

Effecting Positive Outcomes (EPO)
in Children who are Deaf and Hard of Hearing



Listening in the Fast-Paced Classroom

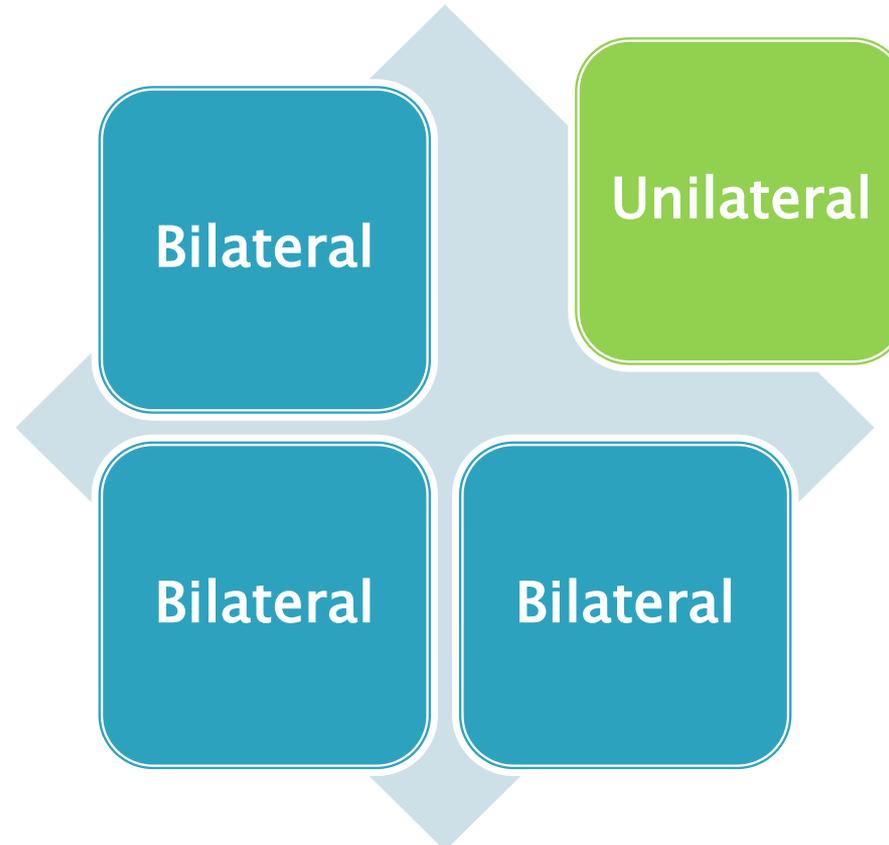
Estimating Access to Classroom Instruction

Karen L. Anderson, PhD

Supporting Success for Children with Hearing Loss

<http://successforkidswithhearingloss.com>

Relative Prevalence by Laterality of Hearing Loss



For every 4 babies identified with bilateral hearing loss there is 1 with unilateral hearing loss.

Relative Prevalence by Degree of Hearing Loss



Even conservatively there should be 2x the number of children with mild loss served compared to the total of all other degrees

Severe –
Profound

Moderate

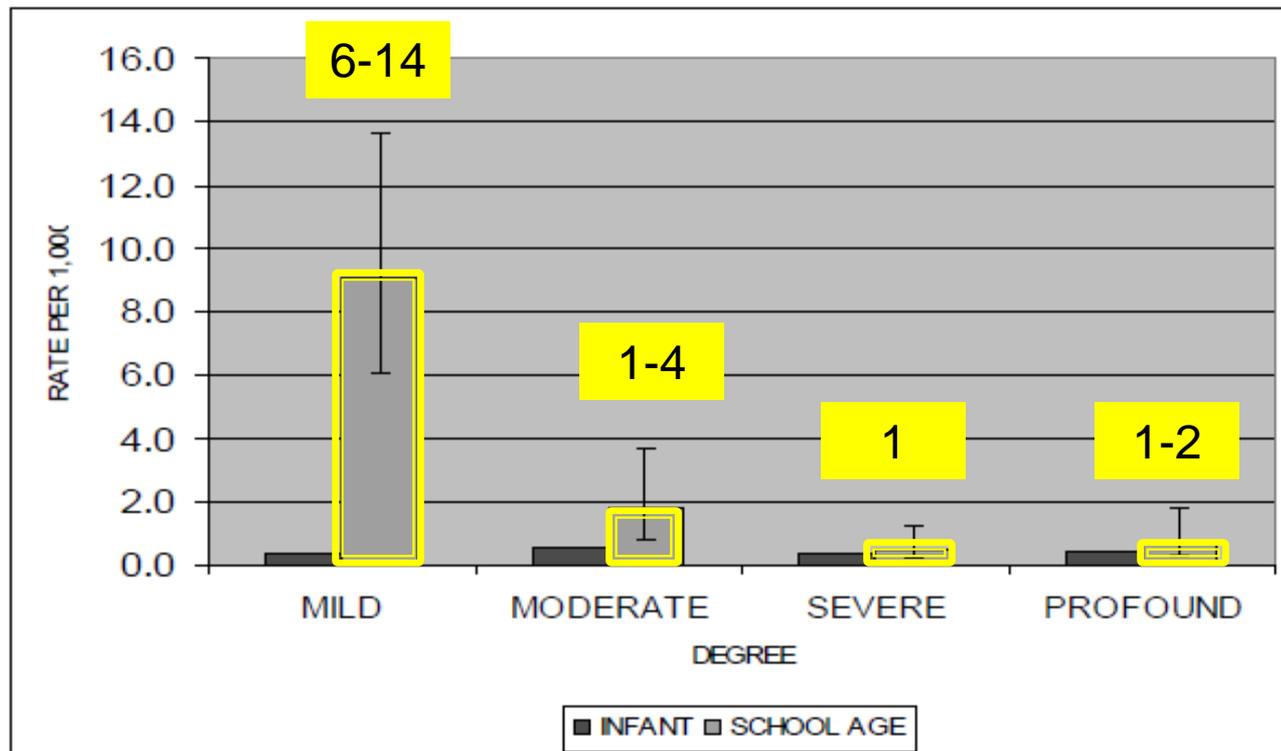
Mild

For every 1 child identified with bilateral severe to profound hearing loss there are 2 with moderate and 9 with mild degrees of hearing loss.

