



Funded by the  
Erasmus+ Programme  
of the European Union



# **DysTRANS-Supporting Dyslexic Individual in Transition from Primary to Lower Secondary School**

## **GUIDE FOR PARENTS**

---

**2018**



This Project is funded by the  
Erasmus+ Program of the European

**CONTENT**

- Introduction .....6
- 1. Dyslexia in partner countries.....8
  - 1.1. Understanding of Dyslexia.....8
    - TURKEY .....9
    - BULGARIA.....9
    - ROMANIA .....9
    - POLAND.....9
    - ITALY.....10
    - PORTUGAL.....10
  - 1.2. Legislation and Support .....10
    - TURKEY .....10
    - BULGARIA.....11
    - ROMANIA .....11
    - POLAND.....12
    - ITALY.....12
    - PORTUGAL.....13
- 2. Symptoms of Dyslexia .....13
  - 2.1. What symptoms parents should look for at home .....14
    - Pre-school Age.....14
    - 7-12 Years Old .....14
    - READING.....14
    - WRITING.....15
    - MATH .....16
    - OTHER .....16
  - 2.2. Emotional and behavioural problems as a consequence of learning difficulties .....17
- 3. Prerequisites for developing good reading/writing skills .....18
  - 3.1. Perceptions.....18
    - 3.1.1. Visual Perceptions .....18
    - 3.1.2. Auditory Perceptions .....19
    - 3.1.3. Phonological Perceptions and Phonological Awareness .....19
  - 3.2. Memory .....20
    - 3.2.1. Visual Memory.....20
    - 3.2.2. Auditory Memory .....20

3.2.3.	Short-term and Long-term Memory .....	21
3.2.4.	Semantic Memory .....	22
3.3.	Attention .....	22
3.4.	Spatial orientation .....	23
3.5.	Sequencing Skills .....	24
3.6.	Fine Motor Skills .....	24
	CONCLUSION .....	25
4.	Learning Difficulties caused by Dyslexia .....	25
4.1.	In Reading and Writing .....	25
4.2.	In Math .....	30
4.3.	In Foreign Language Learning .....	31
4.4.	In History/ Geography/ Science .....	32
4.5.	In Music/ Art/ Sport .....	32
4.6.	In Organisation and Time Management .....	33
5.	How to help? .....	34
5.1.	Educate yourself .....	34
5.2.	Deal with your own feelings .....	35
5.3.	Help the child to get “taste” for books .....	36
5.4.	Help the child to develop good writing skills .....	38
	You may find these two videos useful.....	39
	How to teach a correct pencil grip: <a href="https://www.youtube.com/watch?v=I06Zqcaj_E0">https://www.youtube.com/watch?v=I06Zqcaj_E0</a> .....	39
5.5.	Help the child to form good study skills .....	41
5.6.	Communication with teachers/school.....	42
6.	Assistive Technologies.....	43
6.1.	What is Assistive Technology? .....	43
6.2.	Benefits for students with Dyslexia .....	44
6.3.	What is available in Partner Countries .....	45
6.3.1.	Turkey .....	45
6.3.2.	Bulgaria.....	46
6.3.3.	Romania .....	47
6.3.4.	Poland.....	49
6.3.5.	Italy.....	50
6.3.6.	Portugal .....	51
	REFERENCES .....	58

ANNEX 1 .....61  
ANNEX 2 .....62  
ANNEX 3 .....62  
ANNEX 4 .....66

## Introduction

During the last decades dyslexia has become a quite familiar term to name a wide range of difficulties some people have. There are a lot of publications that try to explain the origin of the condition and the reasons that cause it.

Starting from 1881 when Oswald Berkhan first identified the primary symptoms of dyslexia and 1887 when the ophthalmologist Rudolf Berlin coined the term “dyslexia”, generations of researchers have been investigating the problem trying to find out the biological causes of the condition. There are dozens of theories and they are evolving with each new generation of dyslexia researchers.

Definitions of dyslexia also have changed with the time.

Before the twentieth century, children who had literacy difficulties were considered to have medical problems, or were constitutionally limited or poorly motivated. At that time the term “word blindness” was commonly used to describe the group of adults and children with reading problems. It was not until the mid-1930s that the term “dyslexia” began to steadily replace the old one in the literature. Approximately the same time learning difficulties, especially dyslexia, began to be viewed primarily as educational problem. But only in the second half of the twentieth century children with specific literacy difficulties began to be no longer considered to be under the jurisdiction of medicine and it was agreed that the problem was best to be managed within an educational environment.

In 2009 Sir Jim Rose’s Report on “Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties”<sup>1</sup> gave the following description of dyslexia:

“Dyslexia is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling.”

He adds that co-occurring difficulties may be seen in aspects of language, motor co-ordination, mental calculation, concentration and personal organisation, but these are not, by themselves, markers of dyslexia. Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed, visual and auditory processing difficulties. Dyslexic people can show a combination of abilities and difficulties that affect their learning. In addition some of them have strengths in other (not reading and writing-related) areas, such as problem solving, creative skills, design, etc.

Dyslexia can be difficult to define because the causes underlying its measurable manifestations can be very variable. The complexity of the problem is increased by the fact that dyslexia and reading and writing difficulties may vary according to the cultural and linguistic background. It is not possible to talk about a “typical dyslexic”. Each individual must be understood and helped in relation to their specific characteristics.

---

<sup>1</sup> Rose, J. “Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties”, available at <http://www.thedyslexia-spldtrust.org.uk/media/downloads/inline/the-rose-report.1294933674.pdf> (last accessed 4 July 2018)

According to the last statistic results<sup>2</sup> approximately 15% of world population have dyslexia, which means over a billion people. Most of them don't know they are dyslexic.

If we consider that the percentage is the same in Europe, it means that around 100 million people of all ages are affected by dyslexia. And it means that there are dyslexic students practically in each class.

Dyslexia occurs in people of all backgrounds and it is found in speakers of every language and country, although the percentage and the demonstrations of the condition may vary depending on the language.

Unfortunately, the reality is that many of the children, who demonstrate reading/writing/learning difficulties at school not having intellectual problems, are blamed to be lazy or not working hard enough, at the time when their difficulties might be due to dyslexia. If not recognised in time and not provided with adequate support at all stages of education many of these students end up with academic underachievement, low self-esteem, anxiety, lack of motivation, and disengagement with learning and school.

Nowadays, when all European countries put effort in implementing the principles of inclusive education, the topic of early identification and early intervention for dyslexia is becoming even more important.

The first principle of the European Pillar of social rights<sup>3</sup> states that everyone has the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market. At the Gothenburg Social Summit in 2017, European Heads of State and Government discussed how to harness the full potential of education and culture as drivers for job creation, economic growth and social fairness as well as a means to experience European identity in all its diversity.

Research shows that the only appropriate solution to dyslexia is a continuous and long-lasting intervention, which supports the development of various skills and abilities affected by dyslexia.

The earlier the problem is identified, the sooner the intervention starts the most probable positive outcomes will be. Both psychologists and educators agree that assessing risk factors and enhancing development of preschool children and pupils at the stage of initial literacy acquisition is a crucial prevention of possible SEN, including dyslexia<sup>4</sup> (e.g. Nicolson, Fawcett 2008).

Even the problem is clearly seen in most of the countries and researchers warn that it is becoming more and more serious with the time (reasons for that are not a subject of discussion in this document), there are not enough specialists in school who are able to support dyslexic students and their families from one side, and from the other to provide help

---

<sup>2</sup> Dyslexia Statistics: <https://www.dyslexia-reading-well.com/dyslexia-statistics.html> (last accessed 7 July 2018)

<sup>3</sup> European Pillar of social rights, available at [https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles\\_en](https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles_en) (Last accessed on 5 July 2018)

<sup>4</sup> Nicolson, R. and A.Fawcett, Dyslexia, Learning and the Brain, MITT Press, 2008

and support to teachers who have dyslexic students in their classes and have to find a way to teach them properly.

That's why it is extremely important for teachers to understand the nature of dyslexia, its manifestations and consequences and to be aware of the ways they could help and support their students overcome their difficulties.

Unfortunately, many schools are still "unequipped for the diversity in learning that unfolds in the classrooms [...].When students are taught in a way that is incompatible with how they learn, the natural strengths of their minds are neglected"<sup>5</sup>

136 primary and lower secondary school teachers participated in a Survey organised in six partner countries (Turkey, Bulgaria, Romania, Poland, Italy and Portugal), and the great majority of them confirmed they don't feel competent enough to provide adequate support to their dyslexic students and they need a special training on the topic.<sup>6</sup>

Another serious problem arises from the fact that many parents refuse to accept that their child is having difficulty or postponing the search for qualified help in the hope that the child will "grow up" the problem and catch up with his peers. There is also a concern that formal assessment and diagnosis will "label" the child, and teachers and other children will change their attitude towards him. Unfortunately, the lack of enough specialists in schools, trained to work with dyslexic children, also raises the question: "What will change if the child is diagnosed? Will he get the support he needs?" Parents themselves, not knowing the essence of dyslexia, the difficulties it generates and their consequences (social and behavioural) often blame children for laziness and unwillingness to learn.

A large proportion of parents surveyed say they spend a lot of time trying to help their children cope with homework and lessons but realize that they do not have the knowledge they need to do it effectively. Like the interviewed teachers, parents also express the desire and need to get deeper knowledge on the topic, to understand their children and help them.

## **1. Dyslexia in partner countries**

A big diversity can be observed across Europe with regard to issues related to dyslexia. In different countries specialists have adopted and use different definitions. Each country has set their own norms concerning assessment procedures and different regulations regarding support for students with dyslexia at different educational levels.

Within the next pages is presented a brief observations of definitions used in the partner countries, their assessment procedure and legislation regarding dyslexia.

### **1.1. Understanding of Dyslexia**

The term of dyslexia is defined by The International Dyslexia Association (IDA) as: "Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized

---

<sup>5</sup> Barringer et al., 2010 pag. XVII.

<sup>6</sup> DysTRANS: International Need Analysis, 2018. Available at [https://issuu.com/emanuelaeto9/docs/international\\_analysis](https://issuu.com/emanuelaeto9/docs/international_analysis) (Last accessed on 5 July 2018)



by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.”<sup>7</sup> (IDA Board of Directors, 2012, Nov. 12).

### **TURKEY**

In Turkey dyslexia (reading disability, which causes children to have difficulty understanding the relationship between letters and sounds), dysgraphia (concerns writing which leads to problems with spelling, word choice, letter formation, grammar and punctuation), dyscalculia (difficulties with performing basic mathematical equations and understanding mathematical concepts) and dyspraxia (impedes motor skills) are considered as types of Specific Learning Difficulty (SLD), and this way are categorised as disability<sup>8,9</sup>. (Baydık, 2011; Korkmazlar, 2003)

### **BULGARIA**

In Bulgaria dyslexia also is considered to be one of the specific learning difficulties. According to prof.V.Matanova “Dyslexia is a general category of specific learning disorders, which refers to the ability in seven specific areas of functioning: impressive speech, expressive language, basic reading skills, comprehension of reading, basic writing skills, understanding of the writing, basic math skills and mathematical thinking”<sup>10</sup>. In other words the term “dyslexia” is used to cover a wide range of specific learning difficulties. Terms dysgraphia, dyscalculia and dyspraxia are also used by specialists to name the difficulties in some specific areas of learning.

### **ROMANIA**

In Romania, the term “dyslexia” covers only reading difficulties. Dyslexia is a part of Specific Learning Difficulties, and this last concept is seen as an umbrella concept for a wide variety of learning difficulties (as reading, writing, calculation and mathematical reasoning). SLD is not seen as a disease or deficiency, but as a special way of processing information, due to the different development and functioning of the central nervous system.

### **POLAND**

According to The Polish Dyslexia Association, the definition of dyslexia as a disorder covers a specific learning difficulty that mainly affects the literacy skills, meaning reading and writing and other language skills<sup>11</sup>. It is characterised by difficulties with word recognition and decoding abilities that may not match up to an individual’s other cognitive abilities. The

---

<sup>7</sup> International Dyslexia Association. Definition of Dyslexia. Available at: <https://dyslexiaida.org/definition-of-dyslexia/> (Accessed on 15 July 2018)

<sup>8</sup> Baydık, B.(2011) Study of Usage of Reading Strategies of Students with Reading Difficulties and Teaching Practices of Teachers on Understanding Reading. *Education and Science*, 6(162).

