

Dyslexia and Technological Support for Learners with Dyslexia

¹PhD Candidate, Sinem Emine Mete *, Bahcesehir University

²PhD Candidate, Hilal Zeynep Altınışik, Bahcesehir University

Özet: Kapsayıcı eğitim; iyi bir müfredat anlayışını, okul organizasyonunu, öğretmenlerin ve öğrencilerin yeteneklerini ve öğrenme güçlüğü olan bireylerin motivasyonlarını göz önünde bulundurmaya gerektirir. Kapsayıcı eğitimin başka bir tanımı da 'herkes için eğitim' dir; yani, farklı öğrenme ihtiyaçlarına sahip olan bütün öğrenciler eğitim sisteminde yer alma hakkına sahiptir. Disleksi, zeka ve dil yeteneği arasındaki uyumsuzluğa odaklanan bir özel öğrenme güçlüğüdür. Disleksili bireylerin; okuma, yazma, imla kuralları, konuşma, ve zayıf kısa süreli bellek gibi yaşadıkları bazı özel zorluklar vardır. Disleksili öğrencilerin öğrenme sürecini iyileştirmek için çeşitli teknolojik çözümler bulunmaktadır. Bunlardan bazıları; çokluortam uygulamaları, interaktif sesli oyunlar, kelime işlemci programları, ses/konuşma tanıma programları, kelime bankası programları, zihin haritalama araçları ve mobil karikatür uygulamalarıdır. Bu bildirinin amacı; (1) kapsayıcı eğitimin önemini ve teknoloji yardımıyla kapsayıcı eğitimin nasıl işe koşulacağını belirtmek ve (2) disleksili öğrencilerin karşılaştıkları öğrenme güçlüklerini ve teknolojinin bu öğrencilerin öğrenme deneyimlerini iyileştirmeye yönelik ortaya koyduğu önerileri ifade etmektir.

Anahtar Kelimeler: Kapsayıcı eğitim, disleksi, öğrenme güçlüğü, teknolojik destek

Abstract: Inclusive education involves good understanding of curriculum, school organization, abilities of teachers and students, and motivation of people with disability. Another definition of inclusion is 'education for all' so they mean; all students have the right to take place in education system with different educational needs. Dyslexia is a specific learning disability focusing on a discrepancy between intelligence and language ability. There are some specific difficulties of people with dyslexia such as reading, spelling, writing, speaking, and poor short-term memory. Several technological suggestions for students experiencing with dyslexia can be described as multimedia applications, interactive phonic games, talking word processors, speech recognition programs, on-screen word banks, mind mapping tools, and mobile comic applications. The aim of this paper is to outline (1) the significance of inclusive education and enabling inclusion of all through technology, and (2) difficulties of learners experiencing with dyslexia and a number of technological suggestions for making their learning experiences better.

Keywords: Inclusive education, dyslexia, learning disability, technological support

Introduction

In this paper, the importance of inclusive education and enabling inclusion of all through technology will be overviewed and technological support for enabling a more effective access will be discussed such as curriculum with assistance of technology, designing the lesson with multimedia environments, integrating technology through lessons. In addition to that, difficulties of learners experiencing with dyslexia and some technological suggestions for them are going to be mentioned. Furthermore, research studies carried out in Turkey related to students with dyslexia will be reviewed.

*Sinem Emine Mete: e.sinemmete@gmail.com, İstanbul, Turkey

Inclusive Education & Enabling Inclusion of All Through Technology

Inclusive education involves a good understanding of curriculum, school organization, teacher's ability and motivation of person with disability (Michailakis & Reich, 2009). Also, Kovacevic' and Petrovic', (2012) declare definition of inclusion as 'education for all' so they mean; all students have the right to take place in education system with different educational needs. Learners with disabilities are neglected in schools and it is necessary to know the problems that they encounter with. Inclusive education has a positive effect on the social functioning of students with learning disabilities and hence they are accepted as their peers without disabilities (Pavri & Luftig, 2001).

Most of the people with disabilities live in developing countries of Africa, Asia, Latin America, Caribbean and Middle East (Eleweke & Rodda, 2002). Some countries may not have enough conditions to provide wealth to all fellow citizens but they have the chance to sequence their education system to pattern on them. Governments should focus on peoples' lives to make them feel more fortunate. In some countries inclusive education is thought to only teach learners with disabilities but it should cover all learners and consider diversity.

