

Secondary S.I.F.T.E.R. User's Manual

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Introduction: The Secondary SIFTER is the last in a series of educational screening instruments that have been designed to indicate children with hearing loss who may be experiencing educational difficulties as a result of their hearing impairment. Like the Preschool SIFTER and the SIFTER, the Secondary SIFTER has three questions in each of five content areas: Academics, Attention, Communication, Class Participation, and School Behavior. Also like the SIFTERs that have come before, the Secondary SIFTER has a scoring grid that will help the user compare how an individual performed in comparison to a large pool of young people with normal and impaired hearing whose teachers also completed the instrument. The purpose of this User's Manual is to provide background information on the process used to develop the scale, the data obtained via field testing, and the scoring grid development process. My sincere thanks to all members of the Educational Audiology Association who bore many requests for field-test data and my heartfelt gratitude to those committed educational audiologists, teachers of the deaf and hard of hearing, and classroom teachers who took the time to gather the data to make the Secondary SIFTER possible.

Purpose: The purpose of developing the Secondary SIFTER was to establish a scale to be completed by classroom teachers to determine the functional performance of hard of hearing secondary students in comparison to their normal hearing peers. Functional performance would be defined as behaviors that contribute to the success of a student within the mainstream classroom.

Construct: Central to this instrument is the definition of what constitutes successful behavior of secondary students (grades 6-12). This construct was based on four types of information: 1) literature sources identified through a library database search, 2) assessment instruments used to determine if students have behaviors considered to be outside of the range of normal, 3) proscribed techniques to observe behaviors within classroom settings, 4) opinions from experienced professionals working with secondary students.

It was felt to be critical to identify behaviors that teachers in secondary classrooms would be able to observe during the course of their regular teaching responsibilities. Although the population of students with hearing impairment is of primary interest, the key issue of concern is how the behavior of the students with hearing loss compare to normal hearing peers. As mainstream classroom teachers are not typically trained in the nuances of the effects of different degrees of hearing loss on student behavior and learning, it is not within the scope of this study to develop those skills in classroom teachers. Rather, this study hopes to capitalize on teacher's ability to observe student behavior across a spectrum of normally observed behaviors, and identify strengths and nonstrengths of students, some of whom will have hearing loss.

Supportive information defining construct:

Several persons with experience working with secondary students were asked what they believed constituted successful student behavior in a secondary classroom setting. These persons consisted of one high school teacher, one special education teacher with a specialization in behavior disorders, one social worker with a specialization in behavior disorders, one special teacher of the deaf and hard of hearing, one school psychologist whose role includes evaluation of students to determine eligibility in the area of behavior disability, and one middle school student.

According to these persons, school success can be related to behaviors that result in an adequate level of academic achievement. This would include history of work completion, performance on class test measures and projects, and demonstrated skill levels that are within the expected range for students in the class. A reflection of these three aspects can typically be found on student report cards. In addition, the ability to follow classroom or school rules, communicating needs and ideas effectively, appropriate attention during class lecture or activities, ability to assimilate verbal instruction, and overall participation in classroom activities in a positive manner were other areas that were identified as being exhibited by successful secondary students.

Consulting the literature base for a definition of successful secondary student behavior was not very productive. Very few resources provided direct statements about expected successful behaviors. Only three articles were found that added information to the definition of successful secondary behavior.

In 1957, Skinner identified components of effective language behavior based on his extensive observations of behavior. He contended that a learner must possess the following verbal relations to have effective language behavior.

1. As an event occurs the learner must state an accurate description of the happenings.
2. In the presence of an event, the learner must record some of the spoken statements verbatim. A survey question was not generated related to a student's proficiency at taking class notes, as teachers typically do not evaluate this skill directly.
3. Using notes, the learner must summarize the events, answer questions, and draw conclusions about the episode.

In addition, a 1984 study from Department of Education in Alberta, Canada identified some factors positively related to student achievement. Of these, the specified student characteristics were attitude and educational plans. Educational plans were not considered for possible survey questions as most secondary teachers have many students and would often be unaware of an individual's educational plans for the future.

Finally, an article from Teaching Exceptional Children considered the rising rate of antisocial behavior by students in schools. Many children exposed to risk factors develop antisocial, aggressive behavior patterns that they bring with them to school. This behavior and negative interactions with others often resulted in an overall lack of school success.