<sup>9</sup> Korkmazlar, O. (2003). Öğrenme bozukluğu ve özel eğitim [Learning disabilities and special education]. *Farklı gelişen çocuklar*, 147-171

<sup>10</sup> Матанова В., Дислексия, Софи-Р, 2001

<sup>11</sup> Polskie Stowarzyszenie Dysleksji (Polish Dyslexia Association). Retrieved from: <https://www.ptd.edu.pl/cotojest.html>

other features are: delays in speech development, poor oral performance, inaccurate reading skills, incorrect spelling, grammatical errors, etc. Sometimes it is associated with emotional and behavioural disturbances, conceptual thinking, attention and concentration disturbances, problems with visual perception and memory.

## **ITALY**

In Italy dyslexia is considered as a part of wider frames of learning disorders (SLD), together with dyscalculia, dysgraphia and dysorthography. According to the law 170/ 2010, SLD are disorders occurring “in the presence of adequate cognitive abilities, in the absence of neurological pathologies and sensory deficits, but can constitute an important limitation for some activities of daily life.”<sup>12</sup>

## **PORTUGAL**

In Portugal, the term of dyslexia is defined by Portuguese Dyslexia Association (Associação Portuguesa de Dislexia) as "a neurological dysfunction, which manifests itself in the level of reading difficulty in people with normal or above average intelligence. This chronic difficulty is not related to teaching quality, intellectual level, socio-cultural opportunities, or sensory changes. It has a neurobiological basis, with alterations in the structure and neurological functioning, and may present a genetic influence.”<sup>13</sup> Although it is related to reading learning, dyslexia can have consequences in other academic areas and at the emotional and behavioral level.

## **1.2. Legislation and Support**

### **TURKEY**

Turkey started including students with disabilities in general education classrooms after 1997 when the Act 573 was ratified. As a result of this law, inclusion became mandatory. According to the Special Education Guidelines (SEG, 2000), at schools that implemented inclusion, every classroom is expected to have a same number of students with disabilities. Furthermore, only two students who have the same type of disability may be placed in the same classroom (MEB, 2000). Though the Ministry of Education (MEB) has recognized SLD since 1997, the establishment of norms and use of IEP’s only began in 2006. Teachers are supposed to get support from school counsellors and state Research and Guidance Centres (RAM). Since 2009 with the enactment of Specific Learning Difficulties Support Education Programme, support systems for dyslexic individuals and their teachers have been better and more intensively organised to address their needs.

In Turkey official assessment for dyslexia or specific learning difficulties (SLD) can only be done by child and adolescents psychiatrists. Then the responsibility to work with students

---

<sup>12</sup> Legge 170/2010: “Nuove norme in materia di disturbi specifici di apprendimento in ambito scolastico” (Law 170/2010: "New rules on specific learning disabilities in the school environment"). Retrieved from: <https://www.aiditalia.org/it/dislessia-a-scuola/legge-170-2010>

<sup>13</sup> Associação Portuguesa de Dislexia (Portuguese Dyslexia Association). Retrieved from: <http://www.dislex.co.pt/>

diagnosed with dyslexia is on the guidance and research centres, private consultancy centres, school counsellors, psychologists, special education experts. The support Education Program for SLD (dyslexia is included) has 3 modules and 750 class hours (Preparation for learning, reading and writing, mathematics). This support program can be given twice for each student if necessary provided that the required procedures completed on yearly basis.

## **BULGARIA**

Although the first articles about dyslexia in Bulgaria were published in 80-s of the XX century, there is no overall governmental policy concerning dyslexia, nor obligatory legal acts which are binding. Until recently the main dyslexia related regulation was the Ordinance 1 for education of children and students with special educational needs, but even there until 2015 the term “dyslexia” was not mentioned. In September 2015 The Parliament ratified the changes in the Ordinance №1 and for the very first time among the specific educational needs were listed dyslexia, dysgraphia and dyscalculia. In December 2017 the Ordinance №1 was replaced by a new document called An Ordinance for Inclusive Education. The practice is still new and, in the absence of a monitoring procedure, implementation is left to individual initiative of employers, school principals and University administration.

Assessment is usually initiated by parents. If a teacher suspects that student’s learning difficulties may be caused by dyslexia, he can advise parents to make assessment, but without parents’ will it can’t be done. Assessment could be done in specialised medical centres by children's psychiatrists, clinic psychologists, in collaboration with speech therapists and neurologists when necessary. There is no standardised test for dyslexia in Bulgaria. Different tests are used by different specialists. It is left to the specialists' judgement to decide the extent to which an individual's reading, writing and math skills match student’s age.

Support providers for children and adults with dyslexia in Bulgaria, as well as for teachers dealing with dyslexic children, are currently limited to NGOs, private specialists and academic groups in some Universities.

## **ROMANIA**

For the first time the existence of the category of children with dyslexia, dysgraphia and dyscalculia was recognized by the Law 6/2016 for the completion of the National Law of Education No.1/2011 about the education of people with learning disabilities. More specific Order No.3124/2017 approves the Methodology for supporting with learning disabilities; it regulates appropriate assessment procedures for dyslexia, dysgraphia, and dyscalculia, as well as the type of intervention to provide individualized and personalized education for them.

The complex evaluation is performed by specialists: psychologists/ teachers, school counselors, speech therapists, physicians, etc. accredited according to the law in order to establish the diagnosis and is performed according to the provisions of the diagnostic manuals ICD-10 and DSM-5 and determines the type of the disorder specific learning, as well as severity / severity level: mild, moderate, severe, which is related to the extent of the disorder and the intensity of the support, respectively the responsiveness to the

intervention<sup>14</sup> (David, Rosan, 2017).

Primary intervention can be performed by clinical psychologist in the limit of 5 session and further if necessary logopedic intervention for prevention and rehabilitation can be performed by special education psychologist. Free of charge support for SLD children is offered in school through County Resource and Educational Support Centre (CJRAE), an institution which function since 2003 and it is subordinated to County School Inspectorate. There are also different type of NGO or professional association who provide rehabilitation activities to students with SLD, usually during different projects with or without cost.

## **POLAND**

In Poland the dyslexia issues are regulated by the Acts of Ministry of Education (2007) regarding assessing and promoting students and the governmental program of “The Equal Educational Opportunities for school children” (2008). According to the Polish regulations, dyslexia is a disorder diagnosed after the third class of primary school at the earliest.

Institution responsible for the diagnosis of dyslexia is the pedagogical and psychological counselling centres. The students at risk of dyslexia can be assessed there, upon parents’ request, by accredited specialists, mostly psychologists, by means of Dyslexia Risk Scale. The evaluation covers: Psychological diagnosis, logopaedic diagnosis, neurological assessment and ophthalmologist consultation.

Polish model of support for students diagnosed with dyslexia includes: “corrective-compensatory” sessions provided by a special need teacher; individual therapy in psychological and pedagogical counselling centres; therapeutic/support classes organized by the school; personalized approach during the lessons and cooperation with parents. Students with dyslexia can get some more accommodations (especially for the national exams) depending on their needs: extra time, use a computer, help from a teacher in writing down their responses, having questions read out loud, use of special detailed assessment criteria for spelling.

## **ITALY**

In Italy the assessment and support for students with special learning difficulties (including dyslexia) are regulated by the Law 170 emanated in 2010. It protects the right of dyslexic children for education and gives the schools an opportunity to reflect on the methods to be implemented to encourage all students, giving space to their true potential based on their specific needs.

The Ministry of Education in Italy made compulsory the introduction in every grade of school of a SLD referent teacher to help educational teams to cope with students with learning difficulties and to provide them with a needed support. Moreover, recently a series of economical support actions for families with dyslexic members has been provided, such as the decrease of taxation in the purchase of assistive technologies.

---

<sup>14</sup> David, C., Rosan, A. (2017). Principles of Diagnosis Based on Scientific Evidence in Specific Learning Disorders, Cluj Napoca, Argonaut; Limes

In Italy the diagnosis of dyslexia and dysgraphia is possible from the end of the second class of primary school while for dyscalculia it is necessary to wait for the end of the third class. It can be done in the local centre of the Health National Care upon parents' request supported by a school evaluation. If a student is diagnosed with dyslexia (dysgraphia, dyscalculia) a dedicated team, together with the class teachers, provide a personalised educational plan for him, which includes a Functional Profile of the student and all the teaching strategies and compensative tools required, as well as evaluation criteria.

## **PORTUGAL**

The Special education need support in Portugal is based on the Law DL n° 3/2008. This legislative document protects students' rights to receive some accommodations depending on their specific difficulties and needs. Until a few years ago, students with dyslexia were considered as having learning difficulties without the specificity of dyslexia and could not always benefit from specialized support. Now the things have changed and after the assessment confirms the learning difficulties are due to dyslexia, then a student is considered a SEN student and can benefit from all the support in accordance with the Law 3/2008.

A formal diagnosis can only be made after two years of schooling. The assessment of the student is done through the International Classification of Functioning, Disability and Health (ICF) by a speech therapist, psychologists and physicians. However, and in the face of indicators suggesting that dyslexia may occur, the child should be monitored (even without diagnosis) in order to prevent these difficulties from worsening.

In Portugal, most schools have special support classes for children with dyslexia. Some schools realise projects targeting at supporting students with indicators of possible future difficulties in reading and writing, as far as socio-educational or learning difficulties are concerned.

## **2. Symptoms of Dyslexia**

Dyslexia is a condition a person is born with and it accompanies him throughout his life. It is not a virus you can be infected with, or a disease you can cure with a costly medicine. Dyslexia is a different way of thinking and perceptions, which – undoubtedly – has its positive aspects, and which is by no means better or worse than the traditional one. But when it comes to learning and academic achievement in a non-dyslexic education system where everything that goes beyond the conventional framework is “deviation”, dyslexia causes difficulties and becomes a problem. It requires a long, systematic, every-day, hard work to overcome the consequences of the condition.

Symptoms of dyslexia change with the age. There are markers that occur in the early years of the child, long before he goes to school. At this time we can only talk about “risk of dyslexia”. At this stage, the work should focus on identifying deficiencies in the skills described in the next part of the Guide as prerequisites for developing good reading and writing skills and for their formation and development in order to get the child into a school ready for the challenges he will face. Dyslexia can only be officially diagnosed after the child has completed the initial literacy acquisition period.

## 2.1. What symptoms parents should look for at home

### Pre-school Age

- Delayed speech development;
- Transposition of sounds and/or syllables when pronouncing long words;
- Difficulty to define sounds in a word;
- No matter how many poems and songs the child has been listening to, at the age of 4-5 y/o (in some cases even later) he can't match rhyming words;
- Difficulty to remember the name of the letters;
- Difficulty in articulating some sounds (sounds are different depending on the language); some children keep the "baby speech" until they start school;
- Some difficulty to understand questions, or the moral of a story;
- Difficulty to talk about events from his everyday life in logical and chronological order;
- Seems clumsy; the fine motor skills are underdeveloped (according to the age);
- Difficulty to keep balance (when going up and down the stairs, riding a bike or rollers);
- Problems with eye-hand coordination (e.g. problems to throw and catch a ball);
- Difficulty to dress himself, to fasten buttons, to tie shoe laces, etc.;
- Difficulty to cut along the contour, to colour, etc.;
- The leading hand is not determined sometimes until the age of 6-7. Often transfer the pencil from the left to the right hand while coloring, writing, drawing; or when playing with a constructor transfer the details from one hand to the other;
- Difficulty to learn the correct pencil grip;
- Problems with spatial and time orientation: "left – right", "up - down", "before - after", etc.;
- Difficulty to sustain concentration, easily distractive;
- Difficulty to learn poems;
- Difficulty to follow instructions, especially if given more than one instruction at time.

