Individual literacy activities with hearing-impaired children in the preschool period

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The ability to recognize sight words, phonological awareness, syntax, semantics, and pragmatic skills begins to develop during the preschool period, and is important for formal reading education. The purpose of this study was to define individualized studies that support the development of literacy skills among hearing-impaired preschool children. A qualitative case study methodology was used in this study. The evaluation of the study data, teacher interviews, participant observations, documents, individualized reading video records, and instructional conversation and individualized reading assessments were performed using a researcher journal. Collected data were analyzed by means of a content analysis and a descriptive analysis. The study results showed that within the context of literacy preparation activities, conversations and individualized readings were performed every day with each child. Instructional conversations were performed using story books, sequential pictures, and single-card pictures within the scope of the subjects covered in class. During individualized reading activities, matching-completion-sequencing activities and big books prepared during group classes were used. The children's individual participation in conversations was evaluated based on their ability to describe events, to understand and answer questions, and to fulfill communication goals. During the evaluation of individualized reading activities, it was observed that the children's skills in recognizing words, in matching writing to a picture or other writing, in reading words and sentences, and in expressing their meanings were assessed. Individual conversations and reading activities constitute an important part of literacy preparation activities organized for hearing-impaired preschool children. The systematic application of these activities allows for the identification of the children's strengths and weaknesses, and contributes to the development of language skills according to their individual needs.

Key words: Hearing-impaired child, literacy activities, individual conversations, individualized reading, preschool period.

INTRODUCTION

An individual’s literacy skills are based upon his/her knowledge regarding the sound, syntax, meanings, and uses of language, which are acquired through the development of speaking and listening skills. Hearing-
impaired school age children encounter various problems such as insufficiency in phonological awareness and syntax, difficulties in identifying words, limited vocabulary, slow rate of reading, and limited strategies for understanding what they read (Kelly, 2003). The extent to which such difficulties are experienced is closely associated with whether measures were taken at an early stage, and also to the availability of the educational environments tailored to the child's needs. The development of decoding and reading comprehension skills during formal reading education is directly related with the development of skills pertaining to the recognition of letter shapes within words, of the sight words, of the relationships between letters and sounds, and of the meanings of words and sentences. Phonological awareness, which begins to develop during the preschool period and occupies an important place in formal reading education, refers to the ability to distinguish phonemes (the smallest constituents of spoken sounds), and the sounds and syllables that constitute words (Ambruster et al., 2006). Phonological awareness forms the basis of phonological decoding or phonetic development, which are important at the beginning of formal reading education (National Reading Panel, 2000). Phonological decoding encompasses the ability to identify relationships between spoken and written language, while phonics refers to the ability to identify relationships between sounds in spoken language and letters in written language. Phonological awareness and phonological decoding skills describe the processing and interpretation of auditory information. Due to their hearing loss, it is believed that hearing-impaired children experience difficulties during these processes, and that these difficulties affect their ability to acquire and develop reading skills. However, as a result of developments in hearing aid technologies, the administration of cochlear implants at younger ages, and early education programs applied during preschool education, the level of phonological skill development among hearing-impaired children is currently similar to that of their normal-hearing coevals (Geers, 2002; Girgin, 2012). Language-based reading and writing instructions, applied to hearing-impaired children to support their phonological skills, provides them the opportunity to jointly perform spoken and written language activities, to continuously engage in written interactions, and to acquire new experiences. Just as these opportunities could encompass group activities, such as reading or telling stories to the classroom, writing a book, labeling or naming objects, play activities or making music, it could also include individualized activities (Hellman et al., 2002). In this study, such activities were evaluated by examining the importance of literacy preparation activities administered through individualized studies to hearing-impaired preschool children.

Individualized activities have an important place in the education of children with special needs. By taking into consideration the individual needs and the individual learning speeds of children, individualized activities allow instructors to support children in areas where they need assistance. Activities performed for hearing-impaired children in individualized environments can be conducted as individualized reading (IR) activities. The objective of these activities is to develop children's language and communication skills, and to support their instructional conversation (IC) and literacy skills (Clark, 2007).

