Designing Learning Materials within the Framework of the ALIS-T Project: Story Telling Activities for Hearing Impaired Individuals*

ALİS-T Projesi Kapsamında Öğrenme Materyalleri Tasarımı: İşitme Engelli Bireyler için Hikâye Etkinlikleri

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Abstract

The present study aims to examine the usefulness of 47 stories which were developed as learning materials within the scope of the ALIS-T (Alternative Communication System – Design) Project. This project aims to develop a graphical symbolic system which is relevant to Turkish social and cultural systems of understanding. In the study, stories were developed (generated) by a Turkish Language and Literature academic taking the objectives of primary 1st year life science, Turkish, and mathematics curricula into account. Stories, which consist of a setting, characters, and plot were developed. The stories were presented to 5 teachers who teach to hearing impaired students in order to check the appropriateness of each. Those teachers' views were taken into account about the positive/negative effects of stories in the learning and teaching activities. On the other hand, all stories were elaborated by teachers in terms of whether they met the objectives of curriculum and were useful in developing the literacy skills of hearing impaired pupils. Teachers were asked to do any alterations or corrections needed to make stories compatible with curriculum objectives.

Obtained data were analyzed descriptively. All participants stated that each of the stories were beneficial and usable for teaching and learning activities. They emphasized that sentences should be short, clear, and comprehendible and found that stories which were too long should be corrected. On the basis of teachers' feed-back, 39 stories were re-designed and corrected. 8 stories which were found to be unsuitable were excluded from the study.

Keywords: *Story activities; hearing impairment; graphic symbols*

Öz

Sunulan çalışma, ALİS-T (Alternatif İletişim Sistemi-Tasarımı) projesi kapsamında öğrenme materyalleri olarak geliştirilen 47 hikâyenin kullanılabilirliğini irdelemek amacıyla yürütülmüştür. 1 Türk Dili ve Edebiyatı öğretim üyesi tarafından İlköğretim 1.sınıf Hayat Bilgisi, Türkçe ve Matematik öğretim programlarından seçilen kazanımlar referans alınarak geliştirilen hikâyeler, yer, zaman, karakterler, olay, plan, girişim, girişimin sonucu ve sonuç bölümlerini içerecek şekilde tasarlanmıştır. Hikâyeler, işitme engelli öğrenciler için uygunluğunun irdelenmesi amacıyla 5 İşitme Engelliler Öğretmeninin görüşüne sunulmuştur. Öğretmenlerin hikâyelerin öğrenme öğretme etkinliklerinde kullanılmasının olumlu/olumsuz etkileri üzerine görüşleri alınmıştır. Diğer taraftan tüm hikâyeler kazanımları ile birlikte öğretmenlere sunulmuş, hikâyelerin kazanımları karşılayacak düzeyde olup olmadıkları, işitme engelli bireylerin okuma yazma becerilerini geliştirmeye yönelik kullanılabilirlikleri hakkındaki görüşleri sorulmuş ve hikayelerin işitme engelli bireyler için uygun hâle getirilmesine yönelik önerilerini düzeltme yaparak ifade etmeleri beklenmiştir. Elde edilen veriler betimsel olarak analiz edilmiştir. Katılımcıların tümü hikâyeleri öğrenme öğretme sürecinde kullanılabilecek faydalı materyaller olarak nitelendirmişlerdir. Cümlelerin kısa, açık ve anlaşılır olması gerektiğine vurgu yapan öğretmenler kendilerine sunulan hikâyelerin cümlelerinin uzun olduğunu ve bu yönde düzeltme yapılması yoluna gittiklerini ifade etmişlerdir.

Anahtar Kelimeler: *Hikâye etkinliği; işitme engeli; grafik semboller*

Introduction

Language is defined as a natural instrument which helps people to understand each other. Humans communicate via listening, comprehension, and speaking skills and through such skills they achieve their social, psychological, and academic developments. Information is received through the senses and made comprehendible—which establishes a strong base for new learning. If one or more senses in any way loses its functioning, crucial barriers in learning occur and individual development derails from normal progress (Özateş & Susüzer, 2006; MEB, 2008).

Individuals who differ from their peers in terms of individuality, development characteristics, and educational competencies are regarded as individuals who need special education. Those individuals who need special education and support due to difficulties they have in the use of language and learning oral communication likewise need special attention. The education of individuals who have language and speaking difficulties aims to help these individuals be self-competent and integrate within the community in which they live. In order to achieve this goal, providing appropriate learning environments which take individual differences and competencies into account needs to be determined and presented those people (MEB, 2006).

