
Preparation in Educational Audiology: A Survey of Educational Audiologists

Sharla M. Curiel

Department of Veterans Affairs Medical Center, Washington, DC

Michael A. Nerbonne

Central Michigan University, Mt. Pleasant, MI

Completed surveys were obtained from 425 educational audiologists concerning the degree of competence each felt he/she possessed in key areas of educational audiology upon graduation. Results indicated generally strong competency ratings for those areas closely aligned with mainstream clinical audiology, but the competency ratings were much lower for aspects directly associated with practicing audiology in the school setting. These results strongly suggest the need for substantial changes in how future audiologists are prepared academically and clinically in educational audiology.

Introduction

For some time there has been concern registered regarding the academic/clinical preparation of educational audiologists (Blair, Wilson-Vlotman and Von Almen, 1989; English, 1991; Seaton, Von Almen, and Blair, 1994; Wilson-Vlotman & Blair, 1986). This, in part, prompted the Educational Audiology Association (1994) to develop an extensive list of what was termed Minimum Competencies for Educational Audiologists. This document, as well as a related publication from the American Speech-Language-Hearing Association (ASHA) in 1993, not only has guided the audiologists providing services in the school setting, but also has been available for academic programs in audiology to use as they develop and modify curricula.

To gather updated information concerning the preparation of educational audiologists, two separate surveys were conducted. The first sought to obtain relevant information from the present academic programs in audiology in the United States concerning the extent to which they now prepare students to meet each of the competencies for educational audiologists set forth by the Educational Audiology Association (EAA). Details regarding the outcome of this particular survey can be found in the companion article by Beckrow and Nerbonne for this issue of *Journal of Educational Audiology*. In general, the survey disclosed that a majority of the competencies identified by the EAA that focus on educational audiology often are not addressed adequately by most current training programs.

To obtain a related but broader perspective, a second survey described in the present article was conducted to elicit information directly from current practicing educational audiologists. This survey sought to assess how well prepared educational audiologists felt they were immediately following the completion of their graduate preparation in audiology to meet the competencies outlined by the EAA for educational audiologists.

Method

A 48-item questionnaire was developed to identify the degree of competence in educational audiology that current school audiologists felt they had obtained at the completion of their formal academic training. The questionnaire (see Appendix A) was based on a set of minimum competencies for educational audiologists developed by the EAA in 1994. In the spring of 2000, the questionnaire was mailed to each of the 842 individuals identified as educational audiologists in the 1999-2000 membership lists of either the EAA, the American Academy of Audiology (AAA), or ASHA. A cover letter was included which briefly explained the purpose of the survey and assured confidentiality of individual responses.

Results

Respondents

Completed surveys were received from 425 individuals, resulting in a 50 % return rate. Ninety-seven percent reported their highest academic degree was a master's, while 3% had earned either an educational specialist or doctoral degree. Among respondents, 36% reported completion of their academic training before 1980, 38% did so between 1980-1989, and the remainder (26%) graduated in 1990 or after. Also worth noting was the fact that only 20% of the respondents reported experiencing a full-time educational audiology practicum placement during their graduate training, with an average duration of 13 weeks for that placement.

Competency Areas

Respondents were asked to rate their competency academically and clinically for the competency areas identified by EAA as important to function as an educational audiologist. They were instructed to base the ratings on their perceived preparation/competencies immediately following the completion of their formal graduate training.

Table 1. Mean Ratings from Educational Audiologists for Perceived Coursework and Clinical Competence/Preparation for a List of Competency Areas Identified by the EAA as Important for Educational Audiologists. Standard Deviations are in Parentheses. Rating Scale Values ranged from 1 (Not at All Competent) to 5 (Very Competent).

