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Teacher Opinions about Auditory Verbal Therapy

İşitsel Sözel Terapi Uygulamasında Öğretmen Görüşleri

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Abstract. As a Class II evidence based approach, Auditory Verbal Therapy (AVT) hasn't been implementing widely. The aim of this study was determined the opinions of teachers' who use AVT in their practices about practicality of AVT, their expectations from each other and AVT practices in Turkey, and also specify the teachers' perspective about AVT course intensity in undergraduate education. For this purpose semi-structured interview was conducted with five teachers who implemented AVT at least three years and with five families who were involved in AVT training for the last 2 years. This study was conducted as a descriptive design which is one of the qualitative research studies. Content analysis and descriptive analysis were used. In the results, teachers stated that working in person with hearing impaired children's families has positive impact on speech perception, language development and speech production. Additionally, they agreed that AVT hasn't been known adequately in Turkey and they needed more courses in their undergraduate educations. As a result it is thought that if AVT takes more place during undergraduate education and teachers can have in-service education about it, AVT may become widespread and may become more useful for children with hearing loss and their families.

Keywords: Auditory-verbal therapy, hearing loss children, cochlear implant, qualitative research, opinions of teacher

Özet. İkinci sınıf kanıta dayalı bir yaklaşım olan İşitsel Sözel Terapi (İST) Türkiye'de çok yaygın olarak uygulanmamaktadır. Bu çalışmanın amacı İST uygulayan öğretmenlerin, aileler ve öğretmenler açısından terapinin uygulanabilirliği ve onların birbirlerinden beklentileri ile lisans eğitiminde İST'ye ne kadar yer verildiği, Türkiye'de İST uygulamaları ile ilgili görüşlerinin alınmasıdır. Bu amaçla en az üç yıl İST uygulamış beş öğretmenle ve en az 2 yıldır İST eğitimi alan 5 aileyle yarı yapılandırılmış görüşme yapılmıştır. Bu araştırma nitel araştırma desenlerinden betimsel desen olarak tasarlanmıştır. İçerik analizi ve betimsel analiz bir arada kullanılmıştır. Sonuç olarak öğretmenler işitme kayıplı çocuklar ile ilgili becerilerin bizzat aileye öğretilmesinin konuşma algısı, dil gelişimi ve konuşma üretimi açısından olumlu olduğunu, aileler ve öğretmenlerce uygulanabilir olduğunu, lisans eğitiminde bu konuya daha fazla yer verilmesi gerektiğini, Türkiye'de çok fazla bilinmediğini ifade etmişlerdir. Türkiye'de lisans eğitiminde İST konusuna daha fazla yer verilmesinin ve mevcut öğretmenlerin de hizmet içi eğitim alması yoluyla yöntemin yaygınlaştırılmasının işitme kayıplı çocuk ve aileler açısından faydalı olabileceği düşünülmektedir.

Anahtar sözcükler: İşitsel-sözel terapi, işitme kayıplı çocuklar, koklear implant, nitel araştırma, öğretmen görüşleri

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Introduction

The hearing screening for newborns becoming widespread across the globe has allowed for diagnosing hearing loss at young ages. Moreover, advancements in hearing aids (HA) and cochlear implant (CI) technology allowed for audiological interventions at the early stages for infants or children with early diagnosis (Rhoades, 2006). Newborn Hearing Screening Program in Turkey started in 2004. The purpose of the program is to screen newborns during the first month of life, to complete diagnostic tests for hearing loss in children who have failed the screening tests during the first 3 months of life, and to perform necessary intervention during the first 6 months of life (Bolat & Genç, 2012). Thus sensory deprivation is prevented.

If the auditory input is not provided for a long time at the critical stage the areas specific to the function in the brain cannot be used for their own functions (Kral, 2007). Once the critical stage is over this condition is irreversible. Perceptual limitations during the critical periods may negatively affect language (semantic, syntactic, and morphological), speech, and literacy skills of children with hearing loss (Moeller, Tomblin, Yoshinaga-Itano, Connor, & Jerger, 2007). Therefore for children with early diagnosis who are equipped with appropriate aids educational interventions are critical.

There are different communication approaches in educating children with hearing loss. These approaches consist of natural auditory-oral approach, AVT, cued speech, sign language, total communication, simultaneous communication and bilingual-bicultural approach (Altınyay & Şahlı, 2015, pp. 555-562; Gravel & O'Gara, 2003; Grimes, Thoutenhoofd, & Byrne, 2007).

The superiority of auditory verbal therapy to all of the other communication methods is that it teaches listening to children with early diagnosis thus without reliance on additional alternative communication systems such as lip reading and signing children can independently communicate. AVT, which is similar to auditory oral approach in terms of this characteristic, is different than AVT that it does not include lip reading and visual cues (Altınyay & Şahlı, 2015, pp. 555-562). Natural auditory oral approach is also a family based approach likewise AVT. In Education and Research Centre for Hearing Impaired Children (i.e., İÇEM) family education based on natural auditory oral approach is implemented zero to three years of age (Turan, 2010). For AVT education lasts until the child is graduated from the program one or two times a week. However rather than frequency of the education participation of the family in the interaction based verbal communication is more important (Stith, 2014).

Auditory-verbal therapy is a Class II evidence based approach which is implemented with children with hearing loss who are early diagnosed and provided with audiological intervention at the early stages (Estabrooks, 2006 pp. 276; Rhoades, 2006). Having children with hearing loss focus on especially listening and generalize these skills to other settings is another purpose of AVT. Moreover, language development, literacy and academic skills of children with hearing loss being at the same level as their peers enables them to have a place in the society and become productive individuals (Goldberg & Flexer, 1993; Şahlı, 2015).