There are various alternative communication systems in order to support communication opportunities for individuals who have language, speaking, and learning disorders (Johnson, Lovel, Somers & Mohamed, 2004; Murphy, 2004). Millions of people who have serious speaking and motor problems are dependent upon these systems in order to express their needs and desires. Physical objects, graphic symbols, sign language, alphabet boards, harmonized keyboards, word and idiomatic interfaces, and many other techniques which facilitate the easy use of expressive language are

characterized as communication support systems. Those systems are addressed to users who have different age, sensory motor, cognitive, and linguistic abilities (Patel, Pilato & Roy, 2004).

Images and symbols carry easily guessed meanings and therefore the cognitive load necessary in learning is reduced (MacDonald, 1998). It is for this reason that, particularly in recent years, the use of images and symbols in the field with the support of technology is increasing. When international literature on the issue is examined, it can be seen that a lot of sets/systems such as Blissymbols, Makaton, Picture Communication Symbols (PCS), and Widgit Literacy Symbols (WLS) are in use in many countries around the world like the United Kingdom and the United States of America (Millar & Scott, 1998; Johnson, Lovel, Somers, & Mohamed, 2004; Goldberg, Zhu, Dyer, Eldawy & Heng, 2008). Those sets/systems take graphic symbols as the base, which are thought to be as alternative communication tools for individuals who are not able to use speaking as a form of communication.

Graphic symbols are important for users and communication partners in terms of the ease of comprehending and learning and the symbols that affected by many factors like language, culture, time, experience, ability, and the characteristics of a symbol. Makaton is defined as a communication system which aims to improve communication skills of people who have language, speaking, and/or learning difficulties. Walker (1987), the designer of Makaton, pointed out that the *"changes which reflect differences in roles of family members, nutrition styles, habits, climate, environment, and religious beliefs are necessary for the acceptability of the system inter-culturally*."

ALIS-T Project

ALIS-T is a project which aims to design a graphical symbol system as an alternative communication system in Turkish. It is aimed to develop a graphic symbol system which is compatible with the Turkish agglutinative language structure and Turkish social, cultural, and mental systems. The first aim of the project was to generate a dictionary from words/concepts that are determined to be components of the content. The vocabulary of existent graphical symbol systems and normal language development phases are examined first and occurs in tandem with a presentation of the views and recommendations of pre-school and lower primary school teachers who were involved in design process. Coordinated studies with teachers who work in schools/centers where individuals with hearing impairment, autism, and trainable mental handicaps are educated from teachers who lived in different cultures and have different subject specialism contributed to the generational processing of the content (Karal, Aydın & Günal, 2010). Actions, people, adjectives, social interaction, time/status, pronouns, attachments, school, home goods, fruits/vegetables, food/drinks, math, jobs, nature, clothes, animals, health, technology, traffic/vehicles, body, colors, and others under different headings composed the approximately 750 words determined for the dictionary. In order to determine the characteristics of the graphical symbols of words, descriptions, and drawings from 106 participants— which included teachers and students who have different backgrounds such as subject specialism, experience, location they live and work, and different education levels were taken as a primary reference. Graphical symbols were designed on the basis of commonalities and general characteristics of each word, which were drawn/described by the participants. Drawings which use minimum line and brushstroke and provide most the concrete meaning for the object are important for the system. During the graphic designation process, this notion was observed carefully. Designed graphics were presented to participants who have a different age, culture, and education through the logic of multiple-choice test which is published at www.alis-t.com. In this way, visual representations of selected words were standardized. Standardized graphics constitute the language of an alternative communication system. After that, in order to make use of graphic symbols in learning environments, the process of generating scenarios was started. The aim of this process was to improve concepts of

learning; especially the reading, writing, communication, and socializing skills of individuals who have language, speaking, and learning difficulties (Aydın et al., 2012).

Story Activities

Story time takes an important place in activities which aim to develop the language skills of special education needs (Hudson & Test, 2011; Richter & Test, 2011). In the related literature, it is emphasized that within the scope of Turkish lessons, in order to improve reading and writing skills of children at the lower primary level, regular activities such as reading and telling stories to whole class, listening to student-told stories, examining information in the related text, viewing ordered pictures, generating a story, and letter-sound and grammar should be practiced (Girgin, Karasu, 2007; Girgin, Karasu & Uzuner, 2012). In addition, the related literature also emphasizes that visual materials are the most appropriate materials for special education needs when students have difficulty in comprehension since images and drawings are being used very often in educational settings (Cross, 1994; Fuller & Lloyd, 1991; Girgin, 2005; MacDonald, 1998; Millar & Scott, 1998). In the current study, this notion was taken as the starting point for stories that were generated in order to be used as learning materials within the scope of the ALIS-T Project.

