Use of Technology as a Solution to the Problems Faced in Literacy Education by the Teachers of the Hearing Impaired: ISITEK Project

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Abstract: - Special education aims to view the society as a whole, and offer the individuals the opportunity to live on an equal basis in the society by correcting the deficiencies. The sound need of hearing impaired individuals can be met with different elements by using technology in the education of the hearing impaired, which is a kind of special education. In this study, a project proposal (ISITEK) which helps the teachers of the hearing impaired to solve the problems they face in teaching literacy with computer and internet technologies, and involves the participation of experts from different disciplines is described.

Key-Words: - Hearing impaired individuals, Literacy education, Special education, Use of technology in Special Education

1 Introduction

When people in the society are asked “What makes a teacher competent?” various answers can be heard because of their past experiences or roles such as parenting. The answer to the question with regard to the competences of a good teacher is expressed according to these competencies actually. The answer of this question was also explored with scientific researches. It is notable that teacher competence is divided into two categories: personal teacher competence and general teacher competence [1, 2]. However, Turkish National Ministry of Education has categorized teacher competence into three such as general knowledge (personal), education (general teacher), and field knowledge (major) [3]. The competences determined by ministry of education are presented in Table 1 below.
is realized. According to the result of a hearing institutions educating teachers for the hearing impaired impaired individuals in Turkey, the importance of all the Taking into consideration the number of the hearing education. Although the number of these schools is limited, there are at least 4 hearing impairment schools in each of the seven geographic regions. Unfortunately, 33.01% of the hearing impaired individuals in Turkey do not benefit from the education facilities. Only 35% of the teachers working at hearing impairment primary schools have been educated in the field of education for hearing impairment [9]. According to the data of 2007-2008, a total number of 6,268 students have education in these schools. 4,967 of these students have education in 48 hearing impairment primary schools in different cities of Turkey while 1,3001 of them are educated in 15 hearing impairment vocational schools [10]. Besides, some of the hearing impaired individuals continue their education with the individuals in the normal education process which is called integrated education. Considering the number of the hearing impaired individuals and the number of the hearing impaired individuals in the education process, the importance of special education, and the importance of supporting the individuals, their families and the teachers for the hearing impaired are recognized.

### 1.1 The Hearing Impaired in Turkey and the General Situation in the Education of These Individuals

Taking into consideration the number of the hearing impaired individuals in Turkey, the importance of all the institutions educating teachers for the hearing impaired is realized. According to the result of a hearing impairment survey conducted in 2002, there are 63,173 hearing impaired people in Turkey [8]. The education of hearing impaired students takes place in kindergartens, primary and secondary schools of the National Ministry of Education. Although the number of these schools is limited, there are at least 4 hearing impairment schools in each of the seven geographic regions. Unfortunately, 33.01% of the hearing impaired individuals in Turkey do not benefit from the education facilities. Only 35% of the teachers working at hearing impairment primary schools have been educated in the field of education for hearing impairment [9]. According to the data of 2007-2008, a total number of 6,268 students have education in these schools. 4,967 of these students have education in 48 hearing impairment primary schools in different cities of Turkey while 1,3001 of them are educated in 15 hearing impairment vocational schools [10]. Besides, some of the hearing impaired individuals continue their education with the individuals in the normal education process which is called integrated education. Considering the number of the hearing impaired individuals and the number of the hearing impaired individuals in the education process, the importance of special education, and the importance of supporting the individuals, their families and the teachers for the hearing impaired are recognized.

### 1.2 The Importance of Literacy in the Education of the Hearing Impaired

Literacy has an important place in the education of the hearing impaired individuals since it is a significant constituent and a curtail step. Reading is the process of combining the knowledge of syntax, semantics, pragmatics, and graphophonics with the previous experiences and knowledge. It is strongly emphasized that reading is an active process between the reader and the text to get a meaning, and the reader attributes a meaning to the text with his existing knowledge [11, 12]. Continuous evaluation of each and every student in order to support students more effectively while structuring the meaning of the reading in the teaching and development of reading is far more important for the teachers who work with the hearing impaired kids because the hearing impaired kids differ in terms of language development, they have hearing loss, and lower academic skills [13]. The researches show that the language knowledge of the hearing impaired children is not the same with that of their hearing peers. Therefore, the children with high level of hearing loss face difficulties before language acquisition and during learning how to read [13, 14]. The researchers discuss the importance of gaining the analysis skills earlier, and emphasize that children who gain the analysis skills slowly and have difficulty in learning are not good readers [15, 16].

The competences within the field of instructional competence show the basic qualifications that a teacher should have. However, teachers for the hearing impaired individuals should hold several specific competences due to the needs of the students. Therefore, the education of teachers who will teach the hearing impaired individuals should differ from that of other teachers. These teachers experience more different difficulties than other teachers due to reasons such as the differences in teaching method and strategies, and communication methods [4, 5]. Especially due to limited or lack of sense of hearing, developing oral communication skills is an important issue in the education of the hearing impaired, so activities for these are of great importance [6]. In Turkey, teachers for the hearing impairment are educated in the degree programs of Education Faculties. Besides these faculties, there are various centers and schools which offer education for the hearing impaired individuals aiming to remove their problems.