Competency Area	Academic Preparation	Clinical Preparation
Pure tone audiometric screening	4.7 (0.7), N=420	4.8 (0.6), N=421
Immittance measures	4.3 (1.0), N=402	4.3 (0.9), N=402
Newborn screening criteria	2.9 (1.3), N=334	2.6 (1.4), N=330
Pure tone air/bone conduction threshold testing	4.7 (0.7), N=416	4.7 (0.7), N=419
Speech reception and word recognition testing	4.7 (0.7), N=415	4.7 (0.7), N=419
Otoscopy	3.5 (1.2), N=415	3.6 (1.1), N=417
ABR testing and interpretation	2.8 (1.2), N=362	2.5 (1.2), N=356
CAP testing and interpretation	2.4 (1.2), N=381	2.2 (1.3), N=378
Making appropriate medical referrals	4.0 (1.0), N=422	4.1 (1.0), N=423
Making appropriate educational referrals	3.0 (1.2), N=405	3.1 (1.3), N=404
Aud procedures appropriate to cognitive ability	3.9 (1.1), N=423	4.0 (1.1), N=421
Hearing aid evaluation and selection	3.5 (1.1), N=422	3.4 (1.1), N=421
FM system/ALD evaluation and selection	2.4 (1.1), N=401	2.4 (1.2), N=398
Cochlear implant technology/evaluation	1.9 (1.0), N=277	1.6 (1.0), N=277
Earmold impressions and modifications	3.5 (1.1), N=411	3.6 (1.2), N=410
Classroom acoustics	2.5 (1.2), N=398	2.3 (1.2), N=394
General child development and management	3.7 (1.1), N=417	3.5 (1.2), N=416
Written and verbal interpretation of results	4.1 (1.0), N=420	4.1 (1.0), N=419
IFSP/IEP planning and procedures	2.0 (1.2), N=349	2.0 (1.3), N=346
Consultation/collaboration with teachers	2.1 (1.1), N=376	2.3 (1.3), N=372
Educational options for deaf /HOH children	2.9 (1.2), N=407	2.8 (1.3), N=403
Implications of auditory assessment results	3.2 (1.1), N=412	3.1 (1.2), N=407
Legal issues/procedures related to education	2.1 (1.2), N=386	2.0 (1.2), N=381
Auditory skills development	3.4 (1.2), N=422	3.2 (1.2), N=415
Speech skills development	3.6 (1.1), N=422	3.3 (1.2), N=414
Communication systems (i.e., sign language)	3.0 (1.3), N=413	2.8 (1.3), N=408
Language development	3.8 (1.1), N=416	3.4 (1.2), N=408
Knowledge of appropriate learning environments	3.0 (1.2), N=409	2.8 (1.3), N=400
Case management	2.9 (1.2), N=400	2.9 (1.2), N=395
Counseling of families	3.2 (1.1), N=420	3.2 (1.1), N=419
Selection/maintenance of aud equipment	3.3 (1.2), N=410	3.3 (1.3), N=404
Maintenance of records	3.4 (1.3), N=412	3.6 (1.2), N=411
Implementation of hearing conservation program	2.9 (1.2), N=401	2.6 (1.2), N=392
Cerumen management techniques/concerns	2.0 (1.2), N=297	2.0 (1.2), N=292
Implementation of in-service training programs	2.3 (1.2), N=355	2.4 (1.3), N=351
Training and supervision of paraprofessionals	1.9 (1.2), N=328	2.0 (1.3), N=322
Sensitivity/knowledge of diversity/cultural differences	2.5 (1.3), N=357	2.6 (1.4), N=354
Interpersonal and communication skills	3.4 (1.2), N=402	3.6 (1.1), N=399

Table 1 lists each competency area along with the mean rating values as perceived by the respondents for both academic and clinical competence/preparation, based on a rating scale from 1 (not at all competent) to 5 (very competent). The overall mean rating for academic competency was 3.2 (SD of 1.4). For clinical competencies, an overall mean rating of 3.1 (SD of 1.4) was obtained. Areas from the EAA competency list that the respondents rated the highest academically (mean ratings from 4.1-5.0) are shown in Figure 1. Figure 2, on the other hand, shows those competency areas respondents rated the lowest (1.9-2.1) with respect to academic preparation. Numerous other areas

Figure 1. Mean Ratings for Five Competency Areas Rated the Highest with Respect to Coursework Preparation

