

Aural Rehabilitation Revisited

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This paper is a sequel to a debate on the reality of aural rehabilitation (AR) presented in a 1970 program of the Academy of Rehabilitative Audiology. In that debate, the experimental literature on speechreading and auditory training was analyzed, with the personal conclusion that there was little evidence supporting the improvement of speech perception in adventitiously hearing-impaired adults as a function of training. AR was narrowly defined then in terms of speechreading and auditory training since, in that period, these procedures seemed to be the dominant conception of the AR process. For purposes of the current paper, much of the literature on AR subsequent to 1970 was reviewed. Current concepts of AR encompass more than speechreading and auditory training. Experimental studies support the possibility of some improvement in speech perception, but questions are raised regarding the real-life implications of these studies. Follow-up studies of hearing aid users suggest the need for formal hearing aid orientation programs, the application of self-assessment scales, and the beneficial impact of support groups. It was concluded that our current knowledge regarding the AR needs of adventitiously hearing-impaired adults is insufficiently translated into routine clinical practices.

The inception of this paper goes back to 1970 when I participated in an Academy of Rehabilitative Audiology (ARA) program with Jan Jeffers. We were asked to debate the reality of rehabilitative audiology and my task was to present and support the view that rehabilitative audiology was a fictitious enterprise, with Jan taking the opposite view. In preparation for the debate, I reviewed the available experimental literature on speechreading and auditory training. I took this rather narrow focus because, at the time, aural rehabilitation (AR) was for the most part defined by these procedures and my intention was to determine if the available evidence supported the effectiveness of AR through such training.

In 1970 there were not too many experimental articles to review in either speechreading or auditory training. After carefully analyzing this literature, I concluded that there was no substantial support for the then-current view that, for adults at any rate, we could improve either speechreading or auditory skills *through training*. I did not assert that adventitiously hearing-impaired

adults could not improve their use of visual or auditory cues, only that we had no real evidence that our *specific training* was responsible for any possible improvement.

As I looked over the manuscripts (unpublished) that Jan and I submitted at the time, I could see that we both felt uncomfortable with this narrow definition of what constituted AR. She stressed the merits of hearing aid amplification and counseling; I responded that I could hardly disagree with this formulation, standing there as I was with a hearing aid protruding from my ear and being the recipient myself of a very fine AR program. The point was, however, that amplification and counseling were not then considered as central to the practice of AR as were speechreading and auditory training.

I did not at the time recommend the abolition of speechreading or auditory training "lessons" for adventitiously hearing-impaired people. A personal experience may help to clarify the apparent contradiction between, on the one hand, the paucity of evidence supporting these procedures and, on the other hand, my impression that such training was nonetheless valuable. When I received my first hearing aid in early 1952, I was a patient at Walter Reed Army Hospital and was enrolled in their rehabilitation program. At the time, I was convinced that I was learning how to read lips. For practice, on buses and trains, I would peer intently at the lips of people who were talking, probably making a lot of people very uncomfortable. It was not until years later that I realized that the benefits of the program were not directly related to the specific content of the classroom lessons, but to the many ancillary and unspoken factors intrinsic to the group experience. I was able to share my plight with many other men in my situation; we were able to discuss problems and provide mutual support for one another. I learned about hearing loss, about the benefits and limitations of hearing aids, and that my hearing loss was not a stigma, nor a hearing aid a mark of shame. When I left I felt a lot better about myself and my future prospects; I had been rehabilitated even though, as I look back now, it is apparent that my speechreading skills had not really improved. In retrospect, therefore, it seems that the main benefit of the lessons was providing an acceptable framework within which the necessary group instruction and dynamics could be made manifest.

These same observations were experimentally corroborated by Binnie in 1977. He found that, although 12 hearing-impaired adults had not improved their speechreading scores after 12 weeks of training, their attitudes, as determined by a post-treatment questionnaire, had improved. The group responded favorably to the classroom activities and felt they better understood their hearing handicap after the program. They were also more assertive after the 12 weeks in communicating with others and felt that the mutual support they offered one another was very valuable. At the conclusion of the program, these people felt less isolated, more in control of events, and better able to cope with their hearing losses. Even though their judgement that their speechreading ability had improved could not be verified experimentally, I believe

that these judgements should not be discounted or ignored. We simply do not know enough about the therapeutic process to dismiss the attitudes of those who are most directly involved or the possibility that communication improvement occurred along dimensions which were not reflected in the formal tests of speechreading. As Binnie (1977) pointed out, this phenomenon requires additional research to explore further the benefits of group instruction.