Behavioral measures used in the schools to estimate the general behavior of students were consulted. The Connor's Teacher Rating Scale includes items in the categories of classroom behavior, group participation, and attitude toward authority. The Behavioral Assessment System for Children Self-Report Checklist for Adolescents identifies clusters of behaviors in the areas of attitude to school, attitude to teachers, anxiety, social stress, self-esteem, self-reliance, and interpersonal relations. A scale of

social competence (Kahn and Hoge, 1983) was also considered that specified behaviors of students while interacting with peers, interacting with teachers, and behaviors when the child is functioning independently in the classroom.

One classroom observation form used by Western Michigan University (Sattler, 1988) specified behavior in terms of verbal off-task, motor off-task, passive off-task, disruptive off-task, on-task, and out of seat. Similarly, a coding system for observing students and teachers in the classroom recommended by Sattler (1988, p. 503) specified observation in the areas of attending, volunteering, interaction with peers about academic materials, interaction with peers about nonacademic materials, out of seat (locale), looking around, and inappropriate behavior.

Summary of suggested successful secondary school behaviors

Observable behaviors identified during the investigation process were summarized into five general areas. Being a teacher completed scale, all of the questions inquire into the teacher's perception of a behavior in the classroom or a specific situation in the classroom. One test item was written to reflect each of the performance areas indicated below.

Academics

1. history of completing and turning in assigned work
2. performance on test measures or projects within the expected range of performance
3. demonstrates the foundation skills to perform the work expected in class
4. ability to summarize and draw conclusions about events or information presented in classroom
5. demonstrates a steady progression of skills

Attention

1. demonstrates that listening with attention has occurred (knows answers to questions)
2. demonstrates typical attention span during verbal instruction
3. interacts with other students only at appropriate times during the class period
4. demonstrates attention to detail, lack of careless mistakes
5. students demonstrates schoolwork that appears organized

Communication

1. ability to verbally describe class events or information with accuracy
2. ability to communicate needs effectively to teacher
3. ability to start work independently following oral instructions
4. ability to assimilate verbal instruction
5. demonstrates typical vocabulary and word usage skills

Class Participation

1. volunteers information to class discussions or in answer to teacher questions
2. interacts with other students during cooperative group activities
3. completes assignments within class independently (knowing when it is appropriate to ask for help)
4. takes seriously that participation is an integral part of the learning process
5. ability to contribute meaningfully to classroom discussions

School Behavior

1. comes to class with an attitude of readiness to learn
2. follows classroom rules or teacher expectations
3. demonstrates appropriate behaviors that seem typically mature for age
4. interaction with the environment meets teacher expectations
5. demonstrates respectful behavior toward others in class

Collection of Field Test Data:

The field test version of the Secondary SIFTER had 5 questions in each of the 5 content areas, resulting in a 25-question instrument. There were two purposes to gathering field test data: (1) to determine which three of the five questions in each content area were the most effective, and (2) to develop a scoring grid based on the performance of students with normal hearing as compared to those with hearing impairment.

Data for 40 students with normal hearing and 37 students with hearing impairment were collected that were attending grades 6-12. Teachers that completed Secondary SIFTERS for the 40 students with normal hearing did so for a student with hearing impairment that was in the same class. Of all of the data received regarding students with hearing impairment, secondary SIFTERS were completed for 20 students attending more than one class, resulting in 57 completed Secondary SIFTERS for students with hearing impairment. Four sites sent in field test data: Arizona School for the Deaf and the Blind (ASDB); Salem OR, Denver CO, and Aurora CO.

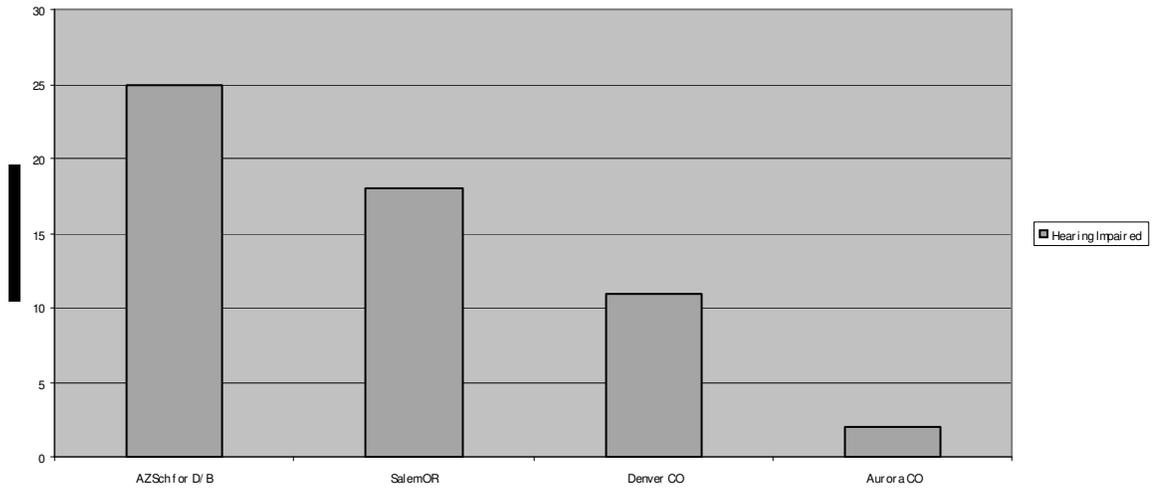
Data Collection Procedures:

Forty of the teachers asked to collect Secondary SIFTER data had at least one student that was identified as hard of hearing, for a minimum of one period during the school day. A person coordinating support services for deaf and hard of hearing students was asked to identify appropriate students and teachers. These 40 teachers received two surveys for every hard of hearing student they have in class. The first survey was to record the perceptions of the teacher regarding the classroom behavior of the student that was hearing impaired. In addition to completing the survey for the student with hearing loss, these teachers also completed a survey for a normal hearing student within the same class period as the hearing impaired student. This normal hearing class peer did not have any identified disability condition. The normal hearing class peer was chosen by the classroom teacher in the following manner. The teacher referred to an alphabetized class roster. The student whose name was immediately following the hard of hearing student's name on the class roster was selected as the other student for whom the survey was completed. If that student had an identified disability condition(s) than the second student following the hard of hearing student's name on the class roster was selected, and so on, until a normal hearing class peer without identified disabilities was selected. In addition to completing survey questions, teachers specified the student grade, gender, and class subject. Students that had other identified disability conditions in addition to hearing impairment had those disability conditions specified by the teacher, service coordinator, or a designee that has access to this information. Likewise, the service coordinator or designee specified the degree of hearing loss and status of amplification use by the student.

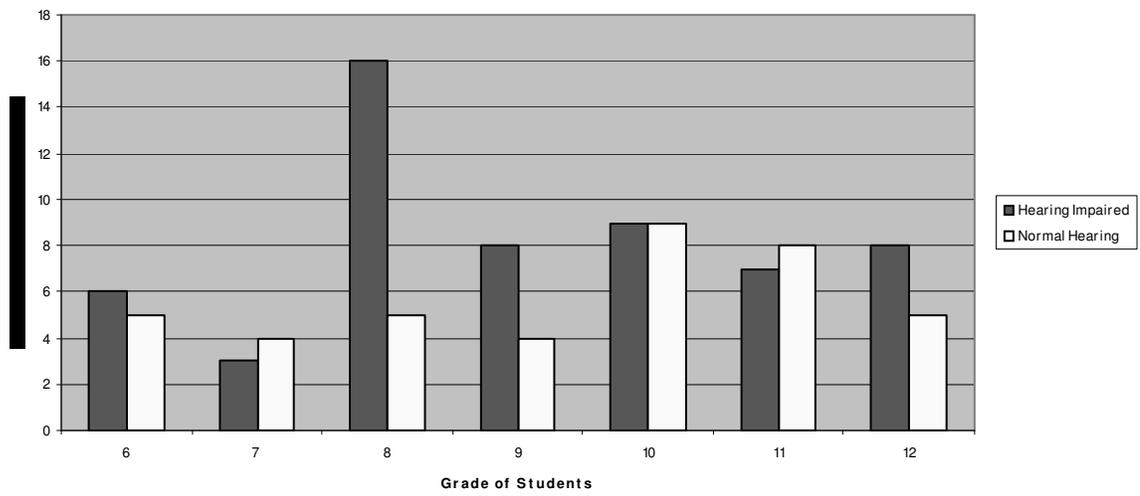
Demographics of the Field-Test Groups

Almost half of the 57 students in the group of individuals with hearing impairment came from ASDB, 12 of whom had average hearing loss greater than 70 dB, 14 of whom did not wear hearing aids and/or were ASL users, and 19 of whom did not use FM devices. Of the 57 completed Secondary SIFTERS for students with hearing impairment, the average amount of hearing loss was moderate-severe, or 56-70 dB. The specific demographics of student hearing loss degree, hearing loss configuration, hearing aid wear, FM use, gender, grade, and subject in which the Secondary SIFTER was completed can be found on the following charts.