The principles of AVT were initially defined by Doreen Pollack in 1970 and modified in 1993 by Auditory Verbal International and then in 2005 by Alexander Graham Bell Academy for Listening and Spoken Language. These principles are as follows: (1) By providing appropriate auditory stimuli to babies and infants with hearing loss who have been early diagnosed and immediately provided with educational intervention with audiological intervention, to make them have optimal benefits from these stimuli. (2) Having diagnosed providing with audiological intervention support and instruction with

spoken language, to support listening and spoken language skills. (3) To provide development of spoken language without using signs or lip reading, guiding families in a way to ensure that the hearing is the primary sense. (4) By having the parent actively and consistently participate in individualized AVT lessons, to guide parents to become primary facilitators in child's listening and speech development. (5) To have the child develop listening skills and speech in daily activities, to guide parents to form a creative environment. (6) To guide children to help them integrate listening and spoken language into every aspect of their lives. (7) To guide parents to use natural developmental skills in listening, speech, language, cognitive development, and communication. (8) To guide parents to monitor their child in providing speech development via listening. (9) With the help of formal and informal assessment conducted by therapists to evaluate AVT's effectiveness by monitoring the process with individualized AVT plans. (10) To support inclusive education of children with hearing loss by providing appropriate support services (Brennan-Jones, White, Rush, & Law, 2014; Rhoades, 2006; Rhoades & Duncan, 2010; Şahlı, 2015).

The number of studies for AVT is very few in the literature. Goldberg and Flexer (1993) conducted a survey research with 157 individuals who were 18 years old or older and received AVT for at least 3 years or graduated from AVT. Of all the participants 152 were graduates of high school with general equivalency degree, 124 were enrolled in colleges or universities, only 15 were enrolled in Gallaudet National Technical Institute which carried out education for individuals with hearing disabilities (Goldberg & Flexer, 1993).

In another study, 25 children who received AVT were matched with 25 children with normal hearing in terms of language age, receptive language vocabulary, gender, and socioeconomic level. In this longitudinal study, 21 months later children who received AVT showed significant gains in terms of speech perception, receptive and expressive language development, and speech and also they had similar performance to the matched children with normal hearing (Dornan, Hickson, Murdoch, & Houston, 2009). This study was conducted longitudinally and after 38 and 50 months total language scores, receptive language vocabulary, speech, math, and self-respect levels were evaluated. The results showed that except the receptive language vocabulary skills, in all of the other evaluations children who received AVT had similar performance to children with typical development. In that study, the results for 7 children who received literacy and math lessons were examined and it was concluded that they had comparable performance as to their peers without hearing loss (Dornan, Hickson, Murdoch, & Constantinescu, 2010).

This approach which is widely implemented in North America and Australia is not very common in all countries (Hogan, Stokes, & Weller, 2010). As AVT is not widely implemented in European countries, it is not widely implemented in Turkey either. As part of a project in Turkey during 2008 to 2010, AVT's global consultant and professional implementer Warren Estabrooks conducted workshops for experts in the area of hearing disabilities and gave certificates of "Educator of AVT Practitioners and Educators." Approximately 10 experts received this certificate (Şahlı, 2015). Even though it is not known how many teachers received an education about this method from experts who had the certificate of educator of educators, it is estimated to be very few. In Turkey, 1 300 000 babies are given birth per year and the rate of hearing loss is 2.2 out of 1000 (Bolat & Genç, 2012). This means that approximately 2860 children are born with hearing loss per year. Since AVT is a method which is implemented with children with early diagnosis and who receive early audiological interventions, it is obvious that the number of educators who can conduct AVT in Turkey is very few. It is thought that awareness can be raised to make the method widespread by revealing dynamics about teacher and family factors and by identifying the duration and level of implementation of the AVT in Turkey.

Our study is formed in a way to draw attention to the fact that the number of studies and educators about AVT is very few and to raise awareness for families and teachers about the method. There is not any studies about AVT in the literature that was conducted with qualitative research paradigm and utilized interviews. The problem of this study is to identify the practicality and the effects of the method in Turkish culture. If AVT is revealed to be an approach which is appropriate for our culture it is thought that attempts to make it widespread might increase.

The purpose of this study was to understand teacher and family roles in the scope of AVT according to teacher opinions, to identify positive and negative circumstances in the implementation of AVT, its practicality, how much information do teachers receive about AVT during their education, and whether or not this education was sufficient. Another purpose of this study was to identify opinions of families about their responsibilities in the scope of AVT, support of other family members in education, whether they could implement the method or not, and their expectations from the teachers. The research questions are as follows: (1) How do teachers evaluate the positive and negative circumstances they encounter during AVT? (2) How do teachers and families evaluate practicality of AVT? (3) How do teachers define family in the scope of AVT? (4) What are the expectations of teachers and families from each other? (5) How do families evaluate their responsibilities in the scope of AVT and support of other family members? (6) How do teachers evaluate their undergraduate education proficiency about AVT and how do they evaluate AVT practices in Turkey?

Method

Design of the Study

The design of this study is qualitative descriptive design which is one of the qualitative research designs. Magilvy and Thomas (2009) defined qualitative descriptive design as follows:

> "*Qualitative Descriptive design is one that is philosophic in tradition, influenced or informed by one of the major qualitative designs, yet is limited in scope (e.g., research question, sample size, data generation and analysis methods, and interpretation) to allow a clear description of a specific phenomenon or experience from the perspective of the experiencing child or family*"

This research is descriptive design because of the limited number of research questions, limited sample size and because the purpose is to describe the teachers' experience.

Participants

Participants consisted of five teachers who had been giving AVT education for at least three years and 5 families of children who had been receiving AVT education for at least two years. Criterion sampling which is one of the purposive sampling types was chosen since criteria were predetermined such as having given AVT for at least three years for teachers and having received AVT education for at least two years (Yıldırım & Şimşek, 2013, pp. 135). All the teachers who had been giving AVT education in Ankara city for at least three years were included in this study. Demographical characteristics of teachers are shown in Table 1. On Table 2 demographical characteristics of family members are given. F5's child with CI was graduated from AVT on the day of the interview.