The literature reveals that the majority of the studies on conversations with hearing-impaired students evaluated their verbal and nonverbal turn-taking and utterances (Coates and Sutton-Spence, 2001; Llyod et al., 2001; Mahon, 2009), and addressed their conversational breakdowns and repair strategies (Most, 2002; Toe et al., 2007). Lertsukprasert and Cheewareungroj’s (2010) study was one of the conversation studies conducted on hearing-impaired preschool children. In this study, the effect of individual and group conversations on language skills was evaluated among hearing-impaired children receiving auditory/oral education. The results of the study demonstrated an improvement in the children’s listening, understanding, and speaking skills (Lertsukprasert and Cheewareungroj, 2010). In another study, the conversation skills of hearing-impaired preschool children and normal-hearing preschool children were compared, and the skills of the hearing-impaired children was found to be similar to those of their normal-hearing coevals (Duncan, 1999). In Turkey, two IC studies have been conducted to date on hearing-impaired children. In the first study of Tüfekcioğlu (1998), IC was used to assess whether any differences existed in language use among hearing-impaired students in different educational environments. Based on the study results, an improvement was identified in the spoken language of students receiving education with the natural auditory/oral approach. In the other study (Gürgür et al., 2012), an assessment of teacher adequacy in IC was performed with a hearing-impaired school age child. Various publications emphasize the importance of literacy preparation programs provided to hearing-impaired children prior to formal reading education, and of IRs planned according to children’s individual needs (Girgin, 2005; Kargin and Akçamete, 1991; Schirmer, 2000; Williams, 2004). However, a review of the literature revealed no studies regarding IRs for hearing-impaired preschool children. The results of this study are significant in that they present a program for IC and IR activities implemented for hearing-impaired preschool children. IC occupies an important place in the acquisition and development of skills regarding the phonetic characteristics, vocabulary, syntax, meaning, and use of a language, which constitute the basis of literacy skills. The development of spoken language skills, which also has positive effects on the development of literacy, is supported through ICs. In this context, the fact that this study was conducted at the Education and Research Center for Hearing Impaired Children (İCEM) is significant in that it sets a precedent for individualized activities performed in an educational environment.
environment that emphasizes hearing and oral communication. IR provides important opportunities for phonological awareness, for emphasizing the communicative purpose of written language, and for comprehension strategies. We believe that the results of this study will contribute to the planning and implementation of individualized activities conducted with hearing-impaired preschool children. In addition, the results of this study will also serve to emphasize hearing-impaired children’s need for IC and IR activities. The aim of this study was to define and describe the characteristics of educational programs that support the development of literacy skills among hearing-impaired preschool children, and which are implemented through individualized activities. In accordance with this aim, answers were sought to the following questions: (1) Which individualized activities were implemented? And (2) How was the IR performed?

METHODOLOGY

Study design

In this study, a qualitative case study methodology was used to thoroughly evaluate the characteristics of activities that support the development of literacy skills among preschool hearing-impaired children, and which are implemented through individualized activities. A case study is a method of inquiry in which a program, event, activity, process, or one or more individuals are thoroughly evaluated (Creswell, 2005).

Educational environment in which the study was conducted

This study was conducted at the preschool second grade of İÇEM, which is part of Anadolu University. At İÇEM, the natural auditory/oral approach and full daytime education is provided to students with hearing impairment. Hearing loss is identified by the audiology clinic, and family education is provided following device implantation to children. Preschool education, which commences from the age of three, continues for three years; elementary, secondary, and high school education are provided afterwards by the same institution. In addition to group activities performed at all levels, individualized activities are also conducted.

İÇEM preschool second grade. The preschool second grade consisted of two adjacent classrooms, one larger and the other smaller. Group activities were performed in the larger classroom, while individualized activities were performed in the smaller classroom. The smaller classroom in which individualized studies were performed contained a table and chair on which the teacher and students sat. There is sound insulation in both classes. The boards on the wall of the large and small classrooms had pictures regarding concepts (seasons, colors, numbers, birthdays, and students’ and teachers’ names), posters prepared with the children, tables, and drawings on them.

Participants

The participants of this study were two teachers who conducted preschool second grade activities and individualized activities during the 2012-2013 academic year at İÇEM, the researcher, and ten hearing-impaired students. The teachers were graduates of the Division of Education of Individuals with Hearing Impairments. One of the teachers had nine years of experience working with hearing-impaired preschool children, while the other had four years of experience. In practice, one of the teachers performed the group activities, while the other performed individualized activities with the children. The researcher has been studying the development of literacy skills in hearing-impaired children for 19 years, and conducted individualized reading studies with preschool second grade during the 2012-2013 academic year. The educational and audiological information of the preschool second grade students is provided in Table 1.