### 7-12 Years Old

#### READING

- reads the word in the first sentence, but finds it difficult to read the same word in the next sentence;
- can sound each individual letter, but has difficulties to decode some new words correctly;
- difficulties to read unfamiliar words out of text /when he can't be guided by the context or there are no pictures to help to catch the meaning/. When a word is not decoded correctly, it is possible that the child pronounces a word that begins the same and has roughly the same size; can skip or add a letter or confuse the order of the letters in small words ("on" instead of "no", "was" instead of "saw", etc.);
- when reading aloud reads slowly, with many fault-starts and long pauses; often ignores punctuation marks;

- quickly get tired even after a short period of reading;
- the level of reading comprehension is low, mainly because he puts a lot of effort in the process of reading (decoding). Listening comprehension is considerably higher;
- replaces visually similar words, even if changes the meaning of the phrase/sentence (“back” instead of “black”; “serious” instead of “series”, etc.);
- replaces some words with another, closely related in meaning, even if it looks completely different (“leave” instead of “depart”; “answer” instead of “reply”);
- reads incorrectly – omits or inserts small words – prepositions or conjunctions (and, or, in...); changes the end of the word (reads "room" as "rooms", "beautifully" as "beautiful", etc.);
- tries to avoid reading, or refuse to read, especially if it is a long plain text; when asked to read complains of head ache or stomach ache, or says he is hungry or thirsty, or needs to go to the bathroom;
- can read the same text several times with very little or no improvement; each time may make different mistakes;

## **WRITING**

- unusual pencil grip;
- younger students often put their head on a desk so they can track the tip of the pen/pencil while writing;
- the children hold the pencil so tightly that they soon feel tension and fatigue in the hand;
- writing is slow, with visible effort, and not an automatized action;
- the child writes the letters, beginning and ending at unusual points;
- the child has difficulty in "keeping" the letters on the line;
- copying a text from the blackboard is slow and painful. The child looks up, "catches" just few letters, then looks down to write the letters in the notebook, and then looks up again to the board to “catch” the next few letters. The process is repeated many times. The child often "loses" the place, misspells, misses the capital letters and punctuation marks;
- problems to align the text on the page when writing. Words may be stuck together or be at a great distance. Margins and new paragraphs are missing;
- the child has an unusually big difficulty to master the handwriting and shows chronic confusion in writing similarly looking letters, such as *m-n*, *l-t-f*, etc.;
- Writing dictations is a big challenge;
- Systematically write incorrectly even common words (even when the same word occurs repeatedly in a text);
- makes mistakes in spelling, even when copying from the board or from a book;

- the handwriting indicates uncertainty - looks rather dull;
- tries to avoid tasks that include writing;
- knows the punctuation rules but are not able to apply them when writing;
- when asked to self-review/correct his written work, he would not notice the mistakes – he would read what he knows there should be written, not what is really written;
- Difficulties to put his thoughts into written form; writes in short simple sentences; adjectives and adverbs are rarely used;
- When describing an event or retell a story can mix the order of the episodes;
- When has to answer open questions, does it in 1-2 words;

### **MATH**

- Can replace similarly looking digits like 6 and 9; or to write reversed numbers (e.g. 52 instead of 25);
- Can perform addition when it is necessary to do subtraction;
- difficulties in solving word problems – because of the poor reading technique the level of understanding is low;
- Difficulties to perform arithmetic operations in the correct order;
- Difficulties to memorize the multiplication tables, formulas, concepts, and to operate with them;
- May have difficulties to deal with money;

### **OTHER**

- Difficulties in organizing and planning activities;
- May know how to read the clock but finds it hard to estimate the time needed to perform the task;
- needs more than average time to complete a task;
- performs better when asked to answer orally than in written tests;
- tries to postpone the tasks he finds difficult;
- Can successfully complete the task, but often needs additional instructions;
- Gets tired pretty quickly (when doing school work that requires reading and writing);
- Has problems with attention (easily distractive);
- Good long-term memory for experiences, locations and faces but problems with remembering facts, sequences and information that hasn't been experienced;
- Extremely disorderly, or put their things in order only when forced to do so;
- afraid of making mistakes;



- Low self-esteem and self-confidence;
- Low communication and social skills.

## **2.2. Emotional and behavioural problems as a consequence of learning difficulties**

Dyslexia is a life-long lasting condition and it can be an extremely frustrating to live with. For children is difficult to understand the reason for their difficulties and this continuous frustration cause a lot of emotional distress as a result of the discouraging nature of dyslexia.

Samuel T. Orton was one of the first who paid attention to the emotional aspects of dyslexia. His research showed that the majority of pre-schoolers, who later demonstrated symptoms of dyslexia, were happy and well adjusted. The emotional problems began to develop when they started school and faced first difficulties in learning to read and write.

In the mainstream education dyslexic students have difficulties in those activities that teachers and other students value the highest – academic achievements. They can't read fast, can't write, have problems with spelling, can't remember enough facts, some of them have problems with Math, others are not good at sport... At the same time many children with dyslexia have average or above average intelligence. They see their friends and peers performing better even spending less time and putting less effort in their school work, while they can't catch up no matter how hard they work. All this undoubtedly provokes a feeling of failure on daily basis, and emotionally such a feeling is harsh. As a result many dyslexic students develop depressive symptoms.

Very often the frustration of dyslexic students is a result of their inability to meet parents' and teachers' expectations. Adults see an intelligent child, who is doing pretty well in everything except school. Very often parents hear from teachers: "He is very bright, but he needs to work harder", while they know that their dyslexic child works much harder than his classmates and still can't achieve the same results.

Dyslexic children frequently have problems with their social skills; sometimes they are socially immature in comparison to their peers; they have difficulties to make friends and to maintain relationships, which eventually leads to isolation from the group.

The fact that dyslexic students' difficulties are often not understood by teachers, parents, classmates adds to the frustration these children have to live with. In order to be able to understand dyslexics it is necessary to be aware of the nature of dyslexia, but also – of the feelings a dyslexic person has.

### **What does a dyslexic person feel?**

Anxiety is the most frequent emotional symptom – this is a reaction to student's constant frustration and confusion in school. Anxiety causes children to avoid what they find difficult or frightening (and this is a normal for every human being). Often teachers and parents misinterpret this avoidance behaviour and blame dyslexic students for being lazy.

Anger is another emotional reaction to the frustration. It is obvious that dyslexic students will vent their anger to teachers and parents (mainly to their mothers, as mothers are more actively involved in child's school work). Quite frequently the child managed to "hide" his anger while in school, to the point of being extremely passive, but in the safe environment at home his anger erupts and usually it is directed to people who loved him the most – his parents. This reaction is very confusing for parents, as they do their best to help their child.

Self image of a dyslexic person is extremely vulnerable because of frustration and anxiety. According to Erik Erikson<sup>15</sup>, during the first years of school, every child must resolve the conflicts between a positive self-image and feelings of inferiority. If a child doesn't face any serious problems at school, has good academic results, adapts well to the learning environment and class/school community, he will develop positive feelings about himself and will believe that he will be successful in life. But if a child experiences failure and frustration, he feels powerless and incompetent, controlled by the environment. This feeling is strengthened by the fact that the child doesn't see his effort to make big difference.

There are many dyslexics who do extremely well in life. The school years were not easy for them, and they don't feel happy to remember those years. What helped them to "survive" is the fact they found something they were good at early on – sport, music, cooking, or something else, which allowed them to compensate the negativity at school with their high achievement outside school.

### **3. Prerequisites for developing good reading/writing skills**

The process of reading and writing acquisition requires coherence of all basic mental processes. Every child, in order to learn to read and write, must pass through a series of successive steps deployed in time. At every stage he needs to acquire a new skill which would facilitate him in achieving the ultimate goal – to learn to read and write. Reading does not mean just formal recognition of letters and words, but consolidation of the ability to understand and interpret the information one reads. Writing is not just matching sounds to letters, but the ability to put your thoughts in writing in a well-structured way, implementing all grammar and spelling rules. An important criteria for the level of success in this process is the extent to which the child uses what he has learned and how he applies this skill (reading and writing) independently, outside situations of joint activity with adults.

There are certain skills that a child should develop in order to succeed in reading and writing.

#### **3.1. Perceptions**

##### **3.1.1. Visual Perceptions**

Visual perceptions start to develop from the birth. But it needs some time to allow the eyes to focus, to practice eye movements, to form binocular vision, perception of perspective (depth), hand-eye coordination and so on.

When we talk about visual perceptions we do not mean how well a person can see, but how accurate the perception of an object is. This means the ability to recognise a form, no matter

---

<sup>15</sup> German-American psychologist, known for his Theory of psychological development; [https://en.wikipedia.org/wiki/Erik\\_Erikson#Theories\\_of\\_development\\_and\\_the\\_ego](https://en.wikipedia.org/wiki/Erik_Erikson#Theories_of_development_and_the_ego)

what size or colour, or material it is, or what is its location; to distinguish that form from any other form; to remember (store in the memory) the visual information and to retrieve it when necessary.

Another very important skill is so called visual tracking (the ability to follow a moving object with the eyes); it affects the development of the learning skills in any aspect.

The process of reading acquisition includes the ability to recognise the letters – their shape and orientation, visual memorisation of the sequence of letters that form every word, and the ability to follow the linear structure of the text. That's why any deficit in the development of the visual perception may result in difficulties with reading.

Storing the visually perceived information is especially important in developing writing/spelling skills, as well.

### **3.1.2. Auditory Perceptions**

Auditory perception is the ability to "structure the auditory world and select those sounds which are immediately pertinent to adjustment"<sup>16</sup> (Myklebust, 1954, p.158). Children with auditory perceptual deficits can hear sounds but are unable to recognize them for meaning<sup>17</sup> (Berry and Eisenson, 1956). As the auditory perception is the ability to recognize or interpret what is heard, it plays as important a role in reading as visual perception.

When we talk about auditory perceptions we need to mention four main aspects of it:

- Auditory discrimination – it is the ability to hear similarities and differences between sounds.
- Auditory differentiation - the ability to select and attend to relevant auditory stimuli and ignore the irrelevant.
- Auditory blending (also known as auditory analysis and synthesis) - the ability to synthesise individual sounds which form a word.
- Auditory sequencing – it is the ability to remember the order of individual sounds in a given stimulus.

### **3.1.3. Phonological Perceptions and Phonological Awareness**

Phonological perception is the unconscious cognitive processing of language sounds within specific areas of the brain. From the other side, phonological awareness is the conscious ability to notice the unique differences that exists between spoken words (for example id two words differ from each other for just one sound, like “three” and “tree”). Phonological awareness is one component of a larger phonological processing system used for speaking and listening. That is why it is so important in the process of reading and writing acquisition.

There is a third concept - phonemic awareness, which is more specific and encompasses the ability to perceive the smaller sound segments of spoken words, and to be aware of the

---

<sup>16</sup> Myklebust, H.R. Auditory disorders in children. New York: Grune & Stratton, Inc., 1954

<sup>17</sup> Berry, M.F. and J.Eisenson. Speech Disorders: Principles and Practices of Therapy. Appleton-Century-Crofts Inc., 1956

differences between these phonemes, which can be manipulated and substituted to form different words.

Let's take a look at the words "test" and "nest". The phonemic awareness helps us to recognise the sounds in these two words [t] or [n], [e], [s], [t], and identify that the first phoneme is the differentiating sound. But knowing that the letter "t" represents the sound [t] is not enough to evaluate the phonemic awareness as good. It is necessary to understand that [t] is the first sound in the word "test", and it is the same as the last sound of this word and the last sound in the word "nest". So, to learn to read and write a child should be able to identify each sound in the word, to know the place a particular sound is situated in that word, and to be able to compare the sounds and their positions in different words.

The phonological processor in our brain usually works unconsciously when we listen and speak. It is designed to extract the meaning of what is said, not to notice the speech sounds in the words. It is designed to do its job **automatically** in the service of efficient communication. But reading and spelling require a level of metalinguistic speech that is not natural or easily acquired.<sup>18</sup> (Moats and Tolman, 2009)

## **3.2. Memory**

### **3.2.1. Visual Memory**

Visual Memory is the ability to remember for immediate recall the characteristics of a given object or form. It describes the relationship between perceptual processing and the encoding, storage and retrieval of the resulting neural representations<sup>19</sup> (Berryhill, 2008).

The same author defines the visual memory as a form of memory which preserves some characteristics of our senses pertaining to visual experience. Thanks to it we are able to place in memory visual information which resembles objects, places, faces, etc. in a mental image, and later, when we need it, we can retrieve these mental images from our memory.

Visual memory is very important when one learns to read and write, because it helps us to reproduce a sequence of visual stimuli (like letters in a word), so we can blend them into a word correctly, or write down the word, so all the letters in it to be in a correct order; remembering the overall visual appearance of words we then can recognise them without decoding, and with time it leads to automatization of the reading and writing.

### **3.2.2. Auditory Memory**

Hearing memory is the ability to process information that was presented orally, to analyse it and to store it for later use.

