

LIFE-R

The Listening Inventories for Education-Revised

(1) Background

It is well recognized that good classroom acoustics are important for the student to hear and understand the teacher (Crandell, Smaldino, Flexer, 2005; Smaldino and Flexer, 2012). While many methods have been developed to quantify the physical acoustics of a classroom, such as signal-to-noise ratio and reverberation, there are few behavioral tools to verify of the quality of the classroom listening environment from the standpoint of the individual student. In 1998, the Listening Inventories for Education (LIFE) was developed to address the need for behavioral verification tools. The design features of the LIFE were as follows:

(1) provide a student self-report measurement tool to identify classroom situations which present a listening challenge for an individual student, (2) provide a teacher report measurement tool to be used to document the effects of interventions to improve the listening environment of a particular student, (3) provide a valid and reliable measurement tool that can be used in a pretest and post-test format to document the effectiveness of intervention utilized to improve the classroom listening environment (4) provide material that can be used for in servicing school personnel regarding student challenges when listening in the classroom, and (5) aid the teacher and students with information to encourage self-advocacy skill building.

The LIFE inventories have been a widely used efficacy and educational tool for more than 10 years. During the 10 year period school classroom environments have evolved and present new challenges to teachers and students alike. For example, collaborative learning is more common place and children with known listening deficits are more frequently being mainstreamed in the regular classroom and for longer periods of time. Advocacy plays an important role in the student's success in the school environment. In addition, both students and teachers are becoming more "technology savvy" and can benefit from advances in computerized delivery and analysis of evaluations. For these reasons, an update of the LIFE was undertaken. The LIFE-Revised is an expanded interactive electronic version of the LIFE inventories.

The LIFE has always been available to users at no cost, compliments of the authors. The LIFE-Revised will continue to be a freely available and readily accessible to users thanks to the generous sponsorship of Cochlear Corporation, Lightspeed Technologies, Oticon and Phonak.

(2) Introduction to LIFE-R

Components of the Listening Inventory For Education – Revised

The expanded LIFE-Revised is comprised of two tools:

- a) Student LIFE-R: Student Appraisal of Listening Difficulty
- b) Teacher LIFE-R: Teacher Appraisal of Listening Difficulty

The student LIFE-R and the teacher LIFE-R are meant to be used in concert as the tools provide a means to evaluate the effectiveness of classroom interventions and provide a framework for self advocacy. Either of the tools can be used alone however, depending on the depth of information desired.

Student LIFE-R

• **Student Appraisal of Listening Difficulty - Before LIFE-R Questions for Students:** Comprised of six multiple choice questions in which the student describes his classroom listening setting. It is intended that this 'get-set' activity will prepare the student to accurately represent his listening challenges as s/he responds to the Student LIFE-R listening situations.

• **Student Appraisal of Listening Difficulty (Student LIFE-R):** The original 10 classroom and 5 additional social listening situations in school have been updated. The electronic version includes a separate page for each listening situation with a suitable photograph and the rating scale. A student proceeds through each question, viewing the photograph, reading, or being read the question, and selecting his/her level of difficulty hearing or understanding. The short and expanded versions of the questions to ask the student are integrated into the Summary of Listening Challenges.

• **Student Appraisal of Listening Difficulty - After LIFE Questions for Students:** After LIFE Questions provide a new avenue of assessment of student function. Six multiple choice questions ask the student to select multiple choice answers that describe how s/he responds when s/he doesn't hear or understand what was said. The purpose is to briefly assess various self-advocacy skills that the student identifies as something he uses. The responses can serve as a baseline measure that can justify skill development and shape IEP goal development.

Completion of the Student LIFE-R requires self-report by the student. Self-report measures are most reliable and appropriate for students that are approximately 8 years (3rd grade) or older. The multiple choice questions in the Before LIFE-R and After LIFE-R can be administered in a discussion format to younger students depending upon their linguistic development and relative maturity level.

Teacher LIFE-R

The original LIFE Teacher Appraisal could only be used as a post-test. The content of the Teacher LIFE questions has been changed to allow the Teacher LIFE-R to be used prior to, and following, a trial with a hearing assistance device (HAT). Questions relate primarily to student attention and class participation;

areas of classroom behavior that more sensitively reflect changes to acoustic conditions than specific learning or skills-based items. The responses to the 15 questions are averaged and scored on a continuum from 15 to 75 possible points with five related ability ranges: 1) No listening challenges or very rare (75), 2) Occasional listening challenges (60), 3) Sometimes experiences listening challenges (45), 4) Often or regularly has listening challenges (30), and 5) Almost always has listening challenges (15).

