Language, Speech, and Hearing Services in Schools, Volume 25, 100–104, April 1994

A Survey of Professionals Delivering Speech-Language Services to Children With Hearing Loss

Mary June Moseley
James J. Mahshie
Fred D. Brandt
Gallaudet University, Washington, DC

Linda Frazer Fleming
Santa Cruz City Schools, CA

A survey was conducted to describe the demographic characteristics and perceived adequacy of pre-professional training of those providing speech-language services to children with hearing loss. Results indicated that, while speech-language pathologists are the major providers of speech-language teaching, audiologists and educators also provide these services. Speech-language pathologists reported that they felt they were better prepared in the fundamentals of speech and language, but least prepared in specific areas related to audiology, deafness, and clinical procedures with clients who are deaf or hard of hearing.

KEY WORDS: deaf, hard of hearing, aural rehabilitation, speech-language, professional training

In the United States, approximately 71,230 school-age children have moderate-to-profound hearing loss (U.S. Department of Education, personal communication, November 1986). Many of these students need and receive special services to facilitate development of their speech, language, and auditory skills. Little is known, however, about the providers of these services. Who are the professionals providing speech and language services to children with hearing loss? What is the training and preparation of the professionals who serve this population? How do these professionals perceive the scope and effectiveness of their training?

This report includes a discussion of the development and results of a survey designed (a) to determine the demographic and professional training characteristics of those providing speech-language services to children with hearing loss, and (b) to determine each individual's perception of those areas considered strengths and weaknesses in their pre-professional training.

Methodology

Surveys were mailed to directors of 1,459 educational programs for children with hearing loss throughout the United States and its possessions. The programs surveyed were those participating in Gallaudet University's Office of Demographic Studies' annual survey and included public schools, residential schools, child development centers, university speech and hearing clinics, and rehabilitation centers. Each program received one survey; programs larger than 60 children received one survey for each 60 children enrolled. A total of 1,516 surveys were mailed. Administrators were asked to forward the surveys to professional personnel in their facility who provided speech-language services.

According to the American Speech-Language-Hearing Association (ASHA), aural rehabilitation "... refers to services and procedures for facilitating adequate receptive and expressive communication in individuals with hearing impairment" (ASHA, 1984, p. 37). For young children with hearing loss, a major aspect of aural rehabilitation is the development of speech and language skills. The intent of this survey was twofold: to reach speech-language service providers to establish their demographic characteristics, and to assess their perceptions of their overall preparation in various areas considered important for competence in aural rehabilitation.

Survey questions were divided into two categories. The first category was designed to provide information about respondent demographics. Respondents provided demographic information by checking the applicable answer in a series of multiple-choice questions. Questions focused on the respondents' age, gender, field of study, highest degree, ASHA certification status, number of

0161-1461/94/2502-0100$01.00/0

years of experience, and program type in the current work setting.

The second part of the survey was designed to obtain the respondents' perceptions of academic/clinical preparation. This was done through a series of statements asking the respondents to rate their knowledge of specific topics on a 1–5 scale (1 = very good, 3 = fair, 5 = poor). Statements were based on the areas of basic knowledge and understanding and special knowledge competency for aural rehabilitation as established by ASHA (1984). Specific statements represented all areas described by ASHA and were condensed into four major categories for ease of analysis:

1. **Fundamentals of speech and language**
   Statements were related to knowledge and understanding of anatomic and physiological bases, processes of production and perception, and linguistic/psycholinguistic variables related to normal development.
2. **Audiology**
   Statements included information on interpretation of audiometric measures, screening, referrals, and evaluation of personal and group amplification and other sensory aids.
3. **Clinical procedures**
   Statements dealt with assessment of, and intervention with, the client's communication skills, including administration of tests in preferred modes of communication, informal and standardized measures, interviewing, program planning, and parent and professional education.
4. **Deafness**
   Statements addressed knowledge of the effects of hearing loss on communication development, as well as emotional, social, educational, and vocational ramifications of hearing loss.

Findings: Demographics

A total of 487 surveys (32.0%) were returned from programs in 47 states and the District of Columbia. Data are expressed as percentages of total respondents.

Personal characteristics (Table 1). Ninety-five percent of the respondents were female, with a median age of 34 years. The majority of the respondents (65.5%) were trained as speech-language pathologists. Educators of people with hearing loss comprised 17.2%, and audiologists represented 10.1% of the respondents.

A master's degree was held by 82.7% of the individuals, while 14.1% held bachelor's degrees, and 2.0% had doctoral degrees. The majority had worked with children with hearing loss for more than 2 years. Over twenty-nine percent (29.3%) had been in the field for 2 to 5 years, 27.9% for 6 to 10 years, and 26.3% for more than 10 years. Only 14.1% of the respondents had worked for less than 2 years.