Table 1.
Demographical characteristics of teachers who were giving AVT education

Name	Gender	Age	AVT Experience Year	Other Method Experience Year	Education
T1	F	27	5	1	Teaching Individuals with Hearing Disabilities, Bachelor's Degree
T2	F	56	7	1	Audiology and Speech Pathology, Master's Degree
T3	F	29	7	0	Child Development and Education, Bachelor's Degree
T4	F	28	3	1.5	Teaching Individuals with Hearing Disabilities, Bachelor's Degree
T5	F	30	6	1	Teaching Individuals with Hearing Disabilities, Bachelor's Degree

Table 2.
Demographical characteristics of families who received AVT education

Name	Gender	Age	Affiliation	Education	CI Condition of Child	AVT Experience in Years
F1	F	34	Mother	Elementary school	Moderate – moderate to severe hearing loss with HA	3years
F2	F	26	Mother	High School	Bilateral profound hearing loss with CI	4years
F3	F	44	Grandmother	Elementary school	Bilateral profound hearing loss with CI	2years
F4	F	53	Grandmother	High School	Bilateral profound hearing loss with CI	3years
F5	F	40	Mother	Elementary school	Bilateral moderate hearing loss with HA	9years

CI: Cochlear implant HA: Hearing aid

Data Collection Techniques

Semi-structured interviews were preferred in order to examine in detail the opinions of families and teachers related to AVT. Interviews were chosen in order to understand how families and teachers generated the truth about AVT, to take their own opinions and to take them in their own words (Jones, 1985 as cited in Punch, 2005). Semi-structured interview questions were prepared by taking opinions of two faculty members one of whom was an expert in special education and the other in measurement and evaluation in order to gather consistent information and to focus on similar topics. These questions

were asked in teachers' individualized education classrooms at their special education institutions where teachers were working. Questions were asked to families before the education in the special education centers. A pilot interview was held with a teacher who had 2.5 years of AVT experience and with a mother who had received 4 years of AVT education and was a graduate of elementary school who had similar characteristics to the sample in order to examine whether the questions were easy to understand and they clearly reflected the topic. The questions listed on (Appendix-A and B) were asked in the same order, when there was not a clear answer or the answer went off-topic the questions were reorganized and asked one more time (Yıldırım & Şimşek, 2013, pp. 170).

Data Analysis

In data analysis content analysis and descriptive analyses were utilized together. For content analysis, initially all the opinions which were thought to answer the research questions were coded, in other words in this stage open coding was performed. Firstly, for all the participants open coding was performed individually and secondly these codes were drawn together (Merriam, 2013, pp. 256-273). For example, prioritizing listening, listening skills, focusing on listening, natural listening skills were coded as spontaneous listening skills. Later, the codes were grouped together to form categories. By taking the opinions of the expert in the field of measurement and evaluation the data were revised and coded again and the codes were formed. Thus, data were revised at least 3 times. For example, for the category of positive circumstances in the AVT codes such as spontaneous listening skills, continuous follow-up, the attention for listening, auditory perception, language development, speech production, intelligibility of the speech, being close to/similar to/better than the child with normal development were formed. From these codes, spontaneous listening skills, continuous follow-up, the attention for listening were combined in the reason category, auditory perception, language development, speech production, intelligibility of the speech, being close to/similar to/better than the child with normal development were combined as the result category.

On scaffolding for the descriptive analysis, a framework was formed by transcriptions of interviews and research questions. Categories in which data would be given were identified. *During data processing according to categorical framework*, data were organized according to previously formed framework. For identification data were meaningfully grouped together. For *identification of the data*, data were identified, for numerical analysis frequencies of data were given, when it is necessary direct quotations were presented. *For interpretation of data*, data identified were explained by the support of the literature (Yıldırım & Şimşek, 2013, pp. 256-257).

Written consents of teachers and families were gathered that indicated their voluntary participation in the study. Interviews with the teachers and families were audiotaped by an audio recorder. Interview records on the audio tape were dictated without any corrections, then the correctness of the dictation was checked by the first researcher. Randomly chosen four participants' interview records were examined by the expert in special education to check the consistency of the dictation. Inter-coder reliability was 99.1% at this point. Interviews with the teachers lasted about 11 to 35 minutes. Interviews with the families lasted 2-4 minutes.

Validity and Reliability

In terms of transferability the findings of this study were written in detail in the light of participants'quotations and purposive sampling was conducted. Codes of the randomly chosen four participants were examined by an expert in special education and consistency was examined. For teachers inter-coder reliability was found to be 81%. For families inter-coder reliability was found to

be 87.5%. Confirmation examination was conducted with an expert in special education. In the direction of these opinions codes were revised and necessary reorganization were performed (Yıldırım & Şimşek, 2013, pp. 289-309).

For the validity of the interview questions, directive questions were avoided, a trust based relationship with the teachers and families were tried to be formed. Moreover data collection tools were tested as mentioned above, a pilot study was conducted. In addition to that in order to increase validity triangulation was provided by collecting data from two sources which included teacher and family opinions (Yıldırım & Şimşek, 2013, pp.289-290).

Results

Positive and Negative Circumstances Encountered During AVT

The first research question of this study was about how the teachers evaluated the positive and negative circumstances during AVT teaching. With this regard, question 1, 2, 3, 7, and 10 were asked, in sum 30 codes were revealed. The categories are as follows:

Positive circumstances encountered during AVT, reasons, and consequences

All of the teachers indicated that the auditory perception, language development, speech production, and intelligibility of speech were positively affected by the spontaneous listening development, in inclusive classrooms some children showed parallel academic success to and they were as social as their peers. One of the teachers indicated that as a result of the language development being well the students were social. One another teacher stated that as a result of the continuous follow up, speech production and intelligibility of children with hearing loss were positively affected; two teacher indicated that the therapy improved listening attention, one teacher emphasized that students went to school ready, two teachers stressed that it positively affected self-esteem. In addition to that, three teachers indicated that children with hearing loss were similar to children with typical development and even they were better than them, two teachers indicated that these children did not require direct teaching to learn, and they could generalize the learning skill by listening, one teacher stated that these students responded to stimuli from different directions and classroom teachers changed their negative point of views.