Relative Prevalence by Degree of Hearing Loss



Prevalence Summary



National Health and Nutrition Examination Survey

Growth of Cochlear Implants for Children



1987 first child implanted

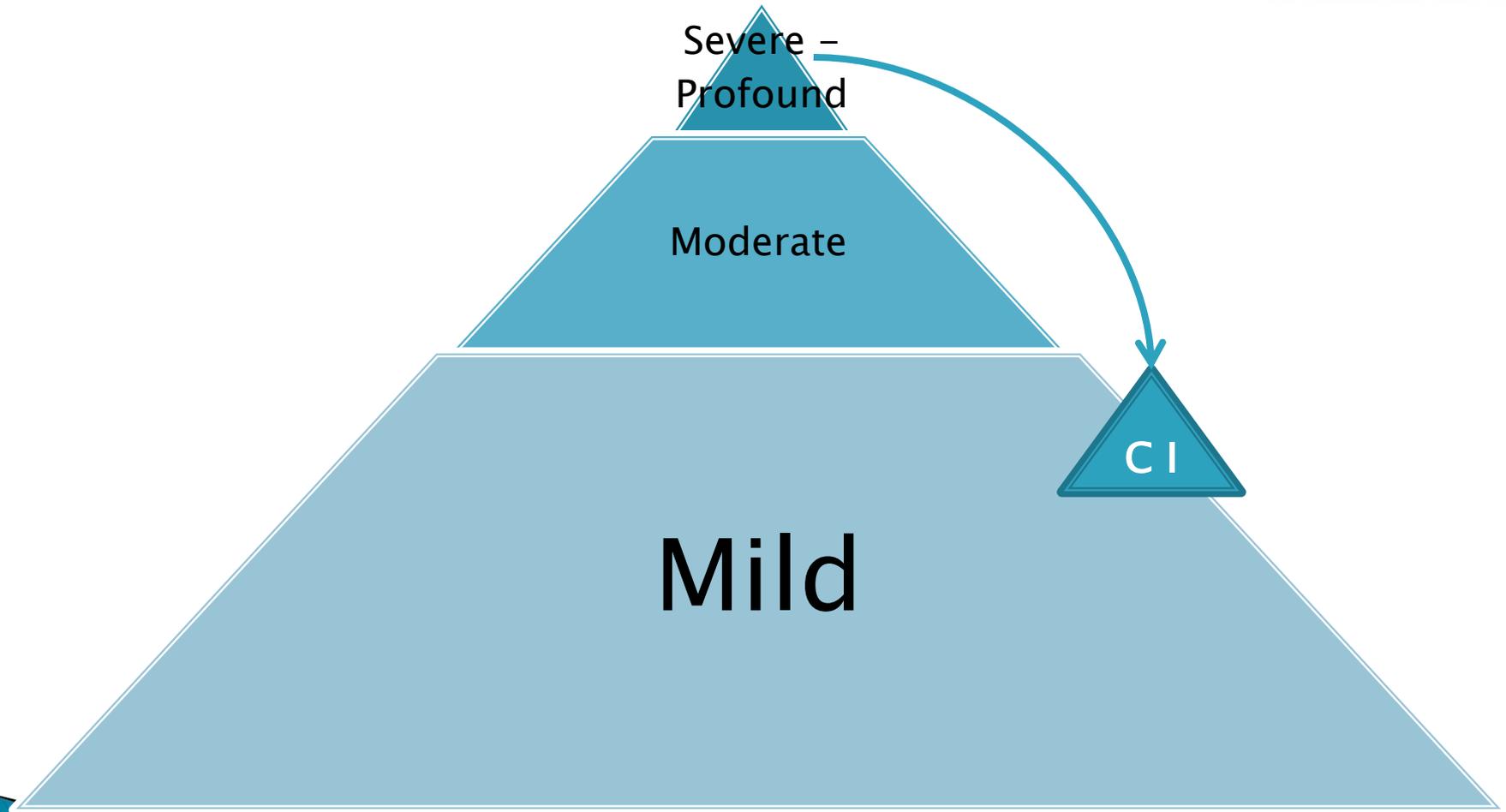
2002 Total 10,000 kids

2010 Total 28,400 kids
Including 1600 bilateral

1:10 deaf kids implanted in 2000

1: 2-3 children who are deaf implanted by end of 2010

Relative Prevalence by Potential Functionality of Hearing Loss



Changes to Population Served 2008 annual OSEP report



Percent – Deaf/Hard of Hearing	1996-1997	2005-2006	Change
High school completion	74%	87%	+13%
Graduate with regular diploma	62%	69%	+7%
Percent of population age 6-21	0.1%	0.1%	--
Time inside regular classroom 80%+	39%	49%	+10%
Time inside regular classroom 40-79%	19%	18%	-1%
Time inside regular classroom <40%	25%	20%	-5%
Other environments	17%	14%	-3%

<http://www2.ed.gov/about/reports/annual/osep/2008/parts-b-c/index.html>

How can we help to prevent gap openers, and increase gap closers?

- ▶ Ensuring equal access to verbal instruction, then
- ▶ Focus beyond language and academics on the skills needed to fully benefit from the core curriculum
 - Recognizing challenging communication situations
 - Implementing access activities
 - Repairing communication breakdowns
- ▶ All based on recognizing their right to receive the same information and responsibility to take part
- ▶ All are dependent on having the self-concept to advocate for their own listening and communication needs

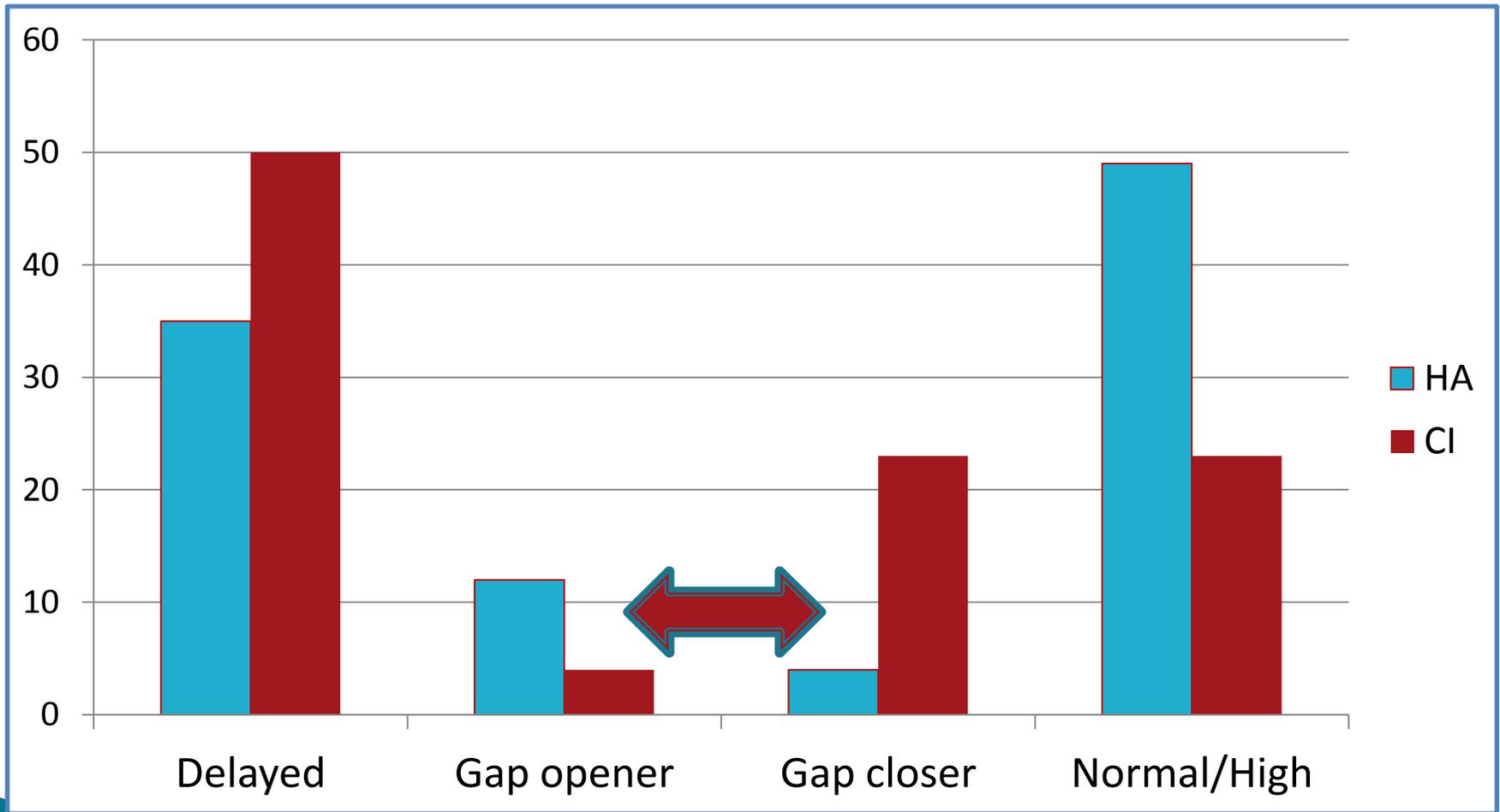
Setting the stage – today's learners with hearing loss



New data from Christi Yoshinaga-Itano

- ▶ Language growth of 135 children age 4–7
- ▶ Children were **cognitively normal** from **English** speaking families with **hearing** parents
- ▶ **Assessed 3–4 times** from 48–84 months of age
- ▶ Median age of ID – 3 months, EI start – 8 months
- ▶ Both **cochlear implant** users and **hearing aid** users (mild – severe/profound)
- ▶ Results: children fell into one of 4 groups

Language Learning during age 4–7 years



Rights of Children with Hearing Loss



- ▶ ADA 35.160

Requires public entities to take appropriate steps to ensure that communication with persons with disabilities is **as effective** as communication with others.

Children with hearing loss have a right to **equal access** to verbal instruction and to all communication in the classroom

Denied access = denied opportunity

Access is at the center of most of the struggles of the student with hearing loss

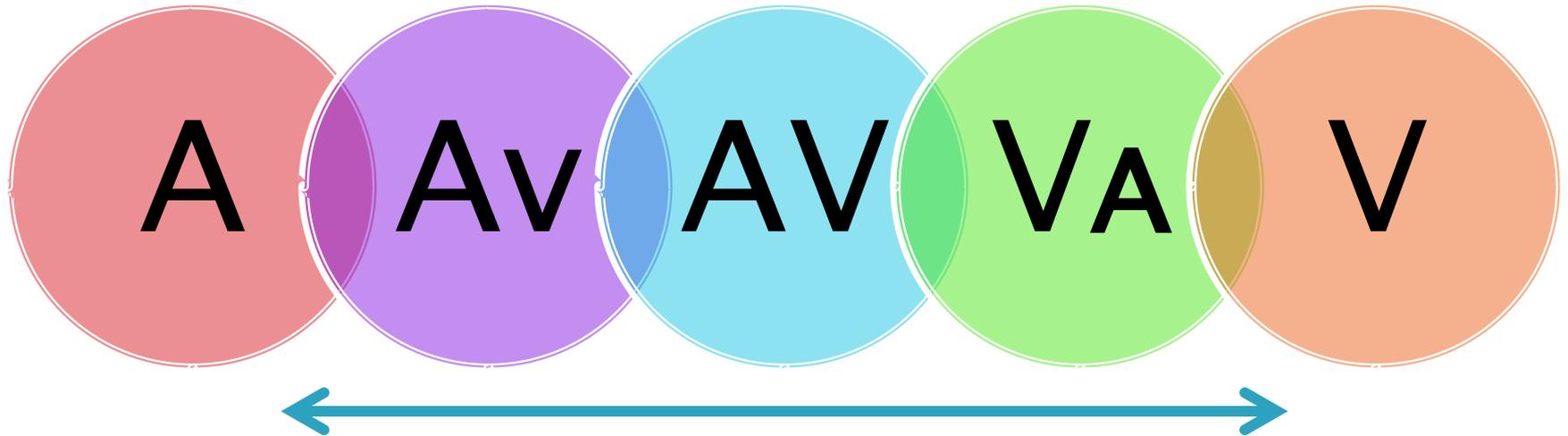
- ▶ Access is so important that the IDEA statute (20 USC 1400(c)(5)(H)) specifies “supporting the development and use of technology, including assistive technology devices and assistive technology services, to maximize accessibility for children with disabilities.”