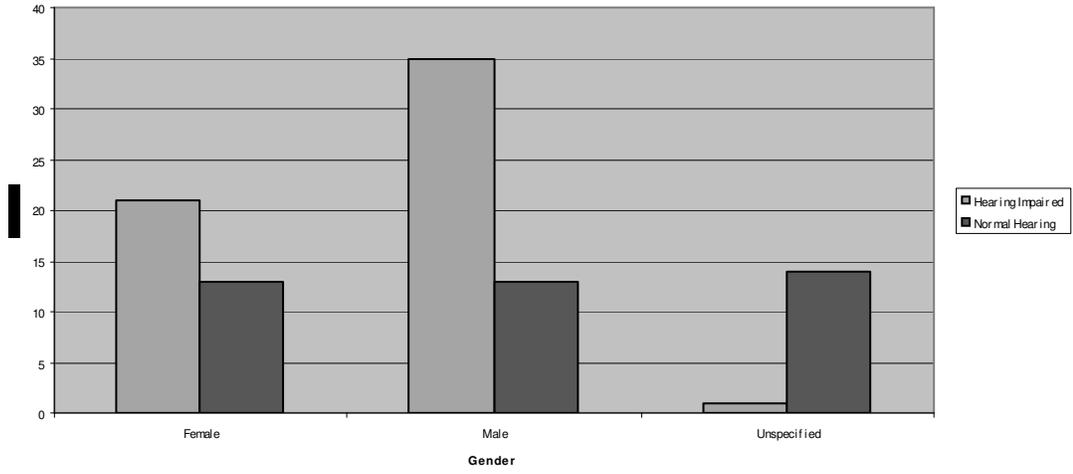
Source of Field-Test Data



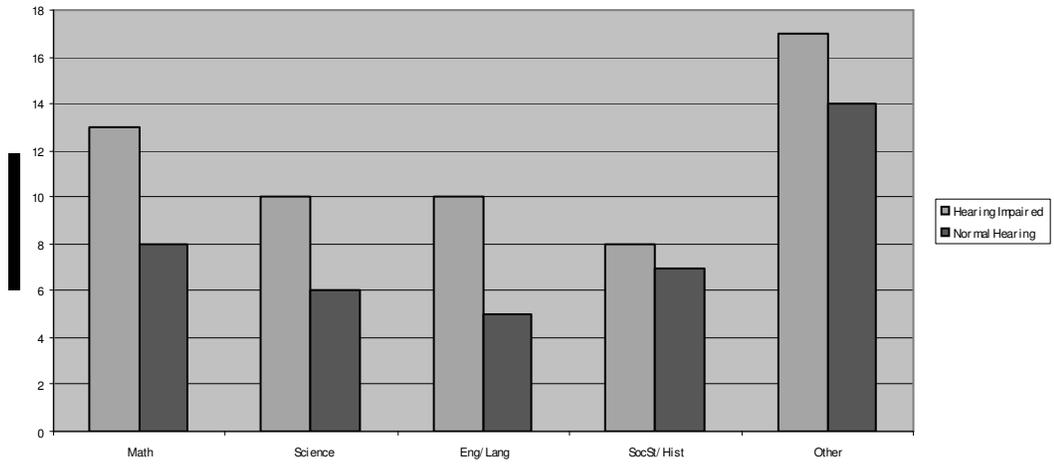
Grade of Students in Field-Test Group