Clearly, however, current concepts of AR do encompass more than the traditional focus on speechreading and auditory training. I recently reviewed much of the research literature on AR subsequent to my 1970 ARA debate, as well as other developments that I thought interesting. The purpose of this paper is to present this review and to share some of the observations I made upon this occasion of my revisiting the AR literature after a lapse of 17 years. The implications of these observations on current practices will be commented upon throughout the paper.

SPEECHREADING AND AUDITORY TRAINING

Except for the studies of Colton and O'Neill (1975); Danz and Binnie (1983); Lundborg, Risberg, Holmqvist, Lindstrom, and Svard (1982); Montgomery, Walden, Schwartz, and Prosek (1984); Rubenstein (1985); Walden, Prosek, Montgomery, Scherr, and Jones (1977); and Walden, Erdman, Montgomery, Schwartz, and Prosek (1981); there have been few efforts made in recent years to determine if either speechreading or auditory training can improve speech perception by hearing-impaired adults *as a function of a training program*. Most of these studies did show modest improvement in speechreading performance, auditory perception, or combined auditory and visual speech recognition, apparently as a result of training. The experimental procedures were more closely controlled and more elaborate than those used in the studies I reviewed prior to 1970. Not surprisingly, Walden et al. (1981) noted wide inter-subject variations in scores. I found particularly pertinent the results of several of the studies in which a global improvement was noted, reflecting more the capability to exploit linguistic redundancy in sentence context rather than an increased ability to recognize speech sounds per se (Danz & Binnie, 1983; Rubenstein, 1985). One generalization which can be made from these results is that future work will probably be most useful when focussing on synthetic tasks in which the stimuli are large linguistic units received via combined auditory and visual modes (Montgomery et al., 1984). As training stimuli they may at least provide for a more valid definition of communication performance.

In essence, such a global approach characterized the procedure followed by Owens and Raggio (1987) in which a single subject was trained and tested over time using a modified tracking task. The difference between this tracking procedure and others is that the subject controlled the correction strategies to be used by the experimenter in that he could ask for verbatim repetitions,

paraphrases, spelling, or writing of a specific word or an important word. The results indicated an improvement of tracking rate beyond that expected from spontaneous learning. What is not clear from this study, however, is whether the subject's improvement was due to increased skill in capitalizing on the combined acoustic (cochlear implant) and visual cues or increased facility with the coping strategies he was instructed to employ. This distinction becomes relevant when his conversational partners are less facile in modifying the verbal output than was the trainer.

In my judgement, we need more solid evidence before we can draw any definite conclusions on the basis of the results to date. Those studies which employed a control group (Colton & O'Neill, 1975; Montgomery et al., 1984; Walden et al., 1977; Walden et al., 1981) could not really equate the motivation and attentional focus of the experimental and the control groups, factors that undoubtedly influence speech perception skills to a greater or lesser extent. Additionally, there are apparently no studies that have evaluated experimental and control groups a year or so later to determine if training effects were still present. If the results are not permanent, they are not likely to be very useful. Finally, there have been no studies which have examined the social and/or communicative consequences of formal speechreading and auditory training programs. In other words, if the results are not just situation-limited improvements, the impact should be reflected in a person's real-life communicative performance.

In my considered opinion, I doubt if we can improve speech perception beyond the point naturally obtainable by a *motivated adventitiously hearing-impaired adult listener who is using all the visual and auditory cues available in a given situation at any given time*. I am not referring to the improvements in speech perception noted in people who are becoming accustomed to their first hearing aids, or to the results of such techniques as slowly increasing the high-frequency response of a hearing aid in a new user. What I am questioning is whether therapeutic intervention for the specific purpose of improving speech perception, either visually or auditorily, can be supported by the evidence, particularly after a performance plateau has been reached. I find it interesting that the group at the Walter Reed Army Medical Center, which has given us the most impressive research on visual, auditory, and auditory-visual recognition, does not include *direct* training as part of their current AR program; although, the general merits of visual cues and focussed listening are nonetheless still stressed (B. Walden, personal communication, 1987). As I have indicated, I do not question the value of groups organized for speechreading and auditory training lessons. They have face validity for the public at large; they are a framework within which the benefits of group dynamics can be realized; and we do not yet know enough to summarily dismiss such training as ineffective in improving communication skills.