•**Teacher Checklist: Self-Advocacy and Instructional Access:** This new checklist provides an assessment tool to aid the student's team in writing IEP goals related to self-advocacy, thereby highlighting important skills that should be expected of the student in the classroom. The teacher completes eight questions that describe different self-advocacy activities. When these responses are considered together with the Student LIFE-R and After LIFE-R Questions, the professional with deaf/hard of hearing expertise can identify student self-advocacy needs, develop appropriate goals and track progress over time.

(3) LIFE-R Generated Reports

One advantage to an electronic format is that automatic scoring and report generation is possible. Student information is collected during the administration of the electronic version of the LIFE-R for the purpose of individualization of the following reports:

- a) **Summary of Listening Challenges Identified by Student** is a report that is generated from information taken from the Student LIFE-R and the Before LIFE-R questions. A chart listing the student's classroom listening challenges is comprised of all of the situations that the student identified as Sometimes Difficult (1 star), Mostly Difficult (2 stars), or Always Difficult (3 stars). A list follows that prioritizes the top five of these challenges.
- b) **Individualized Accommodations Due to Hearing Loss** is geared toward the classroom teacher. It imports the student's personal information (name, grade, date completed, school, teacher, personal hearing technology right/left, classroom hearing technology, trial period and length). Based on the hearing loss information specified, this report includes information derived from the appropriate Relationship of Hearing Loss to Listening and Learning Needs information (<http://successforkidswithhearingloss.com/impact-on-listening-and-learning>), specifying the possible impact that the hearing loss may have on the understanding of language and speech and the possible social impact. This information is a valuable brief introduction to the typical listening and learning needs children with varying degrees of hearing loss. Following this general information is student-specific information that has been generated from the LIFE-R Student Appraisal responses that have been cross-walked with appropriate classroom accommodation strategies. The resulting report is individualized to the student and provides concise and meaningful information for teachers on what accommodations are necessary as related to a student's listening challenges.
- c) **Recommendations for Self-Advocacy Skill Building** is a report that has been generated from student responses to the Before LIFE-R and the After LIFE-R questions. Student responses to the Before LIFE-R are listed in the Listening Setting Information Reported by the Student

section. This information serves as a snapshot of how aware the student is of his or her listening setting. Responses to the multiple choice selections made for each After LIFE-R question will comprise the remainder of this report. The positive self-advocacy strategies that the student identifies are specified and a short line is provided for the classroom teacher or DHH specialist to indicate if he has also observed this behavior. This information is NOT generated. The DHH specialist can use information from the Teacher Checklist: Self-Advocacy and Instructional Access or based on teacher interview to complete the short fill-in lines appropriately. The self-advocacy strategies indicated by the student that are not positive or are neutral in nature are used to generate the Recommendations for Self-Advocacy Skill Building. Each After LIFE-R question has been cross-walked with appropriate self-advocacy strategies. The resulting strategies based on student responses are listed with a short line for the DHH specialist to indicate the selected goals for the student.

(4) Construction of the LIFE-R Inventories

Student Appraisal of Listening Difficulty

The intent of the student three part inventory was to identify representative situations in a classroom and self-advocacy/social situations which could interfere with listening. It was designed to be used by the individual student with support from school personnel with expertise in deaf/hard of hearing issues. It is primarily intended for grade 3 through high school although Before LIFE-R and After LIFE-R questions can be addressed in a discussion format with younger students to obtain information regarding their perception and levels of awareness of classroom listening challenges and resulting responses to missing information.