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<th>Table 1. Competences of a teacher [3].</th>
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<td>1. General knowledge (personal)</td>
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<td>2. Field knowledge (major)</td>
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analysis skills at an earlier phase encourages children to read more inside and outside the school. It is already known that reading more during and outside the school hours provides opportunities for the development of vocabulary, concepts, understanding, and general information. These results obtained from the researches conducted emphasize that if the plans for analysis skills are accomplished well, the lessons will transform from mechanical lessons into the lessons which will focus on cause and effect relation.

The hearing impaired individuals achieve the meaning imposition and analysis skills during literacy education. Therefore, the knowledge level with regard to literacy, the importance attached to teaching, opinions about the program and materials, the knowledge on how to teach, and feedbacks of teachers about the application are of great importance. In this respect, using technologies will make a big contribution for providing literacy skills.

1.3 The Use of Technology in the Education of the Hearing Impaired and its Importance

There have been many studies with regard to the use of computer technologies in the education of the hearing impaired. A great majority of these studies focus on helping the hearing impaired individuals gain speaking ability and develop their communication [17]. In order for the communication process, which is defined as the process of sharing feelings, opinions and skills, to take place smoothly, it is necessary that the message is transferred appropriately between the source and receiver. One of the most effective ways to facilitate a smooth communication between the source and receiver is conveying the message orally. When there is lack of hearing, problems concerning the communication occur. As a result of this, obstacles arise in gaining the speaking ability. In such a case, various alternatives such as using visuals like picture and films which will facilitate acquisition of this function come into use. However, using traditional technologies offer limited solutions for the communication of the hearing impaired individuals. Instead of this, computer and internet technologies which make the effective use of multimedia properties such as sound, picture and video can provide more solutions [18]. It has been indicated that the worldwide studies have yielded positive outcomes. The projects carried out for these studies can be given under two headings: projects on converting writing into sign language automatically and projects on developing multimedia tools for hearing impaired students [9].

When the computer assisted researches with regard to the hearing impaired are investigated, it can be claimed that the studies emphasizing the phonological properties are inadequate, and interactional model studies which support the development of language through visual-audio methods have not been addressed yet [9]. Therefore, it can be suggested that computer and internet technologies are not sufficiently used in the education of the hearing impaired. Computer and internet technologies become especially prominent in solving the problems faced and giving the read and write skills which should be acquired at an early age by hearing impaired individuals.

2 ISITEK Project

ISITEK project is a social awareness project which aims at better educating the individuals who need special education bearing in mind that these individuals are also a part of the society.

2.1 The Purpose of the Project

ISITEK project aims at providing materials for the teachers of the hearing impaired via using computer and internet technologies as a solution to the problems experienced in helping hearing impaired individuals gain efficacy of literacy skill.

2.2 The Steps of the Project

The project whose starting point is asking the branch teachers their opinions about the problems faced by the teachers of the hearing impaired is composed of five basic steps (Figure 1).
ISITEK project offers solution to the problems experienced in the literacy education of the hearing impaired individuals. Therefore, the research team will ask the teachers of the hearing impaired the problems they experience through devices such as e-mail, mail, and telephone. This step is important since it forms the basis of the study.

As for the second step, how to solve these problems will be planned in parallel with the views of filed experts, and the appropriate materials will be designed. The design of the website will also take place at this step in parallel with the views of other field experts. Since the design of website will directly affect the process of materials development (color, resolution, etc.) they will go hand in hand. The prepared materials will be evaluated by a certain number of teachers for the hearing impaired from different parts of Turkey invited to Eskisehir with the pilot application which is another step of the study. Then, the materials will be re-arranged according to the opinions of the teachers.

The next step is transferring the materials on the internet environment. The internet environment will be designed interactively. A form application is intended for this aim. Thanks to this form, discussions which will create synergy among teachers and exchange of opinions will take place. Besides, the teachers will be able to make suggestions to the project team. As this is a social awareness service, the website is planned to be free, but it will require a subscription. Furthermore, there will be some rules with regard to not sharing personal and special information in the form subscription part.

At the last step, the teachers for the hearing impaired who have used this website for a certain period will be asked their feedback and suggestions for the application. This is regarded as an important step for the sustainability and curableness of the project.

2.3 Project Team
It is inevitable to form a team work to conduct such an extensive project. Therefore, Instructional Designers, Materials Development Experts, Graphic Designers, Programmers, and System Analysis Experts from Department of Computer Education and Instructional Technology of different universities will contribute to the project besides special education experts.

3 Conclusion
It is easy for teachers of the hearing impaired to facilitate education with different designs that will make up for hearing sense. Computer technologies can be used to compensate for the lack of hearing sense especially in teaching literacy which is regarded as one of the first and important steps of education. Therefore, ISITEK project which covers both the problems faced by teachers of the hearing impaired during practice and the solution designs by the field experts has been proposed. ISITEK is an important project which will have an important role in the social awareness, and social involvement of the hearing impaired individuals.

References:


