

THE BATTLE OF METHODS IN THE EDUCATION OF THE DEAF

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The education of the deaf has been among the earliest of the special educational problems to receive organised attention. Aristotle gave some thought to it and felt that the deaf could neither speak nor understand others' speech, and that they were incapable of instruction (Silverman and Davis 1966). Cardano in the 16th Century established that the deaf could be taught to comprehend written symbols. That they could be taught speech was shown by the Spanish Ponce de Leon (1555). His campatriot Bonet in 1620 wrote a manual of speech teaching for the deaf. However, our recent traditions started from the 18th century with Abbe de l'Epee in France who advocated the use of the sign language and Heinicke about the same time in Germany who advocated oralism, that is, speech and speech reading. The first school in Scotland was started in 1760 and the one in England proper was started in 1792.

In our country the first schools were started some 80 years ago. This clearly indicates that education of the deaf has a very long history. However, unfortunately the field has not shown change or progress in keeping with its age. That Cardano's principle of associating written symbols with objects and pictures of objects while teaching language is still being used all over the world is indicative of the fact that perhaps basically the principle is sound. It may also indicate that we have not been able either to substantiate this assumption or find means very different from this. That systematic research is needed in the field of education of the deaf has been frequently mentioned by several people. The Report on Education of the Deaf to the U.S. Government makes the same comment (1965). Meyerson (1955) complains that little research has been done to test the merits of the various and often conflicting approaches and says further that the meaning of the findings of a great many psychological investigations of the deaf and the hard of hearing is uncertain. Most workers believe in theories which seem to have been based on clinical experience and observations occasionally of small groups of children instead of real systematic research. Though, in recent years a fair amount of research is being done on the use of amplification and the various methods of teaching children, we have a long way to go.

This lack of research has left the field crowded with several controversies; about integration or segregation of the aurally handicapped with the hearing; about formal or informal methods of teaching; structural or natural methods of teaching

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language; about the age at which education should begin; about the modes of communication to be employed with the deaf and the hard of hearing; and even about classification of hearing loss. The present paper is an attempt at looking at the 'battle of methods', that of communication modes in terms of the manual, oral, oral-aural, multisensory approach. That this controversy is a long standing one is evidence of the fact that from the very beginnings of systematic education of the deaf, people have disagreed upon the best educational method. While Abbe de l'Epee and his students emphasised the manual method or the use of sign language, Itard in France, the Braidwoods in England emphasised the training of speech and lip reading. The controversy was carried to the U.S. because Thomas Gallaudet was not assisted by the Braidwoods and he met Laurent Clerk, a deaf student of a student of Abbe de l'Epee. Clerk was taken to the U.S. to start the first school for the deaf which was a manual school. Fifty years later Alexander Graham Bell used the oral method at the Clark School for the Deaf. The controversy has raged constantly since then with a few concessions made on either side. Nearly 150 years later McKeon writes 'there will always be the conflict regarding the method used in teaching the deaf. (Streng *et al.*, 1967) 'Arguments can be marshalled on both sides of the question, arguments which may sound convincing and logical, however, emotional, depending on one's point of view. The truth of the matter still lies hidden in the future, for only further basic research can clarify the problem and resolve the controversy'. A hundred and fifty years had not provided enough basic research.

In India also we notice this conflict between the manual and oral schools of thought. However, this conflict is not as vocal as it is elsewhere. It seems to be considered *infradig* to voice a belief in the manual approach. Ironically while everybody pays lip service to the oral method most schools are basically manual. Even in schools where a great deal of stress is laid on speech and speech reading often the mode of communication outside the classrooms and under the tables is the sign language. Quite often the speech of a deaf-child acquired in oral schools for the deaf and appreciated enthusiastically, seems to be no more than a string of isolated sounds spoken monotonously with improper stress. It must be mentioned here to the credit of some children and some teachers that there are several instances of children with acceptable speech. However, these seem to be outnumbered by a large margin. Actually very few schools in India are equipped for the oral methods of teaching the deaf. And there are no special facilities for the hard of hearing. Herrick and Kapur report 'fewer than 10 per cent of the population in schools for the Deaf have been fitted with hearing aids'. Most schools for the deaf are overcrowded and many have huge waiting lists.

The lack of adequate facilities would explain the manualism of many of these schools. Added to these, the problems of inadequate facilities, untrained or ill-trained teachers and sometimes unimaginative administration make the situation harder. It is made well nigh impossible by the fact that children are brought

to school at a late age sometimes as late as fourteen years of age. Even the official ages of admission in some schools are between 8 and 12 years.

In situations like this it is not surprising that the schools rely on manual methods as the students have before admission become used to the use of gestures only. The goals in many schools are basic education on the three 'R's and some vocational education. Even in vocational education very few schools have gone beyond the traditional items such as carpentry, tailoring and weaving on hand-looms. Even a modern research project has taken up tailoring as a part of craft education. It must be remembered crafts here are not means to a total education but the end goal. Actually any worthwhile speech work under these circumstances is unrealistic.