Auditory memory (the term "echoic memory" could be also used) is one of the human sensory memory "stores". It is a component that is specifically designed to store the information that comes through the listening perception. It differs from the visual memory because when

---

<sup>18</sup> Moats, L, & Tolman, C. Language Essentials for Teachers of Reading and Spelling (LETRS. Sopris West, Boston 2009

<sup>19</sup> Berryhill, M. (2008, May 09). Visual memory and the brain. Available at: [http://www.visionosciences.org/symposia2008\\_4.html](http://www.visionosciences.org/symposia2008_4.html) (Last accessed on 8 July 2018)

looking to visual stimuli our eyes can scan them as many times as we need, but it is impossible in terms of hearing stimuli. Auditory memories are stored for a little longer time than visual ones<sup>20</sup> (Psychological Glossary). Auditory stimuli are perceived by the ear, one at a time, before being processed and understood. The process through which we perceive information said by the teacher is completely different from the one when we read the same information in the textbook. We hear the information transmitted verbally only once. When it is in a written form we can read it as many times as we need or want. When we are exposed to auditory stimuli our auditory memory holds the first sound, stores it until the next sound is heard, blends them together, waits for the next sound to add it to the first two, and going this way until the whole word is completed. Only then the meaning of what has been heard can be understood<sup>21</sup> (Clark, 1987). This specific sensory store is able to store a huge amount of auditory information over a short period of time (3-4 seconds). These sounds resonate in the brain and are reproduced in this short cut of time after receiving the auditory stimuli<sup>22</sup> (Radvansky, 2005).

### **3.2.3. Short-term and Long-term Memory**

The idea of the division of memory into short-term memory and long-term memory dates back to the 19th century. A classical model of memory developed in the 1960s assumed that all memories pass from a short-term to a long-term store after a small period of time. This model is referred to as the "modal model" and has been most famously detailed by Atkinson and Shiffrin<sup>23</sup> (Atkinson and Shiffrin, 1968).

Short-term memory is the ability to store information in mind in an active, readily available state for a limited period of time (up to a few seconds), such as visual images (i.e. shape of an object) and/or auditory information (i.e. a name or a date somebody said). This kind of remembering doesn't include a conscious effort to remember, but with the possibility this information to be recalled later. In the short-term memory are stored only the essential elements of the perceived images or words. The capacity of short-term memory is limited and very individual. When it is full, the stored information is partially replaced by the new one. This gives us the opportunity to process a huge amount of information, saving the one our mind considers potentially useful and forgetting the rest.

Long-term memory, from the other side, determines a person's ability to retain information for longer periods of time (from just a few days and up to many years). It begins functioning a certain amount of time after the information has been perceived. The mechanisms of recalling and reproducing are completely different, so our mind should finish one process (recall) to start the other one (reproduce).

---

<sup>20</sup> Psychology Glossary. Echoic Memory Defined. Available at:

<http://www.alleydog.com/glossary/definition.php?term=Echoic%20Memory>

<sup>21</sup> Clark, Terry (1987). "Echoic memory explored and applied". *Journal of Consumer Marketing* 4 (1): 39-46.

<sup>22</sup> Radvansky, Gabriel (2005). *Human Memory*. Boston: Allyn and Bacon. pp. 65-75

<sup>23</sup> Atkinson, R. C., & Shiffrin, R. M. (1968). Chapter: Human memory: A proposed system and its control processes. In Spence, K. W., & Spence, J. T. *The psychology of learning and motivation* (Volume 2). New York: Academic Press. pp. 89-195

Theoretically the capacity of long-term memory is unlimited, but one's ability to intentionally and unintentionally remember, depends on how well the long-term memory is organised. One very important feature is so called "helpfulness of the memory" – which means how easy one can access the information stored in the long-term memory when he needs it.

There are many different forms of long-term memories, because not all of them are formed and retained in a single part of the brain, but are spread throughout multiple regions of brain. There are two major subdivisions of the long-term memory - explicit memory (memories that we consciously remember) and implicit memory (memories that we use to perform actions without thinking about them, like swimming or riding a bike).

#### **3.2.4. Semantic Memory**

In some classifications the semantic memory is seen as one of the aspects of the long-term memory. We put it here separately because it plays a very special role when it comes to reading and writing.

The Canadian psychologist Endel Tulving distinguishes three types of memory - procedural, episodic and semantic<sup>24</sup> (Tulving, 1985). Procedural memory supports activities such as tying shoes or cycling - activities that we do not have to learn how to do many times – if we have learnt to ride a bicycle we keep this knowledge for the whole our life, no matter for how long we have not done it. Episodic memory preserves our personal experiences and their sequence in the time. Thanks to it we can remember our first day in school, or the day of wedding, or the birth of our children.

Semantic memory is different – it is the ability to remember facts out of the context. For example we remember that water boils at 100 degrees C°, or the Sun is a star, or Amazon is the longest river in the world, but we don't need to know when we heard/read these facts for the first time. Semantic memory represents also our knowledge of words, symbols and concepts we use when guided conversation or learn in any subject. We use it to recall the definitions of words and concepts. Thankfully to it we can understand information we hear, texts we read, instructions, any school subject.

### **3.3. Attention**

Attention is another very important component of one's ability to complete a task within proper time and with proper quality.

J.R.Anderson defines attention as behavioural and cognitive process of selective focusing on a particular aspect of information, ignoring the remaining, unnecessary part. Attention can also be defined as the distribution of the limited resources for processing information available to one person<sup>25</sup> (Anderson, 2004).

---

<sup>24</sup> Tulving, Endel (1985) How many memory systems are there? American Psychologist, Vol 40(4), Apr 1985, 385-398. Retrieved from: <http://dx.doi.org/10.1037/0003-066X.40.4.385>

<sup>25</sup> Anderson, J. R. (2004). [Cognitive psychology and its implications \(6th ed.\)](#). Worth Publishers. p. 519

Attention consists of several main components: concentration, sustainability, distribution, switching and volume. It is possible that in one person one of these components is very well developed while the others are not at proper level.

When it comes to reading and writing acquisition, and to learning at all, the most important components of attention are concentration, sustainability and switching.

**Concentration** is the ability to consciously focus attention on an object, its components, the ability to understand the task. A person with good concentration usually has good observation and organization. Conversely, one who has not developed a good concentration of attention is usually scattered and easily distracted. The development of concentration skill requires conscious effort and affects the ability of a person to perceive, understand and learn new information.

Person's ability to concentrate depends on his participation in the task, his motivation, the ability to deal with the task, his emotional, mental and physical condition at the moment, as well as the environment.

**Sustainability** from the other side is a time feature of attention and refers to the duration of fixed attention on the same subject. It is related to the duration of conscious attention (for how long one can keep his attention to the same object at the original level). Sustainability depends on physical condition, interest in the subject, motivation (we often can observe a child focused on his favourite occupation for a long time, but the same child has problems to stay focused on a learning tasks; or for some people it is easier to stay focused on a task early in the morning than in the evening, or vice versa).

**Switching** or redirecting attention is called the ability to shift focus from one object to another when needed. This can happen unconsciously when our attention is suddenly attracted to something beyond what we are currently engaged in. But in the processes of reading and writing much more important is the skill to deliberately switch our attention from one stimulus to another. In this case one makes a conscious assessment of the emerging stimulus, and by finding that in the new situation the new stimulus is more important than the previous one, the person is redirecting his attention to it. Each shift of attention requires effort. The level of effort we use to switch our attention depends on a number of conditions, including congenital mobility of the neurological processes of activation (excitability) and deactivation (termination of the process). The higher the level of mobility - the easier it is to switch attention.

### **3.4. Spatial orientation**

The human brain is a remarkable organ. It has the ability to reason, create, analyse, and process a huge amount of information every day. It gives us the ability to move around in the environment using our innate sense of direction. This skill is called spatial orientation, and it is very useful in our every-day life. Spatial orientation is crucial for adapting to new environments and getting from one point to another. Without it, we would walk around in

endless circles, would get lost, but also – would have a lot of other problems we don't even suspect<sup>26</sup> (Maxwell, 2013).

In early childhood the children accept everything that surrounds them according to their body, body movement and its location in relation to other objects. The early childhood movement patterns like rolling, creeping, crawling, rocking and later walking, running, climbing, swinging all build a sensory “map” in the child's brain of where he is in space at any particular time<sup>27</sup> (Murphy, 2013). Spatial orientation is one of the key capacities which must be developed at certain level so the child could easily go through the process of reading and writing acquisition. It is necessary so the child can learn to recognize letters, numbers and other graphic symbols as they differentiate into space and pay attention to their distinctive characteristics – shape, components, location and direction in space. Otherwise, if the spatial orientation is not developed at proper level, it may result in letter reversals, poor memory for shapes and words, problems with reading, writing and spelling. As a result may be also observed poor coordination (including eye-hand coordination which is especially important for handwriting), clumsiness, problem with the balance.

### **3.5. Sequencing Skills**

Sequencing skills we call the ability to perceive visually and/or auditory items in a particular order, to store this sequence in memory and to be able to retrieve it later. This skill helps us to learn the days of the week, or the months of the year, or the letters in alphabetical order, a cooking recipe, and so on.

The same skill we need when we have to remember or reconstruct the order of sounds in a word, so we can read and write it correctly. If a child has a problem with sequencing, he may pronounce or write the word "elephant" as “ephelant”, or “tevelision” instead of “television”.

Another relation between sequencing and reading is the specific skill to control the eye-movement from left to right, following the text lines. During this process our eyes have to perceive letters in each word one by one from left to right, to recognise them, to combine in the correct order, so our brain could read the word correctly. Only in this case we can understand the meaning of the words, sentences, paragraphs, etc. Sequencing ability is also very important when we need to re-produce what we have read in the correct logical order.

### **3.6. Fine Motor Skills**

As far as many of children with dyslexia have also difficulties with handwriting, coordination and balance, the level of motor skills development is one of the important prerequisites for formation of good writing skills.

---

<sup>26</sup> Maxwell, R. (2013) Spatial Orientation and the Brain: The Effects of Map Reading and Navigation. Available online. Retrieved from <https://www.gislounge.com/spatial-orientation-and-the-brain-the-effects-of-map-reading-and-navigation/>

<sup>27</sup> Murphy, R. (2013) Spatial orientation: Which way is up? Available online. Retrieved from <http://www.developlearning.co.nz/blog/spatial-orientation-which-way>



Motor impairments in children with developmental dyslexia have been reported for a long time.<sup>28</sup> Nevertheless, their frequencies vary across studies. Nicolson et al. have reported problems with gross- and fine-motor skills in about 80% of dyslexic children they studied, and almost all of them presented balance, muscle tone or co-ordination difficulties.<sup>29</sup>

Kaplan et al. showed a high degree of co-morbidity between dyslexia and co-ordination disorder (63% of the dyslexic children have motor difficulties).<sup>30</sup>

Problems with handwriting are observed in most of the students who hadn't developed their fine motor skills at good enough level by the time they started school. The eye-hand coordination that is so important in handwriting is the same that is needed the child to be able to colour not leaving the contour, or to cut following a line, or to draw, or even to catch a ball. The same is valid for the hand control. If a student has problems with balance and gross motor skills it is very likely he will have problems to keep letters on the line, his letters will be different size, his handwriting will "lean" in different direction and it will look clumsy and unclear. And as far as the writing will be a difficult and laborious process for the student he will try to avoid it, or will refuse to complete tasks that require handwriting.....

## **CONCLUSION**

To achieve good (accuracy and speed) and effective (high level of understanding) reading; correct (handwriting, spelling and grammar) and well-structured writing (in case of creative writing) it is necessary that any of the skills mentioned above are developed at proper level. Deficiency in any of these skills leads to difficulties in reading and/or writing.

## **4. Learning Difficulties caused by Dyslexia**

### **4.1. In Reading and Writing**

As it has been mentioned above there are a lot of skills that a child should develop at good enough level long before he starts school and start learning to read and write.

Reading acquisition is a complex task that requires coordination of eye muscles so that they can follow the lines in the text; good spatial orientation to interpret letters and words; and well-developed visual memory to remember the meaning of letters and sight words. The process requires the ability to work with sequences, understanding of sentence structure and grammar; and the ability to categorise and analyse. In addition to all these skills, the brain must be able to integrate visually perceived stimuli (letters and letter combinations) with information stored in memory, and to associate these stimuli with the appropriate sounds.

---

<sup>28</sup> Denckla MB, Rudel RG, Chapman C, Kreger J. Motor proficiency in dyslexic children with and without attentional disorders. *Arch Neurol* 1985;43:228–31.