As can be seen in Table 1, the calendar age of the children varied between 49 months (4;1) and 59 months (4;11). One of the children had moderate hearing loss (41-70 dBHL), one had severe hearing loss (71-95 dBHL), and eight had profound hearing loss (96 dBHL and above). For the children, the starting age of education at İÇEM varied between 33 and 52 months. Parental permission to participate in this research was obtained from all students.

Research instruments

The study data were collected by means of teacher interviews,
Table 2. Implementation program of the individualized activities.

<table>
<thead>
<tr>
<th>Time</th>
<th>Group activities</th>
<th>Individualized activities</th>
<th>No of children participating in the activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.50-09.00</td>
<td>Calendar study</td>
<td>IC</td>
<td>1</td>
</tr>
<tr>
<td>09.00-09.30</td>
<td>Literacy preparation activities</td>
<td>IC</td>
<td>3</td>
</tr>
<tr>
<td>09.30-10.30</td>
<td>Free plays/matching-completion-sequencing activities</td>
<td>IC</td>
<td>6</td>
</tr>
<tr>
<td>11.00-11.30</td>
<td>Mathematics preparation activities</td>
<td>IR</td>
<td>3</td>
</tr>
<tr>
<td>11.30-12.00</td>
<td>Music, nursery rhyme and sequence-rule plays</td>
<td>IR</td>
<td>3</td>
</tr>
<tr>
<td>12.00-12.30</td>
<td>Drawing</td>
<td>IR</td>
<td>3</td>
</tr>
<tr>
<td>12.30-12.40</td>
<td>Preparations to go home</td>
<td>IR</td>
<td>1</td>
</tr>
</tbody>
</table>

IC=instructional conversation, IR=individualized reading.

participant observations, documents, the records of the validity and reliability committee, IR video records, IC and IR evaluations, and the researcher journal. Through teacher interviews, information regarding the preschool second grade program and activities were obtained; the literacy preparation courses were evaluated; audiological information pertaining to the students was collected, and the IC and IR evaluations were reviewed. IRs were performed by recording observations onto the researcher journal, and the obtained data were monitored by the validity and reliability committee.

Data collection and analysis

Study data were collected during the first semester of the 2012-2013 academic year, between September 17, 2012 and January 25, 2013. Every day the IC activities performed by the classroom teachers were recorded, and the informal evaluations performed by the teachers were noted. The IR activities were performed every day by the researcher and the classroom teachers, and the necessary records of these activities were made; these records were then evaluated by the validity and reliability committee. The study data were analyzed by descriptive analysis, which are commonly used in qualitative case studies (Yıldırım and Şimşek, 2011).

Validity-reliability

Within the scope of validity-reliability, study processes were monitored by two specialists experienced in the education of hearing-impaired students. During the validity meetings, the materials used during the IC and IR activities, the duration of the activities, the records of the evaluations that were performed, and the techniques used during the IR activities were all verified. The study report was provided to the class teachers for reading, and their opinions were noted.

RESULTS

The study results are presented below within the context of the study questions.

Which individualized activities were implemented?

With the context of the individualized activities conducted at the preschool second grade of İÇEM, IC and IR activities were performed every day with each child. The implementation program of the individualized activities is provided in Table 2.

As can be seen in Table 2, ICs were performed every day between 08.50 and 10.30 with every child, and IR activities were completed between 11.00 and 12.40. One of the teachers implemented the group activities, while the other conducted IC and IR activities in the smaller classroom. The duration of individualized activities was 10 to 15 min for each child (Llyod et al., 2001). When the IC and IR records were reviewed, it was observed that the children participated in at least 75 IC and 80 IR activities during the first semester of the 2012-2013 academic year. It was observed that IC and IR activities were conducted on a daily basis with every child who attended the school. Planned and systematic IC and IR activities are known to have positive effects on the development of spoken language skills and literacy skills among hearing-impaired children (Clark, 2007). IC. Instructional conversations are conversations performed by the teacher with a student on subjects covered in class with the aid of sequential pictures, story books, and single-card event pictures. By presenting a common subject that can be discussed between the teacher and student, these materials allow the initiation and continuation of interactions between the two (Tüfekcioğlu, 1998). The preschool second grade subjects covered during the first semester of the 2012-2013 academic year, and the materials used during ICs
As can be seen in Table 3, a total of 11 subjects were covered at the preschool second grade during the first semester of the 2012-2013 academic year. Within the context of the curriculum web, these subjects form the basis of the group activities conducted in class (Beaty and Pratt, 2003). IC materials were selected according to these subjects. During ICs, the use of materials parallel to the subjects covered in class enabled the children to make use of the words and linguistic structures employed during group interactions (Clark, 2007). During ICs, story books, sequential pictures and single-card pictures related to the subjects covered in class were used according to a particular sequence. The different types of materials used in conversation enabled the children to describe the events, to identify the relationship between different events, to make predictions, to list the events in a particular order, and to use language within various contexts (Cole and Flexer, 2007). For example; each one of the story books, sequence pictures and single-card pictures regarding the subject “Our Sense Organs” described a different event. In other words, the characters, the time and the location of each event were different.

