and classroom communication cannot be assumed because accommodation by an interpreter or CART is provided in the classroom. A district who provides a 'signer' for student access, rather than hiring a sign language interpreter who has completed a high level of training and has extensive experience, must be aware of the impact of the 'signer's' skill level on communication access. A qualification standard for interpreters who are most likely to provide complete communication access would be [national certification](#) through National Registry of Interpreters for the Deaf – RID or an [Education Certificate: K-12](#) (Ed:K-12). Some states have recommended methods for determining interpreter skill levels. Refer to [information on each state's requirements](#) for educational interpreters. It is recommended that the teacher(s) of the deaf/hard of hearing who also have sign language expertise be involved in determining the accuracy of educational interpreters. Comprehension of real-time captioning requires reading fluency of at least grade 5-6 to keep up with the typical rate of speech during teacher instruction.<sup>18</sup>

3. The **Student Language and Communication Profile Summary**<sup>19</sup> (Laurent Clerc National Deaf Education Center, Gallaudet University, 2010) is a structured means to gather data on a student's proficiency level in the use of American Sign Language. It includes extensive, criterion-referenced, skills in specific age ranges that assists knowledgeable school staff in identifying areas of strength and non-strength in comparison to age expectations. The [Profile](#) thereby defines specific skills that will impact effective access of communication. The Student Language and Communication Profile has been included at the end of the references.

4. The **Standardized Visual Communication Sign Language Checklist**<sup>20</sup> (Simms, Baker, and Clark, 2013) was developed to meet the need for a comprehensive checklist of visual language development so that learning goals can be set, gaps in learning identified, and appropriate materials developed. It may be the only [standardized checklist](#) for assessing a child's skills in American Sign Language.

5. The **American Sign Language Receptive Skills Test**<sup>21</sup> can assess the ability to perceive basic ASL of children ages 4-13 years. It measures emerging receptive knowledge of ASL, especially for children in the younger age ranges. It is an ASL adaptation of the British Receptive Skills Test. The [ASL-RST](#) webpage also includes a PowerPoint presentation describing how to assess receptive ASL skills using this tool.

Resources<sup>22</sup> geared toward evaluating communication ability in bilingual learners may also be applicable when evaluating expressive/receptive communication and the need for sign language.

## Summary

Schools are required to ensure that communication for students who are deaf and hard of hearing are as effective as communication for others. To determine the level of communication effectiveness, appropriate assessment must occur. The teacher of the deaf/hard of hearing is typically the most qualified to be at the forefront of this assessment process. Students with hearing loss who are primarily auditory learners and those who are primarily visual learners require assessment. These assessment procedures differ. Finally, students with expressive language concerns, like Deaf visual learners, must also be assessed to ensure that their opportunity to fully participate in the classroom is equal to their class peers.

## References

1. 2014 ADA Policy Clarification: <http://www2.ed.gov/about/offices/list/ocr/letters/colleague-effective-communication-201411.pdf> Frequently Asked Questions #1: <http://www2.ed.gov/about/offices/list/ocr/docs/dcl-faq-effective-communication-201411.pdf>
2. U.S. Department of Labor – Disability Nondiscrimination Law Advisor; Public Entity Responsibilities Under Title II – Services, Programs, and Activities [https://webapps.dol.gov/elaws/odep/title\\_2full.aspx](https://webapps.dol.gov/elaws/odep/title_2full.aspx)
3. The Cascading Impact of Hearing Loss on Access to School Communication. Download from [www.successforkidswithhearingloss.com/access-ada](http://successforkidswithhearingloss.com/access-ada): <http://successforkidswithhearingloss.com/wp-content/uploads/2012/12/The-Cascading-Impact-of-Hearing-Loss1.pdf>
4. Landrud, S. & Anderson, K. (2011) Observational Record of Behavior of Deaf or Hard of Hearing Students. Download from <http://successforkidswithhearingloss.com/tests>
5. Tyler, RS, Preece, JP, Lowder, MW,: The Iowa Cochlear Implant Test Battery: Iowa City, University of Iowa, 1983. Download the Iowa Medial Consonant Test from <http://successforkidswithhearingloss.com/tests>
6. Anderson, Karen (2015). Early Listening Function using the Ling Sounds. Download the procedure and the checklist from <http://successforkidswithhearingloss.com/tests>.
7. Johnson, C. & Von Almen, P. (1993). Functional Listening Evaluation. Information at <http://successforkidswithhearingloss.com/tests> and <http://successforkidswithhearingloss.com/file-recorded> using 5-word HINT sentences.
8. Bodkin, K., Madell, J., & Rosenfeld, R. (1999). Word recognition in quiet and noise for normally developing children. American Academy of Audiology Convention, Miami, FL, Poster session. Download *Speech in Noise Norms for Typical Children* from <http://successforkidswithhearingloss.com/speech-perception>
9. Anderson, K. & Smaldino, J. (2000). Children’s Home Inventory for Listening Difficulties (CHILD). Download from <http://successforkidswithhearingloss.com/tests>.
10. Anderson, K., Smaldino, J., & Spangler, C. (2011). Listening Inventory For Education – Revised. For information go to <http://successforkidswithhearingloss.com/life-r/>
11. Fukuda, S., et al, (2010) Effort-reward imbalance for learning is associated with fatigue in school children. *Behavioral Medicine*, 36(2), 53-62; authors of the LERI Scale. Informal Assessment of Fatigue and Learning. Adapted 2014 by Karen Anderson. Download from <http://successforkidswithhearingloss.com/tests>.
12. Developmental Test of Auditory Performance: <http://successforkidswithhearingloss.com/dtap/>