Aim of Study

47 stories were generated by an academic whose specialism is Turkish Language and Literature. During this process, student attainment targets were selected from primary 1st grade life sciences, Turkish, and mathematics curricula and dictionary (which was developed within the frame of ALIS-T project) were taken into consideration. An examination of the usability of those generated stories which constitute a location, time, characters, plot, and conclusion for hearing impaired individuals is the aim of study.

Method

The current study adopted a qualitative research approach. In the study, the usability of stories which were developed as learning materials for hearing impaired individuals within the scope of ALIS-T project were examined on the basis of 5 classroom teachers of hearing impaired students. Obtained data were analyzed in a descriptive approach. Data collection tools for the study as follows:

Story Design Scale

First of all, the attainment targets and activities of primary 1st grade Turkish, life sciences and mathematics curricula were examined. An appropriate 57 attainment targets (learning outcomes) were identified for the generation of stories and scenarios within the scope of ALIS-T project. Activities presented in the curriculum for determined learning outcomes were examined. And those were classified under the headings of "Target" and "Expectation." Expectation here refers to a student who is expected to carry out some activities in order to reach to learning outcomes. Words which were determined within the scope of project were added to these headings and a story design scale was prepared. This was presented to the Turkish Language and Literature expert with a cover letter involving the scope and aim of the study and its development. At this point some time was given to the process of story generation.

Meeting Reports

The ALIS-T Project team consists of academics from the Departments of Primary Teacher Education, Turkish Language and Literature, Computer and Instructional Technologies, and Special Needs/Education of the Mentally Handicapped. The team included 4 four postgraduate students who continued their Master's and Doctorate degrees in the Computer and Instructional Technologies department. Meetings about identifying the scope and content of stories were held and decisions were recorded as documents.

Story Evaluation (Rating) Scale

An evaluation scale was designed in order to examine the appropriateness of generated stories with attainment targets and expectations. The scale has two parts. First, part one consists of open ended questions which involve the demographic information of participants (department, education status, subject specialism, degree, teaching experience) and aimed to determine the positive/negative effects of the use of stories in teaching/learning activities. The second part consists of the presentation of stories. Each story was presented in a table with the headings of "Attainment Target", "Expectations," and "Your Comments." It asked participants to provide their views about whether stories met the attainment targets or not, the appropriateness of stories with hearing impaired individuals' reading and writing skills, and for participants to write down their suggestions for improving the stories in the spaces provided under the heading of "Your Comments" or to make corrections in the story text itself. An example story with Learning Outcome, Expectation, Story and Your Comments headings is presented in Table 1.

Table 1
A Story Presented in the Scale

Learning Outcome	Student will be able to realize that adding is bringing things together, aggregating, supplementing, and increasing numbers
Expectation	Adding is realized through activities such as taking same colored pencils out of the pencil case and bringing them together; increasing class size due to newly transferred student from another school; the quantity of toys increased due to constant buying.
Story	Ali̇ş and Grandfather are Fishing Ali̇ş went fishing with his grandfather. Grandfather cast the fishing rod into sea and waited. Ali̇ş watched him. He caught 5 fish the first time. Ali was very happy. Ali put the fish into the bucket and then carried on fishing. Grandfather threw the cast rod into the sea again they waited. This time they caught 10 fish. Ali put them into the bucket and said "there are more fish" to his grandfather. "How many fish have we caught Ali?" asked the grandfather. Ali counted the fish and said "we have 15 fish!" Ali̇ş and grandfather returned home to fry the fish.
Your Comments	Do you think that the story titled "Ali̇ş and Grandfather are Fishing" is adequate for achieving the learning outcome provided above? If not, what are your suggestions to make the story compatible with the learning outcome?

Participants

Story Evaluation (Rating) Scale was applied to 5 Hearing Impaired classroom teachers. They were coded as T1, T2, T3, T4, and T5. The demographic information about participant teachers is presented in Table 2.

Table 2
Demographic Information about Participants

Participants	Subject Specialism	Education	Graduated Dept/ Program	Teaching Experience
T1	Classroom Teacher for Hearing Impaired	Bachelor's	Special Education / Hearing Impaired Teaching	7 years
T2	Classroom Teacher for Hearing Impaired	Bachelor's	Special Education / Hearing Impaired Teaching	2.5 years
T3	Classroom Teacher for Hearing Impaired	Bachelor's	Special Education / Hearing Impaired Teaching	8 months
T4	Classroom Teacher for Hearing Impaired	Bachelor's	Special Education / Hearing Impaired Teaching	6 years
T5	Classroom Teacher for Hearing Impaired	Bachelor's	Special Education / Hearing Impaired Teaching	5 years

Findings and Results

Interview records kept by the ALIS-T project team were studied and decisions regarding developing project stories were analyzed by 2 researchers. Decisions were made as follows: "*would be better to make a story of a protagonist/character*" in relation with expectation/expectations for each of the outputs identified and "*within the scope of but not limited to the words selected for the project*" in relation with content of the stories and scenarios to be developed.

