

# An Early Natural Auditory-Oral Intervention Approach for Children with Hearing Loss: A Qualitative Study

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## **Abstract**

This study aims to examine the session goals and their realization during the session flow for a child with a hearing loss and his mother in an early intervention program. The study was designed as a case study. Video recordings of the intervention sessions, reflective journals, session plans, and the plan evaluations were used to collect and analyze the data. Findings indicate that session goals focused on the mother-child interaction, the use of language learning opportunities during the interaction, improving the mother's play skills, improving the child's listening skills, and behavior management of the child. Daily routines, observations during the sessions and theoretical background of the teacher seem to be important factors while establishing the session goals.

## **Key Words**

Children with a Hearing Loss, Early Intervention, Natural Auditory-Oral, Qualitative Research, Case Study.

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The effects of early diagnosis and early intervention on language development of children who have hearing loss have long been realized (Calderon & Naidu, 1998; Childress, 2004; Watkin et al., 2007) and immediate start of early intervention is widely accepted. The current practice in Turkey is to enroll children in an early intervention program either in private or university-based research centers whichever is easily accessed by the parents.

In the 1970's and 1980's, the early intervention programs were mainly child-centered as such the professional worked with the child was observed by parents who were expected to learn teaching techniques and do the assigned homework at home (Dunst, 2002; Dunst, Hamby & Brookfield, 2007; Mahoney, 2009). From the end of the 1980's, this approach has been criticized and more active participation of parents in early intervention programs has been discussed (Dunst, Trivette, Davis & Cornwell, 1988; Kaiser & Hancock, 2003; Mahoney, 2009; Mahoney & Wheedan, 1997; Mahoney & Wiggers, 2007).

The emphasis on parents' influence on child development has shifted the focus of early intervention programs significantly. Primarily, the aim is to improve the child's development and language skills. Indeed, both parents and professionals work to achieve this goal. However, the direct intervention with the child by the professional has been replaced by the advancement of a context that will promote optimal development of the child. The importance of collaboration with families, empowerment, and sensitivity to the cultural diversity, flexibility, individualized support, and learning in natural environments were widely discussed (Brown & Nott, 2005; Childress, 2004; DesJardin, 2006; DesJardin, Eisenberg & Hodapp, 2006; Hintermair, 2006; Mahoney, 2009). Such practices became widely known as "family-centered".

The family-centered approach has its roots in Vygotsky's work (Brown & Nott, 2005). Ideally, Vygotsky (1986) suggests that the early development and learning take place within the context of a child's cultural group, usually the family. Development relies on children's participation in the activities and practices of the community in which upbringing occurs. Hence, the best learning experiences are supervised and mediated through interaction with a more expert individual, usually an adult and notably by a parent or primary caregiver. Related to these premises, he suggested the idea of a zone of proximal development (ZPD). The ZPD is defined as the developmental distance between what the child

can do independently and what the child can accomplish with the assistance of an expert individual or tutor. This requires several attributes of the adult: sensitivity to the child's current level of the development; knowledge of the next step of the development process; knowledge of the child's everyday experiences, interests, strengths, motivations; and effective teaching strategies (Brown & Nott; Childress, 2004; Cole & Flexer, 2007; Dunst, 2002; Evans & Robinshaw, 2000).

Similar trends were observed in language acquisition theories in the 1970's and 1980's. Studies focused on the parent-child interaction to find the factors which elaborate language acquisition and rate (Bruner, 1982; Cross, 1977; deVillier & deVillier, 1978; Snow, 1984; Stern, 1977). Research on language development of hearing impaired children dealt with similar questions as well (Bloom & Lahey, 1978; Clark, 1978; French 1971; Kretschmer & Kretschmer, 1982).

The studies which evaluate parent-child interaction projected two important contributions to the education of hearing impaired: first features of normal interaction were established and secondly, effective teaching techniques based on parent-child interaction were composed (Brich-Rasmussen, 1988; Clark, 1981; Harisson, 1980). These studies also showed that natural daily interactions provide children with the context for language development and communication skills (Calderon & Naidu, 1998; Carney, 1996; Cole, 1992; DesJardin et al., 2006; Snow, 1984, Stern, 1977). Early intervention aspiring to enhance parent-child interaction seems to implement both the philosophy of the family-centered approach and facilitates language learning opportunities (Evans & Robinshaw, 2000; Fitzpatrick, Angus, Durieux-Smith, Graham & Coyle, 2008; Hintermair, 2006; Jackson, Traub & Turnbull, 2008; Watkin et. al, 2007; White, 2006).