However, this was not the reason for several people believing in the manual method in the West. There, whether you believed in the manual system or the oral system was more a matter of how you thought about the deaf and what your goals were. If one believed that the deaf individual had to be one with the hearing world and had to contribute to the community by being an integral part of it one would insist on speech and speech reading as the means to establish contact. On the other hand, if one believed that the goal for the deaf individual was to become an efficient individual and to be able to contribute his utmost even if his social contacts remained within small groups, then the manual method was chosen. Later, however, the manualists went on the defensive and their argument was basically built around the possibility of oral failures—children who could not benefit from the oral method—and around the belief that the oral method did not necessarily make for better language or adjustment. McKeon (1961) says:

'Most educators agree on the value of oralism for all children who benefit by it and those children are taught orally. However, it is also realised by most educators of the deaf that there are a number of deaf children who cannot benefit, to any appreciable extent, by oral instruction, and then it is advisable to instruct those children by the manual method. If a child cannot benefit by oral instruction, and his speech is unintelligible, we must ask, 'should he be denied learning and communication through the manual method?' (p. 33).

Henderson (1963) states that 'there are still some boys and girls whose hearing for speech is so slight that even after ten or more years of special education they can communicate with their fellows only by signs, fingerspelling and writing'. The fact that even when a child manages to learn speech the product is not satisfactory is another complaint. There are many who hold that a deaf child after exclusive teaching does not speak intelligibly. From this point of view they feel 'many children do not have the aptitude to benefit from oral instruction and the time spent in this type of instruction could more profitably be used in concentrating on the child's mental development rather than on his means of communication'.

(Silverman *et al.*, 1966). The contention of the oralists that speech and speech reading will enable better adjustment to the hearing world is countered by the oral failures and also by the belief that many deaf people prefer to live with other deaf people. The report on Education of the Deaf (1965) says 'many deaf adults will prefer the use of the language of signs and the company of the deaf as an easier and more relaxing social experience'. They justify this and state 'they have a perfect right to make that choice and no aura of failure or opprobrium should surround it. . . . The option should be kept open for deaf children to make such a choice as responsible adults'.

The oralists' major claim is the ability of their students to mingle with hearing people and the preference of employers for oral deaf graduates. They also hold that the oral deaf have better language facilities and make better adjustments. In a project to determine the effectiveness of a comprehensive trade, technical and academic programme at the Idaho University, Vaughn (1967) found that the manual or non oral students had depressed achievement levels and varying degrees of emotional immaturity. They 'were the least aware of the diversity of opportunities and expectations of the normally hearing community'. He says 'the greatest problems for these was not their profound hearing losses nor their lack of oral skills—but their deficient language development'. Pettengill (1878) a long while ago held that 'some deaf-mutisms are undoubtedly caused by the great differences between the natural structure of the crude language of signs and the more cultivated language of writing and speech'. This view has often been expressed even in recent times against the manual system because it utilises sign-words and manual spelling. Of necessity the same sign stands for several related words, e.g., 'think', 'reflect', 'suppose', and though tense-signs can be added to verb forms this is often left to the context in informal signing such that a single sign-word stands for the same verb in different tenses. However, Pintner (1916) found that the 'oral method does not seem to lead to better composition of written English'. This has been found to be true on an analysis of the performances of deaf children from oral schools and non-oral schools seeking admission to Gallaudet College, the only college for the deaf in the world. No significant differences were found between the two groups on levels of achievement in the language areas. Hodgson (1954) stated that 'a complete sign system allows fully systematic and grammatically accurate language to be translated on the fingers.' He laid the blame for its misuse on the fact that the sign language is not taught formally in any school in the U.S. except the Gallaudet College. He said 'because it is little taught most "signing" to day in this country (U.S.A.) is unsystematic and degenerate—a "pidgin" language'. Silverman *et al.* (1966) conclude 'the oral manual controversy is not yet settled. There are no completely convincing scientific data on which to base conclusions, and no useful purpose is served by labouring the arguments'. The committee reporting on Education of the Deaf 'urges that the education of the deaf continue to place emphasis on oral methods, but that manual methods be employed in individual cases when it is

clear beyond doubt that success by oral methods is unlikely'. However, as they point out 'the difference appears to hinge on how readily one gives up on oral instruction'.

It must be stated clearly that no school in the U.S. or elsewhere today relies on a purely manual approach. Most schools use what is known as the combined method or the simultaneous method. The combined method uses signs and manual spelling simultaneously so that a child can benefit from both. All schools following the simultaneous method provide and insist on speech and speech reading and at the same time provide facilities for signing. Their contention is that while the children have opportunities to acquire speech, the doors are kept open for the failures. Gallaudet College which has a well established speech clinic also uses the simultaneous method. There is a difference among the schools in the amount of signs used. Some use only the manual alphabet or finger-spelling and in some places signs are kept to a minimum. In parts of Europe, hand-signals are used as visual clues to assist in lip-reading. The differences indicated there are voicing, unvoicing and nasalisation. The pure oralists decry this because they feel once the easier signs are available the children will not put out their best efforts to learn speech and speech reading. However, Garretson (1963) reports that experiments conducted in Russia have proved overwhelmingly that given finger-spelling first, the deaf child improves his speech and lip-reading skills 500 per cent. This question of what happens when information is provided through more than one channel has plagued the oral approach itself. This has influenced all recent developments in the use of the oral approach.

