

Evaluating the Research of Auditory-Verbal Therapy

Adéla Hanáková¹
Jana Zvědělíková²
Eva Urbanovská³

¹ Faculty of Education, Palacký University; Žižkovo nám. 5, Olomouc, 77140; adela.hanakova@upol.cz

² Faculty of Education, Palacký University; Žižkovo nám. 5, Olomouc, 77140; zvedelikova.j@centrum.cz

³ Faculty of Education, Palacký University; Žižkovo nám. 5, Olomouc, 77140; evaurb@atlas.cz

Grant: IGA_PdF_2018_008

Název grantu: Výzkum specifík speciálněpedagogické intervence a poradenství

Oborové zaměření: AM - Pedagogika a školství

© GRANT Journal, MAGNANIMITAS Assn.

Abstract When parents are informed about their child's hearing loss, they often must make a relatively quick decision as to communication options. Speech and language therapists or practitioners can provide information to support their decision about technology (cochlear implantation) and auditory-verbal practice. For this reason, the practitioners should know how it differs from other communication options and the existing evidence related to auditory-verbal practice. This article reviews that evidence and how it influences a broad understanding of auditory-verbal practice.

Key words research, auditory-verbal therapy, children with hearing impairment, technology, cochlear implant, evidence-based practice

1. Auditory-Verbal approach

Children who are born with hearing loss, or who acquire hearing loss in early childhood, have unprecedented potential, like never before, to develop listening skills, develop intelligible spoken language, and enjoy the social and academic standards commensurate with peers with typical hearing. To foster this potential, most parents make an educated choice from a variety of communication approaches, to help their young children, to satisfy their family goals, and to embrace their culture. (Estabrooks in Estabrooks, Maciver-Lux, Rhoades, 2016; cf. Estabrooks, 2006; Rhoades, Duncan, 2017)

Auditory-Verbal Therapy (AVT), a listening and spoken language (LSL) approach, is one such choice. AVT follows specific principles of practice and uses evidence-based and evidence-informed strategies to develop and grow the child's brain toward the preferred listening and spoken language outcomes. (Estabrooks in Estabrooks, Maciver-Lux, Rhoades, 2016)

2. Brain and Auditory-Verbal therapy

Flexer, Rhoades (in Estabrooks, Maciver-Lux, Rhoades, 2016) describe, that we hear with the brain - the ears are the doorway to the brain for auditory information. Consequently, hearing loss is primarily a brain issue - not an ear issue. Anytime the word hearing is used, we need to think about "auditory brain development." Acoustic accessibility of intelligible speech is essential for brain growth because auditory brain development is a first-order event for

the development of spoken communication and literacy skills. There is substantial neurobiological evidence that hearing (auditory brain stimulation) is the most effective sensory modality for the learning of spoken language, reading, and cognitive skills that create the foundation for tomorrow's workforce.

3. Technology and Auditory-Verbal therapy

Because speech and language are among the most important sounds that children can hear, the importance of making those sounds audible is a key theme. The basic function of hearing aids will be discussed including the latest advances in how hearing aids process sound. Demonstrating the benefits of hearing aids for supporting AVT is important for parents and practitioners. Hearing aids cannot be beneficial if they are not worn, so strategies for promoting consistent hearing aid use across a wide range of listening situations are presented. Children with mild hearing loss and children with auditory neuropathy spectrum disorder are two groups where amplification benefits have been debated. (McCreery, Walker in Estabrooks, Maciver-Lux, Rhoades, 2016)

Implantable hearing technologies encompass a wide range of cochlear implants, auditory brainstem implants, bone conduction devices, and middle ear devices. Recent developments in implantable hearing technology have created opportunities for children with all degrees, types, and configurations of hearing loss to develop age-appropriate auditory skills and spoken language that are commensurate with their peers with typical hearing. (Wolfe, Neumann in Estabrooks, Maciver-Lux, Rhoades, 2016)

Auditory-verbal therapy is an intervention approach for children with hearing loss that emphasizes the development of spoken language through early identification of hearing impairment; optimal amplification, cochlear implant technology, or both; and intensive speech and language therapy. In this approach, parents serve as the primary language models for their children. AVT is based on the notion that most children with hearing losses ranging from mild to profound can learn to communicate through spoken language if provided with appropriate amplification or cochlear implant technology (or both), abundant language stimulation, and adequate opportunities to develop their hearing and listening potential.

