Graduate Education in Audiology: We Agree With the Diagnosis, But Not the Treatment

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In recent years, much concern has been expressed about the qualifications of audiologists currently being graduated from existing programs with master's degrees. A professional doctorate, the AuD, has been advocated frequently as a solution to the deficiencies in the educational preparation of audiologists (Goldstein, 1989). We share the concern about the quality and depth of training received by graduating master's-level clinicians. We do not believe, however, that a professional doctorate represents the only or the best solution to the problem at this time. As we've recently noted in a slightly different context (Humes et al., 1992): "Four years of undergraduate education and 2 years of graduate work represent an educational model that is well-suited to the training of competent and highly qualified audiologists. The primary problem, though, is that most student audiologists receive the vast majority of their education in the final 2 years of this 6-year time period." *Undergraduate* education in audiology should be restructured so that much of the coursework currently taken at the master's level could be taken during the final 2 years of an undergraduate program. This would leave 2 years of master's work for truly advanced education and clinical work. This structure could parallel that in speech-language pathology; undergraduate audiology majors would receive two survey-type courses in speech-language pathology, just as current speech-language pathology majors receive such coursework in audiology. The focus, however, would be on audiology and hearing science as an undergraduate, especially during the final 2 years. Six years of college education should be more than adequate to enable students to achieve the highest level of competence as audiologists, as long as a *significant* amount of the educational process was allowed to take place during the first 2 years.

The American Speech-Language-Hearing Association (ASHA) has recently recognized that speech-language pathology and audiology are two *separate* professions, with professional responsibilities and educational needs unique to each profession. Having recognized this, it then seems only logical to develop equivalent and parallel educational guidelines for each profession. An undergraduate major in audiology and hearing sciences with a 2-year master's program in audiology would parallel the existing educational model in speech-language pathology and would greatly improve the quality of education in audiology.

To better illustrate these concepts, in Table 1 we describe in detail a model 6-year audiology curriculum currently under consideration at Indiana University. This curriculum is just one of many possible ways in which the education of audiologists can be improved within the existing bachelor's/master's framework. It is included here as only one specific example of how the general principles discussed above can be realized within an existing bachelor's/master's educational framework. As seen in this table, the first 2 to 2.5 years of this curriculum are devoted to acquiring a broad base in the fundamentals: math, science, computer sciences, psychology, etc. As the student progresses through the curriculum, the content becomes more specialized and clinically oriented and the amount and diversity of clinical practicum also increases. In this particular model, on completion of the master's

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degree in audiology the student will have a firm background in the fundamentals and will also have completed at least 630 hours of clinical practicum in audiology.

Interestingly, the model curriculum shown in Table 1 meets all current ASHA academic and practicum requirements for clinical certification in audiology. Thus, current ASHA educational guidelines do not restrict or prevent the development of strong educational programs in audiology. Although not restrictive of excellence, the current ASHA guidelines for the minimum academic and clinical preparation of audiologists do permit the continued existence of mediocre and inadequate educational programs. Many current programs can meet the minimum requirements set forth by ASHA for certification in audiology; a much smaller number of these programs would be able to offer a more rigorous program that assured excellence of educational and clinical training, such as the one outlined in Table 1. Limited faculty and clinical resources would be the most likely limitation encountered by most training programs. If the bachelor's/master's model is to remain as the educational model for audiology, then the minimum academic and clinical requirements for educational programs must be increased so that excellence is all that is sanctioned by ASHA.