Traditionally the oral method meant only the teaching of speech and lip reading. Speech was taught by the multisensory approach which was also called TVA—tactile, visual and auditory. The rationale was that the child with a hearing loss at birth or very early in life could not go through the normal stages in the development of discrimination (Carhart 1966). Carhart (1966) says there are three major channels which may be substituted for the ear; vision, the sense of touch and the internal senses of movement and position. Carhart, who is an advocate of auditory training indicates 'any superior programme of training will interweave stimulation through these three channels and, of course the auditory channel'. The auditory channel seems to come in almost as an after-thought. The emphasis in general was on lip reading. 'For the individual with a moderate to severe hearing loss, the visual shape and movement of a speaker's articulators become the important communicative elements. In this situation the eye is the primary receptor, with the ear affording some slight assistance'. (O'Neill and Oyer 1961). Mrs Spencer Tracy (1963) proclaims 'I believe that every deaf child should have the opportunity to learn and to use speech and lip reading'. The stress on lip reading came because of the unstated rejection of hearing which was often considered lost instead of being impaired. 'The deafened man must compensate for his loss of hearing by giving greater attention to the use of his eyes and to his interpretation of the moment' (Pauls 1966). While these authors

do not negate the use of a hearing aid to enhance the use of the residual hearing there have been others who felt that the use of a hearing aid would interfere with the learning of lip reading. They felt that if an individual was given both auditory and visual clues he would either ignore the visual clues or not be able to use either effectively.

Therefore it was advocated that hearing be blocked while teaching lip reading at least in the initial stages. Lip reading lessons were given either without voice or from behind glass walls. Actually it took some time before people stated that one did not follow only the lips but also the face, gestures and the contextual clues in following spoken language. Then the term speech reading was substituted for lip reading.

Leonard (1962) showed that 'auditory distractions—white noise, babble, music—brought about a decrement in the percentage of correct responses in lip reading'. On the other hand Oyer (1966) lists visual distractions such as bright lights among those that can interfere with good listening. It must be noticed that they are both mentioning stimuli that compete with the desired stimuli by being different. Actually several other studies indicated that the use of more than one sense in perception improved one's performance. Gault (1927-28) found that thrice as many words were recognised by vision and touch as were recognised by vision alone. Sumbly and Pollack (1954), Hudgins (1954) and Neely (1956) also showed that vision and audition complement each other in the task of speech perception. O'Neill and Oyer (1961) feel 'the combined use of visual and auditory modalities in aural rehabilitation seems to be an established, if not necessary approach'. Oyer (1966) concluded 'Auditory training or lip reading alone are inadequate approaches to the problem of habilitation or rehabilitation of the acoustically handicapped'. He advocates a combined approach of auditory training and lip reading 'because strong association bonds can be established between visual and auditory sense modalities'. Oyer further seems to wish to incorporate other sensory modalities. He says 'although there seems to be no question about the merit of the multi-sensory approach in aural rehabilitation two areas in need of further research are cutaneous perception of sound pressure and its relationship to auditory perception' (Oyer 1966). The multi-sensory approach which utilises all available channels is the method followed by a great many people all over the world. Ewing and Ewing (1967) categorically hold that 'it is important for all hearing impaired children to be able to combine lip reading with listening'. They explain 'it is not a matter of alternatives either reliance on acoustic phonetics or motor phonetics—but of teaching deaf children to gain a maximum amount of information and help from both sources'. They also contend that 'when deafness is total or sub-total, kinaesthetic without auditory feedback can still make good speech possible (Ewing and Ewing 1967). Almost along the same lines but deemphasising vision, Alcorn (1911) suggested shutting the eyes of the child during the development of sensitivity to vibration. This was found to help teach better speech to two children, Tad and Oma, because of which the method has been called

the Tadoma method. However, the question of emphasising one sense over all others had not come up till recently. The question was always a matter of how much other senses assisted or hindered the visual modalities. Vision and speech reading or visual hearing as it has also been called were the most important factors.

Even when auditory training gained ground with the advent of improved and easily available amplification, audition played second string to vision. Advocates of the use of amplification often had to justify it with reference to lip reading. 'There is no truth in the rather prevalent notion that the use of a hearing aid will diminish one's skill in speech reading. On the contrary the hearing of speech is likely to reinforce speech reading because auditory clues assist in the discrimination of words that look alike on the lips'. (Silverman and Taylor, 1966). They also found support in long time users of hearing aids who reported that the continuous association of hearing and seeing of speech was mutually advantageous. 'Even in cases of extreme hearing loss, where complete understanding of speech is not attainable', they hold, 'a hearing aid may furnish enough auditory clues, such as stress patterns, to supplement speech reading quite effectively'. Thus residual hearing and auditory training were accepted as supporting senses in a multi-sensory approach. Hudgins (1953) felt that the 'measurable benefits that may be expected lie in the direction of an increased facility in communication. This takes the form of an increased ability in speech perception in which the eye plays the major role, but assisted to a considerable degree by the remnant of hearing that has been trained by means of powerful hearing aids'. Hudgins' studies (1953) and those of Wedenberg (1951, 1954) showed that systematic auditory training improved speech reception as well as educational growth. It is perhaps this relegation of the auditory approach to a secondary position that kept auditory training down. In spite of the mention of it made by every one, techniques of auditory training have not received their due from text books and the methods teachers. Actually quite often lip reading and auditory training were taught as parts of one course. It may not be necessary to indicate where the lion's share went. Oyer and O'Neill (1961) mention that 'the existence of residual hearing is accepted but very little auditory training is provided'. Stewart (1965) complains, 'while auditory training has had a very long history until recently it has generally been used as a supplement for other communication avenues'. It seems impossible to believe that auditory training is coming into its own only recently. Even as early as 1767 Ernaud demonstrated that auditory perception increased in deaf children with constant listening practice. After him, Pereire (1767), Itard (1802), Urbantschitsch (1887) and Bezold (1896) recommended that residual hearing be trained in teaching speech to the deaf because it was indicated that stimulation of the residual hearing increased the hearing perception. Several recent studies have indicated the value of auditory training. Watson (1961) who found 95 per cent of the pupils in schools for the deaf in England had some residual hearing felt that 40 per cent of the pupils could achieve a consider-

