Successful Habilitative Approaches with Hearing-Impaired Students

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Professionals providing speech, language, and audiologic services to pre-school through college-aged hearing-impaired students were involved in a conference which focused on successful assessment and habilitative approaches. The conference also included discussions of future directions in audiologic habilitation on the Gallaudet College campus. This paper reports the proceedings of this conference for other interested professionals.

SUCCESSFUL HABILITATION

Although researchers have documented the speech and language characteristics of severely hearing-impaired people (Nickerson, 1975; Kretschmer & Kretschmer, 1978), less data has been generated related to successful habilitative and assessment procedures (Osberger, Johnstone, Swartz & Levitt, 1978). During the Spring of 1982, speech-language and hearing professionals at Gallaudet College shared information and concerns regarding successful assessment and therapeutic approaches. The meeting was intended to exchange information among interested professionals on the Gallaudet College campus, and subsequently share it with other interested professionals through the Academy of Rehabilitative Audiology Summer Institute.

Twenty-two professionals, including speech-language professionals, audiologists, curriculum specialists and teachers attended the conference. All of the three campus units were represented: Kendall Demonstration Elementary School (KDES), Model Secondary School for the Deaf (MSSD), and the Gallaudet College Department of Audiology. Each unit functions as an autonomous speech and hearing facility and has its own unique relationship with the academic program that it serves. Table 1 indicates the age range, number of professionals and total number of students at each campus facility.

For purposes of organization, this paper is divided into the following areas: (a) assessment tools and procedures; (b) habilitative approaches for speech,

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Table 1

Summary of Age Range, Number of Professionals and Total Number
of Students at Campus Facilities

Unit	Age Range	Staff	Total Student Population
KDES	Pre-school — middle school	5 Speech Pathologists 2 Audiologists	190
MSSD	Secondary	6 Speech Pathologists 3 Audiologists	400
Gallaudet College	Post-secondary	4 Audiologists 4 Aud Hab Members	1500

auditory training, and speechreading; (c) habilitative trends; and (d) future concerns.

ASSESSMENT TOOLS AND PROCEDURES

Speech Evaluation

Speech-language pathologists on the Gallaudet campus are responsible for the measurement of speech intelligibility. Segmental and suprasegmental features are evaluated to determine intelligibility. Table 2 summarizes the instruments used for assessment of speech intelligibility.

Table 2

Summary of Test Instruments Used To Assess Speech Intelligibility
at Campus Facilities

Administered by	Unit	Instrument	Purpose
Speech-Language Pathologist	KDES	Ling Phonetic and Phonologic Evaluations	Assessment of segmental and suprasegmental features
Speech-Language Pathologist	MSSD	Ling Phonetic and Phonologic Evaluations	Assessment of segmental and suprasegmental features
Speech-Language Pathologist	College	Fisher-Logemann Sentence Test NTID Voice and Connected Speech Exam Rainbow Passage	Assessment of segmental and suprasegmental features

Language Evaluation

Speech-language pathologists on the Gallaudet campus have limited involvement in the formal evaluation of language skills. The assessment of language is primarily the responsibility of the various English departments and/or the language teacher themselves.

At the college level, a cross-departmental comprehensive language assessment is being developed through the School of Communication. Areas of evaluation may include: reading, writing, speech, hearing, lipreading, sign systems for English, and American Sign Language.

Table 3 outlines the instruments currently used for the purpose of assessment of language.

Table 3

Summary of Test Instruments Used To Assess Language at Campus Facilities

Administered by	Unit	Instrument	Purpose
Language Teacher	KDES	[a]P-Level Evaluation	Documentation of Language Competence
English Department	MSSD	Written English Assessment	Analysis of Written English Skills
English Department	College	Nelson-Denny Reading Test Nelson Reading Skills Test	Assessment of Vocabulary Reading Rate Comprehension

[a]Language Proficiency Level Evaluation: See Appendix A for explanation.

Auditory Assessment

The evaluation of auditory skills has changed across campus units, reflecting a shift from traditional assessment procedures to a more pragmatic approach. Specifically, audiologists have moved from analysis of consonant and vowel errors in stimulus words to a more comprehensive analysis of the use of auditory skills in daily living. The majority of severely and profoundly hearing-impaired students do not exhibit measurable auditory discrimination on traditional word lists, although many use auditory skills in their daily communication experiences. Accurate detection and representation of these functional auditory skills is dependent on comprehensive analyses.

Table 4 summarizes the instruments used for the purpose of auditory assessment.

Speechreading Assessment

Some materials used to assess speechreading skills have been adapted from

Table 4

Audiologic Assessment

Administered by	Unit	Instrument	Purpose
Audiologist	KDES	ᵃTAC NU-CHIPS PBK MPTD WIPI SERT KAPS Same-Different Spondee Test	Detect Auditory Functioning Abilities
		Ling 5 Sound	Detect Frequency Range Student Can Perceive
Audiologist	MSSD	ᵇSpondee I.D. Task Same-Different Spondee Task Same-Different, # of Syllables C.I.D. W-22 PBK WIPI SERT	Detect Auditory Functioning Abilities
Audiologist	College	ᶜC.I.D. W-22 MRT Vowel Discrimination	Detect Auditory Functioning Abilities

ᵃSee Appendix B for further information.