Providing a usable educational system comes up with integration of technology to lessons. ICT assisted learning is now very crucial in general life and in education system because students with disabilities have the chance to access their needs easily and they also have equally engagement with support of technology (Staric & Bagon, 2014). Technology helps to access information sources, inducement to learning and the use of it in relation to inclusion causes convenience in lives (Florian & Hegarty, 2005). As Staric and Bagon, (2014) declare that; ICT provides people to connect social environments and involve in to society more than ever.

It is not right to associate technology only with education. Everyone have the right to live comfortably and develop their individual strengths and gifts. An applicable system may be created to help people in many ways with the support of technology. For instance, in public transportations people who use wheelchairs may see which bus is affordability for them in bus stops. Not only in specific bus stops, but also in streets, a computerized system may take place to assist people. Also, visually impaired fellow citizens may benefit from computerized voice and world will be a better place to live for them. In some streets, traffic lights have computerized voice and we are all aware that they really are assistance to visually impaired people. Those kinds of useful items in life should be improved.

Dyslexia

Hammond and Hercules (2003) define that dyslexia is a specific learning disability focusing on a discrepancy between intelligence and language ability. There are some specific difficulties of people with dyslexia such as reading, spelling, writing, speaking, numeracy and poor short-term memory (Hammond & Hercules, 2003). National Center for Learning Disabilities Editorial Team (2010) indicate that people with dyslexia have some problems about: (1) recognizing letters, matching letters to sounds and blending sounds into speech, (2) pronouncing words, (3) learning and correctly using new vocabulary words, (4) learning the alphabet, numbers, and days of the week or similar common word sequences, and (5) rhyming etc.

Some technological strategies for supporting learners with dyslexia

Rahman, Mokhtar, Alias & Saleh (2012) suggest that instructional designers should develop textual-based multimedia instructional materials by supplementing with their graphical and auditory versions for learners with dyslexia because of the significance of multi-sensory learning environment for them. Designing learning materials in this way helps learners with dyslexia to decrease their difficulties about recognizing or confusing between letters or familiar words and mispronunciations of new spoken words.

Speech support should also be provided for literacy activities of learners with dyslexia. These supported technological tools may be talking books, spelling and phonic games and activities, talking word processors and on-screen word banks. All speech support technological tools help their poor memory skills with the help of using textual information and their auditory versions together and support their independent learning (Batorowicz, Missiuna, & Pollock, 2012). Reading storybooks aloud to these students is very significant to develop their literacy skills and these books can be adapted and designed for individuals and group of students (Underwood, G., & Underwood, J. D., 1997). Williams & Rask (2003) state that auditory encouraging recommendations in interactive phonic games increase self-confidence and motivation of learners with dyslexia toward lessons. Learners can see and hear words in the phonic games and they have a chance to practice their spellings and pronunciations in many times so instructional designers can design their specific lesson subjects by creating interactive games including related words to that specific topic.

According to MacArthur (1998), while learners with dyslexia are writing about something on computer environment, they can hear the auditory version of their writings simultaneously with the help of talking word processor programs. This is so beneficial for these people that they can correct their mistakes easily by themselves.

Many word processor tools can support people with dyslexia for keeping diaries to help planning, personal organization and aid memory. These people can also carry portable technological tools with them such as tablets, smart phones and laptops with additional speech support, word predictive options. (Georgiev, Georgieva, & Smrikarov, 2004).

Batorowicz, Missiuna, and Pollock (2012) state that typed text support is essential for learners having difficulties in handwriting or letter formation particularly for long writing assignments. There are many free online writing tools in some websites such as cast.org. Batorowicz, Missiuna, and Pollock (2012) mention that spell checkers are also useful for writing difficulties of these people. Spell checker programs detect possible misspellings or grammatical mistakes in writings, compare words in texts with database of accurate spellings and grammar rules and provide options to make corrections about spelling or grammar. There are some free web-based spellcheckers to improve spellchecking options. To illustrate, if you have a spellchecking program without speech feature, you can easily update your program to the talking spellchecking version by using these free web-based applications. Computer generated essays supported with speech provide learners with dyslexia for multi-sensory learning environment to help revision of their tasks. Text to speech programs such as Claread and Texthelp are especially beneficial while the text being spoken is highlighted at the same time. (Batorowicz, Missiuna, & Pollock, 2012).