In the light of the decisions made through the interviews, 47 stories were developed by the Turkish Language and Literature expert using a story design scale. After this, participant teachers were asked for their opinions about the stories by using the story evaluation scale. A descriptive analysis of collected data was done by 2 researchers. Analysis results separately obtained from researchers were also found consistent with each other.

Participant teachers answered an open-ended question in part one of the scale, reading: "*What positive/negative effects can using of learning/teaching activity stories have on the learning process*?" Analysis of responses for that question showed that all of the participants regarded stories as beneficial materials to be used in learning-teaching process. The participants mainly underlined positive effect of stories on '*language*' and '*vocabulary*' development. In addition, participant T5 pointed out that stories helped the development of students' "*imaginary world*." The opinions of all participant teachers on this issue are shown in Table 3.

Table 3
Positive Effects of Stories on Learning/Teaching Process

Theme	T1	T2	T3	T4	T5
Language	+	+	+		+
Vocabulary		+	+	+	+
Imaginary World					+

Participants mainly emphasized the necessity of short, clear, and comprehendible sentences and listed features of an ideal story for hearing impaired individuals as "*simple and comprehendible*," "*suitable for daily life*," "*short sentences*" and "*short stories*." In this vein, T3 pointed out: "*It could be better to use short sentences and make the stories appropriate to real life.*" Related to this, T2 commented that "*Long stories could be difficult to be comprehended by hearing impaired individual.*" Opinions of all participant teachers on this issue are shown in Table 4.

Table 4
Features of an Ideal Story for Hearing Impaired Individuals

Theme	T1	T2	T3	T4	T5
Simple and Comprehendible		+		+	
Suitable for Daily Life	+		+	+	
Short Sentences			+	+	
Short Stories		+			

Participant T1 explained that story activities have a negative effect on hearing impaired individuals due to suffixes and emphasized the necessity to teach hearing impaired individuals to use suffixes first hand. In addition, the participant stated that "*Simple stories should be given gradually with the support of visual parts. Participants should be asked to answer questions regarding the story in writing, and narrate 'what they understood' in pictures.*"

In applying the story evaluation scale, participant teachers pointed out in part two that the sentences in the stories were too long, so they should be revised. The participants mostly preferred rewriting the stories without changing the plot. They simplified the sentences and chose expressing events in the past tense. They made suggestions for revising the plot for some of the stories. Suggestions of 2 participants were collected for each story. The teachers' assessments for the stories are given in Table 5.

Table 5
Assessment of the Stories

	Assessment 1	Assessment 2
	Rewriting	Rewriting
Story	Rewriting	Plot Change
	Rewriting	Sentence Simplification
	Rewriting	Suitable

Participant teachers preferred rewriting the story as they found it necessary to simplify most of the sentences in that story. Rewriting includes stages such as shortening the sentences and simplifying word suffixes. In cases where there are not many sentences or words to be simplified in a story, some of the sentences were revised and they were expressed as a simplification. The teachers thought the events taking place consecutively in some of the stories are too complicated for pupils so they suggested to revise them accordingly. Some participants preferred rewriting some of the stories whereas others found them suitable for the hearing impaired. Examples from participant teachers' assessing the stories are displayed in figures from 1 to 4.

Kazanım	Nesneleri uzunlukları yönünden karşılaştırarak ilişkilerini belirtir.
Beklenti	Farklı uzunluktaki kalemlerin, cetvellerin, ayakkabı bağlarının vb. nesnelerin uzunlukları karsılaştırılır ve sonuç ifade edilir. En çok üç nesne karşılaştırılır. Karşılaştırmada"daha uzun, daha kısa, en uzun, en kısa"gibi terimler kullanılır.
Hikaye	**Ağaçların Uzunlukları** Aliş ve kardeşi bahçede oturuyordu. Bahçede farklı ağaçlar vardı. Kiraz, ayva ve erik ağacı. Kardeşi bu ağaçların uzun olduklarını söyledi. Aliş bazı ağaçların kısa, bazılarının ise daha uzun olduğunu söyledi. Bahçedeki en uzun ağaç kiraz,en kısa ağaç ise ayva ağacıdır. Erik ağacı elma ağacından uzun, kavak ağacından kısadır dedi. Kardeşi Aliş'i dinliyordu. Sonra senin boyun benden uzun ama babamınkinden kısa dedi. Aliş başını sallayarak sen uzunlukları iyi öğrendin dedi.