How do we know that we maximized accessibility if we don't know baseline? How can we assess student access ?

Continuum of communication modality

Communication modality needs can change throughout the school day



Classroom noise, new vocabulary, interest/motivation, fatigue...

How can we estimate access to classroom communication?

TODAY

- ▶ Listening access – perception
- ▶ Listening access – comprehension
- ▶ Visual access – perception
- ▶ Visual access – comprehension

Access level should drive necessary accommodations, services to ‘fill the gaps’ and modified work expectations

A word about visual access...

- ▶ Experiment 1 compared the effects on learning of sign language interpreting, real-time text (C-Print), and both. Real-time text alone led to significantly higher performance by deaf students than the other two conditions.
- ▶ Experiment 2 compared interpreting and two forms of real-time text, C-Print and Communication Access Real-Time Translation, at immediate testing and after a 1-week delay (with study notes). No significant differences among support services.
- ▶ Experiments were performed in secondary and post-secondary settings

Marschark et al, [J Deaf Stud Deaf Educ. 2006; 11\(4\): 421–437.](https://doi.org/10.1080/14639590600571437)

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1686598/>

A word about visual access...

“The impact of educational interpreting on achievement is just now being explored, and initial results raise questions about both its effectiveness compared to text alternatives and how both support services mesh with student communication skills.”

Marschark et al, [J Deaf Stud Deaf Educ. 2006; 11\(4\): 421–437.](#)

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1686598/>

A word about visual access...

“...it is concluded that neither sign language interpreting nor real-time text have any inherent, generalized advantage over the other in supporting deaf students in secondary or postsecondary settings. Providing deaf students with both services simultaneously does not appear to provide any generalized benefit, at least for the kinds of materials utilized here.”

Marschark et al, [J Deaf Stud Deaf Educ. 2006; 11\(4\): 421–437.](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1686598/)

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1686598/>

A word about visual access...

- ▶ No 'standards' for best means of access for optimal student comprehension
- ▶ Need to evaluate individually in typical environments
- ▶ Part of systematic classroom observation

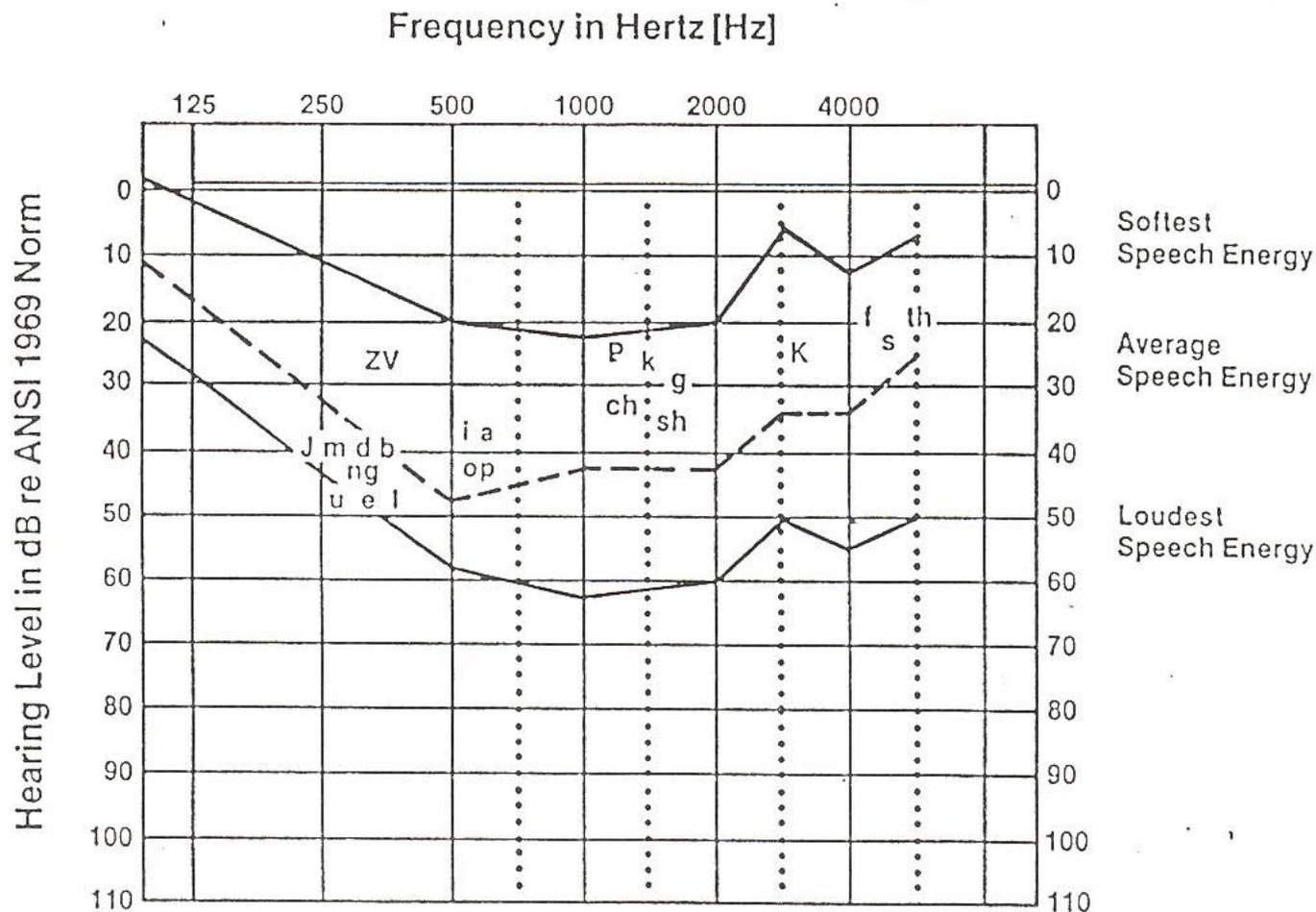
Kathy will focus on this topic more on Feb 16th



Listening Access – Auditory Perception

Sound audiogram with envelope

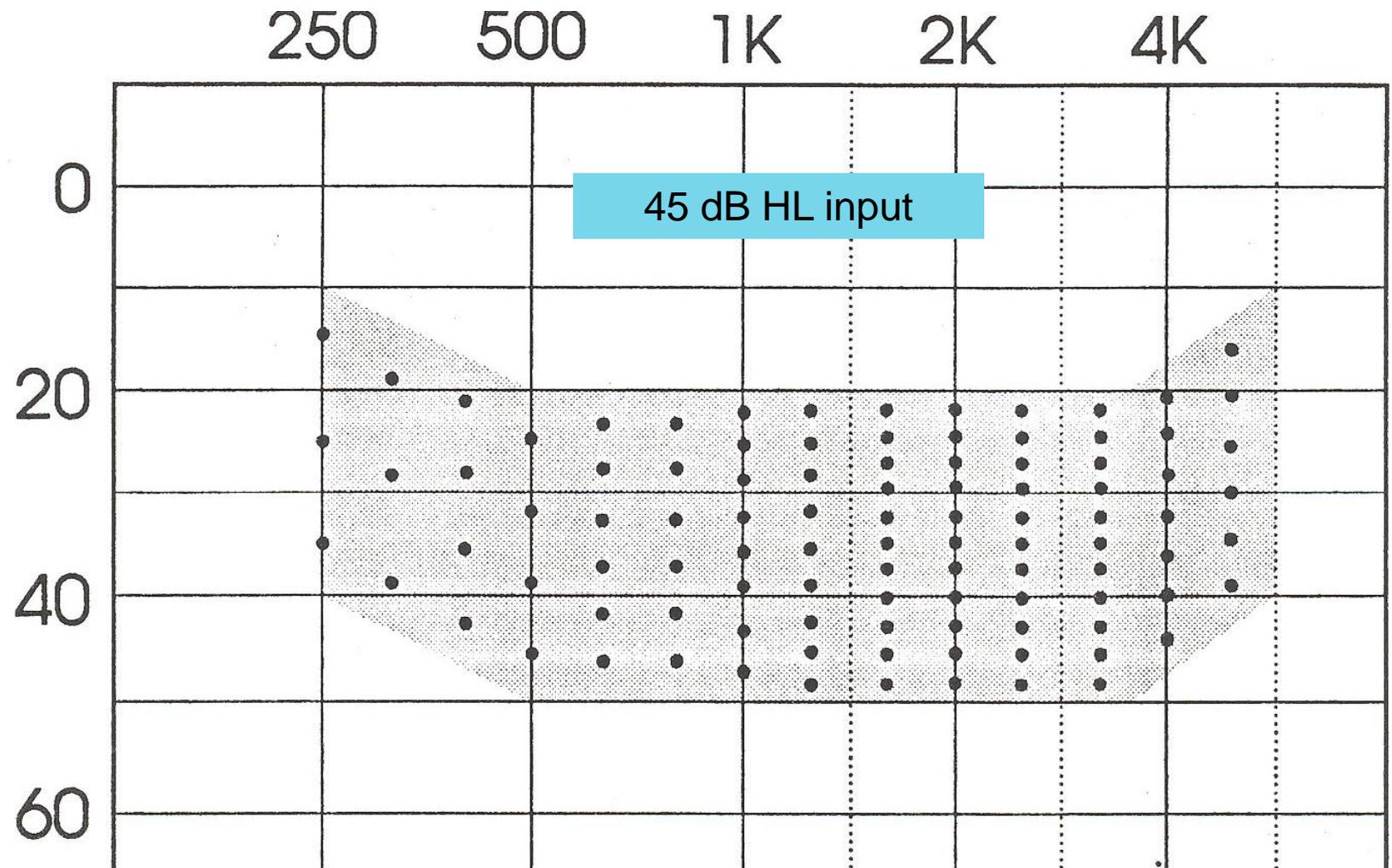
Audiogram with Intensity and Frequency of Speech Sounds



Energy range of speech in hearing level measures
(Extrapolated from Skinner, 1978).