TAC—Test of Auditory Comprehension; NU-CHIPS—Northwestern University Children's Perception of Speech; PBK—Phonetically Balanced Word Lists; MPTD—Monosyllabic Picture Test of Discrimination; WIPI—Word Intelligibility by Picture Identification; SERT—Sound Effects Recognition Test; KAPS—Kendall Auditory Profile Screening

ᵇSee Appendix C for further information.

PBK—Phonetically Balanced Word Lists; WIPI—Word Intelligibility by Picture Identification; SERT—Sound Effects Recognition Test

ᶜSee Appendix D for further information.

MRT—Modified Rhyme Test

auditory discrimination materials. For comparative purposes, tests are performed using audition alone and the combined modes of audition and vision. Campus units are attempting to incorporate speechreading assessments in conversational situations. Table 5 summarizes the instruments used for the purpose of assessment of speechreading skills.

Student Profiles

In an attempt to present concise assessment data relative to general communicative functioning, a profiling system is utilized at two campus units. Profiling permits the comparison of skills in different modalities as well as the charting of progress. Table 6 summarizes the current profiling systems.

Table 5

Summary of Test Instruments Used To Assess
Speechreading Skills at Campus Facilities

Administered by	Unit	Instruments	Purpose
Audiologist	KDES	[a]KAPS: Audition Audition & Vision	Assessment of speech-reading abilities
Audiologist	MSSD	[b]WIPI Audition Audition & Vision Vision	Assessment of speech-reading abilities
Auditory Habilitationist	College	[c]CHABA LISTS: Audition & Vision Vision	Assessment of speech-reading abilities

[a]KAPS—Kendall Auditory Profile Screening Test
[b]WIPI—Word Intelligibility by Picture Identification
[c]CHABA—Committee on Hearing, Bioacoustics and Biomechanics, 1967.

Table 6

Summary of Profiling Systems Used To Assess
Communicative Skills at Campus Facilities

Administered by	Unit	Instrument	Purpose
Audiologist	KDES	KDES Auditory Profile	To chart auditory skills development
Speech-Language Pathologist Audiologist Sign Language Instructor Language Teacher	KDES	Intake Communication Profile	To chart communication skills of new students[a]
None	MSSD	None	None
Auditory Habilitationist	College	Rainbow Passage CHABA Sentences Audiologic Assessment	Measurement of speech intelligibility

[a]See Appendix E for further information.

HABILITATIVE APPROACHES FOR SPEECH

Kendall Demonstration Elementary School

The habilitation of speech at KDES is accomplished through implementation of the Ling (1976) program. At the preschool level, the remediation of

speech includes: (a) daily classroom drills, implemented by the teacher or aide; (b) weekly group drills with the teacher and speech-language pathologist; and (c) individual or small group drills performed by the speech-language pathologist. Remediation with the older preschool students (ages 3-5) emphasizes correct production of vowels and consonants, functional auditory training and speechreading, and the improvement of general oral communication skills at the connected speech (phonologic) level.

In the primary department (ages 6-8), the speech-language pathologist has implemented a program entitled "Rhythm and Ling" (Appendix G). Although individual speech drills are continued, emphasis is placed on using songs and poetry in small groups to facilitate correct phoneme production at the phonologic level. The use of such materials appears to increase motivation for students and teachers.

In the elementary department (ages 9-12), the Ling-based program combines daily teacher-implemented speech drills and individual therapy with the speech-language pathologist. Activities also include therapy designed to improve speechreading and auditory skills. At the elementary level, students share responsibility for the writing and/or selection of materials. Inclusion of the student in the therapy process allows for individual differences, aids in motivation, and creates a more functional framework.

At the KDES middle school (ages 13-15), the speech program utilizes a phonics approach, either on an individual and/or small group basis. Various modes, including speechreading, audition, and writing, are utilized to practice newly acquired phonics skills. Students have also exhibited interest in devices which display sound characteristics through vibrotactile means. Vibrotactile units are connected to an auditory training system which permits students to monitor their voices as well as the voices of other students and the speech-language pathologist.

Model Secondary School for the Deaf

At MSSD all students are required to take certain courses through their Communications Department. A course entitled *Introduction to Communication* is required of all students. The areas covered in this course are: (a) interpersonal communication, (b) sound and hearing, (c) hearing aid orientation, (d) communication tools, (e) deaf culture, and (f) speechreading.