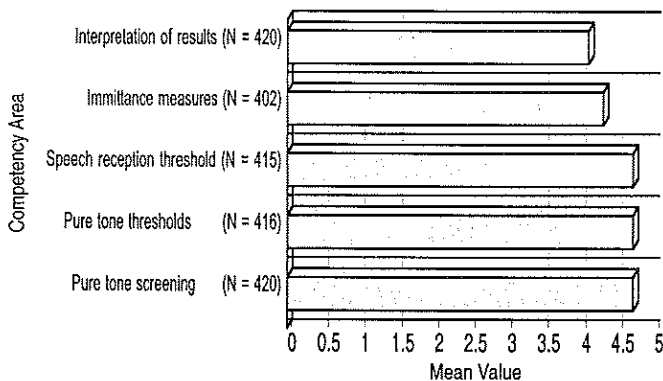
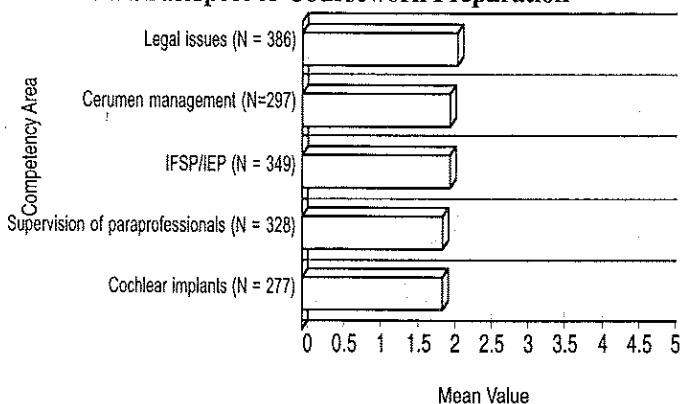


Figure 2. Mean Ratings for Five Competency Areas Rated the Lowest with Respect to Coursework Preparation



important to educational audiology, such as implementing in-service programs, CAP assessment/interpretation, FM system evaluation/selection, and knowledge about classroom acoustics, were also rated relatively low.

Figures 3 and 4 illustrate those areas rated either high or low with respect to clinical preparation/competence. As can be seen, both the five highest and lowest rated areas clinically were the same as those identified for academic preparation. Again, a number of other competency areas closely linked with educational audiology, like CAP testing/interpretation, consultation/collaboration with classroom teachers, and FM system evaluation and selection also received quite low ratings from the respondents.

Figure 3. Mean Ratings for Five Competency Areas Rated the Highest with Respect to Clinical Preparation

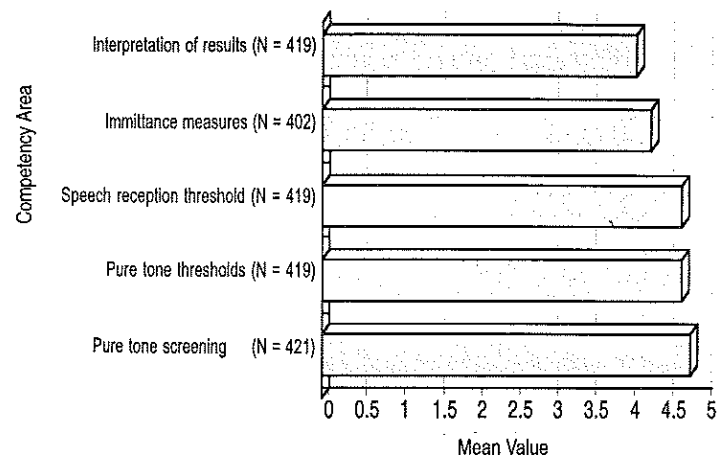
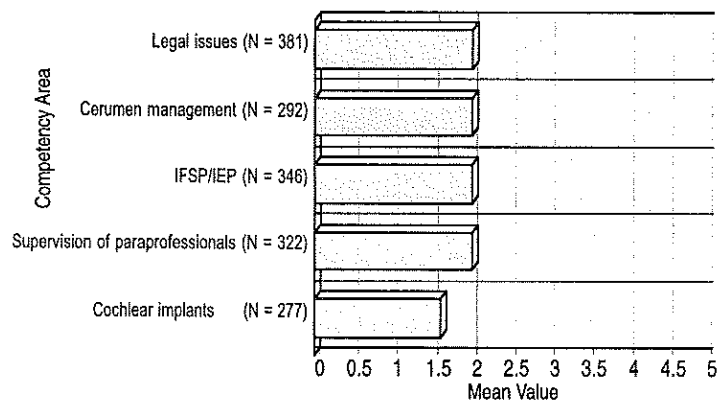