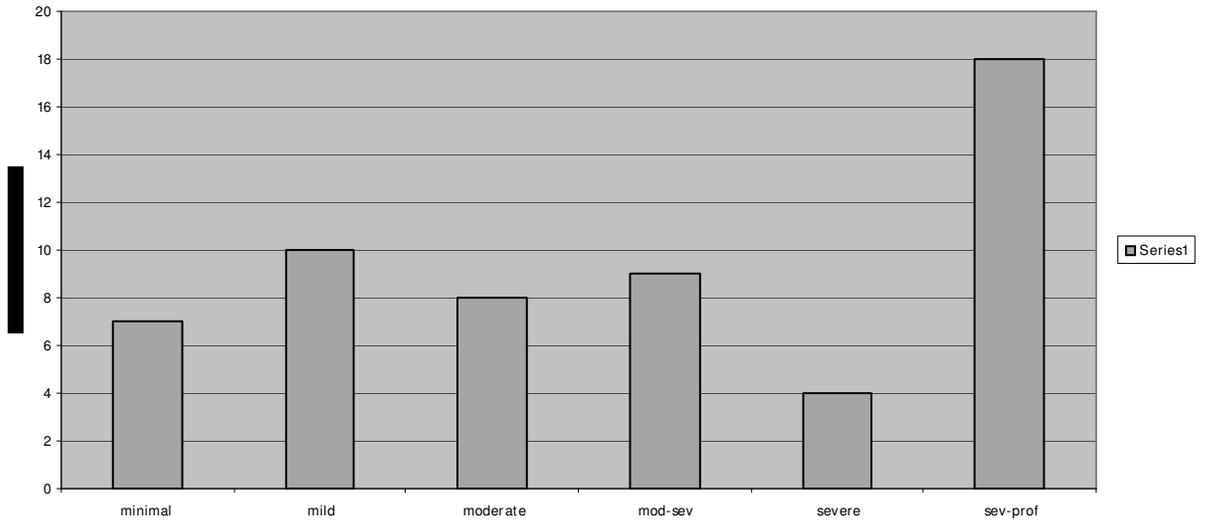
Gender of Field-Test Group



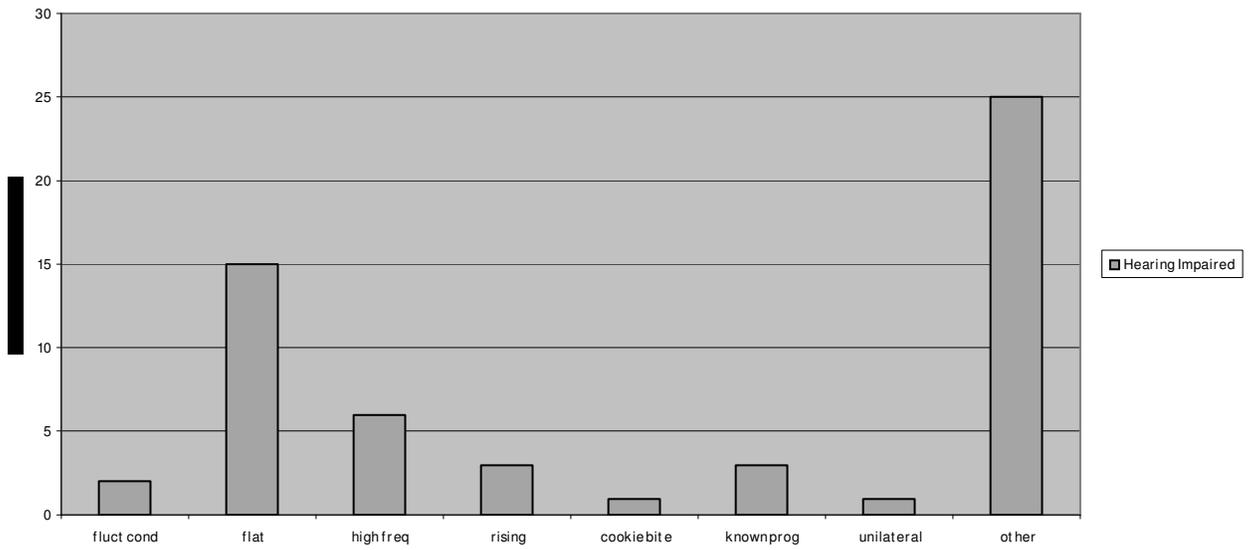
Subjects During Secondary SIFTER Field-Test