During IC activities, children are provided the opportunity to use various words and language structures regarding their senses of sight, hearing, smell, touch and taste when describing events relating to a certain subject. At the same time, children are also given during these activities the opportunity to employ strategies that are important for the development of their literacy skills, such as making inferences when describing events, making predictions, answering questions, and summarizing.

Following the IC, the teacher recorded the child’s participation in an evaluation log, which was transferred from preschool first grade, and was prepared separately for each child. These evaluations recorded the words, sentences, and repetitions used by the child; the answers he/she provided to the questions; the predictions he/she

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Story book</th>
<th>Sequential pictures</th>
<th>Single-card picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Vacation and School</td>
<td>Yellow Ball Begins School</td>
<td>The Girl Who Goes to School Service</td>
<td>The Seaside</td>
</tr>
<tr>
<td></td>
<td>Buddy Learns How to Swim</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yumurcak’s Mouth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our Sense Organs</td>
<td>Yumurcak’s Nose</td>
<td>The Flower and the Bee</td>
<td>The Farm</td>
</tr>
<tr>
<td></td>
<td>Caner and the Kitten</td>
<td>The Dog In The Garden</td>
<td>The Animals In The Garden</td>
</tr>
<tr>
<td>Sounds</td>
<td>Yumurcak’s Ear</td>
<td>The Bird</td>
<td></td>
</tr>
<tr>
<td>The Sacrificial Holiday and 29 October</td>
<td>Mine Goes On Holiday</td>
<td>The Ceremony</td>
<td>The Holiday Trip</td>
</tr>
<tr>
<td>The Autumn</td>
<td>Ece and Cem: Welcoming Autumn</td>
<td>The Child Who Got Wet In the Rain</td>
<td>The Autumn</td>
</tr>
<tr>
<td>Our Home and Rooms</td>
<td>Pussycat Takes a Bath</td>
<td>The Broken Glass</td>
<td>The Living Room</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The Bathroom</td>
</tr>
<tr>
<td>Breakfast</td>
<td>Ercan and Ebru and the Egg</td>
<td>The Child Who Prepared Breakfast</td>
<td>Breakfast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The Kitchen</td>
</tr>
<tr>
<td>Baking</td>
<td>Gül enay And The Cats</td>
<td>The Patisserie</td>
<td></td>
</tr>
<tr>
<td>V ehicles</td>
<td>Elif Makes Pizza</td>
<td>Popping Corn</td>
<td>Cookies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The Station</td>
</tr>
<tr>
<td>The Cleanliness Of Our Bodies</td>
<td>Mine Cuts Her Nails</td>
<td>The Boatman</td>
<td>Bathroom</td>
</tr>
<tr>
<td></td>
<td>Mine Goes Uses The Restroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Winter</td>
<td>Pın ar the Little Doctor</td>
<td>Making a Snowman</td>
<td>Winter Sports</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
made; and the relationships she identified between different events. The post-IC evaluation performed with student number 7 on September 25, 2012 is provided below in Example 1:

**Example 1**

The sequential pictures entitled “The Girl Who Goes to School” were viewed. The student showed mutual interest and established eye contact. The student understood basic questions, such as “What is Ece doing?” or “Where is Ece going?” The student used the present tense suffix by himself. The student could repeat two-word sentences, such as “eats cake” or “going [to] school.” The student used the present tense and in determining cause and effect relationships.