### **Features of Parent-Child Interaction That Promote Communication Development**

The aspects of parent-young child dyads which seems important in communicative development and language learning both for normal and hearing impaired can be summarized as follows (Calderon & Naidu, 1998; Carney, 1996; Clark, 2007; Cole, 1992; Cole & Flexer, 2007):

**Joint Attention:** Bruner (1982) draws attention to the importance of early routines which is established between the adult and the child, in

the child's learning experiences. The role of joint attention in language learning was studied by Tomasello and colleagues during the 1980's (Tomasello & Farrar, 1986; Tomasello & Todd, 1983). They observed that the frequency of joint attention at 12 months was positively related to the child's vocabulary range at 18 months. The findings were supported by other studies as well (Baldwin, 1995; Saxon, 1997).

The studies which evaluate the ways to establish joint attention with young children reported that mothers used varying strategies depending on the child's age. The mothers followed the child's interest during the shared activities as well as redirecting child's attention either verbally or physically (Cole, 1992; Cross, 1977; Gallaway & Richards, 1994; Saxon, 1997).

The same strategies are reported to be vital for language acquisition of hearing impaired children. Therefore, while working with parents, professionals are expected to transfer these strategies to the parents (Clark, 2007; Cole, 1992; Cole & Flexer, 2007).

**Sensitivity:** Bornstein (1989) defines sensitivity as mothers' contingent, stimulating, and appropriate responses to the child's communicative and exploratory behavior. There is a positive relationship between a mother's sensitivity towards her 12-month-old child and the child's vocabulary and understanding at 18 months (Tamis-LeMonda, Bornstein & Baumwell, 2001). A significant correlation was found between important milestones (i.e. acquisition of word imitations, first words, first 50 words, simple phrases and language to talk about past) in language development and mother's sensitivity. Mothers' use of affirmations, descriptions, sound imitations, expansions and questions seem to be key factors in predicting child's language at later ages (Tamis-LeMonda, et al., 2001).

The sensitivity to the hearing impaired child in these terms is also essential in their language development. Furthermore, parents should be supported to be responsive to their child's spontaneous communicative attempts.

**Child-directed Speech:** Child-directed speech describes a series of communicative behavior that adults use while talking to their children. Features of child directed speech include slower rate of speech, exaggerated intonation, shorter utterance length, topics limited to "here and now", more restricted vocabulary, more contextual support, more repetitions, more questions and imperatives. This came to be known as "motherese" or "baby talk" (Cole, 1992; Cole & Flexer, 2007; Owens, 2001).

Child-directed speech serves to support the child's limited conversational competence, limited processing capacity and proves to be a powerful tool to maintain the child's attention (Owens, 2001).

These features of child-directed speech are extremely noteworthy for the language development of hearing impaired children. Even with the profound hearing loss, most hearing impaired children can perceive the suprasegmental information of the speech with their hearing aids. Parents should be encouraged to use an interesting tone of voice, simple but grammatically correct language, more repetitions and imperatives and to ask more questions when they talk to their child (Clark, 2007).

**Amount of Talk:** Children who hear more talk will talk more themselves. Studies showed the amount of talk which the child hears will effect language development at later ages. The children of mothers who talk more during mealtime, dressing and play has larger vocabulary than the children of mothers who talked less (Hart & Risley, 1995). Studies also showed the amount of talk within the context has a powerful effect on language development (Gallaway & Richards, 1994; Hart & Risley).

Hearing impaired children in similar vein like hearing ones, need to hear and listen language before they are able to speak. The parents are supported to talk with their children in a meaningful context and encouraged to create an environment which stimulates communication and interaction with their child (Cole & Flexer, 2007; Estabrooks, 2007; Tüfekçiöğlü, 1998a)

**Daily Routines and Everyday Life Experiences:** Everyday life experiences and daily routines provide an appropriate context for language learning (Childress, 2004; Clark, 2007; Dunst et al., 2001). Dunst et al. (2001) identified 50 activities in 11 categories that constituted the learning opportunities of family life and the same number of activities in community life. It was found that family life was made up of a broad range of activities including family routines, parenting activities, child routines, socialization activities, family rituals and celebrations, physical play and literacy activities and play and entertainment activities. These activities provide opportunities for the child to experience language repeatedly in the same or similar contexts, thus reducing the child's cognitive effort and facilitating the learning process. While some activities are common to all children some are not. Therefore, it is essential that the professional is familiar with the daily routines of the family life and includes these in the intervention (Clark, 2007; Cole & Flexer, 2007; Estabrooks, 2007).