Almost half of the respondents (48.5%) were certified by ASHA in speech-language pathology. Only 5.1% were certified in audiology, and 1.0% were dually certified. Those not certified by ASHA comprised 45.4% of the respondents (Table 2). Of the group not certified, 36.3% were trained as speech-language pathologists; 9.9% were audiologists; and 37.8% were educators of people with hearing loss. Over sixty-three percent (63.1%) of the uncertified speech-language pathologists had master's degrees, while the remaining 36.9% held bachelor's degrees.

TABLE 1. Personal characteristics of respondents (N = 487).

Characteristic	*Percentage*
Gender	
Female	95.0
Male	5.0
Field of Study	
Speech-language pathology	65.5
Education of children with hearing loss	17.2
Audiology	10.1
Other	7.3
Highest Degree	
Bachelor's	14.1
Master's	82.7
Doctoral	2.0
No response	1.2
Years working with children who have hearing loss	
Less than 2 years	14.1
2–5 years	29.3
6–10 years	27.9
More than 10 years	26.3
No response	2.4
ASHA certification status	
CCC-SLP	48.5
CCC-AUD	5.1
CCC-SLP/AUD	1.0
No CCC	45.4

Program type (Table 3). The majority of the respondents were employed in the public schools (73.0%). Residential schools for children with hearing loss employed 22.0% of the professionals, and 5.0% were employed in other settings, such as university-affiliated clinics. Over seventy-five percent (75.5%) of speech-language pathologists were in public schools, compared to 63.0% of the audiologists and 69.0% of the educators. Only 19.4% of the speech-language pathologists were in residential schools, while 26.1% of audiologists and 28.2% of educators of people with hearing loss were in residential schools.

Summary: demographics. This survey indicated that female speech-language pathologists are the major pro-

TABLE 2. Characteristics of non-ASHA-certified respondents (N = 222).

Characteristic	*Percentage*
Field of study	
Speech-language pathology	36.3
Audiology	9.9
Education of children with hearing loss	37.8
Other	16.0
Highest degree of speech-language pathologists	
Bachelor's	36.9
Master's	63.1

TABLE 3. Distribution of respondents according to program type and field of study (N = 487)

Program type	*Percentage: speech-language pathologist*	*Percentage: audiologists*	*Percentage: educators*	*Total percentage: all respondents*
Public schools	75.5	63.0	69.0	73.0
Residential schools	19.4	26.1	28.2	22.0
Other:				
Univ. clinic Child dev. center Rehab. center	5.1	10.9	2.8	5.0

viders of speech-language services for children with hearing loss. One fourth (25.0%) of the speech-language pathologists providing services are not certified by ASHA, although the majority hold master's degrees. In addition, the speech-language pathologists are employed more in public schools than in any other setting. Because public schools may require certification independently from ASHA, these service providers may have chosen to obtain only one certificate—for example, an educational certificate—and this survey did not reflect the type of educational certification held by respondents. Service providers from academic programs in education of people with hearing loss typically do not meet ASHA certification requirements.

Fewer speech-language pathologists were found in a residential school setting. It is possible that speech-language pathologists, trained to work with all types of communication problems, seek positions in public schools, where the caseloads are varied. Children with hearing loss are likely to be included in many school clinicians' caseloads without constituting the entire caseload.

Findings: Rating of Academic Preparation

The respondents' ratings of their academic preparation in various areas were summarized by determining the mean rating of statements for each profession in each of the four broad categories. The group of individuals describing their profession as "other" were heterogeneous and were not included in this analysis.

Fundamentals of speech and language (Table 4). The category of Fundamentals received the highest overall mean ratings of the four categories for all three professions. The educator group (overall mean = 2.2) rated themselves lower than the speech-language pathologists (overall mean = 1.8) and audiologists (overall mean = 1.9) in all areas of Fundamentals. Within their group, the educators reported being the least informed about linguistic and psycholinguistic variables related to normal communication development (mean = 2.4).

Graduate programs in the field of speech-language pathology and audiology require courses in these areas for ASHA certification. Thus, it seems likely that those two groups would perceive this area as one in which they have expertise.

Audiology (Table 5). Audiologists rated themselves the highest in the category of Audiology (overall mean = 2.1), followed by speech-language pathologists (overall mean = 2.5) and educators of people with hearing loss (overall mean = 2.5). Speech-language pathologists rated themselves highest in knowledge of hearing screening procedures (mean = 1.6), while the audiologists and educators within their group rated themselves highest in knowledge of audiogram interpretation (mean = 1.3 and 2.2, respectively). All three groups rated themselves as having the least amount of knowledge concerning the availability and use of sensory aids, including telephone and telecommunication devices (speech-language pathologists: mean = 3.4; audiologists: mean = 3.0; educators: mean = 2.9).