4. Evidence-based practice and Auditory-Verbal therapy

It is very important to discuss the standards of evidence-based practice and to examine the existing evidence that supports Auditory-Verbal therapy (AVT) as an intervention. (Estabrooks, 2006)

There are ten specific principles of practice to which auditory-verbal intervention programs adhere. Briefly, auditory-verbal practice is unique from other approaches within the broader auditory-oral spectrum, particularly when collectively considering the following characteristics:

- Parents or primary caretakers of the child must be actively involved in the child's individualized daily intervention strategies, primarily as the child's most significant spoken language enablers;
- Parents must ensure that the child take advantage of current hearing technology in an assertive manner which results in consistently effective access to soft conversational sound;
- Parents must enroll the child in regular educational programs for normally hearing children, thereby avoiding the grouping of children with hearing loss.

While a short-term goal of this approach is that of preschool integration for the child with a hearing impairment, the long-term goals include full assimilation of a communicatively competent child into the family system, academic grade school environment, and social fabric of the larger community. Auditory-verbal intervention is a family-focused process; at the very least, it is a parent-centered approach involving mandated parent coaching that contrasts with child-centered intervention. (Rhoades, 2006)

The auditory-verbal approach has for some years been a popular intervention for children who are deaf or hard of hearing, yet few empirical studies have evaluated the communication and academic outcomes of those children who have participated in this approach. While the Auditory-Verbal approach has been a popular intervention option for children with hearing loss since the 1940s, - empirical studies have evaluated the communication and academic outcomes of those children who have participated in this intervention approach. (Eriks-Brophy, 2004) Proponents of AV practice have either observed or personally experienced powerful outcomes of this communication option for children with hearing loss. Over the longterm, AV practice has enabled many children with hearing loss, even those with profound deafness, to develop listening skills for speech perception, spoken language, reading, and other auditory-based learning that permit full inclusion into both school and community. While this is the promise of AV practice, it is recognized that, due to the heterogeneity of families, AV practice cannot assure such results for all children with hearing loss.

As write Monshizadeh (no date), although various studies have investigated the different aspects of speech perception and language acquisition in cochlear-implanted children, little is known about their social skills, particularly Persian-speaking cochlear-implanted children. Considering the growing number of cochlear implants being performed in Iran and the increasing importance of developing near-normal social skills as one of the ultimate goals of cochlear implantation, this study was performed to compare the social interaction between Iranian cochlear-implanted children who have undergone rehabilitation (auditory verbal therapy) after surgery and normal-hearing children. This descriptive-analytical study compared the social interaction level of 30 children with normal hearing and 30 with cochlear implants who were conveniently selected. The Raven test was administered to the both groups to ensure normal intelligence quotient. The social interaction status of both groups was evaluated using the Vineland Adaptive Behavior

Scale, and statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 21. After controlling age as a covariate variable, no significant difference was observed between the social interaction scores of both the groups ($p>0.05$). In addition, social interaction had no correlation with sex in either group. The author shows, that cochlear implantation followed by auditory verbal rehabilitation helps children with sensorineural hearing loss to have normal social interactions, regardless of their sex.

Study from Kaipa and Danser (2016) aimed to systematically review past studies investigating AVT outcomes in children with hearing impairment. This systematic search was conducted in six databases. Fourteen articles that met the final inclusion criteria were grouped under three categories based on the outcome measures: receptive and expressive language development, auditory/speech perception and mainstreaming. Articles under "receptive and expressive language development" category indicated AVT can even help children with hearing impairment beyond three years of age to develop age appropriate language skills and catch up with their hearing peers. Articles under "auditory /speech perception" category suggested that children receiving AVT can learn to recognize words accurately even in the presence of background noise. Articles grouped under "mainstreaming" category indicated that children receiving AVT can be successfully mainstreamed. Although studies suggest that AVT can have a positive impact on developing speech and language skills in children with hearing impairment, it is difficult to generalize these findings due to limited evidence. Future studies should utilize well-controlled group designs to minimize the role of external variables as well as strengthen the evidence-base for AVT.

Evidence-based practice is clinical decision-making based on three facets - multiple, high quality research studies yielding meaningful outcomes; individual practitioner expertise; and the needs of the people being served. Evidence-based practice (EBP) in the fields of audiology and speech-language pathology typically consists of gathering outcome data related to a specific clinical approach. Treatment outcomes may be gathered for a variety of purposes, such as to document the effectiveness of a clinical program, to identify gains in specific domains of communication subsequent to having participated in a particular treatment, to determine whether treatments are cost-effective and resources are being well spent, and to monitor clinical effectiveness. (Estabrooks, 2006)

Mortazavi and Mortazavi (2017) add to evidence-based practice as conscientious and clear use is considered the best evidence in making decisions about patients. The auditory-verbal approach is a communication model through which parents and professionals can identify the deaf children. According to evidence-based practice, there are 3 required hypotheses of evidence-based practices in auditory-verbal approach:

1. Evidence-based research: systematic researches;
2. Clinical skills: enjoying all the specialists' experiences, who worked on this issue?
3. Stakeholder perspectives: including families' preferences, specialists, and financial resources.