SELF-ASSESSMENT SCALES

In the past 17 years, we have seen an ever burgeoning array of self-assessment scales (reviewed in Alpiner & McCarthy, 1987; Demorest & Erdman, 1987; Giolas, 1983; Weinstein, 1984). Their purpose is to evaluate a client's rehabilitative needs by assessing communication handicap, performance, environment, and strategies, in addition to personal adjustment factors, the concurrent judgements of significant others, and the effects of amplification. On reviewing such scales, I find myself impressed with their scope and sensitivity. I did not think that there was much that these scales could teach me after living with a hearing loss myself for over 35 years, but I was wrong. Their content distills the accumulated experience of thousands of clients and many professionals. No one of us, no matter how personally involved, can recall all the salient social, communicative, vocational, and affective consequences of a hearing loss. These scales permit us to *systematically* review the consequences of a hearing loss with our clients, for our benefit as much as theirs, and can compare the variations which often occur between a spousal and personal rating of a hearing handicap (Newman & Weinstein, 1986).

We are not only at the threshold of really defining the communication problems experienced by specific clients and developing realistic therapeutic strategies, but we also have a tool by means of which we can begin to assess the validity of our results. It is indeed difficult to see how we can say that we are engaging in the practice of AR if we do not first define the rehabilitative needs of our clients. Alpiner and McCarthy (1987) reprinted 20 self-assessment scales, and there are other scales as well (Demorest & Erdman, 1987; Giolas, Owens, Lamb, & Schubert, 1979; Ventry & Weinstein, 1982). However, we may have too much of a good thing at present; some kind of winnowing process will have to take place.

Presently, it is not known how many audiologists include a self-assessment scale as a component of their routine audiologic assessment. It takes time to administer a self-assessment scale, and time, whether in a private practice or a non-profit institution, has economic implications. For example, the newest such scale, by Demorest and Erdman (1987), takes 20-40 minutes to administer, although there are others which are shorter and do not require an audiologist's assistance. If we agree that defining the rehabilitative needs of our clients is necessary and should be an important component of an AR program, then it is apparent that we will have to come to terms with the time constraints of administering one or more of these scales and modify our service delivery models accordingly. In this regard, I wonder if the emerging models of private practice hearing aid dispensing may not inhibit routine employment of a self-assessment scale because of the economic constraints of time. AR, it seems, is going to have to be viewed as a necessary service which pays its own way before it becomes an integral component of many hearing aid dispensing practices.

HEARING AID ORIENTATION AND FOLLOW-UP

In my judgement, there is no more central factor in the AR process for the average adventitiously hearing-impaired adult than the provision of some type of amplification system. It is the only therapy which addresses the root cause of the person's problems, the hearing loss itself. No regimen of AR can be considered adequate if it does not attempt to ensure that the client is eventually fitted with an *optimal* and not just an *adequate* amplification device. If, at the current time, we cannot make this distinction, at the least we can attempt to ensure that the recommended amplification device is consistently worn and meets the client's communication needs.

The implications of using self-assessment scales is that we have to go beyond the usual sequence of events leading to the dispensing of a hearing aid. It is not enough to give a few minutes of post-fitting instruction and one or two follow-ups after fitting, and then advise the client to call if there are any problems. Studies which have looked at the number of people who continue to wear hearing aids some time after they were fitted include those of Brooks (1985); Brooks and Johnson (1981); Franks and Beckman (1985); Haggard, Foster, and Iredale (1981); Hickson, Hamilton, and Orange (1985); Oja and Schow (1984); Plomp (1978); Scherr, Schwartz, and Montgomery (1983); and Sorri, Luotonen, and Laitakari (1984). Generally, it was found that up to 30% discontinue wearing their hearing aids some period after receiving them, mostly in the first three months. The one exception to this was in the Scherr et al. (1983) study which reported that only 2 subjects of the 377 followed found the aids to be of little or no use. The percentages in the other studies vary, with younger clients, employed clients, and those with the most severe losses more likely to continue hearing aid usage. Contrary to expectations, however, slope of loss and speech discrimination test score were not related to acceptance of amplification (Brooks, 1984; Hutton, 1985; Sorri et al., 1984). Those who persisted in the use of an aid in the first few months after fitting were not only more likely to continue its use, but also reported a diminished feeling of self-consciousness or embarrassment about wearing one (Kyle & Wood, 1984).