- A) Before LIFE-R Questions for the student were developed after the Student Appraisal of Listening Difficulty. The development of the Before LIFE-R questions was a result of comments from educational audiologists who shared that a more accurate representation of student listening challenges were obtained when students were first asked questions about their listening environment. The roots of self-advocacy are based on awareness of the listening setting and potential challenges that cause communication breakdown. The Before LIFE-R questions provide the DHH specialist professional with insights into how the student views the classroom and the potential need to discuss on accommodations and teaching strategies with the classroom teacher to support improved communication.
- B) LIFE-R: Student Appraisal of Listening Difficulty was the first checklist to be revised. The revision process began with a posting on the Educational Audiology Association listserv requesting input into the need to change/add/revise questions on the original LIFE Student Appraisal. This input provided an excellent basis for updating the described situations to better reflect current classroom activities. Input was received on the hand-drawn pictures that had accompanied the

original Student LIFE, which were in a picture booklet that also included the Student LIFE questions. Comments indicated that a proportion of individuals using the Student LIFE did not use the picture book and instead, developed their own questions regarding the general situation that was specified in a brief phrase on the LIFE Student Appraisal form. It was clear that a better visual representation of each question was necessary and that the questions needed to be more easily accessible to administrators of the LIFE-R.

The resulting electronic Student LIFE-R is a pre/post inventory that contains a total of 15 questions with accompanying photographs to give the student a visual of the classroom listening situation or social listening situation at school. The first ten questions with accompanying photographs give a brief description of the classroom listening situation as well as an expanded description of the situation. Questions eleven through fifteen with accompanying photographs also give a brief description and expanded description for additional social listening situations in school. The questions are rated from 0-10 (always difficult-always easy). A composite pre/post score is compiled to demonstrate a student's level of school listening challenges, including the efficacy of hearing assistance technology (HAT) and/or interventions tried.

The electronic version of the Student LIFE-R offers accompanying photographs with each situation allowing it to be used with children who have normal speech and language development and with students who are deficient in reading and writing skills. The response format is designed to be flexible. Verbal responses can be obtained with children who have normal expressive language skills and picture pointing can be used with those students who have deficient expressive skills. The student can rate the situations using a consistent five point scale. Based on the ratings given by the student the results are compiled electronically and an individualized report of suggested classroom accommodations and self-advocacy strategies are generated.

- C) After LIFE-R Questions for Students was the last component of the LIFE-R Student Appraisal to be developed. The authors pooled their knowledge and experience to develop representative questions and both positive and negative or neutral strategies that a student could use when s/he encountered challenges. The intent of this downloadable inventory is to present six scenarios with multiple choice solutions as well as an open ended option asking the student to respond to how he feels or acts when he doesn't hear or understand what was said. The student responses can be used by the professional as a teaching tool for self-advocacy. The responses have been cross-walked to create an individualized report that summarizes positive strategies and recommends skill building self-advocacy strategies.

Teacher Appraisal of Listening Difficulty

The Teacher LIFE was widely used for more than a decade. During that time, many comments were received regarding the need for the Teacher LIFE to be able to be used as both a pretest and post-test, rather than for use only as a post-test. When it was time to revise the Teacher LIFE the ideal was to develop a checklist that a teacher could use that would be sensitive to relatively minimal behavior

changes that could occur during the course of a 3 week or longer trial period with hearing assistance technology (HAT). There were multiple reports that some professionals were attempting to use the Screening Instrument For Targeting Educational Risk (SIFTER) as a pre- and post-test measure. The content areas of the SIFTER are: Academics, Attention, Communication, Class Participation and School Behavior. Due to the nature of academic achievement and communication, relatively minimal are changes seen in these skills over a period of just a few weeks. Based on long experience with reviewing many completed SIFTER forms over time, it was concluded that the areas of student attention and class participation were sensitive to changes in accommodations and technology used in classrooms. Therefore, the items that comprise the 15 LIFE-R Teacher Appraisal questions primarily relate to how the student attends to, and participates in classroom activities.

The Teacher Checklist: Self-Advocacy and Instructional Access was developed following the completion of the Student After LIFE-R questions. The authors recognized the importance of obtaining teacher feedback on the student's use of self-advocacy activities as a means to validate what the student was reporting on the After LIFE-R questions and also for the students who are too young to complete the Student LIFE-R. The eight questions were derived from information contained in the Student After LIFE-R regarding self-advocacy strategies in the classroom. Ideally, by completing these questions, the teacher's awareness of self-advocacy activities would be heightened and expectations for student responsibility would be increased. To further support increased awareness, a section was provided on this form for the DHH professional to specify the student's IEP goals/objectives as related to self-advocacy. The teacher is asked to use a scale from zero-4 (n/a or not observed to most opportunities). The inventory gives a percentage score and information which can be incorporated into a student's educational plan.