<sup>29</sup> Nicolson RI, Fawcett AJ, Dean P. Developmental dyslexia: the cerebellar deficit hypothesis. *Trends Neurosci* 2001;24: 508–11.

<sup>30</sup> Kaplan BJ, Wilson NB, Dewey D, Crawford SG. DCD may not be a discrete disorder. *Hum Mov Sci* 1998;17:471–90

Sounds must then be associated with the specific meanings. In order to achieve better understanding, the reader should remember the meaning of words he reads until he comes to the end of the sentence or paragraph. A problem at any stage of this process leads to difficulties with reading.

Any problem with perception, spatial orientation, memory and/or attention that a young learner may have, leads to one degree or another, to problems with acquiring good reading technique and cause difficulty with comprehension. If a child finds reading difficult, if he can't understand what he reads, it is obvious that he will not feel any pleasure of reading. If in addition the child can't see improvement in his reading technique or in the level of comprehension, despite his efforts, he will very soon lose his interest in reading and motivation to read.

When we talk about the literacy acquisition, we mean the formation and development of both reading and writing. Difficulties in reading acquisition are often accompanied by difficulties in writing.

Professionals use different terms to describe these difficulties and dysgraphia (difficulties in writing) is just one of them. Whatever definition is being used, it is important to understand that the slow and poor handwriting does not mean that the child is not trying hard enough. For many children with dysgraphia, even the right grip on the pencil and "keeping" the letters on a line can be a big challenge.

The handwriting (slow, "clumsy" and very often unreadable) is not the only problem when it comes to difficulties dyslexic students have with writing.

Although by the time when a student with dyslexia should "move" from primary to lower secondary school it is supposed that he has managed to learn to read and write, very often many of the problems he faces in the process of reading and writing acquaintance, are still observed, which makes his reading and writing far from the age/class level.

How the underdevelopment of some of the skills described in part 3 affects the reading and writing skills at the stage when the student is about to start lower secondary school?

#### IN READING

Underdevelopment of...	How does it affect the reading acquisition?
<b>Visual Perceptions</b>	<ul style="list-style-type: none"> <li>- Recognition of the letters – difficulties to see the similarities and differences in the shape and the orientation of the letters (“m” – “n”; “b” – “d”, etc.);</li> <li>- Problems with different fonts – a child can recognize “g”, but not “g”, or can recognize the capital letter and at the same time to have difficulties recognizing the lower case letter (D – d, M – m, Q – q, etc.).</li> </ul>
<b>Auditory Perceptions</b>	<ul style="list-style-type: none"> <li>- Difficulties with the perception of auditory-submitted</li> </ul>

	<p>text;</p> <ul style="list-style-type: none"> <li>- Difficulties to divide word into composing them sounds or to put sounds together in order to form a word;</li> <li>- Difficulties to define the first and the last sounds of a word;</li> <li>- Difficulties to differentiate similarly sounding words (can't "hear" the difference between "big" and "pig" or "ship" and "sheep");</li> <li>- Problems with reading comprehension.</li> </ul>
<b>Phonological Perceptions/ Phonological Awareness</b>	<ul style="list-style-type: none"> <li>- Problems with blending the individual sounds in a word, such as "c-a-t". (The child may know the individual phonemes but simply cannot put them together.);</li> <li>- Problems breaking apart an unknown word by syllables and blending it, such as "te-le-phone";</li> <li>- Difficulties with decoding and reading fluency;</li> <li>- Problems with reading comprehension because of the poor reading technique.</li> </ul>
<b>Visual Memory</b>	<ul style="list-style-type: none"> <li>- Difficulties to reproduce a sequence of visual stimuli (like letters in a word);</li> <li>- Difficulty in remembering the overall visual appearance of words or the letter sequence of words for reading and spelling;</li> <li>- Every time has to decode any word, even the small ones (lack of pattern recognition).</li> </ul>
<b>Auditory Memory</b>	<ul style="list-style-type: none"> <li>- Problems to understand what the words mean, (can show a delayed grasp of language).</li> <li>- Problems with understanding and following verbal instructions</li> </ul>
<b>Short-term Memory</b>	<ul style="list-style-type: none"> <li>- Problems with decoding</li> <li>- Difficulty to sufficiently register (or think about) ideas or information while reading;</li> <li>- Difficulties to hold what is read in mind, (often forgets the beginning of a sentence or paragraph by the time he/she gets to the end; in some cases it may happen even with longer words);</li> <li>- Problems with storing the visual-spatial information</li> </ul>

	(like sequence of letters in a word)
<b>Long-term Memory</b>	<ul style="list-style-type: none"> <li>- Inability to store and/or retrieve information after having read the text;</li> <li>- Difficulties with retrieving the sequences of graphemes and phonemes;</li> <li>- Difficulties with understanding what is read.</li> </ul>
<b>Semantic Memory</b>	<ul style="list-style-type: none"> <li>- Problems with understanding words and concepts which results in low level of reading comprehension</li> </ul>
<b>Sequencing</b>	<ul style="list-style-type: none"> <li>- Problems with eye-movement and following the linear structure of the text (missing lines; “jumping” back and forth across the text);</li> <li>- Gaps in the text perception, and as a result poor understanding of what is read;</li> <li>- At the technical level – problems with decoding – substitution and omission of letters, or shifting their place; guessing words instead of reading them. As a result – slow, choppy, incorrect reading, changing the meaning of the words/sentences, and low level of understanding.</li> </ul>
<b>Attention</b>	<ul style="list-style-type: none"> <li>- Problems with decoding and respecting the punctuation</li> <li>- Problems with reading fluency</li> <li>- Problems with reading comprehension</li> <li>- Rapid fatigue</li> <li>- Loss of motivation and interest</li> </ul>

## IN WRITING

Problems with...	How does it affect the writing acquisition?
<b>Fine Motor Skills</b>	<ul style="list-style-type: none"> <li>- Incorrect or unusual pencil grip;</li> <li>- Силен натиск при писане.</li> <li>- Difficulties to “keep” letters on the line;</li> <li>- Incorrect writing of some of the letter elements (starting in unusual point or in incorrect direction);</li> <li>- Some letters are written wrong – added or missing</li> </ul>

	<p>elements;</p> <ul style="list-style-type: none"> <li>- It is difficult to distinguish some similarly looking letters (<i>m-n-u; a-d; t-f</i>, etc);</li> <li>- Handwriting is clumsy and unreadable.</li> </ul>
<b>Visual and Auditory Perceptions and Memory</b>	<ul style="list-style-type: none"> <li>- Difficulties to discriminate similar sounds – replacement of letters that represent similar sounds (<i>examples should be given depending on the language</i>);</li> <li>- Writing dictations is challenging;</li> <li>- Inability to take notes;</li> <li>-</li> </ul>
<b>Phonological Perceptions/ Phonological Awareness</b>	<ul style="list-style-type: none"> <li>- Very slow process of “coding” (it often looks like the child can’t remember how to write the letter that represent the sound [s] for example);</li> <li>- Significant problems when writing a dictation;</li> <li>- Incorrect order of the letters in a word, which sometimes change the meaning (they may write “saw” instead of “was”, or “quite” instead of “quiet”);</li> <li>- Omission or addition of letters when writing.</li> <li>-</li> </ul>
<b>Visual-Spatial Orientation</b>	<ul style="list-style-type: none"> <li>- Replacing similarly looking letters when writing (d-b; p-q; u-n, etc.);</li> <li>- Difficulties to remember how a word looks like or the sequence of the letters in a word, which is an obstacle for handwriting and may cause problems with spelling;</li> <li>- The writing is not automatic process if even when it comes to sight words;</li> <li>- Their handwriting looks “clumsy”, uneven and illegible; the written works are poorly organised on the paper.</li> <li>-</li> </ul>
<b>Grammar Rules and Punctuation</b>	<ul style="list-style-type: none"> <li>- Difficulties to remember grammar rules and their exceptions;</li> <li>- It is possible they know the rules but can’t apply them</li> </ul>

	<p>when writing;</p> <ul style="list-style-type: none"> <li>- Don't know the meaning of the punctuation marks and their role in the written texts; can't use them correctly;</li> <li>- Difficulties to divide the word into syllables in order to transfer from one line to another correctly;</li> <li>- Difficulties to use the correct verb case when presenting their thoughts in writing;</li> <li>- Difficulties to define correctly parts of the speech and parts of the sentence;</li> <li>- Difficulties to put their thoughts in well-structured writing.</li> <li>-</li> </ul>
<b>Creative Writing</b>	<ul style="list-style-type: none"> <li>- Difficulties to make a plan for an essay;</li> <li>- If has to re-tell a story in writing has difficulties to follow the correct order of the episodes;</li> <li>- Limited vocabulary, they try to use simple words whose spelling they feel sure about;</li> <li>- They use mainly simple short sentences when writing; the almost complete lack of adjectives and adverbs is observed.</li> <li>-</li> </ul>

Of course, neither teachers nor parents should wait until the transition period between primary and lower secondary school to notice the problem and to look for professional help. Earlier the problem is identified, earlier the intervention starts - more chances the child has to develop the necessary skills and to overcome his reading and writing difficulties.

**4.2. In Math**

Difficulties with reading (dyslexia) are quite frequently accompanied by difficulties with numeracy and maths – different studies show that between 30 and 70 % of dyslexic students experience also problems with math (e.g., Badian, 1999; Kovas et al., 2007; Landerl & Moll, 2010; White, Moffitt, & Silva, 1992)

The most characteristic troubles in math for a dyslexic learner are: mixing numbers, quantities, math signs; mixing operations; confusion in sequential, spatial-orientation relations; difficulties to understand and remember math concepts. For dyslexic students (even

if they don't have dyscalculia) math still can be a problem, as far as their poor reading skills and low level of reading comprehension prevent them for reading correctly and understanding the instructions and the word problems. Underdevelopment of sequencing skills from the other side causes problems with the ability to break apart and follow multi-step written instruction, or to perform the arithmetic actions in the correct order.

### **4.3. In Foreign Language Learning**

When it comes to dyslexia and foreign language learning relation, there are a lot of difficulties a dyslexic student may face. The most serious ones are:

- Discrimination of the sounds;
- Pronunciation of some of the sounds;
- Morphology and syntax;
- Vocabulary acquisition;
- Grammar rules and how to apply them;
- Reading and writing (sentence structure and spelling).

When a student is learning a new language he will find out that there are some sounds in the foreign language that do not exist in his mother tongue. It is possible that students with dyslexia will have problems to perceive these sounds and to pronounce them correctly, because of the phonological difficulties they have.

*The competence in a spoken language consists of the ability to use the sounds that form words and sentences, in order to convey meanings. In order to speak we need to be able to articulate, through particular movements of the oral articulatory organs, the sounds of our language and, in order to understand the spoken language, we need to recognize the same sounds in all the various auditory stimuli we perceive in the surrounding environment<sup>31</sup> (Nespor, M. & Bafile, L., 2008).*

For example the sound of the first syllable of the English word “think” is not present in Bulgarian (and in most of the other European languages), so a Bulgarian native speaker will have problems distinguishing between this sound ([θ]) and the sound [t] (because the “place” where this consonant is articulated is very close to the English sound [θ]) and the sound [f] (because the Bulgarian consonant shares the same “manner of articulation” with the English [θ]).

The morphological and morpho-syntactic aspects of the language are problematic for the majority of dyslexic students in their first language and these problems in most cases are transferred to the foreign language learning.

Another serious difficulty dyslexic students encounter when learning a foreign language is to remember new words – both the pronunciation and the meaning, and to retrieve them from the

---

<sup>31</sup> Nespor, M. & Bafile, L. (2008). I suoni del linguaggio” Bologna: Il Mulino

memory when needed. Very often a big difference between the size of their receptive and productive vocabulary in the foreign language is observed.

Languages differ in terms of the degree of grapheme-phoneme correspondence. Finnish, Italian, Turkish languages are in the group of “transparent” languages in which the gap between the number of phonemes and the number of graphemes is not so big (in Italian for example 25 phonemes are represented by 33 graphemes or combinations of graphemes). On the other side some languages like French (35 phonemes represented by 190 graphemes or combinations of graphemes) and especially English (40 phonemes represented by 1120 graphemes or combinations of graphemes) have so called “deep” orthography. So, if a Turkish student with dyslexia has difficulties with reading and writing in his “transparent” mother tongue what will be for him to learn to read and write in English with its deep orthography?