In summary, we agree that there is a problem with the education of audiologists today, but do not think that the professional doctorate is the only, or even the best, solution to the problem. Individuals completing undergraduate majors in audiology and hearing sciences, followed by a master's degree in audiology, would have clinical qualifications identical to individuals with the proposed professional doctorates, but at a much lower cost to both the individual and society. The framework for education in audiology would remain the same as it is at present (bachelor's/master's) and CCC-A would remain the primary professional identifier of audiologists. Thus, the improvements in the profession would be equivalent between the AuD model and the proposed bachelor's/master's model (both would have 4 years of education and clinical preparation in audiology), but the latter would be

Table 1. Proposed Indiana University 6-Year BS/MA Model for Audiology

BS in Audiology & Hearing Sciences (Minor: Psychology)

Freshman Year	*Minimum Semester Credit Hours*
Elective—Interpersonal Communication	2
Finite Math	3
Brief Survey of Calculus I	3
Basic Physics of Sound	3
Introductory Acoustics Lab	1
Elem Composition—Writing	3
Introductory Psychology I	3
Introductory Psychology II	3
Arts & Humanities, Elective I	3
Foreign Language Requirement	3
Survey of Comm Disorders	3
Total	30
Minimum Practicum Clock Hours	0

Sophomore Year	
Basic Human Anatomy	5
Basic Mammalian Physiology	5
Elective—Brief Survey of Calculus II	3
Intro to Computers & Programming	3
Computer Programming	3
General Physics I	5
Methods of Experimental Psychology	3
Arts & Humanities, Elective II	3
Total	30
Minimum Practicum Clock Hours	15, Observ-Aud

Junior Year	
Statistical Techniques	3
Introduction to Linguistic Analysis	3
Behav Neurosci. or Sensation/Perception	3
Psychology of Childhood & Adolescence	3
Elementary Electronics	2
Basic American Sign Language	4
Acoustics for Speech & Hearing	4
Historical & Philosophical Found of Sp & Hear	3
Human Hearing & Communication	4
Physiology & Pathology of Audition	2
Total	31
Minimum Pract. Clock Hr	15, Observ-Aud; 30, Pract-Aud

Senior Year	
Brain & Cognition—Cognitive Psychology	3
Elective—Psychol Tests & Individ Differences	3
Childhood Phonological Disorders	2
Childhood Language	3
Language Disorders in Children	2
Perception of Sound	3
Basic Audiological Testing	3
Intro to Amplification for Hearing Impaired	3
Auditory Disorders	3
Aural Rehabilitation	3
Practicum in Audiology	3
Total	31

Min. Pract. Hrs: 50, Pract-Aud; 20, Observ-Sp/L; 35, Pract-Sp/L

Master of Arts in Speech and Hearing Science—Audiology

First Year	
Advanced Audiological Testing	4
Advanced Amplification for the Hear Imp	3
Laboratory in Amplification	1
Seminar—Clinical Electrophysiology	2
Seminar—Adult Aural Rehabilitation	2
Audiologic Instrumentation/Calibration	3
Pediatric Audiology	3
Advanced Practicum in Audiology	6
Total	24
Minimum Practicum Clock Hours	150, Pract-Aud

Summer	
14-week external practicum	1
Minimum Practicum Clock Hours	250, Pract-Aud

Second Year	
Industrial Audiology	3
Seminar—The Vestibular System	2
Seminar—Clinical/Profess Issues in Sp & H	2
Seminar—Journal Reading Group, Audiology	2
Seminar—Rehabilita Technol for Hear Imp	2
Advanced Practicum in Audiology	3
Part-time external practicum	1
Thesis or 6-hour Minor	6
Total	21
Minimum Practicum Clock Hours	150, Pract-Aud

much easier to implement within the existing framework. Of course, new guidelines for clinical certification in audiology (CCC-A) would need to be established, but this would appear to be a less formidable task than the development of an entirely new degree. We strongly encourage ASHA to consider carefully the revision of certification guidelines in audiology to better reflect its recognition of audiology as a profession distinct from speech-language pathology and to ensure excellence in the education of audiologists.

We are audiologists and have been actively involved in this field and in ASHA over the past 20 years. We believe that discussion of the AuD represents an effort to better our profession, but we remain unconvinced that it is the best or only way in which this goal can be realized. We encourage ASHA to develop new certification guidelines for the education and clinical training of audiologists that will use the existing bachelor's/master's model to its fullest capacity. If in the future, after having done so, this educational model can no longer meet the needs of audiology, then the development of a new educational model leading to a professional doctorate should be explored.

References

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