5) How to Use the LIFE-R Inventories

The LIFE-R Inventories are versatile and can be used in a variety of ways. While primarily considered as a means to quantify the benefits of personal amplification and hearing assistance technology utilized by a student, the inventories can also be used in support of efficacy, understanding of listening demands and needs in the classroom, goals for specialized instruction, accommodations, and to share student-specific information during teacher inservicing.

A) Efficacy: Quantifying the Benefits of Classroom Audio Distribution Systems or Hearing Assistive Technology (HAT)

Report inventories are typically administered before an intervention and then again after the intervention using a pre/post-test experimental design. The changes observed between the two administrations are attributed to the intervention and used as an index of effectiveness. The following example of how the LIFE-R can be used as an efficacy tool follows:

- i.) The school setting has a classroom audio distribution system installed on a trial basis to provide the student with auditory needs with improved access to verbal instructions. The trial is for one month. Pre/post-test results of the LIFE-R Student Appraisal of Listening Difficulty measurements and the Pre/Posttest results of the LIFE-R Teacher Appraisal of Listening Difficulty are used to quantify the auditory access benefit of the classroom audio distribution system as experienced by the individual student.
- ii.) A student has been attending a classroom equipped with a classroom audio distribution system. Based on classroom performance and report from the Student Before LIFE-R, the classroom audio distribution system does not provide adequate amplification for the student's listening needs. As a result, the student undergoes a one month trial period with a personal FM system. Results from the pre/post LIFE-R Student and Teacher Appraisal, if beneficial, verifies the need for continued use of the personal FM system.
- iii.) A student has been utilizing one type of personal FM system (neckloop system) and another type of personal FM system is being considered (integrated personal FM system). Results of the pre/post LIFE-R for both the Student and Teacher could be used to compare if any perceptual differences between the two types of systems is evident.
- iv.) A student who has worn the same hearing aids for a number of years has been newly fit with the most recent, advanced hearing aid technology. During the hearing aid trial period, the LIFE-R Student and Teacher Appraisal are completed for both types of aids to quantify perceptual differences between the aids and continued listening challenges.
- v.) A student has attended a classroom with a classroom audio distribution system for a number of years. As entrance to the middle school approaches, the school team needs to decide if a classroom audio distribution system is necessary. Responses to the Before LIFE-R Student questionnaire assess the student's perception of the current classroom and his self-advocacy skills. The LIFE-R Student and Teacher Appraisals are completed with and without classroom audio distribution system in order to document degree of benefit to the student's auditory access and from these results make recommendations of continuing/discontinuing to utilize classroom audio distribution systems. The After LIFE-R inventory can be used to give the team further insight on how well the student is prepared to advocate for his listening needs at the middle school.

B) Improving the Understanding of Listening Demands and Needs in the Classroom

A richer understanding of barriers to auditory access is important for teachers and students to maximize the benefit when attempts are made to reduce acoustic barriers to listening and learning in the classroom. Once the barriers are identified and understood, the teacher and student are in a better position to take ownership of the barriers in a particular classroom and more effectively use technology, interventions and self-advocacy strategies to reduce the effects of the barriers on listening and learning. The LIFE-R was specifically designed to be useful in educating teachers and students about barriers to listening in the classroom and provides individualized suggestions that can be implemented by teachers and students to take responsibility for an adequate listening environment.

C) Goals for Specialized Instruction

- i. **Individualized Education Plan Development:** When administered a few weeks into the school year, the results of the LIFE-R Student and Teacher inventories and the generated reports can be used to incorporate listening accommodations and self-advocacy goals into the student's IEP.
- ii. **Habilitation:** The three parts of the Student LIFE-R can be administered at various starting points at the beginning of the year. For example the Before LIFE-R can be administered one or two weeks into the school year, Student LIFE-R after one month following a teacher inservice, and the After LIFE-R at the end of the first grading period. The generated accommodations and self-advocacy reports can be used as a guide to help the student improve his ability to advocate and recognize difficulty listening situations and solutions. This could be accomplished in small group settings, one-on-one role play situations, or in discussion with support groups for students with hearing loss.
- iii. **Self-Advocacy:** The responses from the Student LIFE-R and the After LIFE-R have been cross-walked to create an accommodations report and self advocacy skill building strategies that have been individualized to the specific student. These recommendations prioritize specific activities to help students to become better advocates in the classroom.
- iv. **Awareness:** A general inservice for the classroom teacher early in the school year is appropriate when a student with hearing loss or auditory difficulties will be attending a new classroom. Typically teachers understand and remember implications of hearing loss better once they have gotten to know the student. It is useful to meet with the teacher early and outline the student's listening needs, identify potential listening difficulties and review classroom management strategies that have generally shown to be effective. A few weeks into the school year, the Before LIFE-R can be completed with the student to gain an overall student perception of the current classroom. The information gained from the student is useful to give the teacher as a basis to suggest changes that may be needed to the acoustical environment and accommodations used in the classroom. The Student and Teacher LIFE-R pre/post-test as well as the After LIFE-R can be used as the next step to identify the efficacy of the HAT, advocacy skills, and classroom interventions. The LIFE-R generated reports will give more specific accommodations and advocacy needs to help with student success at school.