## Teaching Approaches Based on Parent-Child Interaction

Starting from the 1990's teaching approaches based on facilitating parent-child interaction outlined above have become more widely accepted among the professionals in the field of special education. Interventions which were commonly named "incidental language teaching", "milieu teaching" and "responsive interaction" are now referred as "naturalistic approaches." They differ from each other in certain aspects of teaching but share common principles that include meaningful conversation as the basis of language acquisition, parental responsiveness (following the child's lead, modeling, expansions), environmental arrangement and everyday life experiences as the context for language learning (Childress, 2004; Dunst, 2002; Dunst et al., 2007; Kaiser & Hancock, 2003; Mahoney, 2009; Özdemir, 2008). Studies showed that parents can effectively practice naturalistic approaches (Kaiser & Hancock, 2003), and improve language development of hearing impaired children (Clark, 2007).

Naturalistic approaches do not offer recipes for language learning (Brown & Nott, 2005; Clark, 2007; Cole & Flexer, 2007). Instead, they focus to increase parents' awareness to the language learning opportunities during the daily life and to improve their communication skills in terms of joint attention, following the child's lead, responsiveness and providing appropriate language input to the child (Brown & Nott; Cole, 1992; Cole & Flexer; Zaidman-Zait & Young, 2008). Hence at this stage the role of the teacher shifted to support parents improving on these skills instead of directly teaching language to the child.

Brown and Nott (2005) describe the new role of the teachers in early intervention program and suggest a model for early intervention. They claim that the interaction between hearing impaired children and their parents provide the foundations for spoken language in the same ways as hearing children. The child learns to converse by being actively involved in conversations. Children learn by doing and by being supported as active participants in what it is they are attempting to learn. Active participation and concentration on the activity motivates the child to learn the language in an authentic context. The need to learn is encouraged by the desire to engage in meaningful interactions with others. The child is motivated to be attentive, listen to and ultimately interested in what others are saying by his desire to engage with others. The interaction with others is the core of the communication and language development. Similar views are discussed in other studies (e.g. Clark, 2007;

Cole, 1992; Cole & Flexer, 2007; Tüfekçioğlu, 1998a). The teacher's role in this respect is supporting, nurturing, enhancing thus strengthening the interaction by empowering parents. The task of the teacher progresses to the setting of the educational environment, observing both the child and the parent, assessing, listening and responding. Each session begins with a plan and the room is set up to target the session goals. As the session proceeds, the teacher observes both the parent and the child, listens, assesses and responds appropriately. The teacher prepares session plans by observing parent-child interaction, receiving information about daily life and routines, assessing the development of the child and the parent (Brown & Nott; Clark; Cole & Flexer).

These principles are widely accepted among the practitioners of the early intervention of hearing impaired children but some differences in practices are observed in different centers. These are attributed to the diversity in interpretation of family-centered approach and theoretical differences in oral education (Brown & Nott, 2005; Clark, 2007).

### **Studies in Turkey**

As newborn hearing screening pervaded in Turkey, the demand for early intervention for babies with hearing loss also increased but research in this area seems still very limited. The studies conducted in Turkey tended to define the families' needs and expectancies from the intervention program (Akçamete & Kargın, 1996; Gökcan, 1987) or to indicate the effectiveness of the intervention programs (Akçamete & Kargın, 1995; Doğan, 1995; Kargın, 2004). However, there are many additional facets of an intervention program which requires careful examination to provide information to the field and to ensure the quality of the practices in early intervention centers.

Therefore, this study was designed to collect information about the process of family-centered practices in a natural oral education setting in Turkey. The information on process and application of educational practices may enhance the knowledge of practitioners and may contribute to the theoretical work on the family-centered approach.

### **Aims**

This study aims to examine the session targets and realization of the targets at the session flow. The research questions read as follows:

1. What are session targets?
2. Which practices are chosen to realize the session targets?
3. Why are these targets chosen?
4. How are these targets passed on to the family?
5. How is the session flow achieved?
6. How are the session targets and session flow related?

### **Method**

This study was designed as a case study. Case studies are appropriate to evaluate the educational programs. The case study examines if the program runs according to the goals of the session program and its consistency between theory and application. It is also useful to analyze how the program works, to describe the program in detail, to detect the problems in the program, to find out the possible causes of the problems and the ways to overcome them. Extensive data are collected for a certain period of time during the practices and discussed afterwards (Bogdan & Biklen, 1998; Yıldırım & Şimşek, 2005). In terms of the present research, the case study design provides opportunities to discuss and to interpret the current practice by the collection and evaluation of the extensive data.