13. Listening Comprehension Test: <http://successforkidswithhearingloss.com/listening-comprehension-test-2/> and <http://successforkidswithhearingloss.com/listening-comprehension-test-adolescent/>
14. Oral Passage Understanding Scale: <https://successforkidswithhearingloss.com/opus>
15. Schafer, T. & Cokely, D. (2016). [Understanding the Challenges of Interpreters Working with Children in K-12 Settings: Needs Assessment Report](#). Prepared for the Rehabilitation Services by National Interpreter Education Center, Northeastern University.
16. Schick, B., Williams, K., Kupermintz, H. (2006). [Look who's being left behind: Educational interpreters and access to education for deaf and hard-of-hearing students](#). *J Deaf Stud Deaf Educ*, 11(1), 3-20.
17. Sadler, K. (1997). [Accuracy of sign interpreting and real-time captioning of science videos for the delivery of instruction to Deaf students](#). Thesis. University of Pittsburgh Medical School.
18. [Speech-to-Text Readiness Checklist](#) [Placement and Readiness Checklists: Captioning/Transcribing Readiness Checklist](#) (pages 6-8)
19. Laurent Clerc National Deaf Education Center, Gallaudet University (2010). Student Language and Communication Profile Summary. [https://texasdeafed.org/uploads/files/general-files/Clerc\\_Center\\_Student\\_Language\\_and\\_Communication\\_Profile\\_Summary.pdf](https://texasdeafed.org/uploads/files/general-files/Clerc_Center_Student_Language_and_Communication_Profile_Summary.pdf)
20. Simms, L., Baker, S., & Clark, M. D., (2013). The [Standardized Visual Communication and Sign Language Checklist for Signing Children](#). *Sign Language Studies*, 14(1), 101-124.
21. Visual Language and Visual Learning, Gallaudet University (2014). Assessing ASL Development Using the ASL Receptive Skills Test. <http://vl2.gallaudet.edu/resources/asl-assessment-toolkits/asl-receptive-skills-test/> . PowerPoint <http://vl2.gallaudet.edu/files/8013/9415/5597/asl-receptive-skills-test.pdf>
22. Nussbaum, D. B. & Scott, S. (2012). The “Why” and “How” of an ASL/English Bimodal Bilingual Program. *Odyssey*, 13, 14-19 [www.gallaudet.edu/Documents/Clerc/Odyssey2012.pdf](http://www.gallaudet.edu/Documents/Clerc/Odyssey2012.pdf)

## Contributors

As there is no national association for teachers of the deaf/hard of hearing in the U.S., this White Paper was developed through the coordination of Supporting Success for Children with Hearing Loss, which provides extensive information, resources, and professional development primarily to teachers of the deaf/hard of hearing in the U.S. An iterative development and revision process from August 2016 – June 2017 was used to develop these recommendations, with input broadly solicited from individuals in educational settings who work directly with this population.

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