Figure 4. Mean Ratings for Five Competency Areas Rated the Lowest with Respect to Clinical Preparation



Informal comparisons, utilizing descriptive data, also were made of the perceived competency ratings on the basis of the respondents' highest degree and when the degrees were awarded. In general, no meaningful differences were found. For respondents with a doctoral degree, the overall mean ratings associated with academic and clinical competence were 3.1 (SD=1.4) and 3.0 (SD=1.4) respectively. Mean ratings of 3.2 (SD=1.4) for both the academic and clinical competencies were obtained from those with a master's degree. Tables 2 and 3 present selected mean ratings data for respondents graduating prior to 1990 and from 1990 on. Overall, the mean ratings for these two groups were identical, with means of 3.1 (SD's of 0.9 and 0.8). The only differences of note occurred with those competency areas receiving the lowest mean ratings, with the mean ratings from the more recent graduates being slightly higher.

Finally, respondents were asked to provide an overall rating of their academic/clinical competence for assuming a position as an educational audiologist at the completion of their formal education. Respondents provided an overall mean rating of 3.1 (SD of 0.9), using the same 5-point scale used previously.

Table 2. Mean Ratings from Educational Audiologists Graduating Prior to 1990 for Perceived Coursework and Clinical Competence for the Five Highest and Five Lowest Rated Areas. Standard Deviations are in Parentheses.

Competency Area	Coursework Preparation	Clinical Preparation
Pure tone screening	4.8 (0.7), N=305	4.8 (0.6), N=306
Pure tone threshold testing	4.7 (0.6), N=304	4.7 (0.6), N=306
Speech reception testing	4.7 (0.7), N=305	4.7 (0.7), N=307
Immittance measures	4.3 (1.1), N=288	4.4 (1.0), N=288
Interpretation of results	4.1 (0.9), N=307	4.2 (0.9), N=306
Cochlear implant evaluation	1.7 (1.0), N=171	1.5 (0.9), N=256
Training of paraprofessionals	1.8 (1.2), N=236	1.9 (1.2), N=234
Knowledge of IFSP/IEP	1.9 (1.2), N=243	1.9 (1.3), N=242
Cerumen management	1.8 (1.1), N=198	1.8 (1.1), N=194
Knowledge of legal issues	2.0 (1.1), N=275	1.9 (1.1), N=272

Table 3. Mean Ratings from Educational Audiologists Graduating from 1990 on for Perceived Coursework and Clinical Competence for the Five Highest and Five Lowest Rated Areas. Standard Deviations are in Parentheses.

Competency Area	Coursework Preparation	Clinical Preparation
Pure tone screening	4.8 (0.5), N=112	4.7 (0.6), N=112
Pure tone threshold testing	4.7 (0.6), N=112	4.7 (0.6), N=112
Speech reception testing	4.7 (0.6), N=111	4.7 (0.6), N=112
Immittance measures	4.5 (0.7), N=112	4.5 (0.7), N=112
Interpretation of results	3.9 (0.9), N=110	3.9 (0.9), N=110
Cochlear implant evaluation	2.2 (1.0), N=103	1.9 (1.0), N=104
Training of paraprofessionals	2.1 (1.3), N=90	2.3 (1.4), N=86
Knowledge of IFSP/IEP	2.0 (1.1), N=104	2.2 (1.2), N=102
Cerumen management	2.4 (1.3), N=97	2.4 (1.3), N=96
Knowledge of legal issues	2.4 (1.1), N=108	2.2 (1.2), N=106

Discussion

Results from this survey generally indicate that while current educational audiologists felt competent and well-prepared in the areas closely aligned with mainstream clinical audiology at the completion of their formal education, they felt much less competent in many areas essential to practicing audiology in an educational setting. This appeared to be the case with respect to both academic and clinical preparation and competency.