#### **4.4. In History/ Geography/ Science**

In fact all these subjects require a lot of reading and some writing. Therefore it is understandable that dyslexia will affect the process of learning and the results dyslexic students will achieve. The deficits in reading fluency, reading comprehension, memory, visual and auditory processing, organization and time management, sequencing affects learning in different subjects at different degree.

When it comes to History and Geography difficulties are caused by the poor reading and respectively the low level of reading comprehension which in turn leads to an inability to understand the lesson, to extract the most important facts of the text, to learn these facts (understand and remember) and to reproduce them later, when necessary. Many dyslexic students are not able to make connection between things they already know and the new knowledge, it is difficult for them to assemble the general picture from the numerous details (facts) they already know, making a connection between them. Deficits in sequencing skills also cause difficulties.

Science (Physics/Chemistry/Biology) also could be a problematic subject for students with dyslexia. Problems here are similar to those in History/Geography learning, but here also difficulties with decoding and learning of the subject specific vocabulary is observed, as well as with using a systematic step-by-step approach of learning, as far as in these subjects the understanding and acquisition of the new knowledge is based and depended of the previous one.

#### **4.5. In Music/ Art/ Sport**

Most of the parents and teachers share the opinion that Music, Art and Sport classes contribute to the development of child’s personality and to improving their life-skills. These subjects are considered by the majority as easy ones and a kind of opportunity for the students to relax between other classes. And it is true, but not for students with dyslexia.

Research has shown that music and language skills are related, as far as both are based on the phonological perceptions, which as was already explained is one of the prerequisites for developing good reading skills. From the other side - notes as well as the letters are graphical



images, and the cognitive processes involved in their acquisition are similar, so children with dyslexia more likely will have difficulties to learn notes, music signs and all their combinations. And as a consequence – reading the notes (which is expected students to be able to do by the end of the Primary school) can be a big challenge for a dyslexic student. Nevertheless it is necessary and very important for dyslexic students to learn music. Music intervention strengthens the basic auditory and phonological perception skills which will positively affect children’s language/reading skills.

Drawing and colouring affects the development of fine motor skills which is so important for handwriting. Very often a child, whose drawings are quite simple, with missing details, wrong proportions, too big or too small – has problems with handwriting. Also when a child is drawing the eye-hand coordination is of the same importance as when he is writing. It may also affect child’s ability to draw geometric figures.

It is very beneficial for children with dyslexia not only to actively participate in the Physical Education classes at school but to be engaged with some sport activities out of school. Often dyslexic children (especially if dyslexia is “accompanied” by dyspraxia) are clumsy, not well coordinated and balanced. This cause them considerable difficulties to perform well enough in PE classes, especially in team sports, like basketball, softball, football, etc. Very often, because of their poor performance they are left outside these activities, as far as nobody wants them in their team. Anyway, no matter of their difficulties dyslexic children should be encouraged to play sports. It will help the development of their gross motor skills, their spatial orientation, the ability to understand orally given instructions and to follow them, sequencing skills, organisational skills, to teach them discipline and time management. At the same time sport gives dyslexic students a chance to succeed in something that does not require reading and writing.

#### **4.6. In Organisation and Time Management**

Almost all dyslexics have problems with organising their activities and managing time. It takes them longer and they have to work harder than their non-dyslexic peers to accomplish tasks, especially those that require reading and writing. But these difficulties are often ignored by teachers and parents and thus dyslexic students are more likely to be judged as being lazy, immature, careless or unmotivated.

Students with dyslexia, have difficulty with so called executive functioning, affects their organisational and time management skills. In order to complete a task it is necessary one to be able to make a plan how to achieve the task completion; to make changes/adjustments along the way; to stay motivated, to be persistent, and to keep the time-schedule and deadline.

Short-term memory deficits some dyslexic students have affect not only their reading and writing skills but also make it difficult for them to organise their time. Many dyslexic students (especially during the primary school) don’t manage to complete all learning tasks (to prepare lessons, to write homework) and very often they use as an excuse the phrases like “I have forgotten my notebook at home” or “I didn’t know we had homework”.

Time management skills are not inherent, but it is expected that a person will develop and improve these skills in the process of growing up. However, dyslexic children have different perception of time and they need to be thought purposefully how to do that.

## 5. How to help?

### 5.1. Educate yourself

In order to be able to help your child effectively first you need to educate yourself. Nowadays there are a lot of information regarding learning difficulties in general and dyslexia in particular – there are books, articles, web sites, and also different forums and support groups where other parents share their experience.

1/ Observe your child since very early age – it is important to notice any peculiarities in his development. Find info about what a child should be able to do at any age and if you notice any delay in development of some skills, pay attention and find out what to do to help the child to develop them – this will make things easier for him later.

2/ Dyslexia is the most common specific learning difficulties (it affects in certain degree between 10 and 15% of children), so it is a good idea to learn more about symptoms of dyslexia and if you suspect your child is at risk of dyslexia, to look for help as early as possible.

3/ If your child has been diagnosed with dyslexia, it is important to learn more about the condition, to understand its reasons, manifestations, consequences. Learn how it affects not only reading and writing but learning in general, and other life-skills. More you know better you will understand your child's difficulties and more effectively you will be able to help him.

4/ Of course, you are the best advocate for your child, but in order to help your child to overcome his difficulties you need to get professional help. There are specialists who are trained to work with dyslexic individuals. Before deciding on the kind of treatment, you need to find out as much as possible about the expected results of any treatment – learn about criteria used to assess the achievements and how long it is supposed to take. Try to get in touch with other parents whose children have already been in the specific kind of therapy – their opinion will help you to make decision.

5/ Each country has their specific legislative acts regarding education of children with specific learning needs. If your child has been diagnosed with dyslexia he can receive different accommodations, like extra time on tests and exams, or some assistive technology tools, and additional help from a SEN teacher, or psychologist, or speech therapist depending on his needs. It is important for you to be familiar with national legislation regarding dyslexia and your child's educational rights.

## 5.2. Deal with your own feelings

Discussing the need of helping yourself as part of helping your child may seem strange to you, but it is one of the important steps in this journey. Below are some key points to assist you in this process.

1/ Don't make your child's difficulties an orientation point in yours and your family life. You may think it is impossible to find space and time for yourselves, for your hobbies, interests or friends, because your life is organized around the needs of your dyslexic child. This is usually a result of your concerns and worry about your child's wellbeing and future. Concern, worry and anxiety are very difficult to be shut off and you will not stop feeling them before you see your child overcoming the difficulties and managing school and life independently and successfully. But if you put the child's difficulties in the center of yours and your family life and organize everything depending on these difficulties it will just "lock" the problem and will make your child dependent on you for a very long time.

2/ Eliminate confusion from your child's environment. Try to keep his environment orderly and teach the child do the same. Don't give confusing or conflicting messages; all instructions you give should be clear and simple. Be certain in the decisions you take regarding your child. Dyslexic children keep their picture thinking much longer than other people, and they automatically transfer into pictures all instructions or explanations they receive. If explanations are too complicated, or if you give more than one instruction at time, the mental picture they created may be quite confusing to them and they will not know where to start from or how to complete the task – all this cause frustration which is the main obstacle in front of learning.

3/ Remember that it is normal to experience different and very often negative feelings regarding your child's difficulties. It is normal for every parent to go through these emotional stages and it is not easy for anybody to deal with them. But if you want to be able to help your child you first need to be aware of your feelings and emotions, and to deal with them. The most common emotions are:

- Denial – very often parents don't believe the test results or reports from teachers; they try to explain the child's difficulties with phrases like: "I was the same at his age."; "He still very young, he will grow and will catch up.", etc.
- Anger – parents don't want to accept that his child has dyslexia; they feel angry about the situation and ask themselves questions like: "Why it happens to him?"
- Depression – parents are sad and afraid, that their child will never be like the others.
- Acceptance – it is the first positive feeling, because it is the first step towards solving the problem. After parents accept that the child has a problem, they are ready to become active – to educate themselves, to look for help, to support the child.
- Hope – reading about dyslexia, talking to specialists and to parents of other dyslexic children who had been in the same situation, brings the hope that the child can be

helped; with the right treatment he can overcome his difficulties and have a successful realization and life.

Of course, you, as parents of a dyslexic child, may experience other emotions as well.

- **Guilt** – parents often blame themselves for child’s difficulties and ask themselves what they had done wrong. This feeling may be very strong but it will not help the child. Sometimes this feeling make parents to try to hide their child’s dyslexia from friends and relatives – this is a bad decision because it makes the child feel that there is something wrong with him. Sometimes in order to deal with guilt parents blame for the child’s problems teachers, school, or educational system in general.
- **Helplessness** – this feeling comes when parents have tried different strategies to help the child themselves, hired private tutors, or even different treatments but nothing has worked well for their child. It doesn’t mean that there is no decision – parents just need to find the treatment and strategy that will work for their child.

Despite of all negative emotions parents go through, there are some positive ones, too. It is important to acknowledge and affirm them, to express them, to share with the others. For the child these parents’ positive emotions are of a great help.

- **Love and acceptance** – No matter what problems or difficulties the child has, parents will always love him, and this love is unconditional.
- **Pride and enjoyment** – Even dyslexic children make progress, have high achievements (maybe not in reading, but in art, or music, or sport). Parents should celebrate any achievement together with the child, and to highlight any progress he makes in all aspects of education and life. Parents should understand that dyslexia is just different way of thinking and perceiving the world that causes difficulties. It doesn’t influence child’s intelligence and doesn’t make him worse; it doesn’t prevent him from being successful.

### **5.3. Help the child to get “taste” for books**

Reading begins long before children know how to read, so books should be present early on your child and family context. We form readers since crib, as the development of literary skills can and should begin long before the child enters the formal education. These early “meetings” with books must be carefully planned by parents, so the child can feel the pleasure of them and may form a positive attitude to books and reading. Children should be exposed to books since very early age; they should have a chance to play with books, to look through them, to listen to their parents reading to them, and to see adults in their family reading. "The family environment influences the child in many ways. If parents read a lot, to have books, it is very possible that the children begin to gain interest in reading "(Oliver, 1976, p.64)<sup>32</sup>.

The family serves as a model, play a crucial role in the development of literacy to convey their expectations and attitudes towards reading and writing and contributing, often

---

<sup>32</sup> Oliver, C. (1976). *The child and leisure*. Lisbon: Publications Europe-America.

unconsciously, to develop skills necessary for learning to read, such as the language skills and metalinguistic. Alvarez (2000), cited by Balça (2008) says that "without the help of parents, there is little chance to develop in children a positive attitude towards reading." Small children copy their parents' behavior, so if they see parents reading books, or newspapers, or magazines, on daily basis very soon the child will start imitating reading far before he knows the letters. If in the child's environment books are part of the every-day life, they will internalize their value, simultaneously awakening interest in learning to read.

Below are some easy-to-follow steps:

1/ Create a home environment where the child can contact with books at any time, can see his parents reading - this creates a pattern of behavior and prompts a quest for imitation.

2/ Talk about books. The growing interest in the unfolding storyline prolongs the pleasure of reading, which generates knowledge sharing and encourages communication, and thus forms a "taste for reading".

3/ Read to the child regularly. Keep reading to him and with him even when he can read independently - reading should become a shared pleasure.

4/ Select topics that are interesting to the child – there is a huge amount of children's books, so you will surely be able to find ones that suit your child's preferences. Don't worry if your child doesn't like the books you liked when you were his age - it is important to encourage the child to develop his own taste for reading.

5/ Never say "read the book first, then watch the movie," because this way you turn reading into punishment, and watching TV a kind of present.

6/ Take the child to the local library - the variety of books there is much bigger than what you have at home. A visit to the library allows the child to dive into a different atmosphere and to see a lot of other people reading or taking books.

7/ Find the time to stop with the child in a bookstore when you go for a walk or shopping. It isn't necessarily to buy a book every time. For children, it is interesting to be able to touch the books, to see illustrations. If you have decided to buy a new book to the child, do not do it without him - let him choose what he likes.

8/ Be aware of the child's own rhythm. Sometimes the same story can be reread many times after it's the child's wish. This will allow you to lay the foundations of reading habits.

9/ Don't get discouraged if it seems at the beginning that these strategies don't work. You are building a new habit, and it requires patience, perseverance and time. Don't give up.

