EDUCATIONAL AUDIOLOGY FOR THE LIMITED-HEARING INFANT AND PRESCHOOLER

Third Edition

EDUCATIONAL AUDIOLOGY FOR THE LIMITED-HEARING INFANT AND PRESCHOOLER

An Auditory-Verbal Program

By

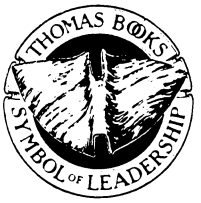
DOREEN POLLACK, CCC SPL-A.
Emeritus Director, Auditory Verbal International
and formerly Director, Speech and Hearing Services
Porter Memorial Hospital
Denver, Colorado

DONALD GOLDBERG, PH.D., CCC SPL-A, Cert. AVT
Director, Beebe Speech and Hearing Center
Easton, Pennsylvania

NANCY CALEFFE-SCHENCK, M.ED., CCC-A, Cert. AVT
Coordinator, Children's Comprehensive Program
Denver Ear Institute
Englewood, Colorado

With a Foreword by

Erik Wedenberg, M.D.
Stockholm, Sweden



CHARLES C THOMAS • PUBLISHER, LTD.
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by

CHARLES C THOMAS • PUBLISHER, LTD.
2600 South First Street
Springfield, Illinois 62794-9265

ISBN 0-398-06750-3 (cloth)
ISBN 0-398-06751-1 (paper)

Library of Congress Catalog Card Number: 96-49202

First Edition, 1970
Second Edition, 1985

Printed in the United States of America
SC-R-3

Library of Congress Cataloging-in-Publication Data

Pollack, Doreen.
Educational audiology for the limited-hearing infant and preschooler : an auditory—verbal program / by Doreen Pollack, Donald Goldberg, Nancy Caleffe-Schenck ; with a foreword by Erik Wedenberg. —3rd ed.
p. cm.
Includes bibliographical references and index.
ISBN 0-398-06750-3 (cloth). — ISBN 0-398-06751-1 (paper)
1. Children, Deaf—Rehabilitation. I. Goldberg, Donald Michael. II. Caleffe-Schenck, Nancy. III. Title.
[DNLM: 1. Hearing Disorders—in infancy & childhood. 2. Hearing Disorders—rehabilitation. WV 271 P771e 1997]
RF291.5.C45P65 1997
618.92'0978—dc21
DNLM/DLC
for Library of Congress 96-49202
CIP

FOREWORD

It is a great pleasure for me to write a foreword to a book for limited hearing infants, because I have a deaf son and have made every effort to give him the best possible training and start in life. The problems for parents of deaf children are certainly the same all over the world.

At first, the news that a child is deaf comes as a stunning blow. My wife and I were dentists in 1939 when our son was diagnosed as probably totally deaf. We wondered if there was a tiny remnant of hearing left, and if it might be possible to train this remnant. I thought one might speak into the ear without giving the child any chance of lipreading, and diminish the visual impression in order that the auditory stimuli might exercise a first claim upon consciousness. I did not give the method any name. Today, it is called the *Uni-Sensory Approach.*

We began the training by crawling on the floor and saying vowels. That was fun for a two-year-old! An important principle in all training for infants is that it should be fun. It is also very important that the hearing defect is discovered as early as possible, and that the mother is given the opportunity to learn as much as she needs in order to succeed. The most important work takes place in the home, and I have found that it is the mother's efforts which will decide whether the work will succeed or not.

My wife gave up her profession and devoted all her time to our son. And it took time. It took one year to teach this very gifted three-year-old child twenty-five words. Parents should therefore not despair if progress is very slow in the beginning. I remember a friend's words to me in a dark moment: "Parents of many deaf children will gratefully see how many joys the Creator has hidden in this trial when he made it possible for man, through these trials, to get a tiny glimpse of creative work." All of the parents will feel what we experienced when we made communication with our son—a joy, which I can only describe as a ceasing of the sorrow we had felt for a long time.

Later on, I worked with other pupils who came from various countries. They are grown up now, and the oldest is thirty years old. Just as Mrs.

Pollack advocates, I worked only with auditory training and never taught lipreading. In spite of this, my pupils became the best lipreaders because they acquired through the intensive auditory training a much larger vocabulary than normal.