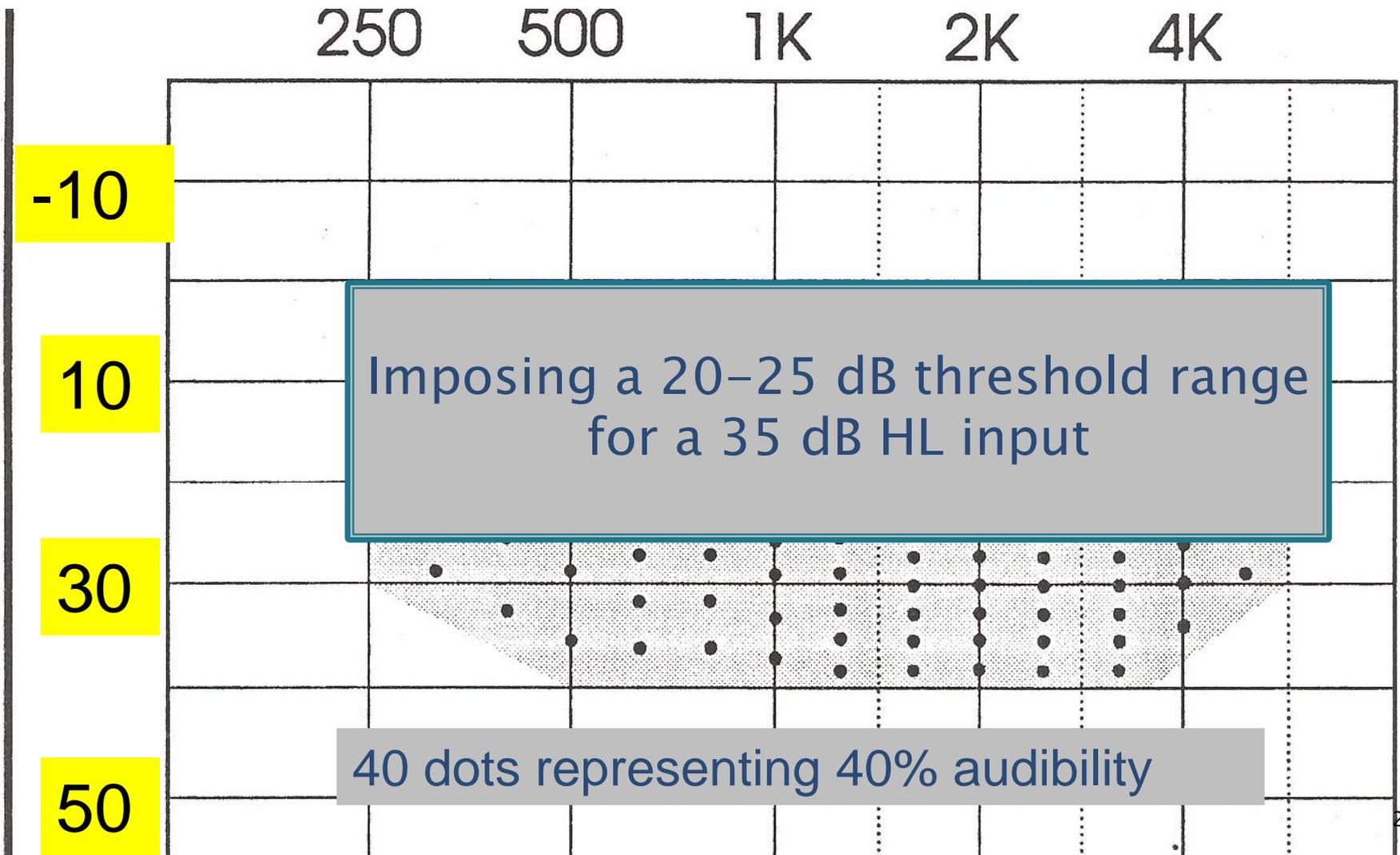
The Count the Dot Audiogram

presents a representation of audible speech energy for a 45 dB HL input (audibility)



The Count the Dot Audiogram

adaptation to represent speech energy for a 35 dB HL input



Loudness in dB HL	250				500				1000				2000				4000				8000 Hz			
	Soft speech (35 dB HL)								Teacher voice (50 dB HL)															
0	95% audibility								98% audibility															
10	75% audibility								98% audibility															
15	60% audibility																							
20	40% audibility																							
25	25% audibility								98% audibility															
30	15% audibility								81% audibility															
35	10% audibility								60% audibility															
40									45% audibility															
45									30% audibility															

AUDIBILITY \neq SPEECH UNDERSTANDING

- ▶ An analogy for *Audibility* – Recognizing the subject of a picture puzzle depends on what pieces are missing and the complexity of the picture.

Opportunity

- ▶ An analogy for *Word Recognition* – Recognizing the content of a puzzle made out of written words depends on knowledge of vocabulary, syntax, the general topic and effort to figure out the missing pieces, especially when there is new vocabulary words and concepts.

Function

Audibility \neq word recognition

- ▶ Understanding with limited audibility depends upon:
 - Clarity of speech signal (hearing loss, noise)
 - Attention / Motivation / Ease of listening
 - Knowledge of topic
 - Language complexity to be able to guess from contextThese factors all vary between children every day.



- ▶ Adults with 50% audibility may identify 70% of single words and 95% of sentences (Miller & Heise, 1951)
- ▶ Audibility is compromised by noise and reverb.
- ▶ Visual cues can help understanding.
- ▶ This is why it is necessary to do a Functional Listening Evaluation
- ▶ **So how do typically hearing children perform in noise?**



Results in %	Age 3-5 M - F	Age 6-8 M - F	Age 9+ M - F
Quiet 50 dB	98-98	98-98	99-96
Quiet 35 dB	95-96	97-98	98-96
50 dB @ +5 S/N	93-94	94-95	97-93
50 dB @ 0 S/N	91-92	91-93	95-93
35 dB @ 0 S/N	90-92	91-90	91-90

- 1999 data from Bodkin, Madell, and Rosenfeld
- 126 typically hearing children ages 3-17 years
- Listening at 35 and 50 dB HL.
- Age appropriate open set single word lists (NU-C, PBK, W-22)
- Competing noise = 4-talker babble.

Children without HL performed at 90% or better = GOAL

Loudness in dB HL	250	500	1000	2000	4000	8000 Hz
	Soft speech (35 dB HL)			Teacher voice (50 dB HL)		
0	95% audibility			98% audibility		
10	75% audibility					
15	60% audibility					
20	40% audibility			98% audibility		
25	25% audibility			81% audibility		
30	15% audibility			60% audibility		
35	10% audibility			45% audibility		
40				30% audibility		
45						