If a student wishes to enroll in therapy, a habilitative program is developed based upon individual communicative strengths and weaknesses. The focus at the secondary level is the improvement of functional communication skills rather than emphasis on the remediation of specific phonemes. Clinical experience has demonstrated that hearing-impaired adolescents who demonstrate poor speech intelligibility are not likely to develop easily understood speech. Cognizant of this reality, groups may be formed to explore alternate communicative strategies. For those students who present relative-

ly intact segmental and suprasegmental features, communication strategies can focus on methodologies to improve more specific aspects relating to intelligibility. For example, students may find that decreasing the length of an utterance may improve intelligibility. Short simple phrases will often be more easily understood by hearing people unfamiliar with deaf speech.

Department of Audiology

At the college level, several alternatives to traditional therapy have been implemented. As certain information is felt to be prerequisite for all students desiring therapy, a "module" has been developed by those involved in auditory habilitation. This four week module precedes individual and/or group therapy and includes discussion of: (a) the communication model, (b) normal speech and hearing processes, (c) types of hearing loss, (d) participant's audiometric data, (e) results obtained from individual speech assessments, (f) counseling regarding current communicative skills, (g) prognosis for improvement, and (h) a description of the therapy process at the college level. Use of this model gives the group essential information which facilitates the transition into individual and/or group habilitation, occuring after the completion of the four week module.

The habilitative approach used for those students who have relatively intact segmental and suprasegmental skills, and who use their voices on a consistent basis, involves the remediation of target and/or suprasegmental or segmental skills, accomplished by simulating situational contexts rather than utilizing isolated drillwork. Placing therapy in this framework enables both clinician and student to approximate communicative behavior from a more functional viewpoint.

Clinicians are also working on developing programs in communication strategies. Working again from a pragmatic approach, students analyze: (a) the communicator's role (passive, assertive, aggressive), (b) the most effective and/or efficient communication required (speaking, gesturing, writing, sign language or a combination of these methods), and (c) repair strategies (what to do when a breakdown in communication occurs). Through situational analyses, students gain awareness as to successful communication strategies. Focusing on the context and using their abilities to predict, students can improve communicative skills in a variety of settings.

HABILITATIVE APPROACHES FOR AUDITORY TRAINING

At KDES, implementation of the *Auditory Skills Development Guide* has changed the scope of auditory training. Following the assessment of auditory skills, goals are established reflecting emerging skills. Teacher strategies are then determined, providing students with classroom opportunities to develop skills during routine communication and instructional experiences. The speech-language pathologist may incorporate auditory

training into therapy, supporting those auditory goals previously established for the classroom.

At MSSD auditory training is incorporated into the instructional program. Initial emphasis at infusing auditory training into content areas targeted the art program.   Materials were developed by clinicians and teachers (Patterson & Knight, 1979).   These materials will be used as a basis for the development for similar programs in other instructional departments.

At the college level, specific improvement of auditory skills is rarely isolated in therapy.   Auditory training is generally integrated with the improvement of skills in other modalities.

HABILITATIVE APPROACHES IN SPEECHREADING

Speechreading instruction and practice at Kendall School are primarily implemented through the speech program.   The KDES *Auditory Skills Development Guide* also instructs teachers relative to various speechreading cues and their influence on redundancy in communication.   An understanding of the regularly occuring aspects in communicative situations enables students to use predictive abilities.

At MSSD, students participate in a three week speechreading unit.   Emphasis on synthetic level skills appears to be most successful with this population.   The unit focuses on instructing students to manipulate their environment to gain the maximum amount of information.   A classroom environment is used to instruct students; however, any participant may elect to become involved in small group remediation.

Speechreading instruction at the college level is provided upon request. Situational strategies and the use of vocationally related vocabulary is utilized.   Printed speechreading materials obtained from the National Technical Institute for the Deaf (developed for NTID use) have proven successful.

To summarize, communication therapy at Gallaudet encompasses a wide range of methods, from speech drills based on the Ling program to the improvement of general communicative skills through the situational context, and from teacher-implemented auditory training, to group instruction in speechreading.   The diversity that is present throughout the three campus units reflects the varied skills that students exhibit.

HABILITATIVE TRENDS

Several major trends regarding speech-language and auditory habilitation with hearing-impaired people were evident throughout the conference.   The scope of professionals working at Gallaudet has expanded and now focuses on the improvement of functional communicative skills.   This involves new methods of assessment, realistic counseling of students, changes in habilitative techniques and working on target skills in conjunction with instructional

material.   More specifically, these trends include:

1.   *A shift from therapy emphasizing the improvement of "speech" skills to programs emphasizing communication strategies.*

   As traditional speech therapy models have often produced minimal results, the focus of speech-language therapy at Gallaudet has changed. Emphasis is now placed on what a student must do in order to understand and be understood in a variety of situations.   A major habilitative approach involves a discussion of pragmatics and its relation to communicative competence.   Analyses of communicative intent, the responsibilities of those individuals involved when communication occurs, and the use of alternate strategies when communication deteriorates are several of the areas that are now investigated.   Role flexibility appears crucial as the hearing-impaired student must be taught to effectively communicate with hearing and other hearing-impaired individuals.