All these hypotheses from Mortazavi and Mortazavi (2017) are required to conduct evidence-based practices. The methodology used in this research is descriptive-analytical on the basis of auditory-verbal approach and the basics of evidence-based practices. Twenty children with hearing loss, aged 6-8 years old, who used both audio hearing aid and cochlear implant, were selected as samples. It took 1 year to study the samples. Individual 20-minute sessions were held twice a week by speech therapists, psychologists, and audiologists. Group meetings were held twice a

week by the trainers of the children with hearing loss. The children's parents participated in the meetings once a week and the mothers were trained how to interact with children by speech therapist. Once a month, the therapist went to their home and controlled the family's interaction with the child. Using TOLD-3, the linguistic indicators of the children were assessed before and after research. 80% of the children reached a language development level as that of normal children. Considerable development could be seen in receptive language within the first 6 months and in expressive language within the second 6 months. Authors think that auditory-verbal approach is a legitimate communication approach for the deaf children or those with different hearing loss severity, regardless of the hearing aids.

Resources

1. ERIKS-BROPHY, A. Outcomes of Auditory-Verbal Therapy: A Review of the Evidence and a Call for Action. *Volta Review*, [s. l.], v. 104, n. 1, p. 21–35, 2004.
2. ESTABROOKS, W. *Auditory-verbal therapy and practice*, Alexander Graham Bell Association for the Deaf and Hard of Hearing, Washington, DC, 2006.
3. ESTABROOKS, W. et al. Auditory-verbal therapy: An overview. In: ESTABROOKS, W.; MACIVER-LUX, K.; RHOADES, E. A. (Eds.). *Auditory-verbal therapy for young children with hearing loss and their families, and the practitioners who guide them*. San Diego, CA: Plural Publishing, 2016. p. 1–21.
4. FLEXER, C.; RHOADES, E. A. Hearing, listening, the brain, and auditory-verbal therapy. In: ESTABROOKS, W.; MACIVER-LUX, K.; RHOADES, E. A. (Eds.). *Auditory-verbal therapy for young children with hearing loss and their families, and the practitioners who guide them*. San Diego, CA: Plural Publishing, 2016. p. 23–33.
5. KAIPA, R.; DANSER, M. L. Review Article: Efficacy of auditory-verbal therapy in children with hearing impairment: A systematic review from 1993 to 2015. *International Journal of Pediatric Otorhinolaryngology*, [s. l.], v. 86, p. 124–134, 2016.
6. MCCREERY, R. W.; WALKER, E. A. Hearing aids and auditory-verbal therapy. In: ESTABROOKS, W.; MACIVER-LUX, K.; RHOADES, E. A. (Eds.). *Auditory-verbal therapy for young children with hearing loss and their families, and the practitioners who guide them*. San Diego, CA: Plural Publishing, 2016. p. 127–159.
7. MONSHIZADEH, L. et al. Comparison of Social Interaction between Cochlear-Implanted Children with Normal Intelligence Undergoing Auditory Verbal Therapy and Normal-Hearing Children: A Pilot Study. *JOURNAL OF INTERNATIONAL ADVANCED OTOLOGY*, [s. l.], v. 14, n. 1, p. 34–38.
8. MORTAZAVI, Z.; MORTAZAVI, S. Auditory-Verbal Therapy (Avt) and Evidence-Based Practice (Ebp). *BMJ Open*, [s. l.], v. 7, p. A10, 2017.
9. RHOADES, A. E. , DUNCAN, J. *Auditory-Verbal Practice. Family-Centered Early Intervention*. Charles C Thomas Pub Ltd; 2 edition, 2017. ISBN 9780398091477.
10. RHOADES, E. A. Research Outcomes of Auditory-Verbal Intervention: Is the Approach Justified? *Deafness and Education International*, [s. l.], v. 8, n. 3, p. 125–143, 2006.
11. WOLFE, J.; NEUMANN, S. Implantable hearing technologies and auditory-verbal therapy. In: ESTABROOKS, W.; MACIVER-LUX, K.; RHOADES, E. A. (Eds.). *Auditory-verbal therapy for young children with hearing loss and their families, and the practitioners who guide them*. San Diego, CA: Plural Publishing, 2016. p. 161–200.