I see no evidence in our literature that the implications of these follow-up studies have been translated into changes in routine clinical practice in this country. *We are not, in other words, dealing in any organized manner with our failures.* I could not determine how many audiologists query their clients a year or so after the initial hearing aid fitting to ascertain whether or not they were still wearing a hearing aid and, if not, why not. We cannot intelligently assess the success of our efforts without this kind of information. One large-scale study that followed 1000 clients for at least one year found that simply looking at the number of clients who accepted continual hearing aid usage overestimated program success; that is, there were many residual problems which could not be defined simply in terms of continued hearing aid usage (Alberti, Pichora-Fuller, Corbin, & Riko, 1984).

The kind of follow-up I suggest would be initiated by audiologists and would include re-administration of the self-assessment scales administered at the time of initial fitting, a behavioral and an electroacoustic analysis of the hearing aid, and a discussion of any changing needs and problems. In this way we can gain some insights into the nature and scope of any changes in the communication performance and adjustment of the individual. The value of such follow-up studies has already been demonstrated (Dempsey, 1986; Oja & Schow, 1984; Tannahill, 1979; Walden, Demorest, & Hepler, 1984). In the Dempsey (1986) study, for example, the Hearing Performance Inventory (HPI) demonstrated a significant decrease in hearing handicap for those who used hearing aids compared to a comparison group not fitted with hearing aids. An encouraging aspect of the Oja and Schow (1984) study was the finding that 89% of clients fit by audiologists were satisfied with their hearing aids to some degree while only 50% of those fit by others were similarly satisfied. (Maybe there really is something to audiological training after all!)

The reasons that people gave for non-use of their hearing aids is very instructive, but hardly surprising. About 25% of those who reject post-auricular hearing aids do so because of difficulty in inserting the earmold, while an approximately equal number find that the presence of noise makes the hearing aid more of an annoyance than a benefit (Brooks, 1985; Franks & Beckman, 1985; Hickson et al., 1986). In one study (Sorri et al., 1984), only 45% of the *best* hearing aid users (defined by hours per day the aid was used) knew how to benefit from a telephone coil. Generally speaking, the unsuccessful users simply did not know how to manage their hearing aids (Hickson et al., 1986) or did not find the benefits worth the trouble to wear one.

What I found particularly significant in surveying this follow-up literature was the unanimous finding that clients who received an organized post-fitting hearing aid orientation or AR program were more likely to wear and be satisfied with their hearing aids than clients who had not received such a program (Brooks, 1979, 1985; Brooks & Johnson, 1981; Kapteyn, 1977; Lundborg, et al., 1982; Surr, Schuchman, & Montgomery, 1978; Ward & Gowers, 1980, 1981). While the nature of the follow-up programs differed in the above studies, a common theme was the commitment of time and resources to instruct new users in the management of their hearing aids. As noted earlier, asking our clients to contact us later if there are any problems is simply too casual an approach. A group experience would be desirable to facilitate the mutual support that the members can extend to one another and to provide information about hearing aids and hearing loss, communication strategies, assertiveness training, and — yes — the necessity of visual cues to supplement imperfect auditory signals. During the group interactions, we also can judge the need for assistive listening devices and systems (ALDS) and thus extend the concept of personal amplification beyond conventional hearing aids.

In a program in England, described by Brooks and Johnson (1981), experi-

enced hearing aid users are trained to serve as lay counselors for new hearing aid users. They visit these people 7-10 days after an aid is dispensed and help them insert the earmold; change batteries; use the telephone attachment; and discuss limitations, hearing strategies, and other topics. Another visit is paid 6 weeks later and a third 3-4 months later. All this is coordinated with group therapy sessions for certain clients. During these visits, the need for various assistive devices is also checked.