In Example 1, joint attention, turn taking, and signaling of intention were assessed during post-IC evaluation. These elements are the communicative behaviors that constitute the basis of a conversation’s sustainability (Clark, 2007; Cole and Flexer, 2007). Furthermore, during the evaluations, the answers provided to the questions, the number of words used, the use of suffixes, and the recurring linguistic structures were also considered. During the conversations, evaluating the answers and predictions, the relationship identified between different events, and the number of words and proper syntax use within sentences was important for determining the level of the activities to be prepared according to the individual’s requirements, and also for ensuring diversity in these activities (Cole and Flexer, 2007).

**IR** individualized readings are activities in which the teacher uses reading material of the appropriate level, and provides assistance through reading strategies in case the child has difficulties. In this study, matching-completion-sequencing activities and big books prepared in group classes were used during **IR** activities. The materials used during **IRs** are listed in Table 4:

**Matching-completion-sequencing activities**

Colors, names of friends and teachers, seasons, days, months, shapes, poster of the head, names of toys, names of colors and fruits, breakfast items 1, breakfast items 2, rooms in the house, names of colors and shapes

**Big Books**


**Table 4. Materials Used during IRs.**

<table>
<thead>
<tr>
<th>Matching-completion-sequencing activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colors, names of friends and teachers, seasons, days, months, shapes, poster of the head, names of toys, names of colors and fruits, breakfast items 1, breakfast items 2, rooms in the house, names of colors and shapes</td>
</tr>
</tbody>
</table>

**Big Books**

its associated picture. With the big books, an evaluation was performed on whether the child could read the sentences beneath the picture, and whether he/she could describe the meaning of these sentences and words. For example, the big book entitled "Breakfast," prepared during the group activity on December 7, 2012, was read together with student number 2 in one of the individualized reading activities. The evaluation performed following this reading is provided below in Example 2:

**Example 2**

When the student saw the cover of the book, he read its title, but was unable to read the date. The student was able to read the sentences "Umut drinks milk," "Türkan eats bread," and "Mustafa eats olives" by looking at the pictures. Regarding the sentences on the pages, the student understood and correctly answered the questions "What is Umut doing?", "When does he drink milk?", "What is Türkan eating?", "What is Mustafa eating?", "When does he have breakfast?" However, the student could not read the sentence “Mother is cooking sausage.” The student could describe what he saw on the pictures; after I read the sentence, the student was able to repeat it intelligibly.

As can be seen in Example 2, the extent to which the child could read the sentences on the big book, along with sentences that could not be read, were noted during these evaluations. Whether the child understood the sentences and words was verified by asking questions. Just as this evaluation approach provided information regarding the current performance of the child, it also allowed his/her later reading performance to be monitored (Fields et al., 2004).

**How were the IRs performed?**

During IRs, matching-completion-sequencing activities and big books were employed as follows:

**Matching-completion-sequencing activities.** The teacher showed the first picture by mentioning the name of the activity to be read, and asked the child read the word beneath the picture. If the child could not read the word, the teacher read the word him/herself and waited for the child to repeat it. Each picture that was shown was then placed sequentially in front of the child. After completing the picture cards, the teacher provided matching cards to the child, one by one, and asked the child to match each word on these cards with the words beneath the pictures. When the child had difficulties or was unable to match the cards, the teacher showed the length, first letter and last letter of the word written on the card, and waited for the child to match the writing to the correct word. After completing the matching process, the teacher read the words on the cards, and asked the student to show which word he/she just read. If the child performed the matching process without difficulty, the pictures were removed from the table, and the child was asked to only read the writings on the matching cards. Provided below is the record of the IR regarding “color” performed with student number 8 on September 25, 2012 (Researcher journal, p. 8).

**Example 3**

The child recognized every color that was shown, and pronounced their names correctly and intelligibly. The child attempted to match the cards by placing them under the writings. The child initially held the matching cards with the writings upside down. The child was shown how the cards should be held. As an example, the “white” matching card was placed one by one below each color; the child was then asked to indicate whether the writing on the card and the writing beneath the color were the same, and attention was drawn to the first and last letters of the words. Then, by looking at each one of the letters, it was shown that the “white” card and the writing beneath the white color were the same. Following this example, the child looked at the first and last letter of the words when matching the cards, showed these words with his finger, and performed the matching correctly. When asked to distinguish colors by listening to their names, the child was able to show the cards associated with every color that was read. The pictures were then removed from the table, and the child was asked to only read the writings on the matching cards. The child was able to read the “orange” card, but unable to read the names of the remaining colors.