Considering Audibility

+

Speech Recognition

+

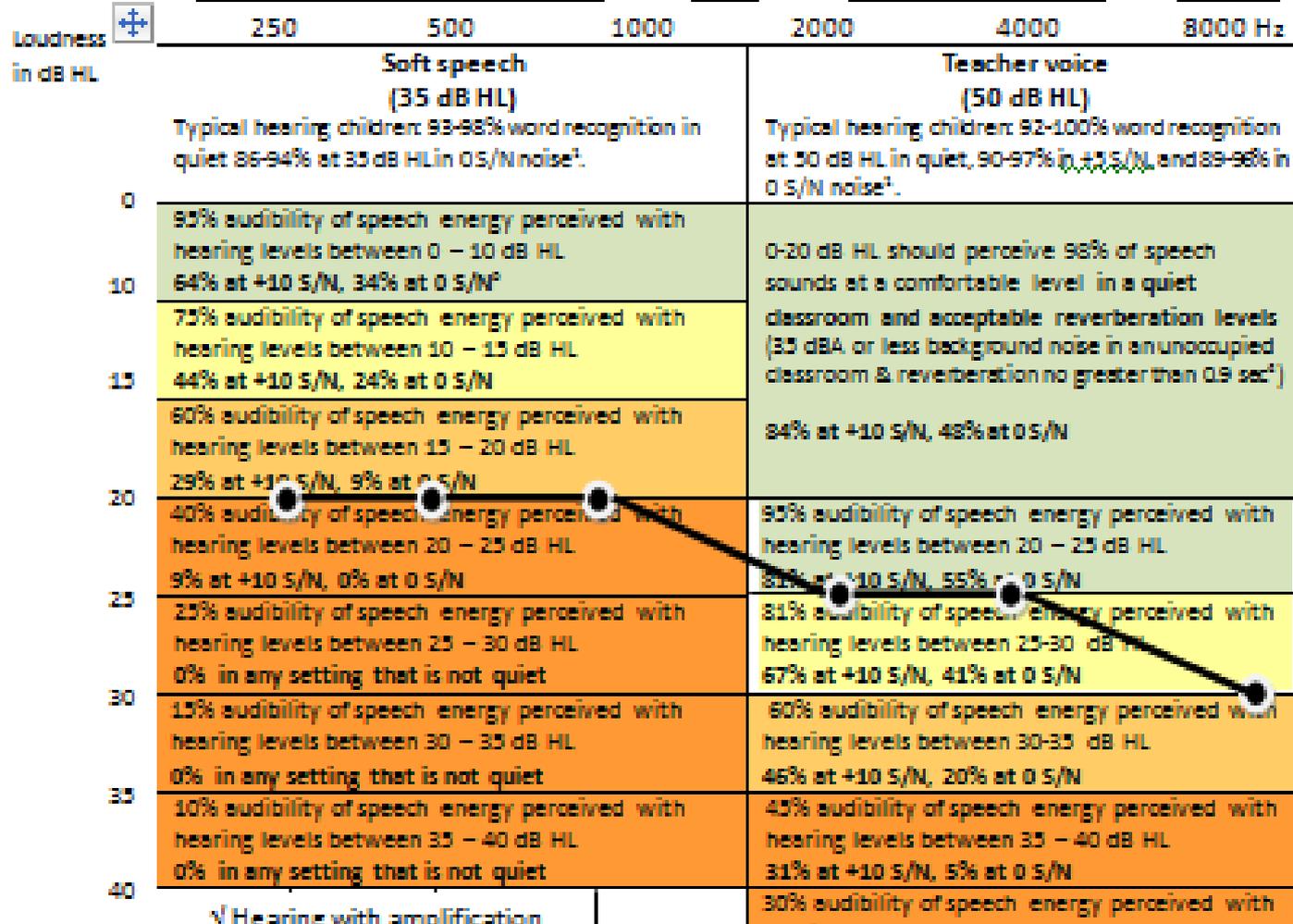
Speech Recognition in Noise at 35 and 50 dB HL inputs

	close/quiet	close/noise S/N	distant/quiet	distant/noise S/N
	50 dB	50 dB	35 dB	35 dB
Auditory only	95% or better?	90% or better?	95% or better?	90% or better?
Auditory and visual				

How do your students compare to typical listeners in noise? ²⁶

SPEECH AUDIBILITY AUDIOGRAM FOR CLASSROOM LISTENING

Student John Student Grade 4 School Somewhere Date 1/1/11



Results of Functional Listening Evaluation: Type of speech materials used:

SPEECH PERCEPTION	Close / Quiet	Close / Noise	Distant/Quiet	Distant/Noise
Auditory + Visual	100%	92%	88%	76%
Auditory Only	92%	80%	76%	60%

Loudness: dB
 Close = 3 Feet
 Distant = 10 Feet
 Quiet = +15 S/N*
 Noise = +5 S/N*
 *at child's ear level

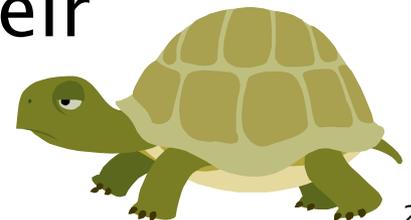
The 'cost' of challenged listening

- ▶ Remember – children with normal hearing do not have to look at a speaker to understand what was said, even if it is noisy or very noisy.
- ▶ A child with hearing loss with diminished audibility has to expend more energy to listen carefully to try to catch what is being said.
- ▶ This increased attention requires more energy.
- ▶ This leaves fewer cognitive resources for understanding what was said.
- ▶ The effort causes fatigue that further affects the energy available to listen.



Slower pace = increasing learning gaps

- ▶ Federal laws regarding grade-level content standards do **not** release students with disabilities from the need to demonstrate proficiency related to state and federal benchmarks (US Department of Education, 2004).
- ▶ To do so, students must be able to
 - access curriculum and instruction and
 - be able to demonstrate knowledge efficiently and precisely.
- ▶ This ability is dependent upon accurately receiving information from others as well as their capability to communicate their thoughts.



Assessing student ability to perceive and understand classroom communication

- ▶ Should be a focus of systematic classroom observation techniques (Kathy, Feb 16)
- ▶ *Brief review of other assessment options*
- ▶ Obtain information from the teacher
 - Teacher LIFE–R
 - Other checklists (i.e., SIFTERs)
- ▶ Obtain information from the student
 - Student LIFE–R
 - Before LIFE Questions – listening setting/awareness
 - Classroom Situations
 - After LIFE Questions – self–advocacy strategies



Obtaining Input from the Teacher

Teacher Appraisal of Listening Activity –
Teacher LIFE–R

TEACHER
L.I.F.E.

- ▶ Can be used as a stand-alone checklist or as an amplification pretest/post-test
- ▶ Focus is the areas of attention and class participation.
- ▶ Teacher rates the level of challenge that she observes when the student encounters 15 different situations.





Listening Inventory For Education-Revised (L.I.F.E.-R.)

Teacher Appraisal of Listening Difficulty

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade _____ School _____

Teacher _____ hearing Aid CI User Date LIFE Completed _____

Type of Classroom Hearing Technology _____

L.I.F.E Classroom Listening Situations	Not challenge or very rare	Occasionally challenged	Some times challenged	Often/regularly challenged	Almost always challenged
Instructions: Based on your observations, please mark the response that best describes the student's level of challenge when listening and learning in each of the situations described below. If you have no idea how to answer an item, leave the item blank. Thank you for your assistance.					
1. Student's ability to focus on/follow large group verbal instruction (i.e., teacher front of room):	5	4	3	2	1
2. Student's ability to focus on/follow verbal instruction when you are moving about the room:	5	4	3	2	1
3. Student's ability to focus on/understand verbal responses by other students seated across the classroom from him/her: Check one: <input type="checkbox"/> With FM mic used by student <input type="checkbox"/> Without FM mic	5	4	3	2	1
4. Ability to attend when listening to directions presented to the whole class (focus):	5	4	3	2	1
5. Ease of following directions provided to large group (hesitation before beginning work):	5	4	3	2	1

Teacher LIFE–R Checklist: Self–Advocacy and Instructional Access

- ▶ Only 8 questions; results in percent of total possible
- ▶ Provides a box to write the student's IEP goals related to self–advocacy
- ▶ Response options: *Most opportunities, Often, Sometimes, Rarely, NA/Not observed*
- ▶ Teacher comment area RE: student advocating for self

Useful to raise teacher **awareness**, as a **baseline measure** and to **measure progress** in student use of self–advocacy activities

TEACHER
L.I.F.E.

Student's IEP goals related to self-advocacy:

**TEACHER
L.I.F.E.**

	Most opportunities	Often	Sometimes	Rarely	NA/Not observed
1. The student asks for repetition immediately during lecture or meets with you at a later time for clarification of directions, student discussion, lecture material, etc.	4	3	2	1	0
2. The student utilizes strategic seating (changes seats depending on the activity to ensure he has the best acoustic and visual access to information) during classroom instruction.	4	3	2	1	0
3. The student uses the "signal system" that you and s/he developed to let you know if s/he does not understand, needs noise reduction (close door/windows), or to remind you of another hearing accommodation (i.e., turn the FM on; repeat information).	4	3	2	1	0
4. The student takes responsibility for his/her personal hearing aid/CI (wears every day, changes batteries when needed, is directly involved in daily monitoring, etc.).	5	4	3	2	1
5. Ease of following directions provided to large group (hesitation before beginning work):	5	4	3	2	1
6. The student self-advocates for his/her listening needs in relation to media and announcements. This may include asking for closed captioning, asking for a script of the announcements, asking for a summary of information from an assembly or lecture.	5	4	3	2	1
7. During cooperative learning groups, the student positions himself for good auditory/visual access, asks his/her peers for repetition, asks group to sit in a circle, asks to move to a less noisy place in the classroom, etc.	5	4	3	2	1
8. When asked about the student's hearing loss needs and accommodations relative to an activity, the student is able to describe two or more communication or technology accommodations (i.e., ask: When there is noise, what will help you?).	5	4	3	2	1
Comments on this student's ability to advocate for his/her own listening and learning needs:	Total of 32 possible				
	Percent				

Obtaining the Student's View of Challenging Classroom Listening

- ▶ Listening Inventory For Education – REVISED!
- ▶ Self-report for students in Grade 3+
- ▶ Before LIFE questions
- ▶ LIFE questions about school listening situations
- ▶ After LIFE questions



**STUDENT
L.I.F.E.**

Before LIFE Questions:



- Centers' the student on thinking about listening in the classroom.
- Reflects student awareness of the listening environment.
- Provides a 'sketch' of teaching style
- Provides information on seating position in the classroom.
- Also asks student how s/he feels about hearing technology.
- Not all of the questions need to be asked - this is up to the professional to decide

Listening Inventory For Education - Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty: Before-LIFE Questions for Students



By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade ____ Date(s) completed _____

Teacher _____ School _____

Hearing Aid CI user Type of Classroom Hearing Technology _____

Trial period No Yes Length _____ Responses consider performance with without FM system in use

Before-LIFE Questions for Students:

Answer these questions PRIOR to administration of the L.I.F.E.-Revised materials.

Check all the answers that apply. If you have an answer that is not provided please add it under "other."