### **Participants**

A mother and her hearing impaired son who attended the early intervention program in Anadolu University, Research and Education Centre for Hearing Impaired Children (İÇEM) were the participants of this study. In the planning phase of the study, it was decided to work with a family and a child who was diagnosed and aided before the age one who had no additional problems to the hearing impairment and did not enroll in any kind of educational program.

Early intervention programs which start immediately after the fitting of the hearing aids provide necessary language input during the critical period for language acquisition (Calderon & Naidu, 1998; Clark, 2007; Yoshinago-Itano, 1998). Hearing impaired children whose hearing loss was identified early, immediately fitted with appropriate hearing aids and provided with early intervention can develop spoken language

if they do not have any additional handicaps (Brown & Nott, 2005; Clark; Cole, 1992; Yoshinago-Itano). Therefore, early intervention lists in İÇEM were screened to estimate families who accomplished the criteria, the aim of the research was explained to the families and they were asked if they were eager to participate. The first family who accepted to participate and confirmed that they would attend the sessions regularly was chosen as the participant of this research.

The child's name was changed in this article to preserve the anonymity of the participants. The mother was a 24 year-old housewife. She was separated from her husband during the first 5 sessions and she and her child used to live with her own parents. Therefore, the father did not participate in the program but grandparents attended some of the sessions. Both the grandmother and the grandfather were highly involved in caring for the child. The mother had no income and depended on her parents for living. The major income of the family was the grandfather's pension and they were ranked in a low socio economic status. The family travelled daily from another city for the intervention program.

The child was 1 year 4 months old when the intervention started. Although he was diagnosed when he was 7 months old, the family could not purchase the hearing aids until he was 1 year 2 months because of the bureaucratic issues involved and marriage problems. After acquiring the hearing aids they stopped attending the intervention program. As a result, they experienced problems in using the hearing aids regularly. Therefore, they called the centre and asked for an appointment for the intervention.

The child had profound hearing loss and was aided appropriately. He was evaluated by using the Denver Developmental Scale (II) prior to the research. He was reported as showing normal development except language development but the psychologist who conducted the assessment observed severe problems related to his lack of behavior management.

**Teachers:** Two teachers run the sessions including the researcher of this particular study. She had experience on audiology and early intervention for 20 years. She planned and conducted the sessions. The second teacher was responsible for engaging the child while the author and the mother were sharing information, helping the session flow and playing with the child.

**The Educational Setting:** The sessions were conducted in audiology rooms in İÇEM. The rooms were large and well lighted. There were carpets on the floor, the walls were covered by soft panels for acoustic treatment and there were curtains on the windows.

The teachers prepared the room before the session begun. The toys were covered and placed out of reach of the child, soft cushions were put on the floor and a game was set up to engage the child to play while the researcher was getting information from the mother about the events that took place at home since the last time they had been to İÇEM.

### **Data Collection and Analysis**

In general, interviews, observations and field notes, archival recordings, documentations, artifacts of the processes are used to collect data in qualitative research. Additionally, quantitative techniques and literature analysis can also be used. The data from different sources are used to increase “trustworthiness” of the research (Bogdan & Biklen, 1998; Yıldırım & Şimşek, 2005). The data can be analyzed either holistically or by using codes. In holistic analysis, the data are examined as a whole and the inter-consistency of the data are examined. In coding, data are divided into observable acts and patterns among them are determined (Bogdan & Biklen; Yıldırım & Şimşek). The data in the present study were collected by using video recordings, reflective journals and session plans in the child’s file and analyzed holistically ranging between 30.10.2007-28.04.2008.

**Video Recordings:** All sessions were recorded. Duration of a session was approximately 45 minutes. First 6 sessions were recorded for the research purposes. Analysis of recordings was completed within 2-3 days after the sessions.

**Reflective Journal:** At the end of the each session, the researcher wrote her evaluation. She recorded her observations and recorded if she had established her targets or not. If the targets were not established she explained the reasons and planned the next session accordingly.

**Session Plans:** After each session, the researcher prepared the next session plan depending on the reflective journal. She wrote the session targets, toys and games to play related to the session targets. The games were chosen considering the child’s age, his interests and the family opportunities to play the games at home. Session targets were focused on

to enhance the mother-child interaction and the games were played to achieve these targets.

