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PHONOLOGICAL DEFICITS IN TURKISH DYSLEXIC STUDENTS

Фонологічний дефіцит у турецьких студентів із дислексією

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Abstract

Dyslexia is a specific learning disability that is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. Due to these difficulties, phonological component of language is also affected. Via an articulation test, it was revealed that dyslexic students made errors in some consonants both at the beginning and at the end of the words. There was a relation between the age and dyslexia on the performance of phonological tasks whereas this relation could not be found between gender and dyslexia. As proposed before, the students without dyslexia made less errors compared to the dyslexic students.

Key words: *Dyslexic students, phonological deficits.*

Introduction

Dyslexia can be defined as a problem with learning which primarily affects the development of reading accuracy and fluency and spelling skills. Dyslexia frequently occurs

together with other difficulties some of which are problems in attention, organization, and motor skills (Snowling, 2019).

According to some experts, dyslexia depends on not only upon the cognitive profile of the individual, but also on the language they use. Due to this, it must be evaluated with respect to an individual's own linguistic, cultural and legislative context. It should not only be seen as the single word decoding problem, but also problems related to study skills, writing at length, organization skills and memory strategies (Smythe, 2005).

The early identification of dyslexia is crucial for the other developmental skills. Failure to identify and address dyslexia early has an increasing effect. Without adequate reading skills, students are restricted in both academic and employment prospects. Via early identification, dyslexic students will not face greater difficulties in many aspects of adult life such as relationships and health (Christo, 2009).

Difficulties in phonological processing have been identified by numerous researchers as a central feature of reading disabilities and problems with reading development (Tijms, 2004; Christo, 2009; Vidyasagar, 2010; Rasamimanana, 2020). Reading, short-term/working memory, meta-phonology, naming, speech perception, and phonological learning can be some phonological deficits that can be observed in phonological processing (Ramus, 2001). Phonological awareness might be at least partially dependent upon a normal input from the visual system into brain regions subserving grapheme-phoneme correspondence. There is also substantial evidence indicating that orthographic training seems to influence and/or enhance phonological awareness. The poor phonological awareness that is seen in most dyslexics might not be the cause of the reading difficulty, but could be the result of the poor orthographic inputs feeding into the regions mediating grapheme-phoneme correspondence and due to a general temporal processing deficit affecting all modalities (Vidyasagar, 2010).

Dyslexic children have difficulty in consciously detecting, segmenting and manipulating individual speech-sounds in words (Beitchman and Young, 1997). In this respect, it can be said that dyslexic children have phonological processing difficulties related to several different factors (Snowling, 1995). In terms of this, the main aim of this study was to find out the phonological deficits of Turkish dyslexic students by using an articulation test.

Methods and Techniques of the Research

In order to reveal the phonological features of Turkish dyslexic students, *Hacettepe Articulation Test* was used to 50 students (mean age: 8.9) from the Academy Dyslexia Special Education Institution and a control group (CG) from Dokuz Eylül University 75th

Year Primary Educational Institution. CG consists of age, sex and education matched students (mean age: 9,2).

«*Hacettepe Articulation Test*» is used to evaluate the ability of acquiring and producing speech sounds of students. It includes a series of words which helps us to check whether the students pronounce the consonant sounds at the beginning and at the end of the word correctly. The words were pronounced first by the examiner and the students were asked to repeat the words. After the end of the test all obtained results were calculated and an evaluation was made as mild, moderate, severe and very severe impairment in terms of phonological awareness. All data was analysed via «*Statistical Package for the Social Sciences*» and Mann-Whitney U test was used in order to reveal if there is a statistical difference between dyslexia and the ages and gender of the students with and without dyslexia.

Results

The data obtained were evaluated by taking into account the age and gender variables and significant differences were obtained according to both age and gender. The statistical analysis started with the relation between age and dyslexia. According to the results, there was a statistically significant difference between age and dyslexia. The students at the age of 7-10 made more phonological errors compared to the students at the age of 11-13 ($p=0,032$). The errors in the articulation test were detected at the beginning of the words and at the end of the words. The main errors were made in /p/, /m/, /t/, /n/, /d/, /z/, /c/, /k/ consonants which were at the end of the words and /v/, /l/, /r/, /ʃ/, /j/, /g/, /h/ consonants which were at the beginning of the words.

The other analysis was about the relation between gender and dyslexia. It was found out that there was no statistical difference between gender and dyslexia in terms of phonological errors ($p=0,869$). When the results of CG was considered, it was seen that the performance of the students without dyslexia was better than the ones with dyslexia.

Conclusion

In this study, the phonological deficits of the students with and without dyslexia were investigated and the analysis showed that in articulation test their performance was varied in terms of age but not in terms of gender. As provided before, the students without dyslexia performed better compared to the experimental group.

In our study, mild and moderate impairment was found in the articulation of words. This result proves that the students with dyslexia have phonological deficits and it is mainly parallel with previous studies. In some of these studies, individuals with dyslexia showed

some persistent phonological deficits. They had higher error rates than the individuals without dyslexia (Elbro et al., 1994; Ramus et al., 2003; Martin et al., 2010; Cavalli et al., 2018; Ijalba, Bustos & Romero, 2020).

Most of the studies emphasize that children with dyslexia have difficulties in their phonological processes. However, at the level of phonological awareness, the child should be able to distinguish the sounds in speech and match these sounds with letters (Turan & Yükselen, 2004). In reading difficulties, not only phonological awareness but also phonological production is difficult. In the study conducted by Gibbs and Cooper (1989), it was observed that 23% of children with dyslexia had articulation problems.

However, in literature there are also several studies argue that boys have a higher incidence of dyslexia than girls (Finicci & Childs, 1981; Christo, 2009) which could not be proved in our study.

Consequently, although there was a relation between age and dyslexia, the similar relation could not be revealed between gender and dyslexia. The performance of the students without dyslexia was better than the ones with dyslexia in phonological tasks.

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