T1 indicated her opinions about intelligibility of speech as follows: "*... since they listen at the beginning, they try to produce them likewise I say them."* About their academic success in inclusion she stated that "*... since they are close to being normal teacher's point of view changes too."* For the socialization skills in inclusion she indicated that "*... they immediately get involved in peer circles."* T2 emphasized that children could learn without a need for direct teaching, and they generalize their listening skills by learning as follows:

> "*… for once natural hearing, listening stage begins, therefore sometime later the child especially without education starts to improve her or his vocabulary. Our target is already that. Therefore since she or he does not rely on us in language development, in the long run language development and vocabulary improve. Language development gets well as to their peers. Even they get better, her or his concept development improves so fast. The language structure becomes stable."*

She stated for the socialization skills in inclusion as "*…they are very social."* to indicate that children are social. For speech production and intelligibility of the speech she stated that the improvement in these skills was because of continuous follow up as "*…for speech production I can say, since you have to follow the child all the time in AVT…"* T5 indicated that AVT increased listening attention as "*…for auditory perception skills we only want them to listen to us without face or eye contact, listening all by itself increases attention."* For academic success in inclusion she stated that "*…here they adapt to an educational setting, they go to school as they have already been adapted to a classroom environment"* as to emphasize that children go to school prepared.

For the socialization skills in inclusion she indicated that "*…since they have improved, children who received AVT from the infancy have high self-esteem. They do not have any problem at school…"* T4 emphasized that some of these children's academic achievements in inclusion are even better than their peers with typical development as follows:

> "*…even though we do not teach reading-writing, we work on sound awareness a lot. When they go to school the teacher only shows once and says /l/ - for example- when there is an /a/ right next to it what happens, the child combines as /la/ and the teacher says, this child is better, maybe they could be brilliant?"*

T3 indicated as the reasons for positive circumstances during AVT as "*…since it is a method which emphasizes listening, it contributes to the children to develop these skills."* to emphasize that auditory perception skills get better as a consequence of improvement in listening skills. Moreover, by saying "*…when listening skills improve automatically language skills improve too. As much as the language skills get, as better as they talk."* she stated that the positive effect of language development is due to the improvement in listening skills.

Negative circumstances encountered during AVT, reasons and consequences

Three teachers indicated that some children had difficulties in producing some phonemes during AVT instruction, however by intervention the teachers could find solution for this circumstance that when children could not produce phonemes which were appropriate for their age. Two teachers emphasized that it took time for families to fit into its philosophy, however this circumstance is solved over time. One teacher stated that in terms of speech production and intelligibility it is not different than other methods. One of the teachers indicated that some children had difficulties in socialization. One teacher stressed that because of the fact that individuals who could not cooperate or who were not family members such as care workers participated in the therapy led to the interruption of the education.

T2 suggested the following in terms of producing phonemes:

> *"…in other methods articulation of the child is not important or they are supposed to produce some of the phonemes. Whereas in AVT you follow this too. If the child has not developed age appropriate phonemes you work on them too."*

She indicated that AVT's philosophy to be internalized takes time by *"…to grasp its philosophy takes a little time."* In terms of difficulties of some children in literacy T5 expressed her ideas as follows:

> "*…this year it happened a couple of times. For example, when transition to reading and writing some children had difficulties in the group of ELAT or we had to support reading comprehension skills for children who passed on to reading and writing."*

She stressed that some of the children who received AVT could have social difficulties as *"…some children's worries about the aid are a social situation, it makes them feel like they lack self-confidence"*

T3 indicated that the method is similar to other methods in terms of speech intelligibility as "*…in terms of speech intelligibility I feel like the children are almost the same as to other children who receive other therapy methods."* She stated her ideas about the individuals joining in the therapy that did not cooperate or were caregivers other than parents as follows:

> "*the family who does not cooperate with you or the families in which parents are working and when the parents or any other members of the family cannot participate in the education, I mean when the care workers or other individuals out of family get involved in the process this interrupts the education."*

Factors affecting academic success and socialization in AVT

Three teachers indicated that additional problems to hearing disability and attitudes of the classroom teacher whereas two teachers stated that the crowded classrooms affect the academic success in inclusion. In terms of socialization two teachers expressed their opinions that family structure is effective on socialization and one teacher said that the group training is beneficial.

T1 emphasized her opinions that additional disabilities affect academic success in inclusion as *"…if they do not have any additional problems than hearing disability they eventually learn."* T2 suggested that attitudes of classroom teacher is effective as *"…attitudes of the teachers are critical. Some teachers help a lot some exclude them."* T5 mentioned about how the teacher attitudes should be as *"…the teacher should give information to all of the students as 'I have glasses, you have an aid' in a positive way."* T5 also noted that crowded classrooms negatively affect academic success as *"…there are children who have difficulties in transition to learning literacy skills or reading comprehension in such a crowd."* T4 stated that group training positively affect socialization skills as *"…group training is very beneficial."* T2 indicated that the therapy is effective on socialization and if there is a problem this might be due to the family structure as *"…if there is a problem in social skills this is already because of the problems in family structure, except that there is always very good feedback."*

Applicability of AVT

The second research question was to identify whether AVT is applicable or not in terms of teacher opinions. In this regard questions which were listed in Appendix A; 4, 5, 6, 8, and 9 were asked. In total 17 codes were revealed. Families were asked the first question which was listed in Appendix B and one code was revealed. The categories are as follows:

Reasons

Four teachers indicated as reasons of the AVT's applicability for families is that they can easily implement it in daily living. T4 expressed this as follows:

> *"…I think the only method the families can implement is this. They can implement it during cooking, when they have guests at home, welcome, good morning kind of words can be used with the sibling too."*

T2 suggested that families made a habit of the skills some time later as

> *"…families can implement it very easily. They may see a bird while walking on the road, they should put it to good use. I mean we make them have the habit of narrating everything that happens every minute with their children and make a habit out of it."*

Three teachers indicated why the applicability of AVT is very easy for teachers. Two teachers also stated that sharing the responsibility with the family lighten the burden of the teacher. One teacher expressed that the teacher knew what to do in the therapy, another one stated that there was no need for the direct teaching, one of them indicated that it was fun and the materials which could be used were unlimited.

T5 said *"...AVT of course makes it so easy, rather than providing direct teaching to the child all the time you do something natural."* T3 told that *"...it lightens the burden for both the teacher, the child, and the family. I think it is applicable."* T2 suggested that the method was applicable since the teacher knew what to do as *"...Since the teacher knows what to do in the classroom and they have a predetermined program they work in the scope of this program."* T4 indicated her opinions about the applicability of the method as follows:

> *"...this method is the easiest method the teacher can implement, without getting tired, by having fun and feeling more like a teacher...In AVT we have unlimited materials, this provides the most advantage and you do not get tired."*

Prerequisites

All of the teachers indicated that the method was applicable if and only if the families participated in the lessons and implemented the method by themselves. One teacher stated that the method was difficult to implement in the families who had difficulty in setting boundaries for their child. T1 suggested it as follows:

> *"...the family too should be involved in the implementation, if the families don't get involved in the implementation they don't understand it, they need to do something while they are with the teacher, they need to teach the lesson."*

T3 indicated that setting boundaries was critical in terms of applicability and she said *"...sometimes for the families who can't set up discipline at home, when the family is near, the child's tendency to work in the classroom decreases."* For the prerequisites for teachers T1 indicated that the method could be implemented in the condition to have finished training and improving oneself in her own words as follows: *"...I think every teacher who can self-improve can implement it, of course after completing the training."*

Three teachers indicated early HA and CI applications for the children were the prerequisites. One teacher suggested that at least providing unilateral hearing, not needing eye contact, and not having attention deficit were the prerequisites to participate in AVT in terms of applicability. In regard to the need for early HA/CI applications or starting education on time T5 indicated it as fallows:

> *"...the child might be coming from a place in which a different education method has been implemented, they might not have any education at all. Moreover, it is very difficult to implement it with children who have not received any education until 4 or 5 years of age, I mean you can implement it but it is not as efficient as it is implemented with children who have implants right after one year of age."*

Moreover she emphasized that it could not be implemented with children who needed to form eye contact or who had attention deficit as *"...AVT can't be implemented with every child sometimes, some children do need to have eye contact or they may have attention deficit."*

Implementation of AVT by Families

All families indicated that they conducted AVT in all settings. F5 indicated it as follow:

> "*While I was cooking soup or cooking anything I was sitting my child on the kitchen counter. I am adding salt, peppermint, I was telling, for him to hear a sound. Everywhere, at home, in the market, in the neighbor's house, everywhere I was working, I was going to the market and showing him. Look, this is the fruit section. Everywhere was a place to study…"*

The Family in the Scope of AVT

The third research question was to determine how the teachers defined family in the scope of AVT. In this regard question 4, 5, and 6 were asked. In total 15 codes were revealed. The categories are as follows:

Factors affecting family participation

Three teachers indicated the importance of accepting the disability, but they suggested that education level, occupation or socioeconomic status of the family were not important in family participation. One teacher stated that teacher as a motivator was very important. T3 said *"…whether the family accepts the disability or not is a factor. Because if they can't accept it the participation is more or less limited."* To the question of whether the education level, occupational status or socioeconomic status affected participation of families, T2 gave the answer of *"…No, this is about how concerned the family is with their child, it isn't related to education."* T1 indicated the importance of motivation as follows: *"…the teacher must motivate the mother or the father while working with the child"*

Mother

All of the teachers indicated that they worked with the mother. Four teachers stated that working with the mother was more advantageous, two of them expressed that the mothers knew their child's level better, two teachers suggested that mother could not set boundaries since they were spending so much time with their child.

T1 indicated that working with the mother was more advantageous and mothers embraced education of their children more and they knew their child's level better as *"…mothers, I think, internally embrace the child more. Since the mother knows what is going on she can give closer information related to her child's performance."* T5 stated that working with mothers in activities was more advantageous as *"…I feel more comfortable to work with mothers. Mothers are more ready to play and to look at books."* T3 suggested that it was more difficult for mothers to set boundaries as *"…children are too familiar with the mother and at one point they don't take the mother into account, they don't care."*

Father

Three teachers suggested that fathers were more effective in education, however their participation was limited, and two teachers indicated that when the father participated in the education the improvement was faster.

T2 emphasized that fathers' participation was limited, but it made the improvement better, and it reduced mother's burden as follows:

> *"…when the father gets involved it is very good. We try to increase father involvement. It is very difficult in Turkish culture of course. But we have some fathers like this. With fathers who gets involved like this the child improves so much and the mother is relieved."*

T4 stated that children obeyed fathers more, the trust in fathers motivated children more as

> *"…I think the child's trust in father is a little more, when father does something, they are like look my father is doing it too, my father is playing too. The father is more effective."*

T5 indicated that it was more difficult for them to play as *"…you can make the sound of an animal, or you can make the sound of a vehicle, the father hesitates…The fathers find it really hard playing house game etc."*

Expectations of Teachers and Families from Each Other in the Scope Of AVT

The fourth research question was about expectations of the teachers and the families from each other in the scope of AVT. In this regard, to teachers question 4, 5, and 6 which were included in Appendix A were asked, and then four categories according to teacher opinions were identified. In total 17 codes were revealed. In order to identify expectations of families from the teachers the third question on the Appendix B was asked and three codes were revealed. The categories are as follows:

Expectations of Teachers from the Family

All of the teachers indicated that they expected that the families cooperated/participated and applied what they taught into the daily life and into the routines. T3 expressed her expectations as *"…participation, participation, participation in the lesson. I want them to integrate this therapy into life itself, into their daily living."* T1 indicated that she expected families to be even more creative than herself as *"…sometimes they even work better than us at home. I tell families to participate in the therapy and work as creative as they can be even more than I could imagine."* and if that was the case she stated that the progress in the child would be better as *"…if we adopt each other's methods the child progresses more."*