D) Accommodations:

- i. Students with a hearing loss have difficulty accessing verbal instruction and peer communication in the classroom thereby necessitating accommodations. The LIFE-R Student and Teacher Appraisals can help identify specific classroom listening and advocacy areas which may need to be addressed using specific accommodations. The Student LIFE-R results are used to generate individualized reports based on the student's degree of hearing loss and the rating of the appraisal. A review of the LIFE-R inventory results can be

discussed in depth with the teacher/educational team to ensure a better understanding of the student's hearing and specific accommodation needs.

E) Inservice

- i. An understanding of the acoustic barriers to listening and learning in a classroom by the teacher and/or parents should not be assumed. Student and Teacher LIFE-R inventory results for a specific student can be used to identify potential listening problems and substantiate difficulties experienced by individuals. The results provide a framework for an in depth discussion of classroom acoustics and the importance of specific accommodations to improve the listening environment. In addition the LIFE-R provides a baseline of how the student advocates for listening needs and the teacher's perception of the student's advocacy skills. By providing examples of reality-based situations, it is believed that the teacher and parent cooperation in providing the necessary accommodations and advocacy tools will be more effectively accomplished.

6) How to Administer the LIFE-R Inventories

LIFE-R Student Appraisal:

This three part inventory was designed to be given by audiologists, speech-language pathologists, teachers of the deaf/hard of hearing, or other professionals who are comfortable interacting with students. While testing experience is not required, a familiarity with the LIFE-R materials and scoring and experience with children who have hearing loss is desirable.

The inventories should be given in a quiet room with the examiner and the student present. Adequate illumination of the photographs and/or computer screen is necessary. There should be no glare off the computer screen and the student should be able to speech read throughout the testing. Comfortable seating and a table are desirable. The examiner and the child should be seated to allow the child the best acoustic and visual access to speech and the photographs.

The photographs are designed to depict difficult listening situations found in the classroom setting. The first ten questions and photographs describe various classroom listening situations. The last five photographs and questions describe additional listening and social situations that may also occur in school, but not necessary in the classroom. It is expected that the student's actual listening situation may vary from what is portrayed in the picture. It is up to the examiner to relate the general situation depicted in the photograph to the child's own current school experiences. It is the students' task to report the level of difficulty they experience when in the listening situation described by each question.

Protocol for the LIFE-R Student Appraisal:

Before-Life-R: Depending on the student's age and ability to read and comprehend, there are two options for administration.

- 1) The examiner verbally reads each question and the possible choices to the student. The examiner marks all of the student's responses. If the student gives an answer not listed in the multiple choice options the examiner will use the "other" option to document Before LIFE-R information. The questions and choices can be read multiple times to ensure comprehension. Alternative language can be used as appropriate to student linguistic skills, attention, and comprehension. For young or immature children the administrator may choose to use a seating chart or other visuals to help the student visualize the classroom setting accurately.
- 2) Have the student read and answer each question individually. Upon completion, the examiner can review and verbally summarize the question and the individual responses in order to ensure proper comprehension of written Before LIFE-R questions.