2.   *A shift from the assessment of speech intelligibility at the phoneme or word level to the measurement of intelligibility in connected speech.*

   Speech-language pathologists have found that although many hearing-impaired students can successfully produce phonemes at the phonetic level, these segmental skills rapidly deteriorate in connected speech. Traditional assessment measures must therefore be modified or abandoned.   Emphasis is now placed on the analysis of segmental and suprasegmental patterns and their effect on intelligibility at the connected speech level.

3.   *A shift from emphasizing listening skills in isolation to functional use of audition integrated with other communication skills.*

   Listening skills cannot be developed in isolation from other modalities. Students at Gallaudet are assessed and counseled relative to their functional auditory abilities.   Once these skills have been determined, training for additional skills in audition is implemented within their natural environment.

4.   *A shift to periodic, realistic counseling of students, and their parents, regarding their communication skills.*

   Many student and their parents have inaccurate perceptions regarding their current communication skills or the prognosis for improvement.   A number of students arrive at the college level with little awareness of their speech intelligibility.   Often, students with virtually unintelligible speech request "speech therapy to work on s and sh".   It is unfortunate that college-aged students are not better informed as to their communicative status.   To prevent misperceptions such as these from occuring, counseling should be initiated early in the educational process, and should be structured in a positive light.   Students (and parents) should be given opportunities to discuss these communication skills which have proven successful.   A number of deaf adults at Gal-

laudet strongly advocate comprehensive and periodic counseling, permitting students to gain insight as to their ability to communicate with hearing society.

5. *A shift from individual therapy to group habilitation.*

Gallaudet professionals find that working with students in groups is often most effective. This may entail expanding the therapy situation to include small groups of two or three, or the teaching of communication concepts and strategies in a larger, classroom-type situation. Group therapy, particularly with adolescents, permits students to interact and discuss communicative behaviors in a more natural environment.

6. *A shift from working in isolation to implementing communication training within the academic program.*

Professionals at Gallaudet have found increased generalization and greater chances for success when habilitation is merged with the academic program. Working in isolation can give students the impression that their newly-acquired communication skills are only to be used in the therapy room. At Gallaudet, specific materials have been developed for teachers to use in implementing auditory training and speechreading strategies in the classroom. The infusion of communication objectives within the academic curriculum allows for developing communicative competence as an integral part of the total school program for a student.

FUTURE CONCERNS

Several areas of concern regarding the development of audiologic habilitation programs were expressed. A theme that was evident throughout the conference was the need for an increased emphasis on the functional aspects of communication. Development and implementation of pragmatic programs in all areas of communication is a priority for all of the three campus units.

Professionals agreed that graduate school programs provide inadequate training in the area of audiologic habilitation. Graduating students are generally unaware of the state of the art in habilitation and often require intensive on-the-job retraining. Current information regarding habilitative techniques is essential, not solely for speech-language pathology and audiology programs, but also in training programs for teachers of deaf students.

It was also recognized that a continuity of programming for hearing-impaired students at Gallaudet is desirable. This need is more acute as an increasing number of students may be proceeding from KDES to MSSD and through the college (and possibly graduate) levels. The specification of criteria relative to a student's communicative competence at various ages becomes crucial. Various predictive measures could also be incorporated into such a hierarchy of skill development, thereby allowing professionals to

target those communicative behaviors most amenable to remediation.

CONCLUSIONS

Speech, language, and hearing professionals at Gallaudet view themselves as communication facilitators, emphasizing functional skills and providing practical experiences for the development and refinement of communicative behaviors. The new tools of the communication facilitator are consumer advocacy, repair strategies, assertiveness training, and communication strategies. To facilitate more effective communication for hearing-impaired students, habilitative approaches should emphasize: (a) evaluation of the student's communicative status, (b) realistic counseling regarding present skills and expectations for future progress, and (c) teaching the student strategies for effective communication in a variety of situational contexts.

REFERENCES

Brown, J. *Nelson-Denny Reading Test (Form D)*. Boston: Houghton Mifflin, 1977.

Davis, H., & Silverman, S. (Eds.). *Hearing and Deafness*. New York: Holt, Rinehart and Winston, 1970.

Elliot, L., & Katy, D. *Northwestern University children's perception of speech*. St. Louis, Mo.: Auditec of St. Louis, 1980.

Erber, N. Evaluating speech perception abilities in hearing impaired children. In F. Bess (Ed.), *Childhood deafness: Causation, assessment and management*. New York, New York: Grune & Stratton, Inc., 1977.

Erber, N. An approach to evaluating auditory speech perception ability. *The Volta Review*, 1979, *81*(1), 16-24.

Finnitzo-Hieber, T., Matkin, N., Cherow, E., & Gerling, I. *Sound effects recognition test*. St. Louis, Mo.: Auditec of St. Louis, 1977.