Fortunately, there has been a great change in the attitude of the community. As late as 1936, pupils in large schools for the deaf went around like prisoners in striped clothes. In 1951, preschools started throughout our country. In 1953, the name *deaf-mute* was changed to *deaf.* Now we say, "He has a hearing defect."

During recent years, integration in preschools has started, which is growing into real integration in all schools. This way, children with normal hearing begin at a very early age to understand that there are others who are like themselves in every way except for the hearing defect. This deep understanding between children will help the deaf become truly part of the community.

Mrs. Pollack's book is needed by students and teachers who, for the first time, have the opportunity to guide the development of very young children. Her teaching reflects the ideas of the old Greek philosophers in 400 B.C., that "the eye is the mirror of the soul but the ear is the gate of the soul."

ERIC WEDENBERG

INTRODUCTION

The history of education for the hearing-impaired child spans centuries. It is the story of many dedicated people in different parts of the world, working empirically to meet the needs of a group usually called "the deaf" within a framework of the knowledge and equipment available to them.

In all educational fields today dramatic changes are taking place, and educators are reevaluating time-honored concepts. In the field of audiology, two important new facts have emerged as a result of technological progress and audiological research in the last two decades: *first,* that less than 5 percent of so-called deaf children are totally deaf, and *second,* that even a profoundly deaf child can wear hearing aids and develop hearing perceptions.

As soon as audiologists were able to test reliably the hearing of a child within the first three years of his life, and initiate training during the period of life normally critical for speech and language development, *the need arose for a new approach to management of hearing impaired infants.* This book describes the thinking and experiences of those who have been using new techniques to keep pace with the tremendous advances made in audiological instrumentation and in psycholinguistic and communications research.

In the United States, a program was begun in 1948 at Columbia Presbyterian Medical Center, New York City, under the direction of the late Dr. E. Prince Fowler, Jr., to determine how early congenital hearing impairment could be tested, how soon hearing aids could be fitted upon infants, how hearing aids could be selected, and how infants should be trained to use them. The author was part of a small group[1] who developed an experimental approach. She found that babies could be given a screening test soon after birth and successfully fitted with

[1]The group in New York City consisted of Mrs. Lorraine Amos Roblee, Supervisor; Dr. Jon Eisenson, Consultant; Mrs. Doreen Pollack and Miss Sylvia Morgan, paedoaudiologists.

hearing aids, provided that the parents received adequate instruction and support.

At first it was assumed that hard-of-hearing children who wore aids from an early age would develop hearing perceptions normally, while those who were profoundly deaf would still learn through lipreading. Both assumptions proved to be erroneous.

When formal lipreading training was given, even the hard-of-hearing children continued to recognize speech primarily by lipreading. No usable recognition of words by auditory cues was learned spontaneously. The selection of a hearing aid then posed a problem. In order to measure the benefit derived from the use of a specific aid, children had to be able to respond to sounds without visual clues. Subsequently all formal training was structured to teach attention to sound and response to sound. The results were far beyond those predicted, and showed us that the profoundly deaf child did not have to be dependent upon lipreading at all times.

In 1949 to 1950, the program aroused the interest of Dr. Huizing, who had come to New York to engage in research. He returned to Holland and directed an experimental program in his own country. The author moved to Denver and started a preschool program sponsored by Dr. Richard Winchester of the University of Denver, and The Denver Hearing Society. In 1954, Mrs. Marion Downs became the University Hearing Services Director and later suggested the use of Dr. Huizing's new term, *acoupedics.* [2]

In London, during the same period of time, Dr. Whetnall was developing her "auditory approach," which was advocated by Dr. Ciwa Griffiths in California under the name "H.E.A.R. Foundation." At the same time, Dr. Froeschels and Mrs. Beebe in New York, and Dr. Wedenberg in Sweden were using a "uni-sensory approach."

Subsequently, Dr. Guy Perdoncini in France and Dr. Tsunoda in Japan described uni-sensory auditory training programs, and similar methods were being used in other parts of the world.

It was again much like the story of the Salk vaccine, as Dr. Jonas Salk described it: a ball bouncing around from group to group, and he was fortunate enough to be in the right place at the right time to catch it.

---

[2]In Denver, Mrs. Kathleen Bryant, Mrs. Marion Downs, Mrs. Marion Ernst, Miss Elaine Freeland, Mrs. Alice Melville, Mrs. Pollack, Mrs. Bunny Rubin, and Dr. Joseph Stewart (who directed a five-year research grant at the University of Denver) used an acoupedic approach.