able degree of speech perception by hearing alone. He also felt that through auditory training 70 per cent should show a very marked improvement in speech and language. DiCarlo (1963) also reported that children who had received auditory training were less retarded in both reading comprehension and word meaning than the children who had not undergone a programme of auditory training. Whetnall and Fry (1964) lay a great emphasis on auditory training. They hold 'improvement in auditory perception is so consistent that even the rare child who has no response at all to sound at first testing should be given an adequate trial of auditory training. The least vestige of auditory control is of value for the infant because of his great facility for using it'. Huizing (1954) and Sortini (1959) also indicate early amplification does aid in speech and language development.

This vindication of auditory training with effective amplification has brought a greater emphasis on early identification and early training of the residual hearing of children with hearing losses. Of course, pre-school education for the deaf has been advocated for several years now and it has been the recommended practice. However when pre-school education came into being it was basically with a view to removing the educational retardation that a deaf child suffered from at the time of admission in a school. The normal child had an already established language before admission and therefore was way ahead of his peers with hearing losses. The normal child would maintain this lead. The implicit belief of the early advocates of pre-school education was that we could start training a deaf child earlier so that he has had a few years of formal training before entering school and thus would be on par with the normal children entering school without this early start. (A similar assumption seems to have been made in many of the 'head start' programmes for the under-privileged in the U.S.A.). It was with this goal in mind that teachers of the deaf in nursery schools started a four year old deaf child on a formal training in reading and writing much to the concern of those who held that children were not ready for reading and writing before six. Actually to the embarrassment of the latter the deaf children did learn to read and write before they were supposed to be ready to do so. However, Stewart (1965) reports 'these children even with such early formal training were not appreciably more advanced in language development by the time they entered the IV grade'. So even when they managed to catch up with formal training they could not keep up with the normals. Further these children appeared to show rigid personalities which could be attributed to the formality of this early training (Stone *et al.*, 1961). Craig (1964) found children enrolled in preschool programmes in a residential school for the deaf have no better lip reading and reading skills than those who had not had any preschool programme. However, the recent stress on early education does not lie on formal education; but on early amplification and auditory training. The concern is about the residual hearing which has to be utilised to the fullest. Actually so great is the concern that it is advised against waiting for the child to come to school. Home training for the deaf child or infant is the tune of the future. Several studies with home training have

proved the immense value of this. It must be stated here that home training is emphasised not only to save time but also to encourage normalcy in the environment. The children should grow up normally in normal circumstances. McLaughlin (1963) says 'We believe that the deaf child who has had an aural approach from infancy should be kept in a normal environment where he will be able to listen to speech all day long and where special efforts are made to talk to him as much as possible'.

McCroskey (1967) studied home training of children who had amplification, early training and home training. It was found that spectrographic tracings of children who had had hearing aids were more like the tracings of normal hearing children than those of the children who did not have early amplification. After sixteen months of amplification six children entered normal school and could speak understandable words. She described these children as being 2 to 22 months of auditory age which refers to the months the children have been exposed to amplification. This new trend towards the acoupedic method also called educational audiology not only emphasises early auditory training but also under-emphasizes speech reading. The concern now is the possibility of speech reading interfering with learning to listen.

Whetnall (1953) feels that teaching a deaf child only to lip read appears to make him incapable of adding the additional ability of listening. Whetnall and Fry (1964) strongly suggest that amplification should be given at an early age. They warn 'with insufficient amplification so little satisfaction is obtained out of hearing that the child slowly ceases to listen and uses his eyes increasingly'. They further feel that if at this stage lipreading is more emphasised than hearing such training will intensify the process and the child will become a fixed visualiser, and ignore sound'. Carhart (1966) also warns us similarly. A child who has a hearing impairment at birth or very early in life instead of learning to assign meaning to the few sounds he hears, he may acquire the habit of disregarding them'. He adds that 'the child who habitually ignores sound is no longer conscious of even loudness which could help him to adjust to people and things'. It is to avoid this happening that early training should be provided in listening. This belief in early amplification and auditory training gains strength from the concept of critical age. This concept assumes that there is, in the stages of development of a child, a particular period of maximum responsiveness, a period when adequate stimulation of any modality makes for maximum development and a period in which the lack of stimulation produces dystrophy of cortical areas associated with that modality. This may perhaps be explained as: a period when brain cells are ready to specialise.