Ağaçların Uzunluğu

Aliş kardeşiyle bahçedeydi. Bahçede ağaçlar vardı. Kiraz, ayva ,erik ağacı. Kardeşi ağaçlar uzun dedi. Aliş kısa ve uzun ağaçları gösterdi. Kiraz Uzun ağaçtır. Kısa ağaç ayvadır. Erik ağacı elma ağacından uzun. Kavak ağacından kısadır. Kardeşi Aliş'e. Boyun benden uzun. Babamınkinden kısa dedi. Aliş evet dedi. Sen uzunlukları öğrendin, dedi.

Figure 1. A Story Example Proposed for Rewriting

Kazanım: Görsellerden yararlanarak söz varlığını geliştirme

Beklenti: Uygun sekil veya nesneleri iki eş parçaya bölme ve yarımı belirtme, yarım ve bütün arasındaki ilişkiyi açıklama üzerinde durulur.

MEYVE TABAĞI

Aliş ile ağabeyi evde oyun oynuyordu. Babanesi " Size meyve getirmemi ister misiniz?" dedi. Onlar da evet cevabını verdi. Babane, mutfaktan kocaman bir tabak aldı; elma, armut ve portakalları güzelce yıkadı ve bu tabağa koydu. Çocukların oyun oynadığı odaya geldi. Elindeki bıçakla meyveleri güzelce soydu. Sonra Aliş ve ağabeyini karşısına alıp meyveleri ikiye böldü. Aliş dikkatle babanesini izliyordu. Babanesi de ona " Bak Aliş, bu bir elma. Bütün bir elma. Elmayı ortadan ikiye ayırdığımda onu iki eş parçaya bölmüş oluyorum. Yarısı senin yarısı da ağabeyin için." dedi.

Aliş bir bütünün yarısını öğrendi. Mutfaktan iki tabak getirdi. Babanesi, soyulmuş meyveleri bölüştürdü ve iki tabak hazırlamış oldular..

Babaanne önce meyveleri bölmüş. Sonra "Bak Alis bu, bütün bir elma" demiş:) Olay sıralamalarına dikkat edilmeli ve hikaye çok uzatılmamalı.

Figure 2. A Story Example Indicated for Plot Change

Kazanım   Tabloları okur.

Beklenti   Günlük/haftalık televizyon programları, okuldaki günlük beslenme tablosu, takvim, sınıftaki öğrenci gelişim tabloları, ders çizelgeleri, okul servislerinin hareket çizelgeleri vb. sıkça karşılaştıkları veya kullandıkları tablolar sunulur ve öğrencilerin okumaları beklenir.

Hikaye Aliş Hayvanları Sayıyor

Aliş dedesine yardım etmeyi çok seviyordu. Bugün de ona yardım edecekti. Dedesi Aliş'ten bahçedeki hayvanları ve sayılarını bir kağıda yazmasını istedi. ~~Hayvanların isimleri ve sayıları alt alta yazacaktı.~~ Aliş, önce bahçedeki hayvanların isimlerini kağıda yazdı. Horoz, tavuk, kaz ve ördek. Sonra horozları saydı ve kağıtta horoz yazısının altına yazdı. Tavuk, kaz ve ördekleri ayrı ayrı saydı ve kağıda yazdı. Dedesi sorduğunda hemen kağıttan bakıp hayvanların sayısını ~~söylüyordu.~~ söyledi. ~~Aliş için bu artık oyundu. Bahçeye çıktığında önce hayvanları sayıyor, eksik var mı diye kağıdına bakıyordu.~~ Aliş dedesine yardım ettiği için çok mutlu oldu.

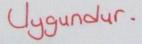*Figure 3.* A Story Example Indicated for Sentence Simplification