**Validity and Reliability:** The terms validity and reliability are related to the more general term “trustworthiness” in qualitative studies. To provide conductibility, consistency and objectivity some measures should be taken in a qualitative research (Bogdan & Biklen, 1998; Yıldırım & Şimşek, 2005).

The following measures were adopted in this study to provide trustworthiness:

- a. Video recordings, the reflective journal and session plans were used as different sources of data collection.
- b. Data consistency was taken into account
- c. Long term data were collected
- d. Data were evaluated by different researchers
- e. Detailed descriptions were made
- f. Literature was reviewed during the data collection

### Findings

The recordings and analyses were evaluated together with another researcher who was experienced in qualitative research and education of the hearing impaired children and the research themes were determined. These themes read as follows:

1. General objectives in natural oral approach to develop language skills of hearing impaired children: The techniques and reasons behind them were evaluated.
2. The session goals: Considering the general objectives of the natural oral approach, the goals which were set for each session and the way they were realized were determined.
3. The session flow: Common characteristics of the sessions were established.
4. Play and toys: The toys, games and play were recorded for each session. The reasons for selection of the play material, the way they were played, goals of each particular play were discussed.

5. The mother-child interaction: Use of language, following the child's lead, establishing joint attention, use of language enhancing opportunities of the mother while playing with her son were recorded.
6. The teacher-mother interaction: Questions which were used by the teacher to get information from the mother about the family's daily life and how she integrated this information into session targets, her suggestions about communication with the child, the way she explained her suggestions were also recorded and evaluated.
7. The teacher-child interaction: The properties of the language that the teachers used while interacting with the child, the communication strategies, strategies of modeling both to the child and to the mother were evaluated.

This paper focuses on realization of session goals, reasons to choose the session goals, session flow and the relation between the session goals and session flow. Video recordings were used to evaluate if the goals were established.

### **Session Goals**

Session goals were summarized in table 1. As it is seen in the table, the goals were centered around the mother-child interaction, using language opportunities during the interaction, play and improving the mother's play skills, improving the child's listening skills and the behavior management of the child.

**Mother-Child Interaction:** One of the major goals of the intervention was defined to establish joint attention, turn taking, sensitivity to the child and to increase the quality and quantity of the child directed speech as the foundations of the language development.

Video analysis and session evaluations indicated that the mother naturally communicated with her child, with no basic problems considering the interaction and speaking in a natural way. However, video recordings showed that the mother had some difficulties to sustain the child's interest and needed to enhance the language she had used. Therefore the teacher explained the strategies which might be used to sustain the interest and suggested language enhancing techniques:

- Instead of just naming the toys, she might talk about the things they could do with the toy (session 3: while playing with the play dough she only named the “horse”. The teacher told her to imitate the sound of the horse and to talk about the body parts of the horse).
- Talking about the toy (session 4: while playing with the lorries, it was suggested to talk about the lego man driving the lorry, talking about the wheels, imitating sounds).
- Asking questions to the child and waiting for him to answer either by using his voice or by gestures (session 5: in picture-toy matching game asking which toy goes with the picture and to wait until he chooses a picture).
- Listening to the child and providing the language which he meant to say (session 3: the child showed the play dough which he wanted to play and he made some vocalizations. The mother gave the toy to the child without talking. The teacher told the mother that she could name the color or could ask which color he wanted).

The aim was to provide the child rich language input both in quality and quantity. Children learn properties of a language with rich and meaningful language input (Baldwin, 1995; Carney, 1996; Clark, 2007; Cole; 1992; Gallaway & Richards, 1994; Hart & Risley, 1995).

**Improving the Mother’s Play Skills:** The mother’s answer to the question of “how do you spend your time with Ali?” highlighted that they usually spent their time doing housework. She said that the child loved to play with kitchen tools while she was working at home. She also told that the grandfather usually played with the child especially when it comes to physical play either indoors or outdoors.

It was explained to the mother that to increase the variety of daily routines and playing different games provide a variety in language input. Therefore, different kinds of play materials were used in the sessions and the mother was shown how to play with these material and different sorts of games. Water, sand and dough were some of the chosen materials because they were easily available at home and in their garden.

Playing with unused household utensils or with their toys were suggested and used during the sessions. This was explained and modeled to clarify their full usage to increase the language input.

It was observed that the mother followed the child's lead while they were playing but she had some difficulties to sustain the games. Therefore, different ways of using the material were demonstrated to the mother, story books and playing games by following simple rules were also indicated.