T5 said she expected families to do the activities naturally in play as *"…my expectation from the family is that they should be natural and feel comfortable. Because in AVT you are in a game. I mean you do the lessons, but the child shouldn't perceive it as a lesson but a game…"*

General expectations from the teacher

Two teachers indicated that they were expected to make the child talk. T5 expressed that the family wanted to trust in the teacher and they expected the teacher to empathize with them and to have their child talk as follows: "*…they want us to understand them a little bit. They want us to feel what they feel. Another thing is that they come here to see that their child talks."* T3 stated that families wanted them to become guides for themselves as *"…they want us to guide them. They are looking for good guides for themselves and they want to trust."*

Expectations from the teacher at the beginning

T1 said *"...the family says you deal with the problem behaviors, you deal with their child's lessons, I don't want to do anything at home."* whereas T4 told *"...families see you as doctors during the first two lessons, save my child, make a surgery. Later, we tell them that we don't have a magical stick in our hands and we'll do it together."* to indicate that families expected them to take all the educational responsibility at the beginning.

T2 expressed that families might not have any expectations but teachers could raise their level of expectancy as *"...indeed families arrive with lower expectations than ours. I mean the family doesn't say my child has hearing disability but the child needs to talk well. We put it into their minds."*

Expectations from the teacher in the process

T1 emphasized that families thought that education would last short but for the families who started to become more aware of the situation in the process worked better as

> *"...after one month having the surgery for the implant they say our job is done and they want to take their medical report and leave. I mean they can't yet realize that this is a process, but the families who become aware of this sometimes really work better than us."*

T4 emphasized that the progress of their child increased their expectations as *"...while the child improves speech level the expectations increase too."*

Expectations of families from the teachers

Three of the families indicated that they did not have any expectations from the families, teachers were doing what is needed, one indicated they expected them to carry the child a step forward, one another expected them to make the child's comprehension better.

F5 stated expectations from the teachers as follows: "*Teachers were doing what is needed. Their bonds were strong, they guided us. We once accepted that our child has a disability."* F1 indicated their expectations as *"...carrying the child a step forward*" and F2 as "…*I was expecting my child's comprehension to be better"*

Opinions of Families about Their Responsibilities in the Scope of AVT and about Support of Other Family Members

The fifth research question was about how families evaluated their responsibilities in the scope of AVT and the support of other family members. In this regard, 2nd and 4th questions included in Appendix B were asked. In total 3 codes were revealed. The categories are as follows:

Family support

Two of the families said other family members supported them, the third however indicated they could not have much support. F1 stated that they cannot have much support as "*...my family lives abroad. My spouse's support is good indeed. But because of his job he can't take care of our daughter much."* F3 indicated all family members supported them and child's education as "…*we put our heart and soul into it"*

Family's perception of their responsibilities

All families stated that they primarily feel that the education is their responsibility. F4 indicated this as "*..educators –of course they have the responsibility too- but I don't know as a grandmother maybe I feel more responsibility, I want to help him…"*

Teachers' Undergraduate Education Proficiency about AVT and Opinions Related to AVT Practices in Turkey

The sixth research question was how the teachers evaluated their undergraduate education proficiency and the practices in Turkey. In this regard question 11, 12, 13, and 14 were asked. In total seven codes were revealed. The categories are as follows:

AVT education

Two teachers indicated that they received AVT education from someone who had the certificate of being educator of educators and AVT's global doyen Warren Estabrooks, two teachers stated they received the education from someone who had the certificate of educator of educators, one of them who had the certificate of being educator of educators said she had the education from Warren Estabrooks. All of the teachers answered the question of whether they wanted to have further education on the method as they wanted to improve themselves about AVT more.

T2 indicated this as there might be continuous efforts to improve oneself as *"…I read a lot. I mean I've been continuously reading international stuff after that training. If they add two words, three words I incorporate it"*

Undergraduate education

All of the teachers indicated that their undergraduate education in Turkey was insufficient for AVT training. T5 indicated this situation as follows:

> *"…I don't think it is that much emphasized. I wasn't that aware of it. During the undergraduate years you don't have your eyes open but it wasn't that well, it wasn't sufficient."*

AVT practices in Turkey

All of the teachers indicated that AVT training in Turkey was insufficient. As T4 put it into words to indicate that this insufficiency negatively affected children with hearing loss as *"…unfortunately it isn't sufficient. Many children got wasted. I mean many children which teachers can't detect, families can't detect got wasted under these circumstances."*

Discussion

The first research question was how teachers evaluated positive and negative circumstances encountered during AVT. Teachers indicated positive circumstances in children with hearing loss who received AVT as their listening attention, auditory perception, language development, speech production and intelligibility became similar as to their peers with typical development. These findings

seem consistent with the results of the previous studies (Dornan et al., 2009; Dornan et al.,2010). Teachers suggested that since listening remained at the forefront these skills developed. These opinions are consistent with the knowledge the speed and activities of language processing make the predictability easier (Tyszkiewicz, 2013). Even though there is not sufficient evidence that children who receive AVT in inclusion have academic success parallel to their peers, in one study it was suggested that the results of 7 children who received AVT and started literacy and math education were comparable to their peers (Dornan et al., 2010). According to teacher opinions children who received AVT changed teachers' negative point of views. This situation might be due to the fact that children's academic success became comparable to their peers'. It might be because of the fact that from a very young age children had classroom experience through receiving individualized or group training leading them to have school readiness. According to teacher opinions children who received AVT had higher self-esteem. This finding is consistent with Dornan et al.'s (2010) findings that children who received AVT had similar self-respect as their peers with typical development. The concept of self-respect is used synonymously with self-confidence and self-esteem in the literature (Duru, 1995 as cited by Yavuz, 2007). Even though teachers indicated that social development of children who received AVT was positively affected there is not any previous studies in which this was encountered.