This is based on studies of imprinting or the 'follow the mother' behaviour of ducklings made by Lorenz (1952) which indicated that behaviour patterns established or imprinted at the critical age (twenty one days after birth) continued through life even when the imprinted behaviour was different from what was considered instinctive patterns. The ducklings followed the experimenter instead

of the mother. Monkeys which were blindfolded at birth through the critical age showed that their perceptual abilities were undeveloped. Riesen (1947) found that Chimpanzees deprived of vision during the first three months of its life never developed adequate vision. A bird which was taken out of the egg and kept isolated from the other birds through the first spring could not later learn to sing as the other birds. However it is not yet clear as to how far this concept can be extended to human behaviour. While cases of children isolated from the human community, e.g. Ramu the wolf boy, do indicate the importance of environmental influences, they cannot comfortably be used to explain critical age in the absence of an assurance of normal potential in the children. The nearest we may get to specifying a critical age of maximum growth potential in children may be based on the studies indicating the effect of protein hunger in children which have indicated that a child deprived of adequate protein diets before the age of four years will exhibit deficits in brain function as compared to other children (Chandy). The age at which a child's emotional development would be most affected by inadequate mother-child relationships have been known to be before the age of four years (Bowlby, 1965). Luria's belief that in brain damage in infancy before the age of four years there is a brighter chance that the non-damaged parts of the brain can take over the functions of the damaged areas and thus aid normal development later, also lends support to the assumption that the critical age in children is before four years of age. McLaughlin (1963) says 'since the cortical centers controlling auditory discrimination respond most effectively during the first three years of life, it follows that auditory training should be given during this period of readiness to listen'. Stewart (1965) places this critical age for auditory perception 'probably before the second year of life'. The new approach, educational audiology is based on the following premises: (1) that Audition, the impaired modality can be and therefore must be stimulated with amplification in order to become the primary mode of communication, (2) that this training is most effective in the early years of a child's life, (3) that formal education is not as useful as normal or more than normal bombardment of language and sounds and (4) that therefore home training would enable a child with a hearing loss to attend school with his normal peers.

As early as 1939, Goldstein recommended the acoustic method which was stimulation or re-education of the hearing mechanism and associated sense organs by sound vibrations as applied either by voice or any sonorous instrument.

The recent swing towards the acoupedic method started almost simultaneously in the U.S., England, Netherlands and Denmark. In 1948, Pollack was limiting the number of visual cues available to enforce the development of audition as the child's primary receptive sense (Stewart 1965). Huizing of Netherlands observed this and this led to the use of the acoupedic method in the Netherlands. Whetnall in England, and Bentzen in Denmark were responsible for its use in their countries.

Stewart (1965) states the theoretical premises of the acoupedic approach as follows:

1. The auditory sense is the most suitable perceptual modality by which a child learns speech and language.
2. The multisensory approach to management favours the development of the impaired modality as the primary communication system at the expense of the impaired modality whereas the unisensory approach stresses development of the impaired modality to its fullest potential.
3. The development of sound awareness, vocal production and eventually the beginnings of speech and language can best be achieved in the child's home so long as suitable acoustic stimulation is provided.
4. Present day nursery school procedures patterned after those developed for totally hearing children are preferable to those designed around 'special education' (p. 969).

He places early detection and prescription of a hearing aid as the first steps. This has to be followed by a systematic training of the listening function which is not dissimilar to the steps in use for auditory training.

The use of the term 'unisensory approach' and the devaluation of 'special education' may tend to mislead one into thinking that lipreading and visual clues are banned. This is the impression that is given to anyone who takes to the method superficially. Bentzen held in an oral discussion at Mysore during his visit to the All India Institute of Speech and Hearing that he believed all children were hard of hearing till they were made deaf by teachers of the deaf. He felt that teachers who had been trained to teach the deaf with special methods overemphasised the compensation with visual clues to the detriment of the residual hearing. He thought children were made visualisers and could not later learn to listen. Pollack (1964) does recommend an avoidance of lipreading and other competition of sensory stimuli. She states the eye cannot detect vocal rhythm, loudness, pitch changes, etc.

However the other advocates of the method do not really discourage lipreading. Stewart (1965) says 'this does not mean a complete avoidance of lipreading but a postponement of learning the skill until after the auditory sense has developed to the fullest extent'. He indicates that lipreading cues are kept to a minimum and that no formal instruction is to be given in lipreading. McCroskey (1967) reports that in their programme of home training, 'lipreading as a special skill is not taught and is not encouraged nor is it discouraged: It develops naturally in virtually all of the children'.

Bentzen (1962) suggests that residual hearing be trained first of all and then other systems such as the visual system or the use of the hands be given. Whetnall (1963) emphasises 'throughout the training the way in which the normal infant learns to hear and to talk must be constantly kept in mind and this knowledge

must be continually applied to the direction of the learning process in the deaf child'.