Video recordings show that during the sessions the teachers started the play then surrendered to the mother to practice the mentioned strategies and techniques, to involve the mother as an active participant rather than an observer. She was also encouraged to play, helped to extend her language, directed to use more questions instead of using commands and she was acknowledged for her positive interaction with her child.

**Table 1.**

*Session goals, games and play in the sessions, goals achieved in the session*

Session Goals	Play/Games	Goals achieved in the session
<p><b>Session 1 (30.10.2007)</b></p> <p>Hearing aid check, consistent use of hearing aids, importance of play, drawing attention to the sounds, evaluation of mother-child interaction</p>	<ul style="list-style-type: none"> <li>• Farm animals</li> <li>• Color rings</li> <li>• Soft balls</li> <li>• Doll and surprise packs</li> <li>• Caterpillar</li> <li>• Wooden beads</li> </ul>	<p>The child resisted to wearing the hearing aids. Behavior management was emphasized. The mother-child-interaction could not be evaluated.</p>
<p><b>Session 2 (10.12.2007)</b></p> <p>Check if they used the hearing aids constantly. Evaluation of interaction, evaluation of mother's use of language, different types of games, use of daily routines for language input, drawing attention to sounds</p>	<ul style="list-style-type: none"> <li>• Farm animals</li> <li>• Cleaning game</li> <li>• Water play</li> <li>• Singing</li> </ul>	<p>Suggestions given in the last session were practiced at home. The mother-child interaction was observed. New ideas on play were explained to the mother. The enrichment of language during play was clarified. Singing songs and rhymes were suggested. Daily routines were explained.</p>



**Session 3 (07.01.2008)**

Looking at books and pictures, storytelling, asking questions, following the story, use of materials while looking at books/pictures. Different play material. Language input during play. Listening games. Listening to sound and silence.

- Building towers with plastic boxes
- Mr. Potato Head
- The cat story
- Play with dough
- Dancing with toys with music on and of

Different kinds of play were demonstrated, looking at books was stated and demonstrated, games with sound were clarified and played. The mother's play were observed and evaluated. Positive aspects in her play were emphasized.

**Session 4 (21.02.2008)**

Different kinds of play. Directing the mother during her play with the child. Giving some ideas related to listening games. Hearing tests and evaluation for the cochlear implant.

- Lorries and Lego man
- Sand play
- Pass the parcel
- Hearing tests

A Different game was demonstrated. Letting the child to explore the new material was explained. Listening game by turn taking was played. Hearing tests were completed and the child was referred for implantation.

**Session 5 (24.03.2008)**

House work for language input. How they improve the language during household activities?

Matching games. They are essential both language and concept development. Same-different type of game. A different listening game.

- Making chocolate pudding
- Picture-toy matching
- Musical chairs

Need more household activities. Picture-toy matching showed the mother that the child can be engaged in games with rules. The ways to play this kind of activities at home were also pinpointed. A different type of listening game was demonstrated.

**Session 6 (28.04.2008)**

Language input opportunities during household activities, games with rules and how to sustain play.

- Washing clothes
- Collage
- Simple matching game

Ali was not interested with the games. He cried and did not participate as much as we had liked to. The mother said that they moved back to her husband's house again and asked if we could talk to the father about child's behavior management. Father could not attend the session since he needed to deal with implant procedures at the hospital. One more household activity was demonstrated. Language input was discussed.

**Listening Games and Attention to the Sounds:** In the first session, the researcher explained to the mother how to use the hearing aids, his expected development in terms of recognizing sounds and vocal production. The importance of listening and a few suggestions which could be used at home were also spelled out. To develop his listening skills and provide the mother with some ideas on the listening games, a listening game was played at the end of each session.

Listening skills in children who have hearing loss develop gradually in time (Estabrooks, 2007; Clark, 2007) and expands from simple to more complex levels (Estabrooks) thus simple detection and recognition games when music is on or off, dancing with music, musical chairs, making sounds with musical instruments, pass the parcel games were played at the sessions. It was also suggested to draw attention to routine sounds at home. Listening to the door bell, telephone ring, sound of the electrical instruments, singing songs and rhymes, making sound imitations while playing and looking at books and pictures (Clark) were given as examples of listening activities.

When it was asked to the mother if she directed the child's attention to the sounds at home, she said she did not in the first session but in time they started to play listening games especially dancing with music. During these activities, she noticed that the child only responds to loud sounds. She also noticed when the child had middle ear infections he

had no interest in the sound. She was a good observer and closely monitored the child's listening behavior. At the 4<sup>th</sup> session aided and unaided tests were completed and the results supported her observations and a cochlear implant was suggested.