"The past is prologue"—many people's ideas have been absorbed into educational audiology in order to help the hearing-impaired child succeed in a hearing world. Some readers may respond enthusiastically to these ideas, while others may reject them completely. It has been said that the greatest tyrants over men's minds are their own unexamined ideas. This book will have been worthwhile only if a large number of audiologists and teachers look at the training of hearing-impaired youngsters from a different viewpoint, and seek a better way of teaching communication.

DOREEN POLLACK

NOTES AND ACKNOWLEDGEMENTS FOR THE THIRD EDITION

When the publisher asked me to update the Second Edition of *Educational Audiology,* I hoped to report on major advances in the field of education for limited-hearing infants and preschoolers. There have been changes, but primarily in audiology, as, for example, acceptance of universal newborn screening, new instrumentation for assessment, and improved amplification technology. Most exciting was the development of the 22-channel cochlear implant which brought more auditory information to the profoundly-deaf child. Another development was the formation of Auditory Verbal International (which now has more than one thousand members worldwide) and the initiation of a certification examination for auditory-verbal therapists.

In the educational field, there is little change to report. Educators continued to focus on "Total Communication," that is, sign language and interpreters. Many members of the Deaf community said TC did not work and they advocated returning to American Sign Language and special schools.

Therefore, I have retained the historical references which led me to develop Acoupedics. The therapy has not changed because it was successful in producing children who could speak for themselves.

I am deeply grateful to the graduates who shared their lives with the readers. I wish to thank Donald Goldberg and Nancy Caleffe-Schenck for their substantive contributions to this edition, and Pat Greene of LISTEN, Inc., who gave permission to publish her beautiful poetry. And last, but not least, thanks to my typists, Bonnie Barlow and Cindy Rusch.

Two explanatory notes in response to readers of the second edition: the term "educational audiology" was coined from the term "audiological education" used by Dr. Huizing. Some years later, this term was adopted by educators who had introduced audiology services into the schools.

Secondly, it was my call to refer to clinicians as "she" and the child as

"he" in order to make the narrative read more smoothly, instead of so many his/her's, he/she's and so on. In many instances, however, I have changed "mother" to "parent" in deference to the number of dads who now participate actively in the therapy program.

D. P.

ACKNOWLEDGMENTS FOR THE SECOND EDITION

I wish to express my appreciation to the administration of Porter Hospital and the LISTEN Foundation for giving me the opportunity to develop these ideas, and to my professional colleagues whose commitment resulted in an inspiring program. Since the publication of the First Edition, more than two hundred families have been enrolled in the Acoupedic Program.

The unexpected rewards of publishing have been the letters from readers, describing the impact upon their children's lives, and the response of other professionals in the field. Requests for workshops and lectures have been received from all over the United States, Canada and Mexico. All of these shared experiences helped to reaffirm and expand the basic principles of Acoupedics.

For this new edition, my heartfelt thanks go to Cherie Neerhof, my typist, who deciphered the manuscript, and to my husband, who was responsible for the charts and for building a "writing room."

D.P.

ACKNOWLEDGMENTS FOR THE FIRST EDITION

This is a wonderful opportunity to thank all the people who have made this book possible, beginning with our nephew, Jan, whose hearing loss started my involvement with hearing-impaired infants, and ending with my typist, Trudy Vander Veen, and illustrators, Mr. William Sanderson of the University of Denver, and Mr. Ray Nelson of Porter Hospital. To single out each individual would be impossible, for the list includes all my teachers and professional colleagues; all the parents who brought their delightful infants to me; and, most surely, my own three children who taught me a mother's role and shared me "with all my other children," as they used to describe them.

D.P.

The Gift of Language

Language.
a gift
received,
expressed.
the gift of spoken language
often
taken for granted,
unless
it is absent
then
the gift must emerge
through
the efforts of people
working together
cooperatively
with great skill,
nurturing,
repeating,
waiting,
accepting
small efforts to speak,
until
the gift in measured growth
bursts forth
and another child
speaks for herself, himself,
in gift.