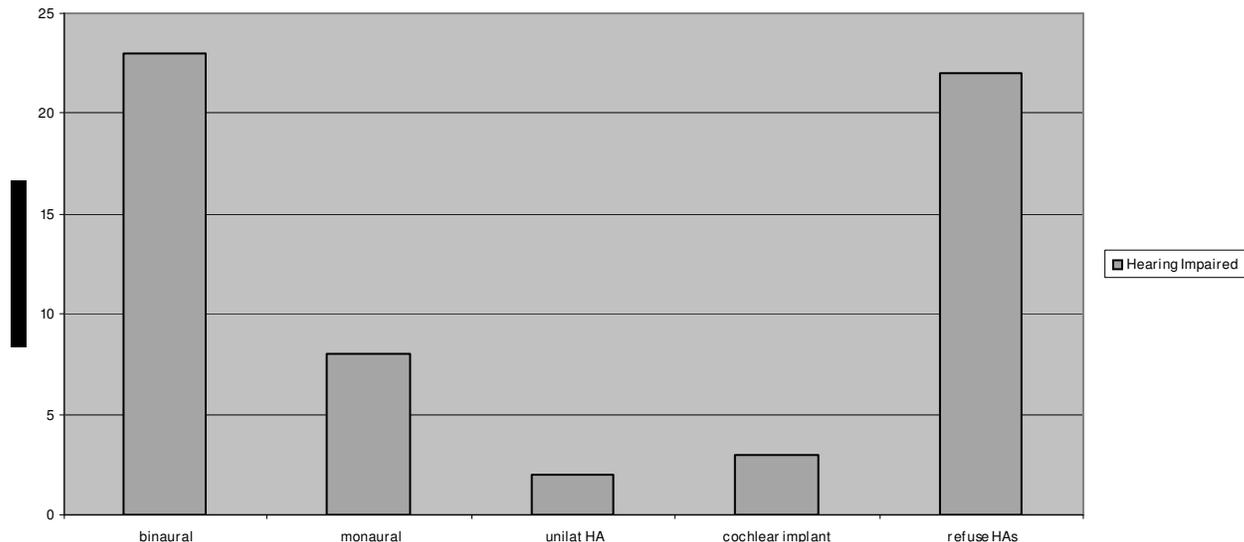
Degree of Hearing Loss



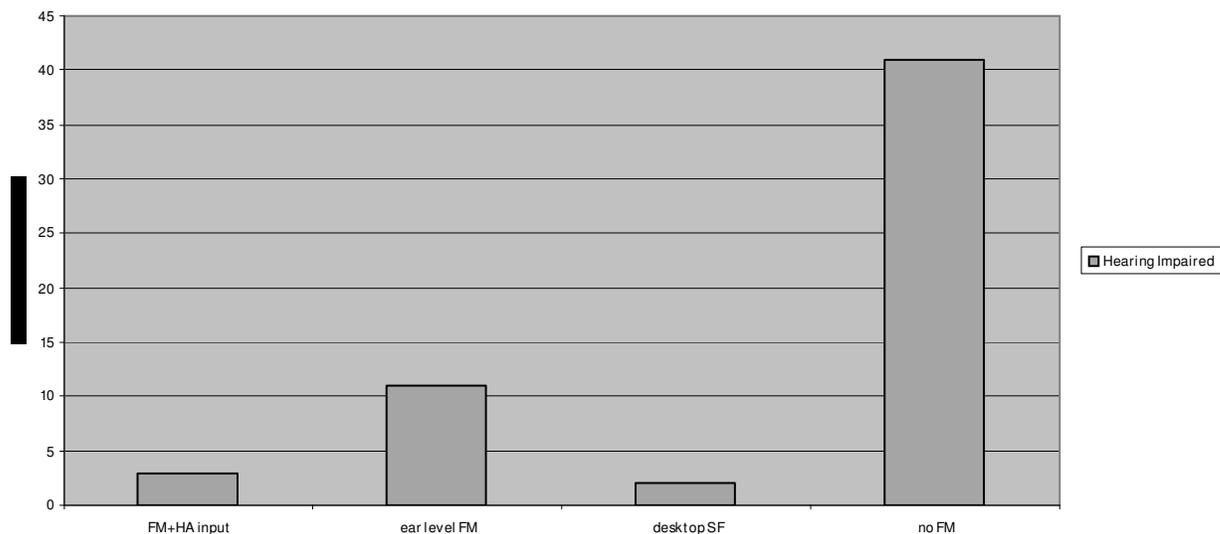
Configuration of Hearing Loss of Field-Test Group



Hearing Aid Use of Field-Test Group



Use of FM Devices of Field-Test Group



Comparison of Field Test Groups

When constructing a test instrument, every developer desires large numbers of field test data, evenly distributed among all possible categories. After extensive time and attempts to obtain field test data, slightly less than 100 samples representing both normal and impaired hearing were obtained. This pool of field test data proved problematic in that it was not a balanced group of students, meaning that there were not at least 30 students from every grade and degree of hearing loss with representation of many amplification options used. On the positive side, 100 data points for any population is a respectable number for analysis. On the

negative side, because of the homogeneous nature of hearing impairment, representation by 37 individuals (57 completed Secondary SIFTERs) is not a large number considering that there were 6 categories under degrees of hearing loss and the number of individuals with severe to profound degrees of hearing loss numbered almost twice that of other degrees. This data set was unusual compared to the SIFTER or Preschool SIFTER data in that students with hearing loss did not, on average, perform any more poorly than those with normal hearing when responses for all of the field test questions were pooled. In fact, mean scores were higher for the students with hearing impairment in all content areas but Class Participation. A t-test analysis revealed that the means of the two groups were not significantly different ($p = .224$).