LIFE-R Student Appraisal:

The electronic LIFE-R student appraisal shows a photograph depicting the classroom situation described in each question. Questions will be presented to the student one at a time. The examiner will read aloud the written question using the accompanying photograph, providing additional description associated with student experiences relevant to the specific classroom listening situation. The stimulus questions can be slightly modified to better represent the student's individual classroom listening condition and relevancy but should reflect the same listening situation (if modifications are made, they should be recorded so that the same description is used during any post-test administration). The electronic student LIFE-R is set up as a five point scale so the responses can be electronically entered, scored, and presented in the generated reports. The student must indicate whether the situation depicted on the photograph/description is "always easy", "mostly easy", "sometimes difficult", "mostly difficult", or "always difficult". Examiners can alter the response format allowing students to select "always easy" "sometimes difficult" and "always difficult" if there is student appears unable to grasp the nuances of a five-point scale. If the administration is altered in this manner for a pre-test it is necessary that the same accommodation be made for a post-test for a valid comparison.

- Instructions: I am going to show you some photographs about school. I want you to tell me how hard or easy it is for you to listen (hear and understand) in each school situation.

You will have five choices:

- 1) "Always Easy" means you never have difficulty hearing in the situation
- 2) "Mostly Easy" means you have trouble hearing 25% of the time in the situation
- 3) "Sometimes Difficult" means you have trouble hearing 50% of the time in the situation
- 4) "Mostly Difficult" means you have trouble hearing 75% of the time in the situation
- 5) "Always Difficult" means you have trouble hearing 100% of the time

There are also faces by each of these numbers to help you remember that the amount of difficulty ranges from easy on the left, to hard on the right.

Do you understand what is “always easy”, “mostly easy”, “sometimes difficult”, “mostly difficult”, and “always difficult” mean? (if not, repeat instructions using visuals of percent as needed). Okay are you ready? (start test)

After LIFE-R Student Appraisal: Depending on the age of the student and his ability to read and comprehend, there are two options for administration.

- 1) The examiner verbally reads each question and the possible choices to the student. The examiner marks all of the student’s responses. If the student gives an answer not listed in the multiple choice options the examiner will use the “other” option to document Before LIFE-R information. The questions and choices can be read multiple times to ensure comprehension. Alternative language can be used as appropriate to student linguistic skills, attention, and comprehension. It is important to emphasize that the student select all of the responses that sound most like him or her.
- 2) Have the student read and answer each question individually. Upon completion, the examiner can review and verbally summarize the question and the individual responses in order to ensure proper comprehension of written After LIFE-R questions. It is important to emphasize that the student select all of the responses that sound most like him or her.

Protocol for the LIFE-R Teacher Appraisal

This two-part inventory was designed to be completed by the teacher before and after the introduction of HAT into the classroom. The first inventory is composed of fifteen questions related to specific areas of challenge when listening and learning in different classroom listening situations. The composite score resulting from completion of the inventory will document important changes that occurred in the classroom as a result of introduction of amplification. The second part of the teacher inventory is a checklist assessing self-advocacy and instructional access of the student. The purpose is to identify when the student with hearing loss uses self-advocacy in the classroom. Feedback from the teacher can help the educational team identify areas of focus to develop self-advocacy skills. This inventory can be used in other ways, as previously described in this manual.

- Instructions: The first part of the two-part inventory is composed of fifteen questions about the student’s listening and learning behaviors in the classroom. Please complete the first inventory immediately; rating the student before the trial period with HAT begins. Once the HAT trial is implemented for (determined length of trial period), please complete the first inventory again. Your statements reflect your perception concerning the effect of the HAT or classroom listening intervention used in your classroom. For each of the 15 questions, circle the number which

corresponds to the degree of agreement you have with reference to the particular student's listening and learning behaviors. Use the five point scale and descriptions to mark your answer. Do you have any questions?

The second part of the teacher inventory is comprised of eight additional questions related to "Self Advocacy and Instructional Access ". It is intended to be completed after you observed the student a considerable time period and are familiar with how s/he responds to verbal instruction in the classroom. Your responses may be correlated with the Student After LIFE-R questions and used to formulate IEP goals or monitor improvement in use of self-advocacy strategies in school.