As can be seen in Example 3, during the matching activities, the child was asked to read the name of the colors, to associate the writings with the ones on the color cards, to distinguish color names by listening to them being read, and to read color names out loud without seeing the color cards. In case the child had difficulties in matching the word card with the corresponding writing, the child was shown the direction of the writing, the length of the word, the letters in the word, and the first and last letters of the word in order to provide the child with a model for the use of sight word strategies, which begin to develop in children during the preschool period.

Matching cards were also used during sequencing activities with concepts such as seasons, days and months; in addition, children were also asked to list the seasons, days, and months without looking at any clues (Researcher journal, p. 19, October 4, 2012).

**Individualized big book reading.** Individualized big book reading activities were started from the cover of the book, and the child was asked to read the sentences written below the pictures on the pages. The words and suffixes that the child could not read were read by the teacher,
and the children were asked to repeat these words. Whether the child understood the sentence was verified by asking questions regarding the meaning of the sentence and words. Provided below is the record of the reading activity carried out with the big book entitled “Home”, performed with student number 2 on September 25, 2012 (Researcher’s Journal, p. 66):

**Example 4**

The cover of the book was shown by saying “Today we are going to read a class book with you.” The question “What is the name of the book?” was asked by showing the writing on the cover. The student was able to read the word “home” on the cover. By showing the date on the cover, the question “When did you prepare this book?” was asked. From the date “November 27, 2012, Tuesday”, the student was able to read the words “November 2012 Tuesday,” but unable to read the number “27.” After I read the full date myself, the student was repeated it correctly. The first page of the book was opened, and the writing beneath the picture was shown. By showing the child in the picture, the student said, “There is Miray.” To the question “What is Miray doing?” the student replied “Looking at the television.” To the question “Where is he sitting?”, the student replied “He is sitting in the salon.” By showing the writing beneath the picture, the question “What is written here?” was asked. By showing each word within the sentence with his finger, the student read the word “Miray is watching television.” To the question “What does television mean?” the student replied by showing the television on the picture and replying “There is television at home.” To the question “Do you watch television?” the student again replied by saying “There is television at home.” To the question “Do you watch television at home?”, the student again replied by saying “I watch.” After I said the sentence “I watch television” myself, the student was repeated the sentence correctly. Following this, the student said “one” by showing the page number of the right lower corner of the page. I said “Yes, this is the first page,” and we moved on to the next page...

In Example 4, it can be seen that the reading activity was started by reading the title date of the book, which was written on the cover. The teacher asked the student to read the sentence beneath the picture. In case the child showed interest in the picture, questions were asked regarding the event or scene within the picture. Talking about the picture enabled the children to identify the relationship between the writing and the event by allowing them to provide a description of these events (Fields et al., 2004). In example 4, it is possible to see that the child had difficulties answering some of the question regarding the event, and that he attempted to provide examples from his own life. In this case, the teacher took the child’s contribution into account, and asked the question once again based on the child’s sentence. Following this, it was observed that child was able to answer the question as necessary. Understanding questions and answering them correctly is one of the areas in which hearing-impaired children experience difficulties during the development of their language and academic skills. Reasons for this difficulty experienced by the children may include the difficult syntax structure of the questions that are asked; the student not knowing the meaning of the words within the questions; or the difficulty level of the answers for these questions (Schirmer and McGough, 2005).

**DISCUSSION**

In this study, answers were sought to the questions regarding the methods used in individualized studies with hearing-impaired children, and on how IR activities were conducted.