Frisina, D., & Bernero, R. *A profile of the hearing and speech of Gallaudet College students*. Washington, D.C.: The Volta Bureau, 1958. (Reprint #714).

Hanna, G., Shell, L., & Schreiner, R. *Nelson Reading Skills Test (Level C — Form B)*. Boston: Houghton Mifflin, 1976.

Haskins, H. *A phonetically balanced test of speech discrimination for children*. Unpublished masters thesis, Northwestern University, 1949.

House, A., Williams, C., Hecker, M., & Kryter, K. Articulation testing methods: Consonantal differentiation with a closed-response set. *Journal of the Acoustical Society of America*, 1965, *37*, 158-166.

Johnson, D., & Yust, V. Rationale and design for a student response system. In D. Johnson & W. Castle (Eds.), *InfoSeries 2: Equipment Designed to Improve the Communication Skills of the Deaf. DB-292046*. Springfield, Virginia: National Technical Information Services (NTIS), 1976.

Kendall Demonstration Elementary School. *Kendall auditory profile screening test*. Unpublished manuscript, 1981. Gallaudet College, Washington, D.C. 20002.

Kendall Demonstration Elementary School. *Monosyllabic picture test of discrimination*. Unpublished manuscript, 1976. Gallaudet College, Washington, D.C. 20002.

Kendall Demonstration Elementary School. *A pragmatic approach to language for teachers of deaf children*. Washington, D.C.: Gallaudet College, 1980.

Kendall Demonstration Elementary School. *Same-different spondee test*. Unpublished.

Kretschmer, R., & Kretschmer, L. *Language development and intervention with the hearing impaired.* Baltimore: University Park Press, 1978.

Ling, D. *Speech and the hearing impaired child: theory and practice.* Washington, D.C.: The Alexander Graham Bell Association for the Deaf, Inc., 1976.

Los Angeles County Public Schools. *Test of auditory comprehension.* Hollywood, Ca.: Foreworks, 1976.

Newby, H. *Audiology.* New York: Meredith Corporation, 1972.

Nickerson, R.J. Characteristics of the speech of deaf persons. *The Volta Review,* 1975, *77*(6), 342-362.

Nussbaum, D., & Deyo, D. Auditory skill development in a total communication setting. *Journal of the Academy of Rehabilitative Audiology,* 1981, *XIV,* 208-222.

Osberger, M., Johnstone, A., Swarts, E., & Levitt, H. The evaluation of a model speech training program for children. *Journal of Communication Disorders,* 1978, *11,* 293-313.

Patterson, B., & Knight, C. *Communication activities for introduction to art.* Washington, D.C.: Outreach, Model Secondary School for the Deaf, 1979.

Pickett, J. *Vowel Discrimination Test.* Unpublished, Gallaudet College, 1966.

Puthoff, C. *Written English Assessment.* Model Secondary School for the Deaf. Unpublished test, 1982.

Quigley, S. et. al. *Test of syntactic abilities.* Beaverton, Oregon: Dormac, Inc., 1978.

Ross, M., & Lerman, J. *Word intelligibility by picture identification.* Pittsburgh, Pa.: Stanwix House, Inc., 1971.

Subtelny, J. Speech Assessment of the deaf adult. *Journal of the Academy of Rehabilitative Audiology,* 1975, *8*(1 & 2), 110-114.

Subtelny, J. (Ed.). *Webster's diacritical markings.* Indianapolis, Indiana: Handicapped Learning Materials, 1976.

APPENDIX A

SUMMARIES OF THE
KENDALL SCHOOL LANGUAGE PROFICIENCY LEVELS (P-LEVELS)

The child is able to determine what another person is talking about by looking in the same direction as the other person. Although the child does not use words, the child communicates about his own comfort, pleasure and distress. The child also communicates about things such as clothing that are associated with his person and upon which she/he can act. The child responds attentively to turn-taking activities (such as peek-a-boo) but does not initiate the activity. The child requests objects by reaching and sometimes opening and closing the fists. He calls attention to novel elements in the environment by holding them up for others to see or by pointing. The primary forms of communication include stretching and holding gestures, facial expressions, and differentiated cries.   **0+**

The child refers to objects by holding them, looking at them, pointing and touching. As the child crawls and walks, she communicates about many objects, especially toys, lights, animals, and particular foods. The child initiates peek-a-boo and participates in other turn-taking activities such as handing objects back and forth. The child imitates the movement of others, but not necessarily to bring about the actions of others. She uses non-verbal means to call attention to physical needs and to express personal reaction. The child uses a similar movement to 0+, but shifts her gaze back and forth between the object and the person's whose help she wants in getting the object. By P-1+, the child imitates signs produced by others, although her hand configurations and movements may be imperfect. She may use a few idiosyncratic signs with consistent meaning.   **P-1**

The child uses single words to talk about the actions and things around him. He uses

language to greet people, to get their attention, to ask for a few services and things, and to protest. He uses it to note when things are present, when they're gone, and when they return (or are brought back). He communicates a good deal more than he actually expresses explicitly. He does this by pointing, looking, and touching to identify what he is talking about and through action. Moreover, he leaves it up to others to figure out what he leaves unsaid.