**Behavior Management of the Child:** The mother's most important problem was the child's behavior management. When she was asked if she liked to talk about any problems at home she mainly complained of the misbehaviors of the child. As the school psychologist stated this was a big issue which could not go unnoticed.

The problems related to the behavior management were mainly observed in the first session. Although they had the hearing aids for 2 months before the intervention started, they were unable to use it consistently. In the first session, it was observed that the child resisted to wear hearing aids, discarding them and went into tantrums. The teachers inserted the hearing aids every time he took them off and distracted his attention with different games and toys. At the end of the session, he stopped crying, played comfortably with the toys, and did not touch his hearing aids.

It was explained to the mother that being consistent and determined was critical factors in changing the behaviors of the child. It was suggested to insert the hearing aids every time he took them off without negotiating, rewarding or punishing the child, accordingly keeping a calm emotional state and draw his attention to something else like toys, pictures etc.

The problems related to the hearing aid use were resolved when both mother and child came to the second session. The mother reported that he kept the hearing aids on all the times except that he was frustrated or threatened people in order to force them to accomplish his requests. Conversely, in this session he only took them off once.

Related to the child's misbehaviors several suggestions were made: establishing an organized day, regular meal, play and sleeping times, being consistent with rules at home. It was also explained that all the adults at home should treat the child in the same manner. The mother asked if she could bring the grandparents to the sessions since they were involved with the child and sometimes they gave in to the child's requests to stop his crying. Grandparents attended the sessions 3 and 5.

Although his behaviors improved considerably, the mother complained about him from time to time. Decrease in his crying and throwing toys behaviors which were observed in the first few sessions were replaced

with more appropriate manners like giving the toys to the teachers when he did not want them, pointing to the other toys instead of screaming and crying when he was bored. However in the 6<sup>th</sup> session, he seemed to get back to his old behavior. He cried for no reason, was not interested in playing, wanted to wander in the room aimlessly, and when he was not allowed, tried to take off his hearing aids. The mother explained that they moved back to her husband's house after eight months and decided to reunite their family. She said that the father accommodated the child's requested so they started to have problems related to behavior management. At the end of the session, it was underlined to the father the behavior management of the child.

Because the family moved to another city they explained that it was difficult to travel to Eskişehir for the intervention program every month but liked to attend annual audiological assessment and after the cochlear implant surgery for implant management. The intervention ended by their request and they were suggested to make appointment from department after the cochlear implant surgery.

**Session Flow:** All sessions followed the same pattern except the first one. In the first session, both teachers and the mother worked on keeping the hearing aids on. The behavior management and use of hearing aids were discussed with the mother, and some suggestions related to listening, playing games at home, speaking in a natural way were given.

Table 2 shows the general session flow

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**Table 2.**  
Session Flow

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<b>Duration</b>	<b>Activity</b>
10 mins.	The teacher asked questions about the activities at home since the last time they had been to education centre, child's listening skills and vocalizations. Co-teacher played with the child.
10 mins.	Mother played with the child. The teacher observed and made suggestion to the mother.



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10 mins. The teacher, the mother and the child played another game. Teachers demonstrated the game to the mother and encouraged her to join the play.

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5-10 mins. Listening game

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10 mins. The teacher asked the mother if she liked to discuss anything related to the child.

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**Information from the Mother:** Before the session started the teacher asked questions covering the following:

- The things that they had done at home (daily routines, special events, etc.)
- The games they played at home.
- Constant use of hearing aids.
- His responds to environmental sounds and speech.
- Any changes in his vocal production.
- The sounds he produced.

The information about these areas helped the teacher plan the sessions as well as monitoring his listening and speech skills. It also increased the mother's awareness on his progress.

**The Mother-Child Interaction:** In each session, the mother was expected to play with her child. During the interaction the teacher observed their play and the language which the mother used. Video recordings indicate that the researcher explained to the mother both the strong and weak points in her interaction with the child. She also explained the reasons of her suggestions related both to the play and language input. She used examples from their interaction for her explanations. It also provided opportunities for the mother to practice her new skills in the interaction.

**The Teacher-Mother-Child Interaction:** In each session, the teacher joined in the mother-child play and modeled the mother by playing with the child. This helped the mother get some ideas on how to play with her child especially when playing "not-so-familiar" activities, be it looking at books, games with simple rules or listening games.

**Listening Games:** It is necessary to play listening games to emphasize the importance of listening. Routine listening games were used to encourage the mother to do the same kind of activities at home to develop his listening skills and to monitor his responds to the different sounds.