As expected, audiologists saw themselves as skilled in areas of audiogram interpretation. Speech-language pathologists and educators rated themselves lower in this area than the audiologists, but, compared to each other,

TABLE 4. Mean ratings on statements regarding "knowledge of fundamentals of speech and language," shown by profession (N = 451)

Statement	*SLP*	*Aud.*	*Educ.*
Anatomic and physical base for normal development	1.7	1.7	2.0
Processes of production and perception of speech and hearing	1.9	1.8	2.2
Linguistic and psycholinguistic variables related to normal development	1.9	2.1	2.4
Group mean	**1.8**	**1.9**	**2.2**

Note: 1 = very good; 3 = fair; 5 = poor

TABLE 5. Mean ratings on statements regarding "knowledge of audiology," shown by the profession (N = 451).

Statement	*SLP*	*Aud.*	*Educ.*
Knowledge of screening	1.6	2.0	2.6
Determining referrals	2.0	1.8	2.5
Audiogram interpretation	2.1	1.3	2.2
Influences of environmental factors on communicative function	2.6	2.1	2.3
Effects of amplification on communicative function	2.9	2.3	2.4
Amplification characteristics	3.1	2.4	2.8
Availability/use of sensory aids	3.4	3.0	2.9
Group mean	**2.5**	**2.1**	**2.5**

Note: 1 = very good; 3 = fair; 5 = poor

they had similar ratings. These findings are not surprising because all three groups are likely to have received training in this area.

The low ranking by all groups concerning their preparation in the availability and use of sensory aids is also understandable. Sensory aids are a result of the technological expansion in recent years. Many of the respondents to this survey may not have had the opportunity to receive training in this area in their graduate programs.

Clinical procedures (Table 6). Clinical procedures was one of the categories in which speech-language pathologists and educators expressed the least amount of knowledge (overall mean = 2.8 and overall mean = 2.7, respectively).

Mean ratings for statements ranged between 2.4 and 3.4 for speech-language pathologists, 2.1 and 2.8 for audiologists, and 2.3 and 3.0 for educators. One of the areas that received the highest ratings by speech-language pathologists and educators was interaction with clients (mean = 2.4 and 2.3, respectively). Audiologists rated this area nearly as highly (mean = 2.3), but were most comfortable communicating with allied professionals (mean = 2.1). The long-term nature of the therapeutic aspects of speech-language pathology and education would seem to explain this perception.

Statements within this category that received the lowest rating by the audiologists and educators related to planning in-service training (mean = 2.8 and 3.0, respectively), while speech-language pathologists reported that they were least prepared to conduct assessments in the client's preferred mode of communication (mean = 3.4). Because the speech-language pathologists comprised the largest proportion of professionals providing speech-language services, the indication that they have fair-to-poor knowledge in this area is noteworthy. A clinician's lack of knowledge in this area may result in inaccurate assessment, and the recommended training program could be compromised.

The results of these ratings indicate that all groups have fair-to-good knowledge of issues related to assessment and intervention and rehabilitative case management. In the fields of speech-language pathology and audiology, the audiologists often receive the most training in aural rehabilitation. For the respondents of this survey, a minimum of 6 academic semester hours of courses and 50 hours of practicum were required in aural rehabilitation for audiologists in order to receive ASHA certification (ASHA, 1988). Speech-language pathologists were required by ASHA to take only one course and have 15 hours of practicum in aural rehabilitation. The new 1993 standards for speech-language pathologists are the same in the area of aural rehabilitation (ASHA, 1989). It appears that current ASHA requirements may result in more specific training being given to the group that is less likely to provide service in this area.

Deafness (Table 7). In this category, the educators gave themselves higher ratings on the average than the other two groups. Speech-language pathologists and audiologists gave themselves the highest ratings on their knowledge of normal semantic, syntactic, phonological and pragmatic development (mean = 2.0). Audiologists gave the same rating (mean = 2.2) in response to the statement regarding their knowledge of the effects of hearing loss on learning. Educators perceived themselves as having the greatest knowledge of the effects of hearing loss on learning (mean = 2.2). All three groups gave the lowest mean rating to knowledge about the vocational ramifications of hearing loss (speech-language pathologists = 3.6; audiologists = 3.5; educators = 3.2). Where this kind of information would be placed in academic curricula is somewhat unclear and would depend on each individual program. However, it does appear that this information, suggested by the ASHA document discussing definition of and competency for aural rehabilitation (ASHA, 1984),

TABLE 6. Mean ratings on statements regarding "knowledge of clinical procedures," shown by profession (N = 451).