Figure 4. A Story Example Found Suitable

For each story, 2 different assessment comments were obtained from the participants. The ultimate result was found by examining the results of 2 researchers together. 39 stories were rearranged in reference to the teachers' suggestions. As a result, 8 stories were omitted from the study as they were found unsuitable by participants—usually, according to the teachers for "*complexity of the plot or fiction.*" As a result, the distribution of the 39 stories by curricula is provided in Table 6.
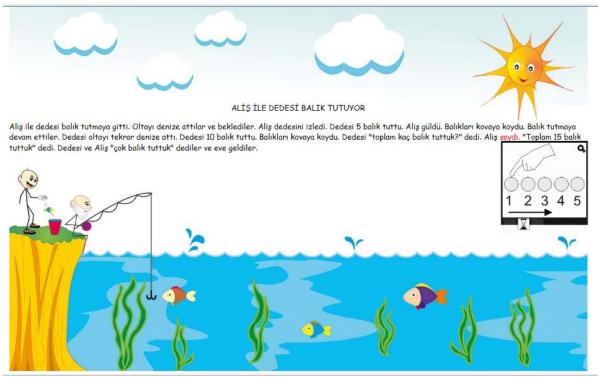
Table 6
Distribution of Stories according to Curricula

Turkish	15
Life Science	13
Mathematics	11

ALIS-T Stories

The stories generated were made readable by means of visual materials by taking into account the graphic symbols and suffixes made under the ALIS-T project. When the cursor is on a specific word in the web-based stories, a graphical representation of that word with suffix(es) can be seen, if any. The interface designed for the story '*Aliş and Grandfather are Fishing'* can be seen in Figure 5, which displays the learning outcome of "*Realizing such meanings of adding as aggregating, supplementing and increasing*" in mathematics curriculum under the ALIS-T project. The cursor is kept on the word "*counted.*" A graphical representation of that word is displayed on the figure with suffix structure.

Figure 5. Interface of the Story "Aliş and Grandfather Are Fishing" within the Scope of the ALIS-T Project

Discussion and Recommendations

In this study, story activities were developed as learning materials under the ALIS-T project and their usefulness was investigated. Literature reviews indicate story activities as learning materials with an effectiveness and widespread use in the area of special education. Similarly, present study findings supported by literature review demonstrated that the agglutinating structure of Turkish language impedes reading and writing skills of hearing impaired individuals. Relevant studies that attempt to solve such problems for the hearing impaired are scrutinized.

Çiftçi (2009) developed didactic software for improving deaf students' writing skills. The material, which is designed specifically to help those individuals make sentences and use the appropriate tenses in sentences, was beneficial as students learned to use the correct tenses. The material was tested by means of a case study conducted with 17 students in the 9th grade in the Deaf Girls' Vocational High School in Turkey and designed as an interface for making sentences and choosing the past, present continuous and future tense correctly for each sentence by means of a button. The participants first watched a cartoon movie and then were told to express the movie in writing. After examining the collected data, it showed that the participants had difficulties in making sentences, using the correct tenses in sentences, making up meaningful sentences, choosing the correct words, and with spelling. Then, some sample sentences were selected which could be used while narrating the cartoon. Subject, object, and verb groups were also formed to provide selected sentences for them. Subjects and objects were comprised of pictures and verbs of animated images, which were then placed on the material interface as buttons. The students were allowed to form meaningful sentences related with the cartoon movie they had seen by pressing the buttons as appropriate. On the level of subject, object, and verb combination, it is possible to check whether a meaningful sentence was made of selected parts for the story by clicking the control button. It was done to prevent participants from making up meaningless and ungrammatical sentences. After students had studied the software

independently in a computer skills courses for 6 weeks, they were tested in terms of their ability to make sentences and use tenses in sentences correctly. As a result, this study illustrated that the material which takes images and animations as a starting point can contribute to writing skills like making sentences and using correct tenses.

Karal, Şılbır, and Küçüksüleyman (2009) developed computer aided material for developing hearing impaired people's skills in reading and writing as well as using prepositions and tense suffixes in the Turkish language. The material is based on graphical symbols, is called GÖRYAP, and is comprised of graphical symbols and sentences corresponding to certain words and suffixes. In this scope, the sentences provided by GÖRYAP are converted into sound data by a didactic interface agent and supported with a lip reading technique. 6 hearing impaired students in total including 4 hearing impaired, 1 autistic and 1 deaf students participated in the study. It was found out that the material improved users' skills of expressing in writing a sentence provided for them in visual terms (Şılbır, 2011).

The abovementioned studies were elaborated in the ALIS-T project. ALIS-T is a standard graphical representation system project for the Turkish language and standard graphic symbols were designed for approximately 750 words. In addition to prepositions and tense suffixes, graphics were also included for plural, possessive, negative, personal, relative, *which/that* and *to be* forms are added to the system. The design was further developed with story activities, which are indicated as beneficial for hearing impaired individuals. It is expected that the stories generated will contribute to hearing impaired students' skills such as articulating and understanding words and suffixes accurately, narrating a reading passage, answering comprehension questions, expressing the subject of the reading passage, and writing. To this end, we suggest that carrying out further studies with hearing impaired students from various grades in order to investigate the effectiveness of these studies.