**Which individualized activities were implemented?**

In this study, it was observed that at İÇEM, IC, and IR activities were performed with preschool second grade hearing-impaired children. IC enables the children to understand the questions, to give answers to these questions, and to share their own experiences and thoughts (Llyod et al., 2001). Furthermore, IC also occupies an important place in the ability to recognize phonological elements and in the development of syntax, semantics, and pragmatic skills, all of which play an important role in the development of literacy skills. During ICs, the teacher: a) asked questions that prompted the child to think and use language; b) encouraged the child to participate; c) listened to their contribution and participation; d) further expanded the scope of their participation; e) made corrections where necessary; f) allowed to use new words; and g) shared his/her thoughts on the subject with the child (Beaty and Pratt, 2003). There is a mutual interaction between literacy and the development of spoken language. Just as the development of spoken language affects children’s literacy skills, the development of literacy skills also contributes to children’s continuously developing spoken language skills (Heilman et al., 2002). ICs performed regularly and every day with hearing-impaired children according to pre-determined goals enable these children to use language in various contexts and to acquire new language experiences, thus contributing to the development of their listening and speaking skills along with their literacy skills. The study results indicated that IC activities were performed on a daily basis with each child, and that the subjects covered during the IC activities were parallel to the subjects covered in class. As described earlier, there are various advantages associated with conducting IC activities parallel to the subjects covered in class. One of
these advantages is that it ensures that IC activities effectively reinforce the words and language structures used during group interactions. Another advantage is that it provides children the opportunity to use newly-learned words and language structures in different contexts (Clark, 2007). Hearing-impaired children often experience difficulties when speaking about a single subject, when expressing their thoughts, and when initiating and/or continuing a conversation. Planned and systematic IC activities play an important role in minimizing these difficulties. Planned and systematic IC activities necessitate the use of various materials that contribute to the development of the children’s spoken language. The use of materials during IC activities enables hearing-impaired children to focus on a single subject when speaking, to continue a conversation, and to associate events with their own experiences (Tüfeckoğlu, 1998). The study results indicated that during IC activities, the instructors used story books, sequence pictures, and single-card pictures whose subjects were parallel to the subjects covered in class. These materials presented different events in various contexts, and provided hearing-impaired children the opportunity to use their spoken language in different contexts (Cole and Flexer, 2007). In other words, these different types of materials provided many different opportunities for the development of the children’s abilities to describe the events, to identify the relations between the characters and the events, to describe the location and time, to make predictions, and to make inferences. These opportunities not only contributed to the development of the children’s spoken language skills, but also allowed the children to form the basis of their strategies for reading comprehension, which is essential for the development of their literacy skills.

Literacy activities performed during the preschool period aim to prepare children for their formal reading education. In this context, the preschool period represents the time when children establish the foundations of their word recognition and comprehension skills, which occupy an important place in formal reading education. IRs identify areas in which the children need reading assistance, and provide support in these areas through individual activities. According to the children’s needs, IR supports the use of clues regarding sight words, phonemic and phonological awareness, syntax, and semantics. Furthermore, IR allows an evaluation of the child’s skills in recognizing words (based on the shape of words and letters), as well as his/her skills in describing the meaning of words and sentences (Fields et al., 2004). The study results indicated that IC activities were performed on a daily basis with each child. The matching-completion-sequencing activities performed during the IR activities served not only to increase the children’s awareness regarding the meaning of the words, but also allowed them to develop an awareness regarding the shape of the words. In this study, another type of material used during IR activities was the big books, which were prepared during group classes. Big books represent books that are prepared based on the children’s language and learning experiences; they are considered to be the most meaningful type of reading material from the children’s standpoint. Big books contribute significantly to children’s word recognition strategies, and also to the development of their reading comprehension skills (Browne, 1996).

In this study, it was observed that the participation of children to IC and IR activities was regularly evaluated. Informal evaluations were recorded by the classroom teachers. Such evaluations allowed teachers to identify the needs of the children by observing their performance, and to thereby prepare activities that were suitable for their level. The evaluations performed after IC activities focused on the development observed in the children’s communicative behaviors, on the compatibility of the sentences they formed with the rules of syntax, on the diversity of words they used, on the extent to which they were able to understand and answer the questions, on their ability to understand events, and on their ability to make predictions and inferences. The evaluations performed after IR activities focused on the children’s awareness regarding the shape of words, their use of word recognition strategies, their ability to benefit from visual cues, their comprehension skills, and the answers they provided to the questions. These aspects considered during the evaluations represented important criteria for identifying the areas in which the children needed improvement for the development of their spoken language and literacy skills (Fields, Groth and Spangler, 2004).