P-2

The child manages to communicate a lot more than she actually puts into words, but she relies less on the immediate physical context than at P-2 since she uses phrases and short sentences. She knows more words than we can keep track of easily. She talks about what she does as she does it and can request lots of different things and services. She can identify many actions and things in pictures and can describe people and objects by their familiar features. She talks about where things are, where they are going, and who owns them. She can use short phrases and sentences.

P-3

The child talks about things in the immediate physical environment he is about to do or has in mind to do. He talks about things other people are doing even if they don't have anything to do with him. He uses the language to create make-believe conditions. He can talk about several things at once and manages to say most of what he means rarely leaving things unsaid that should be expressed. He understands his friends and familiar adults easily and they understand him easily too.

P-4

The child tells complicated stories about things that happened in the past or may happen in the future. Even a stranger (at least one accustomed to deaf children) can understand her easily (and she understands the stranger). They understand each other even when one of them doesn't know anything about the place where the story occurs. The child can say a lot about how different things relate to other things: how one thing makes something else happen; how one thing contradicts another; how one thing changes as a result of another; how some things have to wait on others; and she can talk about the state of her own knowledge about things. She uses language to find out what's happening, who is doing what, what state things are in, what people are doing and why. She can carry on an extensive conversation; she sticks to the point and has a lot to say from her own experience that relates to what the other person is saying.

P-5

The child communicates successfully with anybody about things he (the child) has done or experienced. He can carry on long and complicated conversations with strangers who don't know anything about him or what he wants to talk about. In groups he is able to follow generally what everybody is saying and he can keep up a steady flow of conversation which is clear to anybody. He uses the language to influence people's thinking, their opinions, and their attitudes. He uses it to talk about alternatives and what he and others might do under different circumstances.

P-6

The child can say what she has in mind without circling around it. She can provide a lot of background material so the people she's talking to won't be lost when she describes fairly abstract things like the rules of games like baseball or how the speed of a ten-speed bicycle work. In a group discussion she can follow in detail what is being said by everybody. She refers to principles to try to influence people. When the person she is talking to misses the point, she can use other words to say the same thing so that the other person understands. And when she doesn't quite understand what someone else means, she can pinpoint the information she (the child) needs.

P-7

APPENDIX B

TEST MATERIALS USED TO ASSESS
AUDITORY FUNCTIONING AT KENDALL SCHOOL

1. TAC — Test of Auditory Comprehension (Office of Los Angeles County Public Schools, 1976).   Available from: Foreworks; P.O. Box 9747; North Hollywood, CA 91609.
2. PBK — Phonetically Balanced Word Lists — Kindergarten (Haskins, 1949).
3. WIPI — Word Intelligibility by Picture Identification (Ross & Lerman, 1971).   Available from: Stanwix House, Inc.; 3020 Charters Ave.; Pittsburgh, PA 15204.
4. NU-CHIPS — Northwestern University Children's Perception of Speech (Elliot & Katz, 1980).   Available from: Auditec of St. Louis; 402 Pasadena Ave.; St. Louis, MO 63119.
5. MPTD — Monosyllabic Picture Test of Discrimination (Developed for KDES use).
6. Same-Different Spondee Test (Developed for KDES use).
7. SERT — Sound Effects Recognition Test (Finitzo-Hieber, Matkin, Cherow, & Gerling, 1977).   Available from: Auditec of St. Louis; 402 Pasadena Ave.; St. Louis, MO 63119.
8. KAPS — Kendall Auditory Profile Screening (Developed for KDES use).