1. Mark the items that best describe your classroom listening location. My location:

- | | |
|---|---|
| <input type="radio"/> is in the first or second row of the classroom | <input type="radio"/> puts my bad ear toward the teacher when teaching |
| <input type="radio"/> is in the middle row of the classroom | <input type="radio"/> near a source of noise in the classroom |
| <input type="radio"/> is in the back row of the classroom | <input type="radio"/> is near a source of noise from outside the classroom |
| <input type="radio"/> puts my good ear toward the teacher when teaching | <input type="radio"/> is close to where the teacher stands to talk to the class |

Other _____

2. What sounds (noises) do you hear when you are in the classroom? (sounds may happen only some of the time)

- | | |
|--|--|
| <input type="radio"/> Fan noise inside classroom | <input type="radio"/> Noise from other students inside the classroom |
| <input type="radio"/> Noise from heating/cooling system inside the classroom | <input type="radio"/> Sounds from students outside your classroom but inside or outside of the school building |
| <input type="radio"/> Noise from a fish tank inside the classroom | <input type="radio"/> Sounds from the florescent lights |
| <input type="radio"/> Noise from computers inside the classroom | |

Other _____

3. When you are sitting in your usual location in the classroom, how well do you hear the teacher when teaching?

- | | |
|--|--|
| <input type="radio"/> Pretty well, the teacher is easy to hear | <input type="radio"/> Not well, I miss some stuff |
| <input type="radio"/> Well, I can hear almost everything | <input type="radio"/> Not well at all, I miss a lot of what the teacher says |

4. What is the best description of your teacher's location in the classroom when teaching?
- Teaches from the same place almost all the time
 - Walks around for a short time maybe once or twice a day
 - Teaches from different locations about half of the time
 - Teaches from different locations more than half of the time
5. How do you know when you did not hear or understand the teacher completely?
- I have a hard time getting started on my work because I do not understand what the teacher wants me to do.
 - I know I should ask the teacher to repeat what was said.
 - I look around to see what other students are doing.
 - I follow the teacher's instruction incorrectly.
 - Other _____
 - I watch the teacher's lips to understand what was said
 - I answer questions inappropriately or do not answer
 - I ask another student what the teacher said
 - I do not know when I did not hear or understand the teacher
-
6. How do you feel about listening with _____ in your class(es) (technology device(s))?
- I am excited to hear and understand better in the classroom
 - I am nervous
 - Other _____
 - I feel shy
 - Happy
 - I don't have any feelings about it

#5. How do you know when you did not hear or understand the teacher completely?

- An IMPORTANT question! How often do we ask this?
- The other Before LIFE questions set up the student to be more ready to answer this question.

Student Appraisal: LIFE Classroom Situations

- ▶ Ten revised situations.
- ▶ Now include media and a variety of listening challenges as well as easy listening situations.
- ▶ Sum just the items for verbal instruction and class discussion situations.
- ▶ Total out of a possible 100 points.
- ▶ Pretest/Post-test use for amplification trials

Choices:

*Always easy,
Mostly easy,
Sometimes difficult,
Mostly difficult,
Always difficult.*





Listening Inventory For Education-Revised (L.I.F.E.-R.) Student Appraisal of Listening Difficulty

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade _____ Date(s) completed _____

Teacher _____ School _____

Hearing Aid CI user Type of Classroom Hearing Technology _____

Trial period No Yes Length _____ Responses consider performance with without FM system in use

Instructions: Circle the response that best describes your level of listening difficulty in each of the situations.

L.I.F.E Classroom Listening Situations						
Questions	Brief description	Always Easy	Mostly Easy	Sometimes Difficult	Mostly Difficult	Always Difficult
1. The teacher is talking in front of the class. The kids are quiet. Everyone is watching and listening to the teacher. How well can you hear and understand the words the teacher is saying?	1. Teacher talking in front of room	10	7	5	2	0
2. The teacher is talking, but has his back to you as s/he writes on the board or faces another student. You cannot see the teacher's face. How well can you hear and understand the words the teacher is saying when you can't see his face?	2. Teacher talking with back turned	10	7	5	2	0
3. The teacher is talking. She is also walking and moving around the room. How well can you hear and understand the words the teacher is saying if you can't see her face and she is across the room?	3. Teacher talking while moving	10	7	5	2	0
4. Sometimes teachers ask questions during a lesson. One kid in class who sits across the room from you is answering a question. How well can you hear and understand the words the student is saying? √Typical condition: <input type="checkbox"/> With FM mic used by student <input type="checkbox"/> Without FM mic	4. Student answering during discussion	10	7	5	2	0
5. The teacher is explaining how you are supposed to do an assignment. She gives directions only one or two times. How well can you hear the words and understand what the teacher wants you to do?	5. Understanding directions	10	7	5	2	0
6. The teacher is talking. Some kids are making noise at their seats. They may be trying to find papers, dropping pencils, whispering or moving their feet. How well can you hear and understand the words the teacher is saying as the kids make noise?	6. Other students making noise	10	7	5	2	0
7. The teacher is talking. You hear noise outside of the class. It could be kids in the hallway, the playground outside, voices next door, cars or airplanes. How well can you hear and understand words the teacher is saying?	7. Noise outside of the classroom	10	7	5	2	0
8. Everyone is looking at the computer, TV or video screen. The teacher is showing a video or you are listening to something shown on the computer screen. How well can you hear and understand the words said while you are watching the screen?	8. Multimedia (video, computer)	10	7	5	2	0
9. The teacher is talking to the class. The teacher is using a projector that is making noise OR air is blowing from the heater/cooler in your classroom. How well can you hear and understand the words the teacher is saying when there is a fan-type of noise at the same time?	9. Listening with fan noise on	10	7	5	2	0
10. One teacher is talking in front of the class. Another teacher is talking to a small group of students at the same time. How well can you hear and understand the words the teacher in the front is saying?	10. Simultaneous large and small group	10	7	5	2	0
Sum of Items 1-10 (100 Possible)		CLASSROOM SITUATION LISTENING SCORE			Pretest _____	Post-test _____
					Date: _____	Date: _____

1. Teacher talking in front of room
2. Teacher talking with back turned
3. Teacher talking while moving
4. Student answer during discussion (FM mic?)
5. Understanding directions (given 1-2)
6. Other students making noise
7. Noise outside of room
8. Multimedia
9. Listening in fan noise
10. Simultaneous large and small group

11. The kids are all working in small groups. Each group is talking and moving papers. How well can you hear and understand the words the students in your group are saying?	11. Cooperative small group learning
12. Your class stops to listen to school announcements. Sometimes kids are making noise during the announcements. How well can you hear and understand all of the announcements when there is some noise?	12. Announcements
13. There is a school meeting or assembly. Many classes of kids are sitting together. The kids are listening to a teacher. The teacher is talking without a microphone. How well can you hear the words the teacher is saying?	13. Listening in a large room.
14. You are outside with other kids you know. Maybe it is an outside gym class or you are together on the playground, bus stop or field trip. Someone is talking while some kids are making noise. How well can you hear and understand when people are talking outside?	14. Listening to others when outside
15. You are in school, hanging out with some kids you know. It may be lunch time, putting away coats, or walking to the classroom. It is noisy. How clearly can you hear and understand what the other kids say?	15. Listening to students during informal social times
Sum of Items 11-15 (50 Possible)	ADDITIONAL SITUATIONS LISTENING SCORE Pretest _____ Date _____

LIFE Additional/Social Listening Situations

1. Cooperative and small group learning
2. Announcements
3. Listening in a large room
4. Listening to others when outside
5. Listening to students during informal social times



Think of the advantage to identifying teacher/classroom accommodations based on the responses below?

Of the 15 Listening Inventory For Education questions, the following situations were rated as Always Difficult (★ ★ ★), Mostly Difficult (★ ★), or Sometimes Difficult (★):

★	_____ 's most challenging listening situations
	1. Teacher talking in front of room
★ ★	2. Teacher talking with back turned
★ ★	3. Teacher talking while moving
★ ★ ★	4. Student answering during discussion
★ ★	5. Hearing and understanding directions
★ ★ ★	6. Other students making noise
★	7. Noise outside of the classroom
★ ★	8. Multimedia (video, computer)
★	9. Listening with fan noise on
★ ★	10. Simultaneous large and small group
★ ★ ★	11. Cooperative small group learning
★ ★ ★	12. Announcements
★ ★	13. Listening in a large room (assembly).
★ ★ ★	14. Listening to others when outside
★ ★	15. Listening to students during informal social times
The more ★ 's the more difficult. No ★ = no problem.	

For:

Date:

From

After LIFE Questions – a measure of self awareness and self-advocacy



Baseline measure and to monitor progress toward skills



Listening Inventory For Education - Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty: After-LIFE Questions for Students

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade ____ Date(s) completed _____

Answer these questions FOLLOWING the administration of the L.I.F.E.-Revised materials. Choose all of the answers that sound most like you. If you have an answer that is not provided please add it under “other”.