This assumption that the visual cues are eliminated will be the greatest obstacle in the acceptance of the approach. The difficulties will be enhanced by the followers of the method who will take the name 'Unisensory approach' literally and will follow their old techniques minus the hour for lipreading. Silverman *et al.* (1966) warn us 'although it is likely that the future will reveal additional and greater values of auditory training, our statements of objectives within reach suggest that we must be cautious of the extravagant claims sometimes made for the use of hearing aids. . . .?'

O'Connor (1963) is stronger. 'Many parents are led to believe that through the magic of a hearing aid together with a few hours of special tutoring in a clinic and perhaps, also through the influence of maturation, their child will be able to join six year old normally hearing first graders. The ultimate traumatic damage this naive guidance can do to both parent and child when both must face the cold realism of failure is incalculable' (1960). Hudgins (1953) found that it is not likely that many of the profoundly deaf children will ever be able to understand speech to a useful degree by ear alone. Ewing and Ewing (1967) report 'much progress has been made by some teachers, expertly guided parents and specially trained health visitors in teaching many deaf children to talk on what is primarily an auditory basis'. They also report 'the lending of auditory training units to parents for use with their own children in their houses has led to some severely deaf children learning to talk by the age of three to four years'. However they caution, 'this does not mean deaf children who are very deaf can learn to speak well solely on the basis of hearing'. After a comparative study of the progress of groups following the acoupedic approach and the multisensory approach Stewart (1965) recommended that 'children whose residual hearing extends into the high frequencies and whose hearing losses are relatively flat, the unisensory approach seems most appropriate'. The point of disagreement seems to be one of the usefulness of the technique with children with severe hearing losses. Huizing (1959) classifies the children with hearing loss into four categories. Only those children in the fourth category—the totally deaf—cannot profit from amplification. As for him this would constitute less than 5 per cent of the children now in schools for the deaf. 'However, the principle of auditory treatment in these cases should not be given up before there is positive evidence that the deafness is total'. Bentzen prefers to refer to all children with hearing losses only as hard of hearing and not deaf, 'When we call a child "deaf" we mean, in general terms, that he does not react to normal sounds but it is not really deafness since we have the possibility of using the hearing residual'.

The goal of the acoupedic approach is to train a child with a hearing loss such that he can attend a normal school and acquire normal education. He should be provided proper amplification early in life and once given a hearing aid he should be bombarded with language. As Bentzen (1962) puts it 'every handicapped

child must be treated as a normal child'. Interestingly, this, the provision of normalcy, was the claim of the advocates of manualism who classed signs were normal to the deaf, and also of the supporters of the multisensory approach who claimed a multisensory perception of the world was normal.

As quoted by Silverman (1966), 'Watson (1961) has adequately epitomized what appears to be the forward-looking view that the sum of reinforced multisensory stimulation is greater than any of its parts. It is in fact the nearest approach to the normal that can be made by the deaf child'. The acoupedic approach is bound to be attacked by the oral-auralists that de-emphasising the visual clues, will make the deaf child more handicapped. They claim that not all people will benefit by the acoupedic approach and children failing in the technique will have to pick up lip reading at a later age if one has to wait for a real attempt with the training of listening. They may also put forth psychological frustrations and problems a child will face to support their methods. The claim of the acoupedists is the emphasis of normality in behaviour, in training and the prospects of better adjustments with the hearing world. Ironically, this is reminiscent of the arguments between the manualists and the oralists, only the oralists and those advocating the multisensory approach are putting forth the arguments that the manualists used and those taking up the acoupedic approach are talking as the oralists did then. Note also how Stewart (1965) mentions studies of competing stimuli disturbing auditory perception while indicating support of the acoupedic method just as Oyer did while supporting the multisensory approach and as Leonard listed auditory distractors to lipreading. That they all list competing stimuli should restrain us from making comments about the effect of stimulating two senses at the same time with complementing stimuli. This argument between the multisensory and the acoupedic methods is also bound to go on endlessly for quite a while.

However, Huizing (1963) holds 'Audiological education has now gone beyond the point of no return, because it has already given such an important contribution'.

A few voices are heard in India talking of the unisensory approach. However it may take some time before educational audiology or audiological education or the acoupedic method will become an established technique in India where the manual method is entrenched in the methods, the multisensory approach in the minds or words of those working for the deaf. Schools and teachers for the deaf are not going to take kindly to an approach which stresses home training.

However, the situation in India today is such that one should willingly experiment with this approach. The technique seems capitally suited to our conditions. That the hard of hearing child should grow up in a normal society is ideal for him. Bentzen (1962) adds that it is good for the normal society to realise and accept that a part of it is handicapped. In our country it is in addition good for the profession because more people can be served better.

It is generally accepted that the facilities we provide for the hard of hearing and those we call deaf are far from adequate. There are approximately seventy schools for the deaf for about 5000 students (Kapur and Herrick). It is also common knowledge that every school has a large waiting list. It has also been mentioned that few schools have satisfactory physical facilities or equipment. It is also complained that the teachers are illtrained. Of course, the need for this training for teachers of the deaf has itself been questioned. Several nursery schools and preschool kindergartens in the U.S. have for several years now been preferring teachers trained to work with the normal to teachers trained to teach the deaf. Bentzen (1962) emphasises the need for placing hearing impaired children with teachers who are trained to teach normal children in a normal situation. The reason for this, he holds, is that 'it is too often the case that the teacher of handicapped children views the handicap first and the person second, instead of the other way round'. If we find that the method can be applied in our country it would be of great help. The children can be identified early on the basis of intensive hearing conservation programmes of screening.