PAT GREENE

CONTENTS

EDUCATIONAL AUDIOLOGY FOR THE LIMITED-HEARING INFANT AND PRESCHOOLER

Chapter 1

HISTORICAL REVIEW OF THE CONCEPT OF AUDITORY TRAINING

Since "All Past Is Prologue" and most ideas evolve from previous concepts, it is important to review briefly the contributions of deaf education and audiology to an auditory approach for young children.[1]

Realization of the importance of utilizing residual hearing has a very long history, dating back to the first century when Archigenes used a hearing trumpet and intensified sound. Alexander did the same in the sixth century. Ernaud, in 1761, used analytic exercises, and Pereire said that total deafness did not exist. In 1802, Itard claimed that the deaf could be trained to hear words, and in 1860, Toynbee wrote that the great advantage of calling forth the auditory power of so-called deaf mutes is that they can be enabled to hear their own voices and to modulate them.

In the United States, the leading proponent of "acoustic exercises" was Dr. Max Goldstein who was inspired by Urbantschitsch of Vienna (translated by Silverman, 1982). He defined his Acoustic Method (1939) as the stimulation of the hearing mechanism and its associated sense organs by sound education. He said that the teacher must not allow the child's body to touch her, must not place her own hand on the child, and must either hold a piece of stiff paper between her mouth and the child's ear, or speak through a simple megaphone or a simplex hearing tube.

However, few children actually received auditory training and Dr. Goldstein's ideas were far ahead of his time, for the following reason: The term *deafness* was used to denote hearing losses ranging from moderate to total, and the condition which came to be associated with the word "deaf" was that one either heard or one did not hear. As late as 1962, Bernero wrote as follows: "A popular misconception is that students in a school for the deaf have no useful hearing."

The literature of deaf education is permeated with statements which emphasize that the severity of a hearing handicap is irreversible and a

[1]For a detailed history of deaf education, the student is advised to read Markides (1986).

hearing-impaired child must be trained to depend upon visual and kinesthetic cues because he can learn very little, if anything, through his hearing. The title of a widely known book epitomizes this philosophy: *They Grow in Silence* (Mindel and Vernon, 1971).

AN AUDIOMETRIC DEFINITION OF DEAFNESS

It was not until after 1940 that the use of audiometers, together with conditioning techniques, such as the peep show (Dix and Hallpike, 1947) and the psychogalvanometer (Hardy, 1966), gave specific information about the type and degree of a hearing loss. Audiograms demonstrated what the young child was unable to hear with his own ears, and made it possible to describe what was really meant by deafness. Dr. Clarence O'Connor (1954) defined it in the following manner:

> The Deaf, who make up about 4 percent of the hearing impaired children, are those who are unable to hear spoken language either with or without amplification, or who hear spoken language only imperfectly with amplification. They are the children whose impairment is greater than 60 db (A.S.A. standard).

For example, the child whose audiogram is given in Figure 1.1 would be described as having an average 82 decibel loss for the speech frequencies in the right ear with a more severe loss for the high frequencies than for the lower frequencies.

Since average conversation varies from a whisper at approximately 20 decibels to a loud sound at 80 decibels (A.S.A. standard) and the most comfortable listening level is 55 decibels to 65 decibels, this child is certainly deaf to conversation, although she is not totally deaf.

It was indeed logical to assume on the basis of such a severe loss that the child should be taught through the unimpaired sensory pathways, that is, visual and kinesthetic, which were assumed to be unimpaired.