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GENİŞLETİLMİŞ ÖZ

Problem Durumu: Özel eğitime ihtiyaç duyan bireylerin dil becerilerini geliştirmeye yönelik etkinliklerde hikâyeler önemli bir yer tutmaktadır. Dinleme, anlama, konuşma becerilerinin gelişimi için sınıfa hikâye okuma, sınıfa hikâye anlatma gibi çeşitli bireysel ve grup içi etkinlikler önerilmektedir. İlköğretim birinci kademe Türkçe dersi kapsamında okuma yazma becerilerinin gelişimini sağlamak amacıyla sınıfa hikâye okuma, sınıfa hikâye anlatma, öğrencilerin okudukları hikâyeleri dinleme, öykü ve bilgi verici metinler inceleme, kitap oluşturma, sıralı resimlere bakma, hikâye oluşturma, harf-ses çalışması ve dil bilgisi etkinliklerinin düzenli olarak uygulanması gerektiği ifade edilmektedir. Bununla birlikte özel eğitime ihtiyaç duyan bireylerin anlamakta güçlük çektikleri durumlarda kullanılacak en elverişli materyallerin görsel malzemeler olduğu ve bu doğrultuda resim veya çizimlerden sıklıkla faydalanıldığı alanyazında vurgulanmaktadır. Uluslararası alanyazın incelendiğinde, resim veya çizimleri temel alan Blissymbols, Makaton, Picture Communication Symbols (PCS) and Widgit Literacy Symbols (WLS) gibi birçok grafik sembol set/sistemine rastlanmıştır. İngiltere ve Amerika Birleşik Devletleri başta olmak üzere dünyanın pek çok ülkesinde kullanılan bu sembol set/sistemlerinin kullanıcılar ve iletişim partnerleri açısından anlaşılabilir/öğrenilebilir olması önemlidir ve bu sembollerin anlaşılabilirliği/öğrenilebilirliği dil, kültür, zaman, deneyim, yetenek, sembol özellikleri gibi birçok faktörden etkilenmektedir.

Bu gerekçeye dayanarak ortaya çıkarılan ALİS_T (Alternatif İletişim Sistemi-Tasarımı) Türkçe için alternatif iletişim sistemi olarak bir grafik sembol sisteminin tasarım projesidir. Türkçenin sondan eklemeli dil yapısına ve Türk sosyal, kültürel ve anlayış sistemine uygun bir grafik sembol sistemi geliştirmek amacıyla yürütülen proje kapsamında; eylemler, kişiler, sıfatlar, sosyal etkileşim, zaman/durum, zamirler, ekler, okul, ev/eşyalar, meyve/sebzeler, yiyecek /içecekler, matematik, meslekler, doğa, giysiler, hayvanlar, sağlık, teknoloji, trafik/araçlar, vücut, renkler ve diğer başlıkları altında yaklaşık 750 sözcük için standart grafik semboller tasarlanmıştır. Farklı yaş, eğitim ve kültür seviyelerinden bireylerin görüşleri paralelinde tasarlanan grafik semboller alternatif iletişim sisteminin dilini oluşturmaktadır. ALİS-T projesi kapsamında geliştirilen bu grafik sembollerin öğrenme ortamlarına nasıl dahil edilebileceği araştırılmış ve alanyazın araştırmaları hikaye etkinliklerinin özel eğitim alanında etkin ve yaygın kullanılan öğrenme mateyalleri olduğunu göstermiştir. Bu doğrultuda senaryo oluşturma yoluna gidilmiştir.

Araştırmanın Amacı: Sunulan çalışma, ALİS-T projesi kapsamında öğrenme materyalleri olarak geliştirilen 47 hikâyenin kullanılabilirliğini irdelemek amacıyla yürütülmüştür.

Araştırmanın Yöntemi :1 Türk Dili ve Edebiyatı öğretim üyesi tarafından İlköğretim 1.sınıf Hayat Bilgisi, Türkçe ve Matematik öğretim programlarından seçilen kazanımlar referans alınarak geliştirilen hikâyeler, yer, zaman, karakterler, olay, plan, girişim, girişimin sonucu ve sonuç bölümlerini içerecek şekilde tasarlanmıştır. Hikâyeler, işitme engelli öğrenciler için uygunluğunun irdelenmesi amacıyla 5 İşitme Engelliler Öğretmeninin görüşüne sunulmuştur. Öğretmenlerin hikâyelerin öğrenme öğretme etkinliklerinde kullanılmasının olumlu/olumsuz etkileri üzerine görüşleri alınmıştır. Diğer taraftan tüm hikâyeler kazanımları ile birlikte öğretmenlere sunulmuş, hikâyelerin kazanımları karşılayacak düzeyde olup olmadıkları, işitme engelli bireylerin okuma yazma becerilerini geliştirmeye yönelik kullanılabilirlikleri hakkındaki görüşleri sorulmuş ve hikayelerin işitme engelli bireyler için uygun hâle getirilmesine yönelik önerilerini düzeltme yaparak ifade etmeleri beklenmiştir. Elde edilen veriler, nitel yaklaşım çerçevesinde, betimsel olarak analiz edilmiştir.