Statement	*SLP*	*Aud.*	*Educ.*
Interact with client	2.4	2.3	2.3
Interpreting measures of phonology, syntax, semantics, pragmatics	2.4	2.7	2.7
Interpreting measures of speech, voice, language	2.4	2.6	2.6
Communicate with allied professionals	2.5	2.1	2.4
Guide client to deal with difficult listening situations	2.8	2.3	2.7
Develop strategies for independent management	2.9	2.5	2.8
Guide client to accept loss	2.9	2.5	2.7
Monitor appropriateness of rehab plan	2.9	2.6	2.9
Develop/implement rehab plan	2.9	2.5	2.6
Interpreting measures of auditory, visual skills	3.0	2.6	2.8
Parent programming	3.1	2.8	2.9
Plan in-service trainings	3.2	2.8	3.0
Assessing in client's preferred mode of communication	3.4	2.8	2.8
Group mean	**2.8**	**2.5**	**2.7**

Note: 1 = very good; 3 = fair; 5 = poor

TABLE 7. Mean ratings on statements regarding "knowledge of deafness," shown by profession (N = 451).

Statement	*SLP*	*Aud.*	*Educ.*
Knowledge of semantics, pragmatics, syntax, phonology on normal development	2.0	2.2	2.3
Normal aspects of emotional/social development	2.4	2.4	2.3
Knowledge of semantics, pragmatics, syntax, phonology of children with hearing loss	2.6	2.5	2.3
Effects of hearing loss on learning	2.7	2.2	2.2
Impact of hearing loss on emotional/social development	2.9	2.4	2.4
Methods of educational programming for children with hearing loss	3.1	2.8	2.3
Methods of vocational programming for children with hearing loss	3.6	3.5	3.2
Group mean	**2.8**	**2.6**	**2.4**

Note: 1 = very good; 3 = fair; 5 = poor

is an area in which actual service providers feel that they have only fair knowledge.

Summary and Conclusions

The purpose of this survey was to describe the characteristics of professionals providing speech-language services to children with hearing loss in the United States and to examine these professionals' perceptions of the adequacy of their pre-professional training. Several conclusions may be drawn from this survey.

Speech-language pathologists are the major providers of speech-language services for children with hearing loss, although audiologists and educators of people with hearing loss represented about one third of those surveyed. About one fourth of the speech-language pathologists are not certified by ASHA, although the majority hold master's degrees. The speech-language pathologists are most commonly employed in public schools versus other settings.

Although speech-language pathologists are the typical service providers, they perceived their pre-professional training in certain areas to be less adequate than did either of the other professional groups surveyed. Areas in which they perceived themselves least prepared included audiology and some clinical procedures and deafness issues. However, the speech-language pathologists saw themselves as better prepared in normal speech and language processes than did the audiologists or deaf educators. Specifically, the perceptions of the speech-language pathologists completing this survey suggest a weakness in areas related to clinical experience with deaf individuals and the need for additional knowledge in such areas as emotional and vocational ramifications of deafness, evaluation of speech and language skills of children with hearing loss, availability and use of sensory aids, and administration of standardized and nonstandardized tests in the client's preferred communication modality.

One possible way to address these weaknesses would be to reexamine academic programming for speech-language pathologists interested in working with this population. Current ASHA certification requirements include single courses in aural rehabilitation and audiology and a minimum of 15 hours of clinical experience with individuals with hearing loss. These minimal standards alone may not be considered sufficient.

While reinforcing content areas for academic programs will no doubt help, it also may be necessary to improve the knowledge in these areas of professionals currently in the field. Clearly, schools providing services to children with hearing loss should be encouraged to arrange for in-service training, workshops, and other continuing education programs.

It is possible that this particular sample was biased toward the better-trained professionals whom the administrators chose to complete the survey. Further examination is needed to provide more detailed information on specific aspects of the needs of these professionals. Such information is important for determining the direction of academic programs and/or in-service training of individuals serving children with hearing loss.

REFERENCES

AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION. (1984, May). Definition of and competencies for aural rehabilitation: A position statement. *Asha*, pp. 37–41.

AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION. (1988). *ASHA Membership & Certification Handbook*. Rockville, MD: Author.

AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION. (1989, March). Standards for the certificates of clinical competence. *Asha*, pp. 70–71.

Received July 29, 1992
Accepted August 20, 1993

Contact author: Mary June Moseley, PhD, Department of Audiology and Speech-Language Pathology, Gallaudet University, 800 Florida Avenue, NE, Washington, DC 20002-3695.