Screening of the hearing of children is being done already in several centres in India and this is a good beginning. We should then be able to provide hearing aids for the children identified as having hearing losses. We can teach the parents of these children all the home training that needs to be given which would be basically bombardment with speech, language, sounds and a variety of experiences. The parents can easily be instructed in the care and use of hearing aids. Trained Home Visitors can be employed as have been done in Denmark, the U.S. and in England. The visitors will visit these children periodically, check their progress and give any further instruction that may be needed by the parents. The children as they grow up can attend schools and activities along with their normal peers. If they need any special attention this may be provided by the home visitors. It may even be possible for the children to attend speech and hearing clinics during the holidays to catch up with any special needs. Full scale programmes along these lines can be drawn up after we have tried out the method in our conditions. The problems we may face in the implementation of such a programme would be as follows:

1. *Non-availability of hearing aids:* Hearing aids are not available in the required quantity. At present about 3000-4000 hearing aids are manufactured every year in the country. Most of us cannot afford to buy a hearing aid. The costs are prohibitive. However attempts are being made at the Indian Telephone Industries to produce hearing aids, costing less than Rs. 100. Even that may be beyond the reach of many. Actually we have had cases at the Institute who could not afford to buy even batteries at a cost of Rs. 5.71 p. The solution seems to be a sort of social medicine through which hearing aids and batteries can be distributed to the poor patients as many drugs are being given through the hospitals. It would be useful to develop hearing aids using rechargeable batteries.

2. *Non-co-operative Parents*: It is not all parents who accept their responsibilities to their children. It may be difficult for some parents to find the time. Bentzen (1962) mentions how some of the best results in Sweden were from the Northern parts of Sweden which are primitive because the mother and father live close together with the child while parents in Stockholm tried to pay their way out of their difficulty. This may happen in our country also. This may not have anything to do with the amount of sophistication or education the parents may have. We have found highly educated parents often the hardest to be convinced of their responsibility.

3. *Misuse of hearing aids given*: Hearing aids may be misused, damaged, used inadequately or sold out.

The first three problems may be tackled by proper training of the parents. The last is a problem we may have to put up with under the hope that the percentage of hearing aids sold would be small and also can be sold mainly to another individual with a hearing loss. Added to this if a programme of public education is taken up indicating the reversibility of certain types of hearing loss chances of these people going in for hearing aids may be minimised.

Problems will be there and the programme may look impossibly enormous; but the task of rehabilitation is an enormous responsibility and solutions must be found to the problems.

REFERENCES

- Alcorn, S. K. (1941) Development of speech by the Tadoma Method. Washington: Proceedings of the 32nd Meeting of the Convention of the American Instructors of the Deaf.
- Babbridge *et al.* (1965) *Education of the Deaf*—a Report to the U.S. Deptt. of Health, Education & Welfare.
- Bentzen, O. (1962) Hearing problems in children—Address to membership of Colorado Hearing Society.
- Bowlby, J. (1965) *Child Care and the Growth of Love*. London: Penguin.
- Carhart, R. (1966) Conservation of Speech, in Davis and Silverman (Eds.) (1966).
- Carhart, R. (1966) Auditory Training, in Davis and Silverman (Eds.) (1966).
- Chandy, Jacob: Personal Communication.
- Craig (1964) as quoted by Stewart (1965).
- Davis, H. and Silverman, S. R. (Eds.) (1966) *Hearing and Deafness*: New York: Holt, Rinehart and Winston.
- DiCarlo, L. M. (1964) *The Deaf*. Englewood Cliffs: Prentice Hall.
- DiCarlo, L. M. (1960) The effect of hearing one's own voice among children with impaired hearing, in Ewing (Ed.) (1960).
- Doctor, P. V. (1963) *Communication with the Deaf*. Lanchester, Penn: Intelligencer Printing.
- Ewing, A. W. G. (Ed.) (1960) *The Modern Educational Treatment of Deafness*. Manchester: Manchester Univ. Press.
- Ewing, A. W. G. and Ewing, E. C. (1967) *Teaching Deaf Children to Talk*. Manchester: Manchester University Press.
- Garretson, M. D. (1963) The simultaneous method, in Doctor P. V. (Ed.) (1963).