Content Area	Hearing Impaired Mean	Normal Hearing Mean
Academics	3.617	3.511
Attention	3.565	3.29
Communication	3.412	3.44
Class Participation	3.1	3.418
School Behavior	3.949	3.735
Total	3.523	3.48

It was important to determine which of the 5 questions in each content area were the most effective. With the groups being so similar it was decided that the best course of action was to eliminate the two questions from each content area that had the greatest variability, or largest standard deviations. Questions that are misinterpreted or vague tend naturally to have a wider variability in their responses. Therefore, the questions with the smallest standard deviations in both the normal and hearing impaired responses were retained.

Academics	Hearing Impaired Mean	Hearing Impaired Standard Deviation	Normal Hearing Mean	Normal Hearing Standard Deviation
Question 2	3.447	1.00456	3.463	1.05847
Question 3	3.412	0.97337	3.425	1.08338
Question 4	3.561	0.89834	3.425	1.00989

Attention	Hearing Impaired Mean	Hearing Impaired Standard Deviation	Normal Hearing Mean	Normal Hearing Standard Deviation
Question 1	3.623	1.14738	3.5	1.07537
Question 2	3.561	1.10024	3.275	1.06187
Question 4	3.36	1.08797	3.175	1.18105

Communication	Hearing Impaired Mean	Hearing Impaired Standard Deviation	Normal Hearing Mean	Normal Hearing Standard Deviation
Question 1	3.263	0.93675	3.275	0.8161
Question 2	3.386	0.90589	3.45	0.95943
Question 4	3.465	0.88364	3.5	1.06217

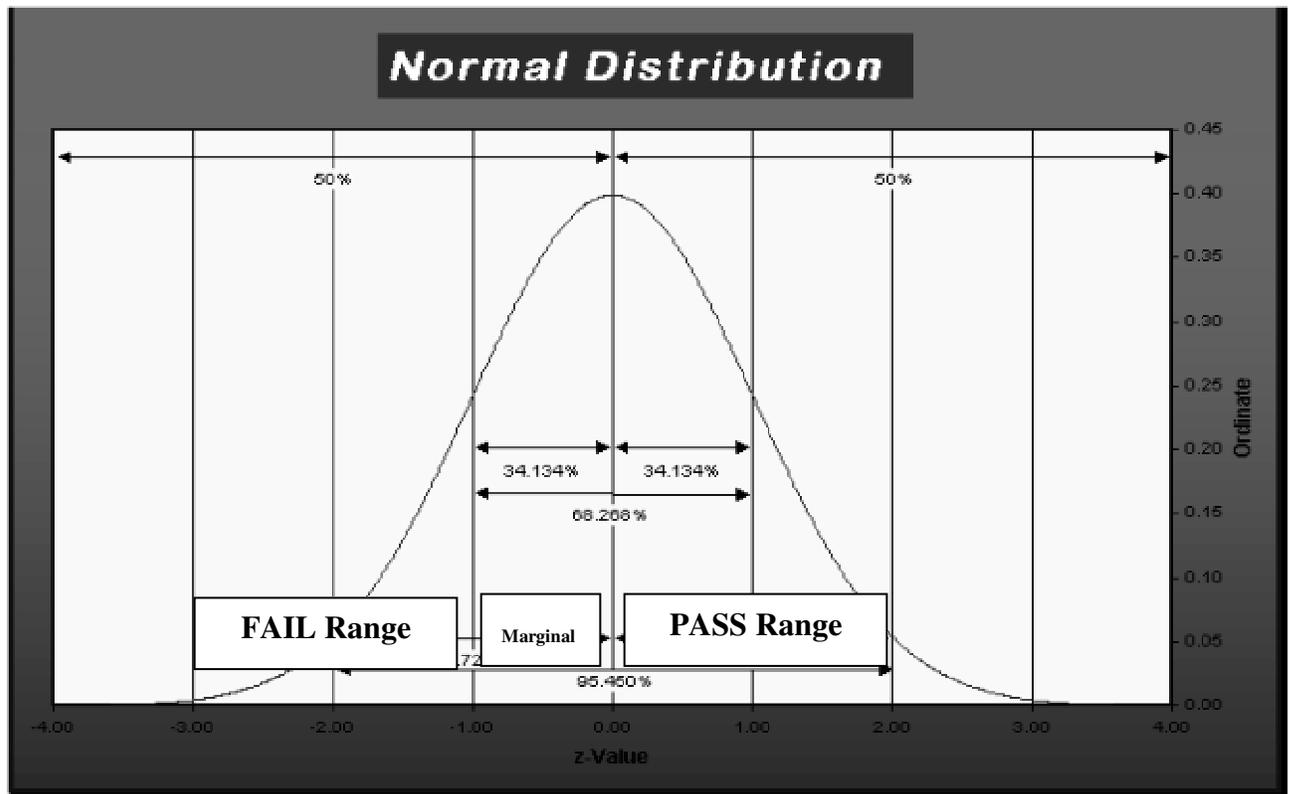
Class Participation	Hearing Impaired Mean	Hearing Impaired Standard Deviation	Normal Hearing Mean	Normal Hearing Standard Deviation
Question 2	2.816	1.08505	3.238	1.12083
Question 3	3.158	0.94942	3.425	1.03497
Question 5	3.36	1.01713	3.625	1.0048