APPENDIX C

AUDITORY DISCRIMINATION TEST MATERIALS USED AT MSSD

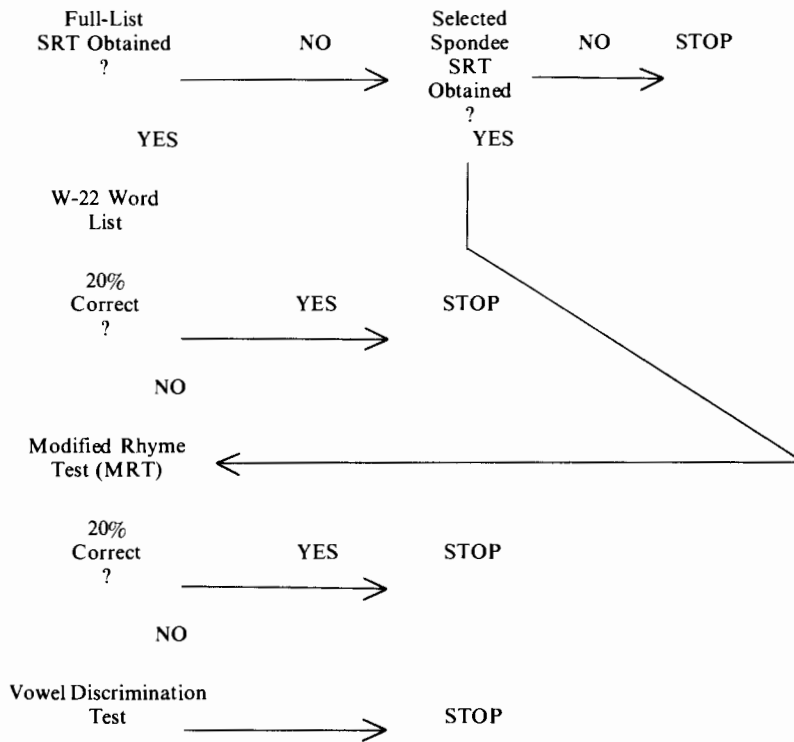**Spondee Test Procedures:**
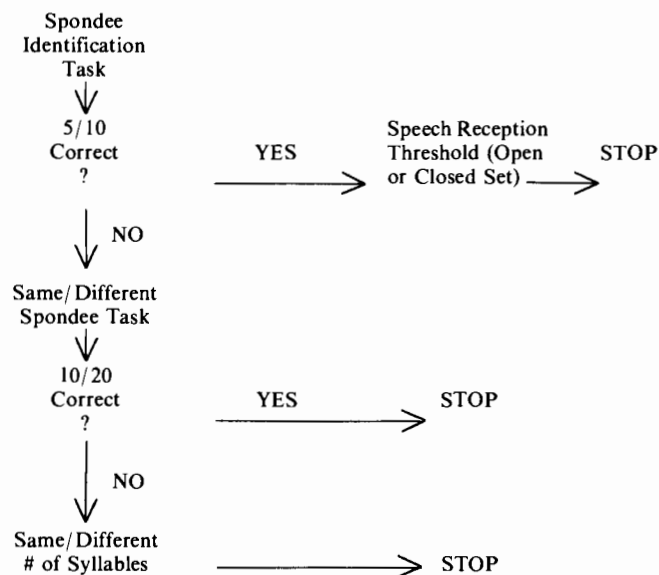
Complete Test Battery:

1. Spondee Identification Task (Developed for MSSD use — spondees chosen based on list in Johnson & Yust, 1976.   Test format based on Erber, 1979.)
2. Same-Different Spondee Task (Developed for MSSD use — based on Erber, 1979).
3. Same-Different, # of Syllables (Developed for MSSD use — based on Erber, 1979).

4. C.I.D. W-22 Word List (Newby, 1972).
5. PBK — Phonetically Balanced Word Lists — Kindergarten (Haskins, 1949).
6. WIPI — Word Intelligibility By Picture Identification (Ross & Lerman, 1971).
7. SERT — Sound Effects Recognition Test (Finitzo-Hierber, Matkin, Cherow, & Gerling, 1977).

APPENDIX D

AUDITORY DISCRIMINATION TEST PROTOCOL
USED AT COLLEGE HEARING & SPEECH CENTER

Speech Reception
Threshold Testing
(SRT)

| Full-List SRT Obtained ? | → NO → | Selected Spondee SRT Obtained ? | → NO → | STOP |

YES   YES

W-22 Word
List

| 20% Correct ? | → YES → | STOP |

NO

Modified Rhyme
Test (MRT) ←

| 20% Correct ? | → YES → | STOP |

NO

| Vowel Discrimination Test | → | STOP |

Test Battery:

1. C.I.D. W-22 Word List (Newby, 1972).
2. MRT — Modified Rhyme Test (House, et al., 1965).
3. Vowel Discrimination Test (Developed for Gallaudet College use — Pickett, 1966).

APPENDIX E

KENDALL DEMONSTRATION ELEMENTARY SCHOOL (KDES) INTAKE COMMUNICATION PROFILE — RECEPTIVE AND EXPRESSIVE

KDES INTAKE COMMUNICATION PROFILE — RECEPTIVE

CHILD: _____

DOB: _____

C.A.: _____

AMPLIFICATION: _____

INTAKE TEAM: _____

DOE: _____

RECOMMENDATIONS FOR ADMISSION: _____

AUDITION (WITH AMPLIFICATION)

_____ not aware of sound.

_____ aware of sound, but does not understand.

_____ understands many environmental sounds.

_____ understands a limited number of single words and short phrases.

_____ understands detailed sentences.

_____ understands several connected sentences.

Other:

AUDITION PLUS SPEECHREADING

_____ not aware that speechreading provides information.

_____ becoming aware that information is provided on the lips.

_____ understands a limited number of words, phrases and/or simple sentences.

_____ understands detailed sentences.

_____ understands several connected sentences.

Other:

ADDITIONAL COMMENTS:

SIGNS

_____understands homemade signs but not formal signs.

_____is aware that information is presented via signs.

_____understands simple signs when coupled with gestures.

_____understands signs for a limited number of single items.

_____understands combinations of signs (2-3) used to express
concepts.

_____understands simple sentences in ASL.

_____understands complex sentences in ASL.

_____understands simple sentences in Pidgin Sign English (PSE).

_____understands complex sentences in PSE.

_____understands simple sentences in Manually Coded English/SE.

_____understands complex sentences in MCE/SE.

Other:

READING

_____recognizes alphabet letters (print/cursive).

_____recognizes own name in print.

_____matches simple words to picture/objects.

_____can dictate an understandable message.

_____able to read simple messages presented in print.

_____understands complex messages presented in print.

_____able to read simple messages presented in cursive.

_____understands complex messages presented in cursive.

Reading Level: (Specify)

Other:

KDES INTAKE COMMUNICATION PROFILE — EXPRESSIVE

P-LEVEL

SPEECH

_____occasional accidental vocalizations.

_____vocalizes spontaneously for self-gratification rather than for
communication purposes.

_____uses vocalizations meaningfully.

_____uses isolated words and/or two word phrases intelligibly.

_____speech is intelligible when subject matter is known to listener.

_____speech is almost always intelligible, even to people not familiar
with the speech of deaf people.

*SIGNS

_____uses homemade signs.

_____attempts to imitate or produce single items.

_____signs a limited number of single items.

_____combines signs (2-3) to express concepts.

_____signs sentences incorporating ASL principles.

_____signs sentences approximating English word order.

*Sign skills are based on observations during evaluation sessions —
NOT FORMAL SIGN LANGUAGE EVALUATIONS.

_____code switches.

_____expresses complex concepts using ASL.

_____expresses complex concepts using Pidgin Sign English.

_____Expresses complex concepts using Manually Coded English/SE.

Other:

WRITING:

_____contains scribble to paper.

_____prints.

_____incorporates letters of the alphabet in drawings.

_____writes in cursive.

_____can dictate an understandable message.

_____can write an understandable message.

_____writes legibly.

Other:

ADDITIONAL COMMENTS:

APPENDIX F

GALLAUDET COLLEGE — DEPARTMENT OF AUDIOLOGY — DEPARTMENT OF COMMUNICATION ARTS
UNDERGRADUATE COMMUNICATION PROFILE SYSTEM

I. *Lipreading:* New students are administered a filmed version of the John Tracy Test of Lipreading, Forms A and B with and without auditory cues, respectively. There are 30 sentences with a total of 187 words per form. The scoring cut-off for profile assignment is as follows:

1	....	140-187 words correct
2	....	100-139 words correct
3	....	60- 99 words correct
4	....	20- 59 words correct
5	....	0- 19 words correct

II. *Speech:* A 7½ ips tape recording is made of the student reading "The Rainbow" passage. Five Department members listen (*listen only* without the advantage of lipreading the speaker) and make a profile judgement of the student's speech according to the following standards:

1 — the student is easily understood by the general public. He has no obvious voice and/or articulation errors.

2 — the student is easily understood by the general public, but he has obvious voice and/or articulation errors.

3 — "good deaf speech". The general public has some difficulty understanding the student initially, but the student can be understood once the listener adjusts to his "deaf speech".

4 — the student's speech is very difficult for the general public to understand. He is probably only understood by his family and teachers.

5 — the student's speech cannot be understood by listening to the tape.

III.   *Hearing:* All new students are given an initial audiological assessment. The descriptions below represent the student's probable difficulty understanding continuous conversation with amplification.

I — 70%-100% word discrimination score. Mild to little difficulty understanding continuous speech.

II — 42% to 68% word discrimination score. Moderate difficulty understanding continuous speech.

III — 22% to 40% word discrimination score. Severe difficulty understanding continuous speech.

IV — 8% to 20% word discrimination score. Profound difficulty understanding continuous speech.

V — 0% to 6% word discrimination score. Essentially no word discrimination ability.

APPENDIX G

"RHYTHM AND LING",
AS DEVELOPED BY BELINDA BURGESS-PURCELL

    I.   Sing and Sign Song to Student(s)
   II.   Introduce Concept
  III.   Work on Appropriate Signs
  IV.   Exercise Voice
   V.   Add Voice with Signs
  VI.   Correct Duration Skills
      A.   Correct Number of Syllables
 VII.   Work on Correct Pitch
VIII.   Work on Correct Rhythm
  IX.   Work on Improving Individual Strengths
      A.   Continued Syllable Work
      B.   Voice Work
      C.   Phonetic Work (Vowel/Consonant Skills)
      D.   Phonologic Work
   X.   Do the Song with Music (If Available)
      A.   Piano (Start slow and increase rhythm)
      B.   Coordinate Signs and Vocalizations with Music
      C.   Records/Tapes To Be Used With The Songs

(This sequence can be adapted to work with poems and nursery rhymes.)