- Gault, R. (1927-28)** On the identification of certain vowel and consonant elements in words by tactual qualities and by their visual qualities as seen by lipreading. *F. Abn. Psy.* 22.
- Goldstein (1939) *The Acoustic Method*. St Louis: Laryngoscope Press.
- Haynes, M. A. (Ed.) (1961) *Hearing*. Proceedings of the Institute on the Rehabilitation of the Deaf and the Hard of Hearing.
- Henderson, P. (1960) Handicapped children, in Ewing. (Ed.) (1960).
- Herrick, H. M. and Kapur, Y. P. *Education of the Deaf in India*. Christian Medical College and Hospital, Vellore.
- Hodgson, K. W. (1954) *The Deaf and their Problems*. Philosophical Library.
- Hudgins, C. V. (1953) The response of profoundly deaf children to auditory training. *F. Speech Hearing Dis.*, 18, 273-288.
- Huizing, H. C. (1959) Deaf-mutism—Modern trends in treatment and prevention. *Advances in Otorhinolaryngology*, 5: 71 Quoted by Stewart (1965).
- Huizing, H. C. (1963) 'Potential hearing in deaf children. Its early development and use for auditory communication.'
- Leonard, R. (1962) The effects of selected continuous auditory distractions on lipreading performance. M. A. Thesis, Michigan State University. Quoted by Oyer (1966).
- Lorenz, K. (1952) *King Solomon's Ring*. London: Methuen.
- Mason, M. K. (1943) A cinematographic technique for testing visual speech comprehension. *F. Speech Dis.*, 8, 271.
- McCroskey, R. L. (1967) Progress report on a home training program for deaf infants. *Int. Audiology*. 6, 2, 171.
- McKeon, M. (1961) Rehabilitation of the deaf: educational aspects, in Haynes, M. A. (Ed.) (1961).
- McLaughlin, H. F. (1960) Integration of deaf children into hearing society, in Ewing (Ed.) (1960).
- Meyerson, L. A. (1955) Psychology of impaired hearing, in Cruickshank, W. M. (Ed.) (1955) *Psychology of Exceptional Children*. Englewood Cliffs: Prentice Hall.
- Neely, K. K. (1956) Effects of visual factors on the intelligibility of speech. *F. Acoust. Soc. Amer.* 28, 1275-1277.
- O'Connor, C. D. (1960) Integration of graduates of the Lexington School for the deaf in programmes for the normally hearing, in Ewing (Ed.) (1960).
- O'Neill, J. J. and Oyer, H. J. (1961) *Visual Communication for the Hard of Hearing*. Englewood Cliffs: Prentice Hall.
- Oyer, H. J. (1966) *Auditory Communication for the Hard of Hearing*: Englewood Cliffs: Prentice Hall.
- Pauls, Miriam (1966) Speech Reading, in Davis and Silverman (Eds.) (1966).
- Pettengill, B. D. (1878) The phraseology of the Deaf and dumb. *Am. Annals of the Deaf*. 23, 1.
- Pintner, J. P. (1916) A measurement of the language ability of deaf children. *Psychol. Review*. 23, 6.
- Pollack, D. (1964) Acoupedics:** A Unisensory approach to auditory training. *Volta Review*. 66.
- Riesen, A. H. (1947) The development of visual perception, in man and chimpanzee, *Science*, 106.
- Silverman, S. R. (1966) Teaching Speech, in Doctor P. V. (Ed.) (1966).
- Silverman, S. R. (1966) From Aristotle to Bell, in Davis and Silverman (Eds.) (1966).
- Silverman, S. R., Lane, H. S. and Doehrig, R. G. (1966) Deaf children, in Davis and Silverman (Eds.) (1966).
- Silverman, S. R. and Taylor, S. G. (1966) The choice and use of hearing aids, in Davis and Silverman (Eds.) (1966).

- Sortini, A. J. (1959) Importance of individual hearing aids and early therapy for preschool children. *F. Speech Hearing Dis.*, 24.
- Stewart, J. L. (1965) *Effectiveness of educational audiology on the language development of hearing handicapped children*. Denver, Colo: University of Denver (Colorado Seminary)
- Stone, L. J. Fielder, M. F. and Fine, C. G. (1961) Preschool education of deaf children. *F. Speech Hearing Dis.*, 26, 45.
- Streng, A., Fitch, W. J., Hedgecoke, L. D., Phillips, J. W., Carrel, J. A. (1967) *Hearing therapy for Children*. New York: Grune and Stratton.
- Sumby, W. H. and Pollack, I. (1954) Visual contribution to speech intelligibility in noise. *F. Acoust. Soc. Amer.* 26, 212-215.
- Tracy, S. (1960). The John Tracy Clinic, in Ewing, A. W. G. (Ed.) (1960).
- Vaughn, G. R. (1967), *Education of deaf and hard of hearing adults in established facilities for the normally hearing*. Pocatello, Idaho: Idaho State University.
- Watson, T. J. (1961) The use of residual hearing in the education of deaf children. *Volta Review*, 63, 328.
- Wedenberg, R. (1951) Auditory Training of the deaf and hard of hearing. *Acta Otolaryngologica, Supp.* 94.
- Wedenberg, E. (1954) Auditory Training of severely hard of hearing preschool children *Supp. Acta Otolaryngologica.* 110.
- Whetnall, E. (1953) Speech and Hearing in Severely deaf children. Amsterdam: Proceedings of the Fifth International Congress of Otorhinolaryngology, Quoted by Stewart (1965).
- Whetnall, E. (1956) The development of usable (residual) hearing in the deaf child. *F. Laryngology and Otology* 52, 630.
- Whetnall, E. (1960) Clinics for children handicapped by deafness, in Ewing. (Ed.) (1960).
- Whetnall, E. and Fry, D. B. (1964) *The Deaf Child*. London: William Heinemann.