# INFORMATION AND COMMUNICATION TECHNOLOGIES AS A TOOL FOR SOCIAL SUPPORT AND DEVELOPMENT OF SCHOOL STUDENTS WITH DYSLEXIA IN THE UNITED KINGDOM

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People diagnosed with dyslexia find it difficult to convey their on paper. In most cases, the problem is not that the dyslexic person cannot find a solution, but that s/he arrives at too many possible solutions and finds it difficult to pick one of them. This article discusses the use of information and communication technology (ICT) as a tool for social support and development of school students with dyslexia in the UK in order to help them fulfill their potential capabilities. Children and young people with dyslexia are given the opportunity to effectively use these technologies in the acquisition of knowledge and skills in school. These technologies can help them overcome the obstacles and challenges they face throughout their lives. A key point for many users of ICT is the development of an adequate learning environment with the necessary software tools. Their correct use can lead to real change and help dyslexic students to overcome the obstacles they face in the learning process. In conclusion, it should be pointed out that, helping to create equal conditions for all learners, ICT provide users suffering from dyslexia with a real sense of independence and achievement.

**Keywords: dyslexia, information and communication technologies, school students**

Specific disorders of the learning ability (or SDLA) is the term used in Bulgaria to describe children's difficulties in mastering literacy (reading, writing, arithmetic). In the United Kingdom, the most commonly used word is "dyslexia". Another term used is "specific learning differences", which is an umbrella term for children and adults with dyslexia, dyspraxia, dyscalculia, and hyperactivity and/or attention deficit (ADHD).

Dyslexia is neurological in origin and is a combination of difficulties and abilities. The difficulties are usually related to reading, writing and arithmetic, poor short-term and working memory, problems with sequencing, information processing speed, visual and auditory perception, motor movement and spoken language. The abilities are linked to creative thinking, intuition, excellent spatial awareness, drawing skills and artistic talent.

In the United Kingdom, the practice of bringing awareness of this condition to society, parents and teachers, as well as the development of teaching programs and methods for it, have come a long way, but just like integration itself, it is an ongoing process. In recent years, enormous progress has been reported in the UK in the identification of dyslexia and provision of timely assistance to dyslexic persons in order to help them fulfill their potential capabilities (N. Brunswick 2010; A. Fawcett, 2001; J. Rose, 2009). Computers and their use as an educational tool have changed the way children learn (Dyslexia: A guide for parents and teachers, 2008). Information and communication technologies (ICT) are widely used by children in school and at home. In addition to games and entertainment, for many of them they have become an essential tool for access to information and communication, especially in the use of web-based technologies. Children and young people with dyslexia are given the opportunity to effectively use these technologies in the acquisition of knowledge and skills in school. Many features of ICT can help them overcome the obstacles and challenges they face throughout their lives.

The aim of this article is to describe the current technological capabilities and how they are used to support persons with dyslexia. Some of the programs that will be discussed are not translated into Bulgarian (eg, software for converting speech into text). They are efficient and do not require special technical skills. They can also be applied almost anywhere. One only needs to understand the task and know the functionality and limitations of the software.

## Research results and discussion

Benefits of information and communication technologies

- using the "text-to-speech technology" a piece of information can be read more easily and more accurately;
- easy editing of written information through the use of common means, such as copying, opening or closing, pasting or returning most of the words for text processing;
- additional tools such as word banks with speech support or texts can help in writing tasks;
- opportunity to solidify the acquired knowledge through multiple repetitions;
- stimulating and motivating effect;
- training that does not rely on penalty;
- opportunity to cater for individual needs.

Over time, children begin to gain confidence in using ICT and become more demanding in solving a number of tasks related to grammar, which are complex to them.

For ICT to be more useful and effective, periodic review by experts in the field is required to identify what works well and what does not. These advantages are not always obvious, so teachers and parents should be aware of how to help and find appropriate means, programs and options to utilize the full capacity of ICT. This will allow the technology to meet the individual needs of children and young people with dyslexia.

While "high-tech" solutions look attractive and represent the best of technology, the effectiveness of existing tools and methods cannot be denied. It is recognized that small changes in the programs can have a huge impact on dyslexic persons. The Dyslexia Friendly Schools pack for BDA (British Dyslexia Association) supplemented with ICT contains examples of such solutions in a school setting.

Most schools in the UK use ICT in their curricula. The national curriculum ensures the development of basic skills in the field of ICT as a continuous process at all stages of student training. Their additional advantages support dyslexic persons and encourage them to pursue a mobile and independent life.