**Ending the Session:** The teacher ended the sessions by asking if the mother had any questions or anything she wanted to talk about. In fact the mother could have asked any questions at any time during the session, but sometimes she might have needed an allocated time to discuss a particular subject. The specific time at the end of each session provided an opportunity for the mother to air and shares any concern about her child.

She usually asked questions about the child's behavior management, ear moulds or hearing aids.

### Discussion

The findings indicated that the session goals were concentrated on to enhance the mother-child interaction. The interaction context was created by play and daily routines at home. The theoretical background of the teacher and her observations related to the mother-child interaction seemed to be influential while establishing the goals (Baldwin, 1995; Calderon & Naidu, 1998; Clark, 2007; Cole, 1992). Daily routines and play were used to establish interaction context (Clark; Dunst et al., 2001; Dunst, 2002; Evans & Robinshaw, 2000; Fitzpatrick, et al., 2008).

The natural auditory-oral approach composes the theoretical base of this intervention program and session plans were prepared and conducted accordingly (Carney, 1996; Clark, 2007; Clark & Tüfekçiöğlü, 1994, Cole, 1992; DesJardin, 2006; Fitzpatrick, et al., 2008; Tüfekçiöğlü, 1998b). The natural auditory-oral approach suggests that the language develops through meaningful interaction with significant adults. Hearing impaired children develop the language if a meaningful environment provide language learning opportunities (Clark; Clark & Tüfekçiöğlü; Tüfekçiöğlü, 1998a). There are reasons to use language and these arise from the need to communicate the ideas, feelings, desires and demands. If an interesting and meaningful learning environment is created for the child, he/she will be motivated to communicate and interact with the others in the environment. The main goal in the early intervention then to help parents to create a rich and stimulating language learning

environments for their children and to learn to use language providing opportunities during their daily lives which is a natural learning basis for every child either with hearing impairment or normal hearing (Childress, 2004; Clark, 2007; Cole, 1992; Cole & Flexer, 2007). Therefore, the activities in the sessions were chosen to create an interaction context and they were easy to practice at home namely imaginary play, water play, play dough or daily household activities. The teacher directs the mother to learn and become competent in using the context as a language facilitating medium.

During the sessions, the teacher played with the child, this served as a model for the mother, other times, she observed and evaluated the mother's play and provided feedback (Brown & Nott, 2005; Clark, 2007; Eastabrooks, 2007). She also explained the rationale for the suggestions to support generalization of information at home activities. The grandparents' participation also helped to establish consistency at home considering the behavior management of the child.

The information that is provided by the mother was used to prepare session plans. The teacher assessed if the suggestions were suitable for daily life and made the necessary alterations through this information and her observations during the sessions.

She also monitored the child's auditory progress by mother's observations at home and his hearing tests. Both hearing tests and the mother's observations revealed that the hearing aids did not provide the necessary input for language development and therefore he was referred for cochlear implantation. He had his implant two months after this study was completed.

The teacher always answered mother's questions related to the child's development and behavior. The mother seemed to accomplish controlling the child's misbehaviors to some extent following the teacher's suggestions. However his problematic behaviors were observed in the 6<sup>th</sup> session again and the mother linked this to his father's involvement with the child since he behaved differently in such situations. The teacher explained to the father the importance of behavior management in the child's progress and the necessities of parents' collaboration during this process aiming to resolve the problems related to the child's behavior.

Broadly speaking, it can be argued that the session goals and session flow were concentrated on parent-child interaction. The educational en-

vironment and activities was designed to put the mother and the child at ease. The selected activities were easy to be implemented at home and thus the mother started to use household activities and materials for the interaction context (Clark, 2007).

Considering the features of family -centered intervention, it can be argued that the educational approach examined in this study fulfils these requirements: the mother was actively involved in the sessions, she shared the problems at home, the activities were planned taking into consideration the home environment, and daily routines were part of the process.

The findings of the study were limited to one family and their child. Similar studies can be conducted by larger groups of subjects. Evaluation of different teachers and different centers may reveal different goals and practices in early intervention. Discussion of these differences may contribute to current knowledge on early intervention practices in Turkey. Parents' view regarding the intervention may be evaluated. In long term studies children's progress in language acquisition can be examined as a measure of effectiveness.

Early intervention is a complicated process and many factors interact at a given time. Using qualitative techniques, it is possible to gather large amount of data considering the nature of the process. It is also possible to derive knowledge from these data which may help both to increase the quality of early intervention services in Turkey and to enrich the academic resources.

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