Araştırmanın Bulguları: Deneyimleri 8 ay ile 7 yıl arasında değişen Özel Eğitim Bölümü, İşitme Engelliler Öğretmenliği mezunu katılımcıların tümü hikâyeleri öğrenme öğretme sürecinde kullanılabilecek faydalı materyaller olarak nitelendirmişlerdir. Cümlelerin kısa, açık ve anlaşılır olması

gerektiğine vurgu yapan öğretmenler, kendilerine sunulan hikâyelerin cümlelerinin uzun olduğunu ve bu yönde düzeltme yapılması yoluna gittiklerini ifade etmişlerdir. Öğretmenler genel olarak olay örgüsünü değiştirmeden hikâyeleri yeniden yazma yoluna gitmişlerdir. Cümleleri sadeleştirmişler ve olayları geçmiş zaman ile ifade etmenin daha uygun olduğunu düşünmüşlerdir. Bazı hikâyelerin kurgusu üzerinde düzeltme yapılması gerektiğine yönelik öneriler vermişlerdir. Her bir hikâye için 2 farklı katılımcı öğretmenin değerlendirme sonuçları elde edilmiştir. Katılımcı öğretmenler, bir hikâyedeki cümlelerin büyük bir çoğunluğunu sadeleştirmek gerektiğini düşündüklerinde hikâyeyi yeniden yazma yoluna gitmişlerdir. Yeniden yazma, cümlelerin kısaltılması ve kelimelerdeki ek yapılarının sadeleştirilmesi aşamalarını içermektedir. Eğer, bir hikâyede çok fazla sadeleştirilmesi gereken cümle veya kelime yoksa bazı cümlelerde düzeltme yapıldığı belirlenmiştir. Öğretmenler, bazı hikâyelerde ardışık olarak gerçekleşen olayların karmaşıklık içerdiğini düşünmüşler ve bu doğrultuda öneride bulunmuşlardır. Bazı öğretmenler bazı hikâyeleri yeniden yazma yoluna giderken bazıları da aynı hikâyeyi işitme engelli bireyler için uygun bulmuştur. Öğretmenlerin hikâyeler üzerindeki düzeltmeleri referans alınarak 39 hikâye düzenlenmiştir. 8 Hikâye öğretmenler tarafından uygun bulunmamış ve çalışmanın dışında bırakılmıştır. Öğretmenler bunun nedenini 'olay örgüsü veya kurguda karmaşıklık' şeklinde açıklamıştır. Bununla birlikte 1 katılımcı cümlelerdeki ek yapılarının hikâye etkinliklerini olumsuz etkilediğini ve işitme engelli öğrencilere öncelikle ek kullanmayı öğretmenin gerekli olduğunu ifade etmiştir.

Araştırmanın Sonuçları ve Önerileri: Geliştirilen hikâyeler, ALİS-T projesi kapsamında, grafik semboller ve ek yapıları göz önünde bulundurulacak şekilde görsellerle okunur hale getirilmiştir. Web ortamında hazırlanan hikâyelerdeki sözcüklerin üzerine imleç getirildiğinde, ilgili sözcüğü karşılayan grafik sembol varsa ek/ekleriyle birlikte görülebilmektedir. Zaman ve hal eklerinin yanı sıra çoğul, iyelik, olumsuzluk, şahıs, ilgi, -ki ve –dır eklerini karşılayacak grafikler sistem kapsamına dahildir. ALİS-T kapsamında geliştirilen hikâyelerin işitme engelli bireylerin sözcük ve eklerin doğru okunması ve anlaşılması, okuduğunu anlatma, metine ilişkin sorulara yanıt verme, metnin konusunu özetleme ve yazma becerileri üzerinde olumlu sonuçlar getireceği öngörülmektedir. Bu doğrultuda çeşitli eğitim seviyesinden işitme engelli bireylerle yürütülen çalışmalarla geliştirilen hikâyelerin etkililiğinin irdelenmesi önerilmektedir. ALİS-T projesi kapsamında söz konusu çalışmalar sürdürülmektedir.