SELF-HELP GROUPS

One of the more hopeful recent developments in AR is the emergence of self-help groups. It is a development that we all should encourage, foster, and cooperate with to the fullest extent possible but as technical advisors and not as group leaders. What people can do to help each other and themselves far exceeds what we can do for them.

The validity of such support groups has long been accepted. Among the earliest, if not the earliest, were those involved with adventitiously hearing-impaired people. Leagues for the Hard of Hearing were first established more than 75 years ago, predating by many years the emergence of the audiology profession. With the advent of hearing aids, which reduced the need for speechreading training, and professional involvement in rehabilitative services, their popularity declined. The resurrection of self-help groups that we are seeing now puts the primary responsibility for rehabilitation where it belongs, on the people involved themselves.

The program of Brooks and Johnson (1981) is an example of the complementary contribution that clients and professionals can make to newly fitted hearing aid users. An example of consumer leadership is the Long Island Chapter of Self-Help for the Hard of Hearing (SHHH) which developed and staffed an ALDS center in a local library. The members of these groups can help dispel the presumed shame attached to acknowledging a hearing loss and the stigma felt to be associated with hearing aid usage. They can point to the positive changes in their own lives associated with improved communication skills and help new and prospective hearing aid users develop realistic expectations regarding aids. Cost has been a recurring factor in the rejection of amplification by many prospective hearing aid candidates (Franks & Beckman, 1985). No one can better demonstrate a positive cost/benefit ratio than an experienced consumer.

It seems evident that the biggest future challenges in AR are not primarily technological but social and psychological. Consider that (a) only about 20% of potential hearing aid users actually wear hearing aids (Goldstein, 1984), (b) the clear need for TV and other personal listening systems in nursing homes and hospitals is ignored, (c) most large-space listening situations (movie houses, theatres, auditoriums, churches, and synagogues) do not provide appropriate assistive listening systems, and (d) the behavioral and communi-

cative effects of a hearing loss are widely misunderstood in our society. Given these situations, our future emphasis must be on changing attitudes and only secondarily on changing things. It is in this regard that consumer participation is vital. Organized consumers can inject their personal emotional commitment, and potential votes, into the political and regulatory process with great effectiveness. One only has to peruse the last few copies of the journal of the consumer group, SHHH, to realize the positive impact that consumer groups can have. In the issue of *Shhh* dated May/June, 1987, for example, there are reports on programs to expand access to public accommodations, contacts with governmental representatives to ensure compliance with Section 504 of the Rehabilitative Act regarding assistive devices in locations receiving federal funds, a project to develop a census of hearing-impaired people, and other social priorities which have consumer significance.

SOME CONCLUDING COMMENTS

I did not in this review cover current research and development in hearing aids; that requires separate consideration. Nor did this review include, except in passing, much material on the reasons why so many hearing-impaired people with communication problems do not avail themselves of our services. The basic point of departure was an initial acceptance of personal amplification and whatever non-medical steps we can take to assess and improve the negative communication consequences of a hearing loss.

For many if not most clients, it is not difficult to observe some immediate improvements with a hearing aid in a clinic setting. Too often, it seems, this is as far as it goes. I saw no evidence in my survey of the literature of a widespread clinical routine in this country in which there is a systematic and comprehensive effort to assess the full implications of an adventitious hearing loss so as to develop an effective rehabilitative strategy. I do not think that "some" help is good enough; we should strive towards defining maximum improvement for particular individuals.

In other words, I do not think that we can be complacent about the status of AR in this country. Certainly we know a lot more than we did years ago, and there are many developments which look quite promising (e.g., digital and automatic signal processing hearing aids, assistive devices, and self-assessment scales); but we still seem to be at the point of describing models and intentions rather than putting them into practice. I am sure that there are exceptions to this bleak assessment, within ARA in particular, but we are reaching only a fraction of the potential rehabilitation candidates. Every new hearing aid user should be provided with an AR program organizationally integrated into the hearing aid dispensing process. Without the development and implementation of service delivery models which permit this economically, AR will continue to be defined in terms of our own specific practices, as an exercise in self-justification, rather than providing our clients the services we are professionally capable of delivering.

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