The present survey was not designed to provide extensive information concerning why respondents viewed their competency in this manner. However, the results from the question regarding the inclusion of a full-time practicum placement in educational audiology seem quite relevant. Assuming that such an experience would provide a major opportunity to be exposed in an in-depth manner to the key elements of educational audiology, the fact remains that nearly 80% of the respondents reported not having that experience during their graduate training. This was the case in spite of ASHA's (1993) and EAA's (1994) longstanding positions concerning the importance of a practicum experience in the school setting for those students preparing to be educational audiologists.

This general outcome is reinforced by the findings from the

companion survey (Beckrow and Nerbonne, 2002) with graduate programs in audiology. Results indicated considerable emphasis placed on preparing students academically and clinically in the major areas of clinical audiology, as evidenced by the number of courses, hours of academic instruction, and hours of clinical practicum typically provided in those areas. While skills in clinical audiology are fundamental to many audiological endeavors and therefore warrant emphasis, many of the competency areas identified by the EAA as important to educational audiology reportedly received little, if any, emphasis. Related to this, most training programs reported not having a course specific to educational audiology, nor did they require any internship within the school setting.

Data from the present study also suggest that those educational audiologists that graduated more recently and/or earned either a doctorate or education specialists degree considered their competency in educational audiology to be about the same as those graduating prior to 1990 with a master's degree. Evidently this perceived lack of competence in educational audiology remains prevalent among recent graduates despite efforts by professional organizations like the EAA and ASHA to encourage existing training programs in audiology to modify/expand curricula.

The present survey and the companion Beckrow and Nerbonne survey collectively indicate that most audiology graduates have been and continue to be inadequately trained in many competency areas important in providing audiologic services in the educational setting. Meeting the focused needs of educational audiologist must continue to be addressed, and an important step in doing so would be for all audiology training programs to require both a class and clinical practicum devoted specifically to educational audiology. These two measures alone would contribute much toward minimizing the need for "learning on the job" that educational audiologists have faced in the past as they assume positions in the schools.

References

American Speech-Language-Hearing Association (1993). Guide lines for audiology services in the schools. *ASHA*, 35 (Suppl. 10), 24-32.

Beckrow, B., and Nerbonne, M. (2002). Preparation in educational audiology: A survey of academic programs in audiology. *Journal of Educational Audiology*, under review.

Blair, J., Wilson-Vlotman, A., and Von Almen, P. (1989). Educational audiologists: Practices, problems, directions, recommendations. *Educational Audiology Monograph*, 1, 1-14.

Educational Audiology Association (1994). Minimum competencies for educational audiologists. *Educational Audiology Association Newsletter*, 11 (4), 7.

English, K. (1991). Best practices in educational audiology. *Language, Speech and Hearing Services in Schools*, 22, 283-286.

Seaton, J., Von Almen, P., and Blair, J. (1994). Autonomy of audiologists in educational settings. *Journal of the American Academy of Audiology*, 5, 412-416.

Wilson-Vlotman, A. and Blair, J. (1986). A survey of audiologists working full-time in school systems, *ASHA*, 28 (11), 33-38.

Appendix A

Perceived Competence of Educational Audiologists Regarding EAA-Established Minimum Competencies
Demographic Data

1. Gender
 Male
 Female
2. Title of job position
 Educational Audiologist
 Speech/Language Pathologist
 Teacher of the Hearing Impaired
 Other _____
3. Organizational affiliations (check all that apply)
 American Academy of Audiology
 American Speech-Language-Hearing Association
 Educational Audiology Association
 Other _____
4. Number of hours worked per week in schools
 30 or more
 15 - 29
 Less than 15
5. What is your highest academic degree and the discipline in which you obtained it?
 Bachelor's Degree in _____
 Master's Degree in _____
 Doctorate Degree in _____
6. Credentials (check all that apply)

	Aud.	SLP	N/A
CCC	_____	_____	_____
State Lic.	_____	_____	_____
State Cert.	_____	_____	_____
Other	_____		
7. Number of years employed in educational audiology
 _____ years
8. When did you complete your formal academic training?
 Prior to 1970
 1970 - 1979
 1980 - 1989
 1990 - 1999
9. Did you have a full-time educational audiology internship (school placement) during your academic training?
 No
 Yes
 If yes, how many weeks? _____

Please circle how competent you felt for each of the following areas immediately after you completed your formal graduate training in audiology.