- **Scaling of Responses:** After responding to all 15 items on the five point scale, the items can be added together to obtain a composite score or classroom listening score for the inventory. When placed on a continuum located at the bottom of the response form, the degree to which the intervention produced change can be observed. The scale ranges from a score of 15 (almost always has listening challenges) to a score of 75 (no listening challenges or very rare).
 - **Example 1:** If the total of the teacher's responses to the post test was 35 points higher than the total score for the pre-test the conclusion would be that the intervention produced strong change and that the intervention was highly beneficial. A smaller difference between pre-test and post test scores would be interpreted as less change/benefit, no change/benefit or a negative change/benefit.
 - **Example 2:** If a total pretest score revealed in the rating grid that the student often or almost always has listening challenges and the post test (HAT) revealed occasional or sometimes experiences listening challenges, the conclusion would be that the intervention/HAT produced a positive change for the intervention and proved to be successful in the classroom. No change, negative change, or minimal change would suggest that the intervention was not successful for the student. It is also important to take into consideration the student's ratings on the Before LIFE-R, LIFE-R, and After LIFE-R.
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Summary

The Listening Inventory For Education – Revised efficacy tools are multi-faceted and flexible for use with elementary and secondary school students. The addition of self-advocacy items is a useful way to obtain baseline information on student performance that will encourage the inclusion of self-advocacy skills in individualized educational plans. More importantly, identifying student challenges to school listening situations and their responses to these challenges is a critical first step in developing appropriate individualized accommodations and appropriate learning goals that will result in higher levels of lifelong independence for students.

References:

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Acknowledgement

We would like to thank our sponsors who made the LIFE-R possible (Cochlear Corporation, Lightspeed Technologies, Oticon and Phonak). Their ongoing support of the listening and learning needs of children is truly remarkable. Thank you too to the many professionals who have helped us construct these practical and useful evaluation tools. Finally, thank you to the many professionals specializing in deaf/hard of hearing issues, the classroom teachers and families, all of whom are devoted to improving the futures of children with hearing loss. We hope that the LIFE-R efficacy tools assist you all in this very worthy goal.

About the Authors

Karen L. Anderson, PhD. has worked in clinical, public school and state-level (EHDI) settings to address the needs of children with hearing loss. Karen is a past president of the Educational Audiology Association and the Washington Speech and Hearing Association. She has been awarded the 2003 Fred Berg Award in Educational Audiology, the 2007 Phonak Cheryl DeConde Johnson award for best practices in educational audiology and the 2007 FLASHA Outstanding Service Award. Karen is the author of the Screening Instrument For Targeting Educational Risk (SIFTER) in children with hearing loss, the Secondary SIFTER, and the Early Listening Function (ELF), and is co-author of the Preschool SIFTER, the original Listening Instrument For Education (LIFE), Children's Home Inventory of Listening Difficulties (CHILD), and the guidance document Relationship of Hearing Loss to Listening and Learning Needs. She is currently Director of *Supporting Success for Children with Hearing Loss*, which is an online resource for parents and professionals. Her recent accomplishments include publication of *Building Skills for School Success in the Fast-Paced Classroom: Optimizing Achievement for Students with Hearing Loss* from Butte Publishing with her co-author, Kathy Arnoldi in October 2011.

Dr. Joseph Smaldino is a Professor in the Department of Communication Sciences and Disorders at Illinois State University. His research areas are hearing aids, speech perception and audiologic rehabilitation, but he has focused for the last 20 years on the effects of classroom acoustics on listening and learning. He served on the American National Standards Working groups that developed and subsequently revised a national classroom acoustic standard in 2002 and 2010. He has published extensively in the area and is a long standing advocate for desirable classroom acoustics. He has won a distinguished scholar award, has been a Fulbright Research Scholar and in 2011 received the Mauldin Award for individuals who have demonstrated unsurpassed dedication to excellence in education and professionalism in the hearing health care industry and who have unselfishly giving back to the profession, the community and the hearing impaired.

Carrie Spangler, Au.D. has been employed at Stark County Educational Service Center in Ohio since 1999. Carrie graduated from the University of Akron with a Masters in Audiology and Arizona School

of Health Sciences with a Doctorate of Audiology. Carrie is one of the developers of the GAP (Guide to Access Planning) program. She has presented nationally on this topic and has a professional publication about counseling teens on self-advocacy. She is the 2012 recipient of the Cheryl DeConde-Johnson Award for outstanding achievement in Educational and Pediatric Audiology. In addition to her professional expertise, she also brings a personal perspective to the profession. Carrie was born with a severe to profound hearing loss and has worn hearing aids from a young age. At Stark County she organizes a teen group of students who are deaf and hard of hearing to develop self-advocacy and personal responsibility skills regarding their hearing loss. As a consumer, she experiences communication access issues on a daily basis and lends authenticity to the profession by incorporating these personal experiences.