**How were the IRs performed?**

Children cannot benefit from literacy activities that do not reflect their own speaking and listening skills. For this reason, during literacy preparation activities, it is important for writings to be used within contexts that are meaningful and relevant for the children (Heilman et al., 2002). In this study, it was observed that matching-completion-sequencing activities, as well as big books prepared in group classes, were used during IR activities. Matching-completion-sequencing activities, as well as the big books prepared with the children’s own participation, are important materials for reflecting the children’s own language experiences and knowledge (Cooper, 1997). IRs are important for identifying and supporting the children’s individual needs. The study results indicated that the reading materials used during IR activities were previously shared with the children within the context of the group activities performed in class. The conduct of preschool IR activities using materials previously shared within groups ensures among the children the fostering of positive attitudes towards literacy, the recognition and
identification of word forms, the sharing of words’ and sentences’ meanings with one another, and the association of the writings with their own experiences (Fields et al., 2004). In addition, planning the IR activities accordingly allowed the children to utilize the experience they acquired in their groups, and to develop their skills in the areas where they needed improvement. This approach also allowed the individual performance of the children to be assessed.

In preschool IR activities, children are not expected to decode words or sentences. The attention given by the children to the shape of words and letters, the association they make between writings and spoken language, and their ability to infer meanings by using clues within the pictures forms the basis of their phonological decoding skills, which occupies an important place in formal reading education. The study results indicated that various word recognition strategies were employed during the matching-completion-sequencing activities applied within the context of IR activities. The development of word recognition strategies begins during the preschool period, and serves to prepare children for their formal reading education. During the IR activities, children are made to pay attention to the length of words, the shape of the letters forming the words, the first and last letters of words, and also the meaning of the words. These approaches supported the development of the children’s word recognition skills (Heilman et al., 2002). In this study, it was observed that the teachers emphasized the shape/formal characteristics of the words during big book reading activities, and that they asked the children to describe the events they read and to provide the meaning of the words and sentences in the book. During IRs, the meaning of words and sentences should be stressed in order to emphasize the communicative purpose of the writings. This is because the ultimate purpose of reading is comprehension. For this reason, children should be asked to describe what they have read, and must, when necessary, share the meaning of the words and sentences they have read by using pictures (Beaty and Pratt, 2003; Fields et al., 2004).

The ability of understand and answer question begins to develop during the preschool period, and serves as a basis for the development and evaluation of reading comprehension skills during formal reading education. In this study, it was observed that during IR activities, the teachers made use of questions when sharing or teaching the meanings of words, and that they focused on the children’s ability to understand and answer questions. Hearing-impaired children are known to experience difficulties in understanding and answering questions due to the limited vocabulary they possess, their limited experiences regarding events, and the complex syntax structure of sentences involving questions (Schirmer and McGough, 2005). Studies on school age hearing-impaired students report that while these students experience difficulties in answering questions relating to the texts they read, they are nevertheless able to correctly understand and answer questions that are asked according to their language level (Dowaliby, 1992; Girgin, 2006; Schirmer and Woolsey, 1997). Commencing educational activities at an early age is of great importance for the development of reading skills in hearing-impaired children (Schirmer, 2000). For this reason, activities performed during the preschool period to increase hearing-impaired children’s ability to understand and answer questions relating to a text will also contribute to the later development of these abilities during their formal education.

CONCLUSION AND RECOMMENDATIONS

In conclusion, it was observed in this study that IC and IR activities were systematically employed during the individualized activities that were performed at the preschool second grade of İÇEM in order to support the development of hearing-impaired children’s language and literacy skills. Due to their loss of hearing, hearing-impaired children experience delays in the development of their language skills in comparison to normally hearing children. To minimize this delay, it is necessary to simultaneously employ various early intervention approaches. Early intervention approaches for hearing-impaired children are based on early diagnosis, early education, and the supporting of the children’s language and academic skills in educational environments. In this context, the IC and IR activities administered together with group activities during preschool education serve to effectively identify and support the areas in which hearing-impaired children need assistance for the development of their spoken language and literacy skills.

Based on the study results, we can make the following recommendations regarding the implementation of these activities; based on an evaluation of the IC and IR activities, various literacy preparation activities could then be implemented. By assessing the effect of these activities on the development of spoken language and literacy skills in hearing-impaired children, it will be possible to take effective decisions regarding educational practices. For future studies, it is possible to recommend the monitoring of development in literacy skills among hearing-impaired children taking part in preschool literacy preparation activities, as well as an evaluation of the relationship between the listening and speaking skills and the literacy skills of these children. In addition, IC and IR activities organized for school age hearing-impaired students may allow a thorough evaluation of the strategies used by these students when participating in such activities.

Conflict of Interests

The author has not declared any conflict of interests.
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