Response options range from 1 (not at all competent) to 5 (very competent).

	Coursework Prep.					Clinical Prep.					
Pure tone audiometric screening	1	2	3	4	5	N/A	1	2	3	4	5
Immittance measures	1	2	3	4	5	N/A	1	2	3	4	5
Newborn screening criteria	1	2	3	4	5	N/A	1	2	3	4	5
Pure tone air and bone conduction threshold testing	1	2	3	4	5	N/A	1	2	3	4	5
Speech reception and word recognition testing	1	2	3	4	5	N/A	1	2	3	4	5
Otoscopy	1	2	3	4	5	N/A	1	2	3	4	5
ABR testing and interpretation	1	2	3	4	5	N/A	1	2	3	4	5
Central Auditory Processing testing and interpretation	1	2	3	4	5	N/A	1	2	3	4	5
Making appropriate medical referrals	1	2	3	4	5	N/A	1	2	3	4	5

Over Please >>

	Coursework Prep.					Clinical Prep.					
Making appropriate educational referrals	1	2	3	4	5	N/A	1	2	3	4	5
Aud. Procedures (play aud., etc.) appropriate to cognitive ability	1	2	3	4	5	N/A	1	2	3	4	5
Hearing aid evaluation and selection	1	2	3	4	5	N/A	1	2	3	4	5
FM system/ALD evaluation and selection	1	2	3	4	5	N/A	1	2	3	4	5
Cochlear implant technology/evaluation	1	2	3	4	5	N/A	1	2	3	4	5
Earmold impressions and modifications	1	2	3	4	5	N/A	1	2	3	4	5
Classroom acoustics	1	2	3	4	5	N/A	1	2	3	4	5
General child development and management	1	2	3	4	5	N/A	1	2	3	4	5
Written and verbal interpretation of assessment results	1	2	3	4	5	N/A	1	2	3	4	5
IFSP/IEP planning and procedures	1	2	3	4	5	N/A	1	2	3	4	5
Consultation and collaboration with classroom teachers	1	2	3	4	5	N/A	1	2	3	4	5
Educational options for deaf and heard of hearing children	1	2	3	4	5	N/A	1	2	3	4	5
Implications of auditory assessment results for child development	1	2	3	4	5	N/A	1	2	3	4	5
Legal issues and procedures related to education	1	2	3	4	5	N/A	1	2	3	4	5
Auditory skills development	1	2	3	4	5	N/A	1	2	3	4	5
Speech skills development	1	2	3	4	5	N/A	1	2	3	4	5
Communication systems (for example, sign language)	1	2	3	4	5	N/A	1	2	3	4	5
Language development	1	2	3	4	5	N/A	1	2	3	4	5
Knowledge of appropriate learning environment for HI students	1	2	3	4	5	N/A	1	2	3	4	5
Case management	1	2	3	4	5	N/A	1	2	3	4	5
Counseling of families	1	2	3	4	5	N/A	1	2	3	4	5
Selection and maintenance of audiological equipment	1	2	3	4	5	N/A	1	2	3	4	5
Maintenance of records	1	2	3	4	5	N/A	1	2	3	4	5
Implementation of hearing conservation programs	1	2	3	4	5	N/A	1	2	3	4	5
Cerumen management techniques and concerns	1	2	3	4	5	N/A	1	2	3	4	5
Implementation of in-service training programs	1	2	3	4	5	N/A	1	2	3	4	5
Training and supervision of paraprofessionals	1	2	3	4	5	N/A	1	2	3	4	5
Sensitivity/knowledge about diversity and cultural differences	1	2	3	4	5	N/A	1	2	3	4	5
Interpersonal and communication skills	1	2	3	4	5	N/A	1	2	3	4	5

Please provide an overall rating of your academic/clinical competence as it relates to how well you were prepared to assume your position as an educational audiologist as a result of your formal training.

(circle one) 1 2 3 4 5

Please return in the enclosed envelope. Thank you very much for completing the survey!