As negative circumstances encountered in AVT teachers indicated that they had difficulty in making some children produce some of the phonemes, however they found a solution as that they could intervene when the children could not produce the age appropriate phonemes. This finding is consistent with the studies in which generally many children with hearing loss had articulation errors such as omission, distortion, addition and substitution (Çeliker & Ege, 2005). Therefore it can be suggested that this finding is not only found for children who receive AVT, independent of AVT this is a distinctive feature of the impairment. One of the teachers stated that in terms of speech production and intelligibility the method was not superior to other methods. However this teacher was implementing AVT for 7 years and she indicated that she did not have any experience with any other methods. Studies indicated many factors which affect speech production and understandability such as early implementation of CI and speech processing strategy (Peng, Spencer, & Tomblin, 2004), nonverbal IQ, crowded family, socioeconomic status, gender, speech processing strategy (Tobey, Geers, Brenner, Altuna, & Gabbert, 2003). It is found that children who received verbal programs as a communication mode had higher speech production and understandability than children who received total communication and sign mode (Tobey et al., 2003).

Teachers also indicated that the method was difficult to implement with families who had difficulty in setting boundaries to their children. The finding that the tendency of children with problem behaviors to work in the classroom decreases is consistent with the previous findings that when compared with their peers without hearing loss the language skills of children with hearing loss who showed problem behaviors were negatively affected (Stevenson, McCann, Watkin, Worsfold, & Kennedy, 2010). It was indicated that some children had difficulties in socialization. However there is not any studies about social development of children who receive AVT. Moreover, some children's difficulties in literacy seems to be related with phonological processing skills which are needed to decode are generally at risk for children with hearing loss because of sensory reasons and this constitutes a risk for literacy success too (Moeller et al.,2007). However as it was mentioned before few experimental studies which were conducted with children who received AVT showed that these children had literacy skills comparable to their peers (Dornan et al., 2010).

In this study teachers indicated that attitudes of classroom teachers, crowded classrooms and additional problems to hearing loss negatively affected academic success in inclusion. Teacher attitudes and

experience, the number of students in the classroom were indicated to be effective on academic success of students in inclusion (Baker & Zigmond, 1995; Gately & Gately, 2001; Salend & Duhaney, 1999 as cited by Gürgür & Uzuner, 2010). Moreover in our country it is indicated that inclusive classrooms are crowded (Varol, 2010), assessment of students with hearing loss by classroom teachers and school counselors were negative (Özhan, 2000). Therefore, opinions of teachers seem consistent with the related literature.

The second research question was how the teachers evaluated the practicality of AVT. Teachers indicated that families themselves must be involved in the implementation and they must participate in the lessons. These conditions seem to overlap with the principles of AVT. For the teachers having the certificate of implementation and the wish to improve themselves were stated to be the prerequisites. This situation overlaps with the condition that The AG Bell Academy requires teachers to have the certificate of AVT in order to implement it. Teachers explained the prerequisites for children to be providing them with at least unilateral hearing, early diagnosis, and early intervention and that children did not have attention deficit or did not need to form eye contact. These conditions overlap with the principles of AVT. The reasons why families could implement AVT were that the skills needed for the method could easily become habits of families and it was easy to implement it during daily life. Similar to teacher opinions families also indicated that they implemented what they learned in AVT education in all aspects of daily life. These opinions too overlap with the principles of the AVT. The reasons why teachers could implement AVT were that teachers knew what to do during the implementation, they were able to share the responsibility with the mother, they did not need direct teaching anymore, it was easy and fun to implement it and there was an unlimited amount of materials to implement it.

The third research question was how teachers defined family in the scope of AVT. Factors affecting family participation according to teacher opinions were accepting hearing disability and motivation, whereas family's educational level, occupation or sociocultural level did not affect their participation. Families might feel afraid and hopeless which lead to denying the disability when their child is newly diagnosed (Rhoades & Duncan, 2010). At this stage, families question why this has happened rather than what can be done. They can feel a range of emotions such as rage, guilt, anxiety, denial, and depression. However for a child with hearing loss to be successful the prerequisite is that the family accepts this situation (Kurtzer-White & Luterman, 2003). In one study it was indicated that teachers stated that if mothers of the children who were receiving AVT were working, their expectations were higher. This finding was explained by the fact that for mothers who were working the families had higher socioeconomic status. However education level of the family was not found to be related to family involvement (Cheng-Ju & Brown, 2002). In addition to this, language development of 12 children from low income families that had received at least one year of AVT were found to be similar to 37 children from more wealthy families that was determined in terms of multiple deprivation index (Hogan et al., 2010). Aforementioned studies support the finding that according to the teacher opinions educational level of the family, occupation, or socioeconomic status were not important factors in involvement of families in the education. Moreover, the fact that three of the five families which participated in this study were graduates of elementary school was consistent with teacher opinions. Teachers indicated that they often worked with the mother, mothers embraced education of their child more, the mothers knew their child's level better, and they could more easily play. In the literature it was suggested that in terms of content of their speech mothers made some adaptations in all of the components of language which are semantics, syntax, phonology, and pragmatics in the direction of their perceptions of their child's experience and skills. Language directed to child means using a speech form in which one talks with high pitch, uses exaggeration, talks more slowly, pauses while

talking, and uses simple sentences in order to get attention of the child and make them more easily understand. This speech form was named as motherese (Uzuner, 2003). In other words, embracing education of their child is instinctive in mothers and they have instinctive readiness for that. Moreover in a study which was conducted with families of children with disabilities in Turkey showed that fathers were less involved with the treatment of their children than mothers (Özşenol, Işıkhan, Ünay, Aydın, Akın & Gökçay, 2003). This is thought to be a cultural circumstance. Teachers indicated that fathers were more effective, the trust in fathers made them more effective, children tended to obey their fathers more, however their involvement was limited, and getting fathers involved in the therapy with the mother enabled for more progress thus reducing the burden of mothers. Nevertheless, it was stated that fathers had difficulty in playing games. This finding is consistent with the findings of a study which was conducted with Italian children that when the children's age was older fathers formed mutual communication more, mothers used speech which was shorter, simpler and consisted of more frequently used words in their language than the fathers (Majorano, Rainieri, & Corsano, 2013). In summary, culturally in Turkey mothers are the primary caregivers of the child and this circumstance is reflected in AVT also. Opinions of teachers and families showed that AVT was frequently implemented by mothers in our culture and it might be appropriate for our culture.