1. What do you do to let your teacher know that you didn't hear or understand what s/he said?
 - a) Use a facial expression to let her know that I have missed some information (like looking puzzled).
 - b) Use some kind of signal that my teacher and I have agreed on (like putting my finger on my chin).
 - c) Do nothing and hope that I will figure it out later on.
 - d) Raise my hand and ask for more information (like “Page 300 and what?”; “Do we do the odd AND the even problems?”).
 - e) Look around to see what the other students are doing (hoping the teacher will notice me looking around).
 - f) Raise your hand and ask your teacher to repeat what she said.
 - g) Ask the teacher after class.
- Other _____

Other After LIFE Questions

2. What do you do if it is too noisy in your classroom, making it hard for you to understand what your teacher says?
3. What do you do when a student's voice is too quiet for you to understand during a class discussion?
4. What do you do when you can't hear or understand what your friends are saying when you're hanging out?
5. What are the things you do when you are trying to communicate and it's noisy?
6. What would you do if your listening technology is not working?



What about students transitioning to a new school?



Gathering information to support school transitions – Starting School LIFE

- ▶ The purpose of this tool is to estimate the listening difficulty a child may have in school (age 3–12).
- ▶ It may also provide valuable information for Special Education Eligibility determination, service planning or 504 Plan considerations for students entering Preschool through Grade 6.

FAMILY +
SCHOOL
L.I.F.E.

Gathering Family Observations

- ▶ Family observations of the child's listening behavior at home provide valuable insights into difficulties he or she may experience in similar school listening situations.
- ▶ It is requested that the family complete the Children's Home Inventory of Listening Difficulties (C.H.I.L.D.) so the Listening Situation Breakdown can be considered by the School Team.
- ▶ The Understand-O-Meter is provided for score interpretation.





Children's Home Inventory for Listening Difficulties Family Member

Questions for Family Member to Answer

Try the following situations with your child or recall how your child has responded in similar situations. Everyone has some difficulty hearing clearly and understanding in some situations. The level on the Understand-O-Meter you think describes your child's abilities most closely is the number in the box next to each question. This can be very difficult but try to estimate your child's abilities as best as you can.

Child's Name _____ Age _____ Date Completed _____

Family Member Completing CHILD: _____

Listening Situations

- Sit next to your child and look at a book together or talk about something in front of you using familiar words and a normal conversational manner. Talk in a quiet place and sit so your child is not looking at your face as you talk together. How difficult does it seem for your child to hear and understand what you say?
- Gather your family together for a meal at home or in a fairly quiet restaurant. Sit across the table from your child and ask some questions about a familiar topic or event. How difficult does it seem for your child to hear and understand what you say?
- When your child is in his or her bedroom playing quietly, walk into the room and tell or ask the child something. Do not say the child's name or try to get his or her attention first. How difficult does it seem for your child to hear and understand what you say?
- Watch a live-action TV show or movie with your child. Ask questions about what was said or events in the show that were understood by listening to the dialogue. (Show is seen for first time and is not captioned.) How difficult does it seem for your child to hear and understand what people on the TV or movie say?
- Observe your child playing inside with a friend, brother or sister. Watch for the other child to ask him or her to do something. How difficult does it seem for your child to hear and understand other children when they talk?
- When your child is watching TV or playing with a noisy toy, walk into the room and talk to him or her without first getting the child's attention. How difficult does it seem for your child to hear and understand you when there is noise from the TV or toy?
- Call your child's name from another room when he or she is not able to see you. How difficult does it seem for him or her to realize that you are calling?

Understand-O-Meter

- 8 GREAT
Hear every word, understand everything
- 7 GOOD
Hear it all, miss part of an occasional word, still understand everything
- 6 PRETTY GOOD
Hear almost all of the words and usually understand everything
- 5 OKAY BUT NOT EASY
Hear almost all the words, sometimes misunderstand what was said
- 4 IT TAKES WORK BUT USUALLY CAN GET IT
Hear most of the words, understand more than half of what was said
- 3 SOMETIMES GET IT, SOMETIMES DON'T
Hear words but understand less than half of what was said
- 2 TOUGH GOING
Sometimes don't know right away that someone is talking, miss most of message
- 1 HUH?
Don't know that someone is talking, miss all of message

Children's Home Inventory for Listening Difficulties (C.H.I.L.D.) Family Member



Family Member Responses to the C.H.I.L.D.

- Use a clock radio or alarm when it is time for your child to get up. How difficult does it seem to be for him or her to hear an alarm clock or clock radio go off? If not clock is used, how difficult is it for him or her to hear your voice and wake up without having to be touched or shaken?
- Observe your child playing with a group of children inside a house. It's noisy (birthday party, cub scouts, etc.). How difficult does it seem to be for your child to understand what the children are saying as they play as a group?
- A grandparent, family member or friend wants to talk to your child on the phone. How difficult does it seem to be for him or her to hear and understand what is said over the phone?
- Observe your child playing outside with other children. How difficult is it for him or her to hear and understand what other children are saying when the children are outside and are not standing close to your child?
- Go to a crowded store or mall with your child. When you are standing behind the child and he or she is looking at something, ask a question. How difficult does it seem to be for your child to hear and understand what you say?
- Go into a large room with your child and speak to him or her from across the room. How well does he or she seem to hear and understand what you say?
- Travel in the car with your child in the backseat. From the front seat say something to your child or ask a question. How easy does it seem for him or her to hear and understand what is said in the car?
- Sit in a quiet place, face your child and have a conversation or ask questions. How difficult does it seem for him or her to hear and understand what you say?

Listening Situation Breakdown

Type of Situation	Add together the responses to the following question numbers:	Total	Average
Quiet	1 + 2 + 3 + 15 = ____ + ____ + ____ + ____		
Noise	6 + 9 + 12 + 14 = ____ + ____ + ____ + ____		
Distance	7 + 11 + 13 = ____ + ____ + ____		
Social	5 + 9 + 11 = ____ + ____ + ____		
Media	4 = ____		

Comments:

Understand-O-Meter

- 8 GREAT
Hear every word, understand everything
- 7 GOOD
Hear it all, miss part of an occasional word, still understand everything
- 6 PRETTY GOOD
Hear almost all of the words and usually understand everything
- 5 OKAY BUT NOT EASY
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- 4 IT TAKES WORK BUT USUALLY CAN GET IT
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Hear words but understand less than half of what was said
- 2 TOUGH GOING
Sometimes don't know right away that someone is talking, miss most of message
- 1 HUH?
Don't know that someone is talking, miss all of message

Total of responses	
Average of responses (Total divide by 15)	49

Starting School LIFE

- ▶ Transition from Part C or new ‘move ins’ to Gr 6
- ▶ Uses family observations from the CHILD.
- ▶ Sums scores by type of situation.
- ▶ Asks about communication style and independence.
- ▶ Has an Interpretation guide for results.
- ▶ Values family input
- ▶ No ‘cookie-cutter’ approach to technology needs.
- ▶ Simplifies practical results of language evaluation.
- ▶ Helps with planning for services and program.





Starting School L.I.F.E.

Listening Inventory For Education-Revised (L.I.F.E.-R.)

Appraisal of Listening Access Needs for Children Entering School

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Child _____ School District _____ Entering Grade _____

Child's School Team _____ Including Family _____

The purpose of this tool is to estimate the listening difficulty a child may have in the school environment (age 3-12). Access is at the center of most of the struggles of the student with hearing loss, and is so important that the Individuals with Disabilities Act statute (20 USC 1400(c)(5)(H)) specifies "supporting the development and use of technology, including assistive technology devices and assistive technology services, to maximize accessibility for children with disabilities." The information identified may assist in complying with the intent of this law and also provide valuable information for Special Education Eligibility determination, service planning or 504 Plan considerations for students entering Preschool–Grade 6.

Family Observations: A student with hearing loss needs to be able to understand the teacher, express his own thoughts, obtain clarification when he does not understand, and interact with classmates as a prerequisite to learning. Family observations of the child's listening behavior at home provide valuable insights into difficulties he or she may experience in similar school listening situations. It is requested that the family complete the Children's Home Inventory of Listening Difficulties (C.H.I.L.D.) so the Listening Situation Breakdown can be considered by the School Team. The Understand-O-Meter is provided for score interpretation.

Listening Situation Breakdown

Type of Situation	Add together the responses to the following question numbers:	Total	Average
Quiet	1 + 2 + 3 + 15 = _____ + _____ + _____ + _____		
Noise	6 + 9 + 12 + 14 = _____ + _____ + _____ + _____		
Distance	7 + 11 + 13 = _____ + _____ + _____		
Social	5 + 9 + 11 = _____ + _____ + _____		
Media	4 = _____		

C.H.I.L.D. Understand-O-Meter

- 8 GREAT**
Hear every word, understand everything
- 7 GOOD**
Hear it all, miss part of an occasional word, still understand everything
- 6 PRETTY GOOD**
Hear almost all of the words and usually understand everything
- 5 OKAY BUT NOT EASY**
Hear almost all the words, sometimes misunderstand what was said
- 4 IT TAKES WORK BUT USUALLY CAN GET IT**

Being a Communication Partner

Ranking Guide for Being a Communication Partner and Independence questions:

A = Always, V= Very often, M= Much of the time, S= Seldom, N= Never

A V M S N

Being a Communication Partner - My child:

- | | | | | | |
|--|---|---|---|---|---|
| 1. Talks a lot, sometimes taking over conversations or changing topics | 1 | 2 | 3 | 4 | 5 |
| 2. Pretends that he/she heard when really does not know/understand | 1 | 2 | 3 | 4 | 5 |
| 3. Waits for others to notice that he/she didn't understand | 1 | 2 | 3 | 4 | 5 |
| 4. Lets others know when a listening/understanding problem occurs | 5 | 4 | 3 | 2 | 1 |
| 5. Takes turns in conversation and adds information appropriately | 5 | 4 | 3 | 2 | 1 |
| 6. Is fatigued at the end of a day of social/listening activities | 1 | 2 | 3 | 4 | 5 |