School Behavior	Hearing Impaired Mean	Hearing Impaired Standard Deviation	Normal Hearing Mean	Normal Hearing Standard Deviation
Question 3	4.21	1.08738	3.85	0.94868
Question 4	4.11	1.14655	3.8	0.88289
Question 5	3.53	1.14655	3.8	0.88289

Development of the Scoring Grid

As can be seen by the scoring grid on the Secondary SIFTER, the scoring grid was constructed based on the normal curve represented by the two data groups. The cutoff marking the lower boundary of the passing range is the midpoint between the mean score the three content questions in each area for the students with normal hearing and the mean score for these questions for the students with hearing impairment. The cutoff marking the lower boundary of the marginal range is the midpoint of one standard deviation below the mean for the hearing impaired and the normal hearing groups. The failing range is comprised of scores beyond one standard deviation below the mean. Although the means used to develop this scoring grip were substantially less rigorous than with the other SIFTER tests, the homogeneousness and the number of the data pool restricted more standard, rigorous methods.

Content Area	Lower Boundary for Pass Midpoint between Normal and Hearing Impaired Means	Lower Boundary for Marginal Midpoint between Normal and Hearing Impaired -1 SD
Academics	10.367	7.357 (-2 SD = 4.35)
Attention	10.245	6.915 (-2 SD = 3.59)
Communication	10.17	7.39 (-2 SD = 4.61)
Class Participation	9.811	6.711 (-2 SD = 3.6)
School Behavior	11.65	8.6 (-2 SD = 5.55)



Normal Curve graphic By Edward P. Asmus <http://www.music.miami.edu/research/statistics/normalcurve/normalCurve.html>

Practical Use of the Secondary SIFTER

As with the previously developed SIFTERs, the Secondary SIFTER is a screening tool ONLY. A teacher that responds to the Secondary SIFTER questions and completes the scoring grid is, in effect, comparing the individual student with a pool of responses comprised of 97 other Secondary SIFTERs. This will provide an estimate of the student's classroom performance compared to a large group, however, individual characteristics of persons that made up the field test population may differ in some manner with the student of interest, the classroom course of study, and the teacher's mindset or preconceptions when completing the Secondary SIFTER. The Secondary SIFTER should only be used as a guide to teacher's or teams and should not be used as the only criteria for when a child should be referred for additional services, or receive specialized support, modifications, or hearing technology. The Secondary SIFTER should be used as only one piece of information among a variety of opinions, experiences, and collateral information that are relied upon when the functional status of a student with hearing loss is considered.

It must be recognized that students scoring in BOTH the passing and the marginal ranges are performing within the broad definition of normal. As can be seen on the normal curve graph, the marginal range represented on the Secondary SIFTER should comprise 34% of the population. Therefore, if a student is being screened with the SIFTER for the first time, scoring within the pass or marginal range should be viewed as performing within the broad range of normal. If a student's performance is being monitored over time and the first or previous administrations of the Secondary SIFTER indicated performance in the pass range and subsequent monitoring indicated in scores that were in the marginal range, then the teacher and other members of the student's educational team should consider possibilities as to why the student's performance may be changing. The demarcation of +2, +1, mean, -1, and -2 standard deviations will allow the educational team to assess how the student's performance as measured by the Secondary SIFTER compares to almost 100 secondary students.

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I want to again extend my many thanks to the persons that took the time to gather and submit data for the Secondary SIFTER. I also want to express my appreciation to the Educational Audiology Association and its members for supporting this project with patience and many months of anticipation.

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