The fourth research question was about what teachers and families expected from each other in the scope of AVT. Teachers expected families to cooperate, implement AVT in daily routines and play and become more creative in working with their children. These expectations completely overlap with the principles of AVT. Families expected that the teachers would have their child talk, assure, guide, and understand them. Improving speech skills by supporting listening skills and the teacher becoming a guide also overlap with the principles of AVT. The families' wish to trust and to empathize can be considered as expected wishes. It was indicated in this study that families expected the teachers to have all the educational responsibility at the beginning. However it is obvious that with only 1.5 hour education per week progress in language development can be very limited. At the beginning teachers were regarded as doctors and expected to turn the child into normal with one touch of a magical stick. Cankuvvet (2015) performed focus group interview with parents, CI team members and CI company representatives. She stated that parents perceived CI as miraculous, and emphasized that professionals should inform families carefully. After the CI operation, families might be thinking that a miracle would occur with education but without assuming the responsibility.

However, in the process it was indicated that families started to understand what their expectations should be. Moreover, as language development of their child progressed families' expectations also increased. In one study it was concluded that by thoroughly giving information in the scope of AVT to the families, the families started to have more realistic expectations (Cheng-Ju & Brown, 2002). This finding might be due to the fact that families were abundantly informed in the process. Moreover in the study mentioned families' expectations related to their child's language development were found to be higher than the teachers and this finding was linked to the fact that families highly trusted the teachers with high respect and commitment (Cheng-Ju & Brown, 2002). Therefore, as the language development progressed families' trust in teachers also increased and this might have led the higher levels of expectations. In this study however the finding that three of the families did not have any expectations was linked to the high trust in teachers. However the opinions of other two families which indicated that families wanted teachers to carry their children a step forward and to improve comprehension skills might have been due to higher expectations as a result of having more knowledge.

The fifth research question was about how families evaluate their own responsibilities and other family members' support. Not having support from other family members might be related to families'

circumstances or it might be due to the fact that mothers are seen as the primary caregivers of the child. Families indicated that they were primarily responsible for their child's education. This result is consistent with principle of AVT which accepts families as the primary facilitator for their child.

The sixth research question was about opinions of teachers related to their undergraduate education in terms of AVT and their opinions about the AVT practices in Turkey. Teachers indicated that they received training in AVT from Warren Estabrooks and someone with a certificate of being educator of educators and they indicated a wish to improve their AVT implementation. They all reported their request for more training to improving their AVT implementation. They also stated that AVT training given to them during undergraduate studies should have been more comprehensive and AVT practices in Turkey must be improved immediately. Because they believed that hearing impaired children could have progressed more with proper therapy approach with well-trained teachers. As a conclusion involvement of families in the lessons of their children with hearing loss and implementing the method on their own seemed to be critical in providing sustainability of the method at home. During the lessons making the families become well-equipped provides opportunities to the child to reinforce them for what they have already learned. Thus teachers indicated that this positively increased auditory perception skills, language development, speech production, and intelligibility. It was also emphasized that Turkey was at the very beginning of implementing AVT. In the direction of these opinions it can be suggested that this topic could be discussed more during the undergraduate studies.

Even though there is Class II and III evidence related to AVT, there is still a need for more powerful experimental evidence provided with random assignment (Rhoades, 2006; White & Brennan-Jones, 2014). Another retrospective study showed that 42 children with hearing loss who were enrolled in either auditory-oral, AVT and sign or speech program did not differ in terms of vocabulary and language skills, however the need for prospective studies were also indicated (Yanbay, Hickson, Scarinci, Constantinescu, & Dettman, 2014).

In future studies it can be suggested to examine the social skills of children with hearing loss, involvement of mother and father in the education, and competence of teachers of individuals with hearing disabilities in Turkey. In our country it is thought that if educators who have educators' educator certificate could organize in service education for teachers might be useful for in service teachers and children with hearing loss as well. Moreover if this topic takes place more during special education undergraduate education, it might be useful.

The purpose of this study was to evaluate AVT in terms of teacher opinions and since it would take a long time to collect data by observation data variation could not be provided. This constitutes the limitation of this study.

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Appendix-A. Teacher Interview Questions about AVT

1. How do you assess listening skills and auditory perceptual skills of children with hearing loss who are receiving AVT?
2. How do you assess language development of children with hearing loss who are receiving AVT?
3. How do you assess speech skills of children with hearing loss who are receiving AVT? (In terms of speech production and speech intelligibility)
4. What are your expectations from the families in the scope of AVT? What is the level of their participation? What are the factors which affect this participation? Do you think the family's level of education, occupation, and socioeconomic status affect participation? Why?
5. Which family member is more advantageous to work with? Why?
6. What are the expectations of families from you?
7. How is the academic success of children who receive AVT in inclusion (i.e., in their schools)? How is their social development?
8. Do you think AVT is an applicable method for teachers? Why?
9. Do you think AVT is an applicable method for families) Why?
10. What are the positive and negative circumstances you encountered during AVT?
11. Where did you receive the education of AVT?
12. How much information did you get about AVT during your undergraduate studies? Do you think this information is sufficient? Why?
13. Would like to receive more training about AVT? Why?
14. How do you evaluate AVT education in Turkey?

Appendix-B. Family Interview Questions about AVT

1. Do you implement AVT after participating in its education? Where do you implement it?
2. How do you evaluate the support of your family members in education to you?
3. What are your expectations from the teachers about your child in the scope of the education you received?
4. How do you evaluate your responsibility in the education you received?