**FAMILY +
SCHOOL
L.I.F.E.**

INTERPRETATION GUIDE
Being a Communication Partner:
24-30 most like students
without hearing loss

Parents' View of Independence

Independence - My child:

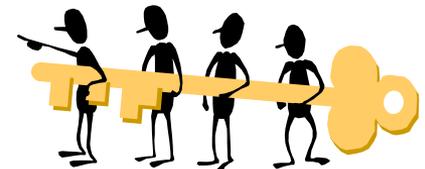
Total _____

- | | | | | | |
|--|---|---|---|---|---|
| 1. Puts on his/her hearing aids or cochlear implant without help | 5 | 4 | 3 | 2 | 1 |
| 2. Lets an adult know as soon as he/she has hearing changes/problems | 5 | 4 | 3 | 2 | 1 |
| 3. Replaces batteries and performs other checks on technology | 5 | 4 | 3 | 2 | 1 |
| 4. Asks for repeat or clarification if he/she didn't hear/understand | 5 | 4 | 3 | 2 | 1 |
| 5. Moves away from noise if he wants to hear/understand better | 5 | 4 | 3 | 2 | 1 |
| 6. Moves closer to the person talking to hear/understand better | 5 | 4 | 3 | 2 | 1 |

Total _____

**SCHOOL
L.I.F.E.**

Independence:
24-30 is the goal for self-advocacy & independence skills



How do you think the family's consideration of these factors will help to prepare them for discussing the child's need for supports?

- ▶ Functional Listening Evaluation results
- ▶ Summary of communication assessment in terms of comparison to age peers,
- ▶ Team impressions of student's mode of communication in instruction and social settings.
- ▶ Team comments

**FAMILY +
SCHOOL
L.I.F.E.**

Functional Listening Evaluation (% correct) Date performed _____ Speech materials used _____

Hearing technology used: Hearing aid R L Cochlear implant R L Personal FM Desktop FM Classroom Amplification

Technology used/tried	Condition	Close: <input type="checkbox"/> 50 dB HL or <input type="checkbox"/> 3 ft from speaker <input type="checkbox"/> Quiet or <input type="checkbox"/> +10 S/N	Close: <input type="checkbox"/> 50 dB HL or <input type="checkbox"/> 3 ft from speaker Noise: <input type="checkbox"/> +5 or <input type="checkbox"/> +10 S/N	Distant: <input type="checkbox"/> 35 dB HL or <input type="checkbox"/> 10 ft from speaker <input type="checkbox"/> Quiet or <input type="checkbox"/> +10 S/N	Distant: <input type="checkbox"/> 35 dB HL or <input type="checkbox"/> 10 ft from speaker Noise: <input type="checkbox"/> +5 or <input type="checkbox"/> +10 S/N
	Auditory + Visual	%	%	%	%
	Auditory + Visual	%	%	%	%
	Auditory Only	%	%	%	%
	Auditory Only	%	%	%	%

Summary of evidence related to technology use:

In a quiet condition when watching the child perceives speech best with: _____

In a quiet condition without watching the child perceives speech best with: _____

In a noisy condition when watching the child perceives speech best with: _____

In a quiet condition without watching the child perceives speech best with: _____

Communication:

The goal of every child, especially those with hearing loss, is to make one year of language growth for every one year of school. IDEA requires consideration of direct communication needs in the child's preferred language mode. Education settings should be conducive of appropriate peer-to-peer communication and understanding of verbal instruction.

Summary of communication assessment:

When compared to age peers, this child's receptive language is: much lower lower average higher much higher

When compared to age peers, this child's expressive language is: much lower lower average higher much higher

Family and School Team impressions of communication mode:

In the presence of verbal instruction (listening to adult), this child's communication mode appears to be primarily:

In a quiet setting: auditory auditory + visual support equal auditory/visual visual + auditory support visual

In a noisy setting: auditory auditory + visual support equal auditory/visual visual + auditory support visual

In social interactions with peers (informal/play), this child's communication mode appears to be primarily:

In a quiet setting: auditory auditory + visual support equal auditory/visual visual + auditory support visual

In a noisy setting: auditory auditory + visual support equal auditory/visual visual + auditory support visual

TEAM COMMENTS

Educational program/setting: _____

Technology: _____

Accommodations: _____

Skill development: self-advocacy communication repair technology independence social communication other

How can you envision using this information for planning when children transition into a school?

Monitoring Functional Performance

Preschool S.I.F.T.E.R.
Screening Instrument For Targeting Educational Risk
In Preschool Children (age 3 through Kindergarten)

the child on the reverse side of this form.

1. How well does the child understand basic concepts when compared to classmates (e.g., colors, shapes)?	ABOVE 5	AVERAGE 4	BELOW 3	2	1	ACADEMICS	<input type="checkbox"/>
2. How often is the child able to follow two-part directions?	ABOVE 5	AVERAGE 4	BELOW 3	2	1		
3. How well does the child participate in group activities when compared to classmates (e.g., calendar, sharing)?	ABOVE 5	AVERAGE 4	BELOW 3	2	1		
4. How distractible is the child in comparison to his or her classmates during large group activities?	SELDOM 5	OCCASIONAL 4	FREQUENT 3	2	1	ATTENTION	<input type="checkbox"/>
5. What is the child's attention span in comparison to classmates?	LONGER 5	AVERAGE 4	SHORTER 3	2	1		
6. How well does the child pay attention during a small group activity or story time?	ABOVE 5	AVERAGE 4	BELOW 3	2	1		
7. How does the child's vocabulary and word usage skills compare to classmates?	ABOVE 5	AVERAGE 4	BELOW 3	2	1	COMMUNICATION	<input type="checkbox"/>
8. How proficient is the child at relating an event when compared to classmates?	ABOVE 5	AVERAGE 4	BELOW 3	2	1		
9. How does the child's overall speech intelligibility compare to classmates (i.e., production of speech sounds)?	ABOVE 5	AVERAGE 4	BELOW 3	2	1		
10. How often does the child answer questions appropriately (verbal, cued or signed)?	ALMOST ALWAYS 5	FREQUENTLY 4	SELDOM 3	2	1	CLASS PARTICIPATION	<input type="checkbox"/>
11. How often does the child share information during group discussions?	ALMOST ALWAYS 5	FREQUENTLY 4	SELDOM 3	2	1		
12. How often does the child participate with classmates in group activities or group play?	ALMOST ALWAYS 5	FREQUENTLY 4	SELDOM 3	2	1		
13. Does the child play in socially acceptable ways (e.g., turn taking, sharing)?	ALMOST ALWAYS 5	FREQUENTLY 4	SELDOM 3	2	1	SOCIAL BEHAVIOR	<input type="checkbox"/>
14. How proficient is the child at using verbal language (or sign language) to communicate effectively with classmates (e.g., asking to play with another child's toy)?	ABOVE 5	AVERAGE 4	BELOW 3	2	1		
15. How often does the child become frustrated, sometimes to the point of losing emotional control?	NEVER 5	SELDOM 4	FREQUENTLY 3	2	1		

How do you know accommodations are enough?

Periodic monitoring provides a systematic means to pick up gap openers!

Heightens awareness of educators.

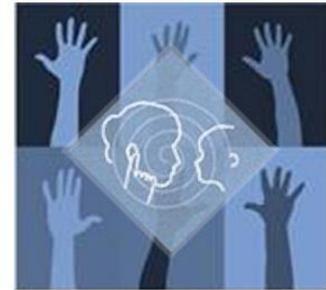
Compare classroom function over years.



In summary:

- ▶ We need to estimate a student's ability to access classroom communication
- ▶ We can start to consider auditory access/comprehension via:
 1. Speech Audibility Audiogram for Classroom Listening (including Functional Listening Evaluation)
 2. Teacher LIFE-R
 3. Student LIFE-R
 4. Starting School LIFE (with CHILD)
- ▶ Monitoring classroom performance can provide feedback on access over time

Resources available:



The screenshot shows the homepage of the website. The header includes the title 'Supporting Success for Children with Hearing Loss' and a navigation menu on the left with items like 'Resources For Parents', 'Resources For Professionals', 'Catalog Of Products To Support Success', 'Consultation', 'Webcast Presentations', 'About The Director', and 'Home'. A search bar is located below the menu. The main content area features a 'Home' section with the title 'Resources, Continuing Education and Consulting Services' and a mission statement: 'To improve the futures of children with hearing loss.' Below this is a link to 'Join our list to receive monthly updates of new resources.' Three columns of resources are displayed: 'RESOURCES' with links for 'Professional resources', 'Tests', and 'Parent resources'; 'CONTINUING EDUCATION' with links for 'New book', 'Presentations', and 'Webinars'; and 'CONSULTATION' with links for 'One-on-one (family/school)', 'Variety of experts', and 'Personalized'. A 'Karen's Kerner' section at the bottom contains a message of appreciation for user feedback.

Professionals:

- Tests
- Many topics
- Resources!
- Book:

Building Skills for Success in the Fast-Paced Classroom

<http://successforkidswithhearingloss.com>

Thank You!

Questions?