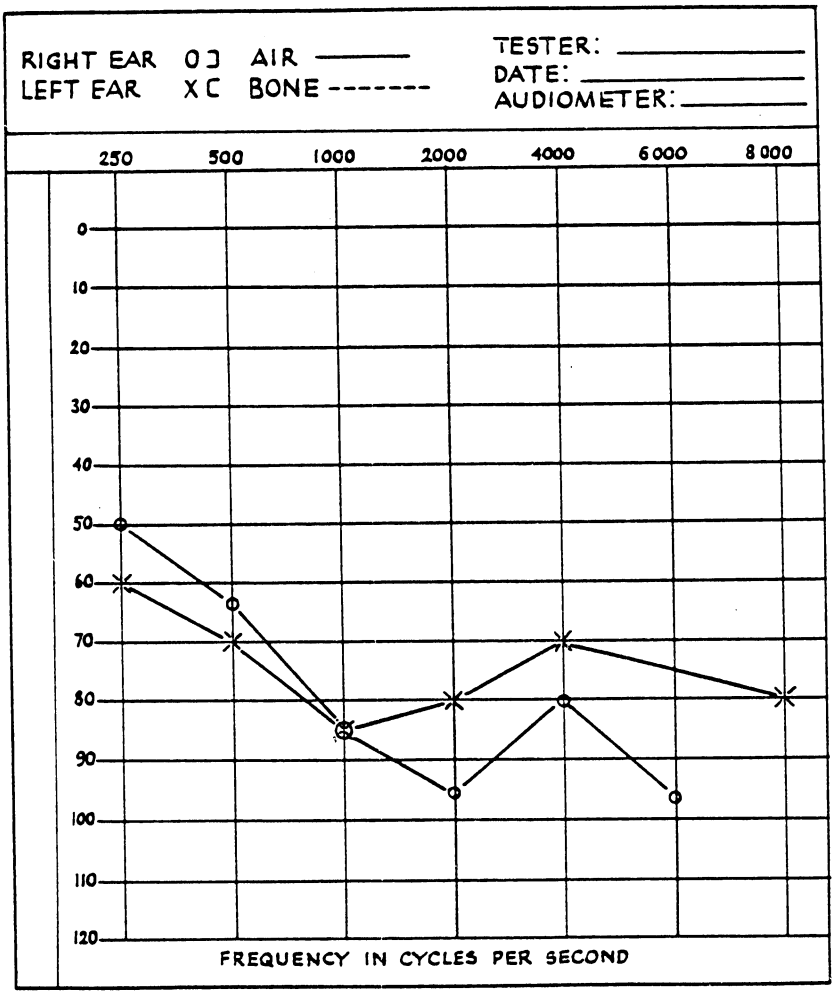


Figure 1.1. Audiogram of Valerie, tested by Mrs. Ewing in October, 1945, and found to be profoundly deaf. The parents were told that Valerie would have to learn to lipread, and they were informed about the education of deaf children. Courtesy of Ewing, I., and Ewing, A.: *New Opportunities for Deaf Children.* London, U. of London, 1961.

The Use of Audiometric Classification

In time these audiological data were used not only to describe the communication difficulties related to the hearing loss (see Table 1-I) but also for classification of education needs and methods to be used (see Table 1-II).

Although such a classification system gives useful descriptions of the untrained, unaided child, it may do serious injustice to many acoustically handicapped children because audiometric information can be misinterpreted. This is discussed fully in Chapter 2.

TABLE 1-I
RELATION OF AMOUNT OF HEARING LOSS TO COMMUNICATIVE EFFICIENCY*

Amount of Hearing Loss (dB)	*Effect*
1. Less than 30	May have difficulty in hearing faint or distant speech; is likely to "get along" in school, and at work requiring listening.
2. 30 to 45 [41 to 55 I.S.O.]	Understands conversational speech at 3 to 5 feet without too much difficulty; may have difficulty if talker's voice is faint or if face is not visible.
3. 45 to 60 [56 to 70 I.S.O.]	Conversational speech must be loud to be understood; considerable difficulty in group and classroom discussion and perhaps in telephone conversation.
4. 60 to 80 [71 to 90 I.S.O.]	May hear voice about a foot away; may identify environmental noises and may distinguish vowels, but consonants are difficult to perceive.
5. More than 80 [90 I.S.O.]	May hear only loud sounds.

*From Silverman, S. R.: The education of children with hearing impairments, *J. Pediat.*, *62:*254–260, 1963.

TABLE 1-II
EDUCATIONAL NEEDS OF CHILDREN WHO ARE HARD OF HEARING*

1. *Hearing loss less than 30 dB*
   Lip reading and favorable seating.
2. *30 to 45 dB loss* [41 to 55 I.S.O.]
   Lip reading, hearing aid (if suitable) and auditory training, speech correction and conservation, favorable seating.
3. *45 to 60 dB loss* [56 to 70 I.S.O.]
   Lip reading, hearing aid, and auditory training, special language work, favorable seating or special class.
4. *60 to 80 dB loss* [71 to 90 I.S.O.]
   Probably special educational procedures for deaf children with emphasis on speech, auditory training, and language with the possibility that the child may enter regular school.
5. *More than 80 dB loss* [90 I.S.O.]
   Special class or school for the deaf. Some of these children eventually enter regular high schools.

*From Silverman, S. R.: The education of children with hearing impairments, *J. Pediat.*, *62:*254–260, 1963.