**Customization of the learning environment**

A key point for many users of ICT is the development an adequate learning environment with the necessary software tools. Screen adaptation is particularly useful for reducing visual stress often observed in dyslexic persons. Most computer systems and many individual programs offer a range of choices: background color, font type, font colour and size, line spacing, etc. Text editors offer additional options for line spacing and margins so that the text on the screen can be read more comfortably. Software products have been developed that enable dyslexic persons to save all information for future use with a single click of the mouse. Many of these products also offer other useful features such as text-to-speech conversion. Such examples are ***Claro Read*** and ***Dolphin Easy Tutor.*** Users can take advantage of a color overlay (filter) when reading a book or text on paper. The inclusion of a screen with a virtual colored overlay helps the user to follow any text above or below, or between the lines. Such examples are ***Virtual Reading Ruler*** and ***Readable***.

**Access to text and information**

Software for "text-to-speech" conversion performs a very simple function – if the user has an electronic document in his/her computer, it will read the text aloud. Among the programs that can help persons with dyslexia, these are the most useful ones because they allow access to unlimited information orally. This reduces the time and eliminates the effort required to read the text.

Using the computer as a reader, the user can focus on the meaning and understanding of the text.

There are many options for using this software in converting text to speech: reading of websites; reading of electronic documents; spell checking; reference to the pronunciation of individual words or phrases; reading e- mail and chat messages.

The texts used in the "text-to-speech" program allow users to see and hear the text simultaneously when necessary. Some users may require that the entire text be read aloud, while others only need single words or phrases. The latest programs offer the choice of synthesized voices. Some of them indicate words that could easily be mistaken as homonyms (their/ they're/ there), offering helpful explanations. The latest versions of programs such as Adobe Reader have built-in speech functions.

For the reader, important options to check are:

- whether the text is read out and highlighted simultaneously;
- whether there is a choice of voices, speed and format.

Many programs allow these "text-to-speech" converted texts to be an integral part of the computer environment not only facilitating visual formatting, but also offering assistance and support for reading and writing. Example: ***Claro Read, TextHelp*** and ***Easy Tutor.*** Users at school or at home can use a special word processing program. Such examples are ***Clicker Write*** in Clicker 4/5, ***Textease*** or ***Inspiration***. Any selected text from any web page can be copied and entered into the program and then read aloud as a word, phrase, sentence or whole paragraph.

A brief reference should also be made to speech to text conversion software that transforms the speech into written symbols (I. Smythe, 2009). Although there is no version in Bulgarian, such programs can be useful for people with dyslexia who use English, providing that their accent is not too strong.

Many persons with dyslexia repeat the same mistakes many times. This problem can be solved easily as Microsoft Word and other similar programs have a function for automatic error correction (Ch. Singleton, R. Wood, 2009).

### Planning of the writing and presentation of text or information

The most common text editor, Microsoft Word, has a relatively good lexical corrector, which, however, is guided by the assumption that the user knows which the right alternative is. The program will not suggest the correct answer. Editors that are more sophisticated put the most suitable words at the top of the list of suggestions. They are sold as part of the text-to-speech and speech-to-text conversion software.

The programs allow users to plan visually the use of text and graphics, which is often a preferred learning style for dyslexic people. Visual plans can be converted with a single pressing of a key into linear text to be used for further writing, or entered into the preferred word processor.

Screen reader word banks are often used by young children and adult users who require special and customized word lists. Some word banks include images or symbols as well as text for easy recognition and understanding. Such examples are **Clicker 5**, **Wordbar** and **Textease.**

Many dyslexic persons may prefer on-screen text predictors for the main speech options in order to make an informed choice of words that they may need to use, and to speed up the process of writing.

Many people find it difficult to convey their ideas on paper. In most cases, the problem is not that the person with dyslexia cannot find the right solution, but that s/he comes up with too many solutions and finds it difficult to choose one of them.

For those who have used such tools and still need further assistance, voice recognition programs can bring the solution, for example with the help of Dragon software [www.dyslexic.com].

### Improving of specific skills

A large variety of programs that can assist in the acquision of specific skills in literacy, calculation and retention of information are available. The choice of software to purchase for any young person, where the aim is to increase his/her skills, requires careful consideration of the range of content, the ability of the student and the teacher, the ease of use, speech support and financial value.

Some of the latest programs intended to support reading skills allow the user access to talking books and options for text custaomization through color-coded highlighting. The use of MP3 players is helpful in mastering new technologies (T. Miles, D. Ditchfield, 2008). Most often these are used for listening to music, digital recorded texts, facts and information, or for recording science facts, etc.

ICT appear in many formats. One of them is the reading pen that scans texts then reads them aloud. It is a quick and easy storage solution for individual words and phrases, especially for longer texts. Portable writing support, offering processing of documents in almost any environment, can be a saviour for many young persons with dyslexia.

### Conclusion

It is believed that ICT will continue to improve, develop and change. Their proper use can lead to real change and help school students with dyslexia to overcome obstacles to learning, today and in the future.

In conclusion, it should be pointed out that ICT provide users suffering from dyslexia with a real sense of independence and achievement, helping to create equal conditions for all learners.

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