Batorowicz, Missiuna, and Pollock (2012) also state speech recognition program is very useful tool for learners with dyslexia because the program can record spoken words by learners and provide written version of those words for them. Therefore, they can get rid of to deal with their poor hand writing skills such as spelling and pronunciations of related words. Moreover, according to Draffan, Evans, and Blenkhorn (2007), on-screen word banks or predictive tools with speech support such as word completion, word prediction and abbreviation expansion (if people write one or two letters; it automatically writes the whole sentences or words) are very essential and useful for their writing skills. People with dyslexia may benefit from these kinds of tools for their writing assignments to complete their assignments faster and focus on the content instead of typing or spelling skills.

Draffan, Evans, and Blenkhorn (2007) state that using mind mapping and planning tools such as Inspiration and Mind Manager support people with dyslexia to design and organize their ideas by using powerful visuals like symbols, graphics and images. These kinds of tools can reduce time and effort while designing and organizing their ideas and can also be applied for taking notes, revision and the planning of writing assignments.

Saleh and Alias (2012) state that mobile comic applications can motivate and attract the attention of learners with dyslexia toward lessons with the help of its powerful attractive images. They can organize the information in their minds and remember the information that is taught by teacher easily. Building relationship between lives of learners with dyslexia and images and story that are going to be used in comics is a best teaching strategy for them to form understanding on content and personalize it (Saleh & Alias, 2012).

Research Studies Conducted in Turkey about Turkish Learners with Dyslexia

Raman, (2005) asserts that there is not clear evidence about dyslexia in Turkey and he thinks that Turkish people does not have reading or writing problems intensely, so he searched the phonological impairment and orthographic transparency influence reading disorders in a native Turkish speaker. Also, another survey is carried out within students in Istanbul faculty of medicine about potential of individuals with dyslexia in communication design education. (Corlu, Ozcan & Korkmazlar, 2007), adduces that learners with dyslexia counter have difficulties in their education life profoundly and the reasons of this brain-based problem has not been discovered yet.

According to our personal experience, it seems that they have many difficulties in their life; they cannot express themselves in classes and in social life. Also, learners with dyslexia are marginalized by their peers and in Turkey, studies are not sufficient to cope with those problems. Parents are not knowledgeable about learning difficulties of their children and they force them to behave like their friends. Yildiz, Yildirim, Ates and Rasinski (2012) carried out a research with families and they discovered negative parent attitudes towards children with dyslexia. In their survey, it is clearly seen that, children with dyslexia have insulting problems, exclusion, psychological pressure, and unfortunately physical violence.

Another research is conducted between 48 Turkish lesson teachers and primary school teachers about their knowledge on dyslexia and their awareness of diagnosing students (Dogan, 2013). Results of that study are interesting because classroom teachers think that they are more capable of diagnosing dyslexia than Turkish lesson teachers. On the other hand analyzes show that; Turkish lesson teachers are more knowledgeable on dyslexia than classroom teachers.

Corlu, Ozcan & Korkmazlar (2007) carried out a study with 20 primary school children with dyslexia, between ages of 7–12 and 20 children who does not have dyslexia, as a control group. Research study was designed to find whether children with dyslexia are favored group in creating the extraordinary and outstanding ideas that are

required in communication design. They discovered that, students with dyslexia are the potential candidates for communication design education and for more specific minor study areas such as icon design.

A survey is carried out about difficulties that Turkish learner with dyslexia faces while learning English as a foreign language and positive teacher supports' effectiveness towards those students (Erkan, Kizilarlan & Dogru, 2012). They explicate that positive teacher support has a great contribution on learner's behaviors and they claim; this study is going to make a contribution for practices of inclusive education and pre-service teacher education programs in Turkey. Caylak, (2010) revolves that although they have intelligence, people with developmental dyslexia (DD) and reading disability (RD) counters with unexpected problems in academic life and in his study, he asserts that there are five subtypes of reading difficulties; phonological, auditory rate processing, visual magnocellular and automaticity/cerebellar. Then, he suggests making further investigations between certain deficits. He also wanted to demonstrate the some of the researches on developmental dyslexia in the domains of phonological deficit theory.

Conclusion

Research studies are not sufficient about special education in Turkey, needs of Turkish students, teachers and schools should be designated to increase the quality of education system in Turkey. In this paper, we generally focused on the difficulties of learners with dyslexia and recommended some possible technological supports to improve their learning process. According to UDL "Universal Design for Learning" does not imply a single solution for everyone, but rather it underscores the need for inherently flexible, customizable content, assignments, and activities". It should be known that UDL for learners carries out a great role in education. In order to maximize education quality, goals should be modified for different students, curriculum and teachers. Technology should be combined with effective software and lessons should be supported with visually prepared materials.

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