The development of reading skills is an important stage of children's education. Motivation is one of the basic prerequisites for achieving these skills. Therefore, children need to be encouraged from the earliest age to come into contact with the written word. It is the duty of the family, the school, and society as a whole to create the conditions for children to form a positive attitude to reading and to perceive reading and writing as indispensable tools in the learning process.

#### 5.4. Help the child to develop good writing skills

As it was explained in the Part 1.1 of this Guide, difficulties with writing are called dysgraphia. Reading and writing are tightly connected, and dyslexia and dysgraphia very often occur together, that's why when assessing a child for dyslexia, dysgraphia should also be considered. Even if a child gets the right treatment for his dyslexia and learn to read well, problems with writing will slow him back, as far as writing has a significant role in the learning process and in many cases academic results depend on writing skills (tests, exams, course work, etc.).

Of course, the best case is if you start work in this direction since your child is 2-3 years old, but even if he is 8 or even 12, still there is a lot that could be done.

When it comes to writing skills, we should look at them in three aspects:

1/ Handwriting

2/ Spelling

3/ Creative writing.

All three aspects are equally important for child's academic success.

1/ Handwriting - The preparation of the child for handwriting starts with the formation and development of good fine motor skills and good eye – hand coordination. If the child has problems with drawing, colouring, cutting on a line, or catching a small ball, it is very likely he will have problems with handwriting. So parents should be aware of the necessity to teach the child to do all these things early enough. There are some more things parents can do to help the child with the handwriting:

- Correct pencil grip. It is never too late to correct the pencil grip – even this small change will affect the quality of child's handwriting.
- Help the child to “see” the elements each letter consists of. Very often dyslexic people see the whole picture and are unable to divide it into its constituent parts. To see the parts of the letter will help the child to write the cursive letter correctly.
- Pay attention that all circle letters should be writes in counterclockwise direction.
- Show the child how each letter should be written – where to start and in which direction to write the letter. Observe his writing and correct him every time you see that he starts in a wrong point or goes into the wrong direction.
- Train writing the cursive letters not in the alphabetic order, but in groups of similarly looking letters.
- If necessary explain and show how to connect letters between themselves in a word /in some countries where Latin Alphabet is used children are not taught and required to write in cursive/

You may find these two videos useful.

How to teach a correct pencil grip: [https://www.youtube.com/watch?v=I06Zqcaj\\_E0](https://www.youtube.com/watch?v=I06Zqcaj_E0)

How to teach a child handwriting: [https://www.youtube.com/watch?v=\\_zhBNFtgH8k](https://www.youtube.com/watch?v=_zhBNFtgH8k)

2/ Spelling – In order to write correctly, it is, of course, necessary to know well the grammar and spelling rules, but it is far not enough. Many dyslexic students know the rules, and if asked, they will be able to say when you should write a capital letter, or put a comma. But when writing it seems like they have forgotten all these rules. The problem may be because of visual memory deficit or distorted phonological perceptions, poor phonological memory, or lack of so called phonological awareness – they can differentiate the separate sounds in the words (see part 3.1.3.).

What parents can do?

- Be sure the child knows the spelling and grammar rules.
- Explain the meaning and the role of the punctuation marks (same ideas as for reading can be used – see part 5.1.).
- Explain the child that each word consists of separate sounds that are put in a specific order (give examples of words that are different just because the same sounds are in different order, like “late” and “tale” or “quite” and “quiet”). Play games, like say one sound (e.g. “o”), then add one more (e.g. “n”: it will be “on”), then one more (e.g. “e”: it will be “one”), etc.
- Teach the child to “hear” the first sound of each word; and then the last sound of the word (this is usually far more difficult for children with distorted phonological perceptions, but they can learn to do that). Then it comes to defining the place of the sounds in a word (at the beginning, at the end or in the middle). Always start with small (3-4 letters) words.
- Teach the child to spell the words (e.g. you say the word “dot”, he needs to say [di], [ou], [ti]). Always start with small words that are written the way they are pronounced, and in which each sound is clearly heard, and continue steadily making the exercise more difficult. (This exercise can be done also for reading – the child spells a word and then pronounces it. Because of the close connection between reading and writing, if you do this exercise both for reading and writing – things will improve faster).
- After the child is able to spell correctly some words orally, ask him to draw these words down. He will be ready to start writing dictations. But coming to a word he is not sure how to write it – ask him to spell it first (if necessary repeat the word several times until the child is able to spell it correctly).

Of course, the perfect case is if parents start with these exercises when the child is 4 or 5 y/o, then he will be prepared for writing when he starts school. But it is never too late to help a student to improve his spelling. In addition – better spelling means better results.

3/ Creative writing – For dyslexic students creative writing is the most difficult aspect of writing. Most dyslexics perceive the word and situations as if they are looking at a picture. When you look at a picture, you perceive it as a whole – you don't look at it from left to right and from top to the bottom; you don't need to put what you see in a certain order; you don't need to organize your thoughts or feelings. But this is what you need to do if asked to describe the picture. As it was already mentioned, dyslexic people have problems with sequencing, planning and organizing their thoughts and to present them in writing. And when they tell a story it often seems chaotic and clumsy – although all details are there but they are not following each other in the right order.

How parents can help their dyslexic child to deal better with creative writing? Below are some ideas that might be useful:

- Start with a topic the child is deeply interested in, or something he is emotionally engaged with
- Ask the child to “see” the story at first – he can close his eyes and try to create a mental “movie” of the story. For dyslexic people it is much easier to create a series of mental images than to tell or write the story.
- Let the child to tell every detail he would like to include in the story. Write each mentioned detail on a separate sheet of paper. After all details are written down, ask the child to put them in order. Because each detail is like a separate piece of a puzzle, he can re-arrange them as many times as he needs/wants, until he is satisfied with the result.
- It is very useful to teach the child to use and to prepare his own Mind maps (see Annex 4). This will help to organize ideas and to see the structure of the story.
- After all details of the story are arranged, ask the child to tell the story orally. You can record it (using voice recording function on your phone), or you can write the story from his words. Then let him hear his story (from the record, or you read it to him). And if he feels satisfied by the result, let him write the story down. Of course, nobody can tell one and the same story twice with exactly the same words. So, let the child to write the story as if dictated by the voice recorder, or to copy it from your writing.
- Don't pay attention to grammar and spelling at first – the child needs to feel the excitement and pleasure of the creating process; focus on that. At this point the content and structure are much more important than the correct spelling. After some time, you can – together with the child – come back to the story and to make the necessary corrections, so he could proudly present his work to the others.
- Don't push the child – if you notice signs of tiredness, stop – let the child to think about his story while playing, or listening to music, or just walking in the park.
- And remember: ALWAYS PRAISE YOUR CHILD FOR HIS ACHIEVEMENTS!



## 5.5. Help the child to form good study skills

Study skills are the abilities one needs to ensure effective and efficient ways of learning, retaining and demonstrating skills and knowledge. That's why it is so important to help all children to develop good study skills. Unfortunately, study skills are not widely taught in schools. Many pupils are able to acquire the basic skills even without being told. However, dyslexic students usually need more explicit instructions. Here comes your role as parents – to help your child to develop the necessary skills which will help him to be more successful at school.

Every person learns in a different way. Some people like listening and talking, others prefer to analyse text, or study with the help of visual support; some people need a silent environment while others feels better with a musical phone; some study more effectively early in the morning, while others learn better in the evening... All these specifics in the way one learns form so called “learning style”. Learning style affects the way one learns all subjects and everything, not only at school.

It is generally accepted that dyslexic learners benefit most from a multisensory approach where information is simultaneously presented through several channels. This approach enables weaker modalities to be supported by stronger ones and means that learning is more likely to be effective. It is a good idea to find out which is the learning style of your child, so you can adapt his learning environment, organisation of his learning and way of providing information. This is very difficult to be done in the school, where there are 25-30 students in the class – all with their specific learning styles and preferences, but very possible to be taken into account when child is doing lessons and homework at home.

In general learners are divided into three groups: visual, auditory and kinaesthetic learners. In the Annex 1 you will find a table with the main characteristics of different learning styles.

There is another division, based on the difference between people who focus on detail and those who prefer to concentrate on the bigger picture – the first group is formed of so called analytic learners, and the second – of global learners. In the Annex 2 are listed the main characteristics of both groups.

As it was already said almost all dyslexics have problems with organising their activities and managing time. In this case it is of great help if a child is taught since early age to plan his activities and time. Of course, he will not be able to do so without help in the beginning, so it is parents' responsibility to prepare (together with the child) a daily plan – time for meals, for play, for reading, for walks, for meeting friends and relatives, going to the cinema, and so on. When the child starts school it is necessary to plan the time devoted to doing lessons and writing homework. There are some simple rules you need to follow:

1/ Consider the duration of the activities with the age of the child – a 7 y/o can maintain his active attention for about 15 – 20 minutes, while 12 y/o could be stay focused for 30-40 minutes;

2/ Anticipate a 10 minutes break between activities. But it does not mean that the child should do nothing during the break – it could be a board game, or drawing, or listening to a song or some physical activity (if the environment gives such a possibility);

3/ Always start with the subject that the child finds easy and interesting – doing well with the first lesson/homework will give him the feeling of success. Always assure him that if he manages so well with this favourite subject, he can manage the others, too;

4/ Include in the plan things your child likes to do – it may be sport, or music, or playing outside with friends. They will be at the position after lessons and homework are done, but they should be a part of the daily plan, not a present for completing the previous tasks (otherwise the child may begin to perceive the school work as punishment, especially if he has some difficulties);

5/ After each point of the plan is completed, the child should put a tick himself. By the end of the day all points should be checked out.

With the time the child will learn that having a plan helps him to complete all his tasks and to have enough time for his favourite activities. And he will learn to write down a daily plan himself. It is a good idea if a child sees his parents doing a daily plan for themselves, too. Children always try to imitate their parents.

One more thing – you, as a parent, need to set realistic goals for your child. If you do that your child is more likely to success achieving the goals, which will help him to feel successful and to have good self-confidence and self-esteem. People who believe in themselves achieve more in life.

Learning is a life-long-lasting process, so it's extremely important that everybody initially learns how to learn.

In the Annex 3 you can find some ideas (Templates) that provide a new and different learning strategy to match the specific learning style of dyslexic students. Using them you can support your dyslexic child to develop better organizational skills, to learn to read more effectively and to take out of the text all the necessary information. Templates can also help students to learn how to organize and present their knowledge.

As learning is closely connected to reading, the more efficient the reading is, the higher is the level of understanding, the better is the ability to organize and present the knowledge, and as a results the higher one's achievements will be.

If you show your child how to use the Templates and if you teach him how to use them himself as a part of the learning process, it will increase the effectiveness of learning and students' responsibility in this process. This way you will help your child to learn how to learn independently.

## **5.6. Communication with teachers/school**

Both parents and teachers have an important role to play; their roles do not replace but rather compliment and reinforce the other's role, thus providing the student with consistent message about reading and learning. Thinking of parents and teachers as "partners" refers to this

mutual effort toward a shared goal. It also implies shared responsibility of parents and teachers for supporting students as learners<sup>33</sup>.

For student's success a good parents-teachers communication is of great importance, especially in case if the student has some learning difficulties. The practice show that in fact a big percentage of students who have difficulties supposedly caused by dyslexia are not officially diagnosed, which means they are not officially entitled for accommodations and support from SEN teachers, psychologist or speech therapist. This fact makes the role of the communication between parents and class teacher and/or subject teachers even more important.

The reality shows that very often when a student has difficulties with learning and his academic results don't match expectations or behave inappropriately (as a consequence of the learning difficulties), teachers and parents tend to blame each other. At first place it is not good for the student because in such a situation he in fact doesn't get the help he needs from none of them.

In the relationship school – family – student all parties can only benefit from regular and positive communication. **If parents all time get only negative messages regarding their child's academic achievement or behavior, this will discourage parents' involvement as they will feel incompetent to help effectively their children.** And very possible parents will start to blame teachers for having “special” (negative) attitude to their children and will consider them guilty for child's bad academic results. **At the same time if parents are not open to share and discuss the situation and their concerns with the teacher/s it will lead to teacher's opinion that parents are not involved or not supportive enough.** Sometimes it is really like that, but not because parents don't want to help the child with his school work, they don't know how to help. Parents and teachers should act as good partners, should share their observation from their different points of view (because very often the parents and teachers sees a completely different child at school and at home). Only working as a team parents and teachers, supported by specialists can effectively help the dyslexic student.

**Good communication between parents and teachers helps parents to better understand student's needs and school environment, and to provide more effective support to their children with school work.**

## **6. Assistive Technologies**

### **6.1. What is Assistive Technology?**

Generally assistive technology is any device, equipment or system that helps people to cope with their difficulties so they can communicate, learn and deal with any challenges in life better.

---

<sup>33</sup> Christenson, S.L. and S.M.Sheridan. School and families: Creating essential connections for learning. Guilford Press, NY, 2001

According to the United States Assistive Technology Act of 2004, assistive technology (also called *adaptive technology*) refers to any "product, device, or equipment, whether acquired commercially, modified or customized, that is used to maintain, increase, or improve the functional capabilities of individuals with disabilities"<sup>34</sup>.

The definition given by the British Assistive Technology Association (BATA) is: "Assistive technology is any product or service that maintains or improves the ability of individuals with disabilities or impairments to communicate, learn and live independent, fulfilling and productive lives"<sup>35</sup>.

Assistive technology itself can't improve knowledge or skills. Assistive technology helps facilitate the learning, and may be used with a variety of learning content.

## 6.2. Benefits for students with Dyslexia

Assistive technology has a great potential for students with dyslexia in mainstream education classroom. Its benefits include enhancing academic achievement in reading, writing and spelling, maths; improving organizational skills, etc. Additionally, students with SLD often experience greater success when they are allowed to use their abilities (strengths) to work around their disabilities (challenges). Assistive technology tools combine the best of both of these practices. According to Lewis<sup>36</sup>, assistive technology serves two major purposes: to augment individual's strengths, thereby counterbalancing the effects of the disability, and to provide an alternative mode of performing a task. Thus, the use of technology allows students to compensate for their difficulties or circumvent them entirely.

When students are provided with the opportunity to accommodate reading and writing challenges, they could be much more successful academically.

Technology helps students with dyslexia on many different levels. It can help them accomplish tasks like:

- ✓ **Mastering the grade-level content.** Technology helps to present the material in different forms (visually, auditory, etc.)
- ✓ **Working towards formation of reading skills.** There are many different computer based learning games that can be used to help young students to learn letters, sound-letter correspondence, or the spelling of the words.
- ✓ **Improving writing and organizational skills.** Technology can enable students with dyslexia to develop a mind map (or concept map) which will help with writing an essay using grade-level vocabulary or words they otherwise wouldn't use without a computer due to poor spelling skills. Such a map helps dyslexic students to learn how to structure their creative writing, which is a weak point for them.
- ✓ **Improving note-taking skills** (which is very useful in the lower secondary and all higher levels of education). It is one of the biggest challenges for students with

---

<sup>34</sup> Assistive Technology Act (2004)

<sup>35</sup> British Assistive Technology Association <http://www.bataonline.org/further-assistive-technology-definition>

<sup>36</sup> Lewis (1998:16-26).

dyslexia, especially in the upper-secondary schools when the amount of learning material dramatically increases. Many students with dyslexia struggle taking notes in longhand because of poor spelling, writing, and/or eye-hand coordination skills.

- ✓ **Mastering educational concepts** that would otherwise have been beyond their reach. Students could use technology to experience abstract concepts such as acceleration or gravitation for example, through 3D simulations.

The role of technology for people with dyslexia, especially in terms of education is strongly recognised. When students have access to effective technology, and it is accompanied with appropriate instructions, their overall performance improves. Technology tools allow students with dyslexia to have equal opportunities in the school-based learning experiences as all other students.

### 6.3. What is available in Partner Countries

#### 6.3.1. Turkey

Assistive technologies used in Turkey for students with dyslexia:

These programmes are for using in mobile phones, tablets and smart boards.

- ✓ Text-to-speech:
  - "Teknoses" Free Download from <http://www.teknoses.com/tr/>
  - "Google Translate", which allows speeches to turn into texts or texts to speech as well as translating.
- ✓ "Touch and Write" - to teach letters, numbers and even words in Turkish which provides font resizing and 28 different background. Free Download from <https://itunes.apple.com/us/app/touch-and-write/>
- ✓ "Letter Shaker" - for especially foreign language teaching. Free Download from <https://play.google.com/.../apps/details?...WordShakerAndroid>
- ✓ "Open dyslexic" font in office programmes. Free Download from <https://www.opendyslexic.org/>
- ✓ "Freeplane: concept mapping programme" - which is free and user friendly programme. Free Download from <https://freeplane.en.softonic.com/>
- ✓ "Google Chrome" - Use of Google Chrome as a browser is also another assistive technology used as it has useful features for dyslexic individuals. In 'extensions' tab in Google chrome there are three features can be reached:
  - Open Dyslexic,
  - Dyslexia Friendly,

- Dyslexia Reader Chrome.

These are all designed for dyslexic individual to help them read easily.

- ✓ "Microsoft Word" - used with its features facilitating reading.
- ✓ "Sticky Notes" - a feature of Windows Operating System,
- ✓ "Wise Reminder" - a personal reminder software. Free download from <https://wise-reminder.en.softonic.com/>
- ✓ "Auto Train Brain" It provides support for dyslexic children who have difficulties in school life and learning through visual and auditory games. For more informations, <http://dijitalmedyavecocuk.bilgi.edu.tr/2017/12/22/disleksik-cocuklar-icin-mobil-uygulama-auto-train-brain/>

### 6.3.2. Bulgaria

- ✓ PC with spellchecker
- ✓ Screen Reader (Bulgarian) Free Download from <http://www.screenreader.net/index.php?pageid=15>
- ✓ Text-to-speech:
  - SpeechLab 2.0 (free for visually impaired people, otherwise distributed commercially) A free trial version could be downloaded from <http://www.bacl.org/speechlabbg.html>
  - Balabolka (Bulgarian) – Free Download from <http://www.cross-plus-a.com/bg/balabolka.htm>
- ✓ OCR scanning software:
  - FineReader (uses Bulgarian) Free Download from <http://finereader.bg.softonic.com/>
  - OCR CuneiForm 12 (uses Bulgarian) Free Download from <http://www.download.bg/?cls=program&id=456656>
- ✓ Learning to type:
  - In Bulgarian - Free online. Could be accessed at <http://www.sense-lang.org/typing/tutor/keyboardingBG.php>
  - In English – Free online. Could be accessed at <https://www.typingclub.com/typing-qwerty-en.html> (This could be used to type in Bulgarian using so called phonetic keyboard)

- ✓ Mind-mapping:
  - FreeMind (uses Bulgarian) Free Download from <http://sourceforge.net/projects/freemind/>
  - Xmind (uses Bulgarian) Free Download from <https://www.xmind.net/>
- ✓ Audio books (available online, some of them free)
  - <http://www.avtori.com/>
  - <http://www.audioknigi.bg/>
- ✓ e-Books (available online, many of them free)
  - <http://chitanka.info/>
  - <http://virtualnabiblioteka.com/>
  - <http://readbg.com/>
  - <http://www.booksbg.org/>
  - [http://www.ciela.com/ciela\\_ebooks/bezplatni-knigi/bezplatni-knigi-na-blgarski-ezik.html?p=5](http://www.ciela.com/ciela_ebooks/bezplatni-knigi/bezplatni-knigi-na-blgarski-ezik.html?p=5)
  - <http://www.slovo.bg/>
- ✓ RoboBraille - an e-mail and web-based service capable of automatically transforming documents into a variety of alternate formats, including audio files, e-books, DAISY books, etc. Available in 16 languages, including Bulgarian. Free. Could be accessed at [www.robobraille.org](http://www.robobraille.org)
- ✓ Adysfont – fonts designed for dyslexic readers. Free download from: <http://www.adysfont.com/>

### 6.3.3. Romania

#### ✓ Apps:

These programmes are for using in mobile phones, tablets and smart boards:

- Grammar tests  
<https://play.google.com/store/apps/details?id=ro.paha.intrebarigramatica>
- DEX for Android
- <https://play.google.com/store/apps/details?id=com.dex>

- The grammar of romanian language  
<https://play.google.com/store/apps/details?id=com.exceda.gramaticaromana>
- Photo Calculator - Smart Calculator & Math Solver-  
<https://play.google.com/store/apps/details?id=com.photomath.smart.study.learn>

✓ **Software:**

- Dyslexia Software - Able Tech Romania – Assistive Technology  
<http://www.abletech.ro/en/dyslexia-software.html>
- Read me – Ebook Reader  
<https://books.dyslexiefont.com/en/available-in-dyslexie/apps/263/readme--ebook-reader/>

✓ **Text-to-speech**

- Acutza voice, made available for free in the „BatPro for Windows” project (A Blind’s Accesibility Tools Project)  
<http://batpro.org/download-vocea-sintetica-ancutza/>

✓ **OCR scanning software**

- i2OCR is free, online, fast and recognizes correctly Romanian characters, but does not recognize columns or tables.  
<http://www.i2ocr.com/free-online-romanian-ocr>
- NewOCR is also free, online, fast and recognizes correctly Romanian characters, but does not recognize columns or tables.  
<https://www.newocr.com/>
- Online OCR might be better, while is free, online, fast, recognizes correctly Romanian characters, also recognizes columns or tables and correctly saves the documents in text, Word or Excel formant, but sometimes it has errors.  
<https://www.onlineocr.net/>
- OrCam MyReader 2.0, which is an independent reading devices, a modern and innovator device conceived to assist the persons with reading disabilities or visual impairments and could be achieved for approximately 3500 Euro  
<http://www.anjo.ro/dispozitive-electronice-de-citire-si-recunoastere-a-obiectelor/orcam-myreader-2.0-dispozitiv-de-citire-a-textelor.html>

✓ **Audio books:**



- Audio books în Romanian language for free <http://www.cartiaudio.eu/>
- Audiobook Ciresarii <http://www.teatruaudio.com/tag/audiobook-ciresarii/>

✓ **E-books:**

- Logopedics through games and exercises; Laura Hărdălău, Ioana Drugaș  
[https://l.facebook.com/l.php?u=https%3A%2F%2Fdrive.google.com%2Ffile%2Fd%2F0Byi1V7qM62ZramN3Um8zUXpnaEU%2Fview&h=AT3SY2rZFbECiVBP3rDBQAVBdXD\\_K691KmzEyVCxTbt\\_TrFoj2GaqXzFcV67zWN8dbuBNEZw9bPUgFo3kCVPhlccN1kx4ppP4rVXN3d7Rq\\_zStPnkPPILO0nkLcyRJZXJoftfnuBggD0QQ0SpQJ6n0tgrv1Kl30aOg](https://l.facebook.com/l.php?u=https%3A%2F%2Fdrive.google.com%2Ffile%2Fd%2F0Byi1V7qM62ZramN3Um8zUXpnaEU%2Fview&h=AT3SY2rZFbECiVBP3rDBQAVBdXD_K691KmzEyVCxTbt_TrFoj2GaqXzFcV67zWN8dbuBNEZw9bPUgFo3kCVPhlccN1kx4ppP4rVXN3d7Rq_zStPnkPPILO0nkLcyRJZXJoftfnuBggD0QQ0SpQJ6n0tgrv1Kl30aOg) –
- Guide to correcting and developing speech; Florentina Gălbinașu, Elena Gălbinașu, Valeria Pârșan, Ioana Chelaru  
<https://drive.google.com/file/d/0Byi1V7qM62ZrMmhkOXA3S2FRZkE/view>
- I want to speak properly; Șoimița Gherle  
<https://drive.google.com/file/d/0Byi1V7qM62ZrdmFZR0h2QmdqTG8/view>
- Highlights of diagnosis based on scientific evidence in specific learning disabilities; Carmen David, Adrian Roșan  
[https://www.academia.edu/36041882/David\\_Rosan-Repere\\_diagnostice\\_in\\_TSI](https://www.academia.edu/36041882/David_Rosan-Repere_diagnostice_in_TSI)
- Dyslexic child - a common responsibility; Bartok Eva  
<http://dislexic.ro/wp-content/uploads/2017/08/Responsabilitate-comuna.pdf>
- Personalized educational plan (PEP) elaborated according to the Order No. 3124 / 10.02.2017 on the approval of the Methodology for ensuring the necessary support for pupils with learning disabilities  
<https://drive.google.com/file/d/1VntBuuLbdXlnqcIAZyBQRZetVQvgN7G/view?usp=drivesdk>

✓ **Learning to type:**

- Learns typing alone:  
<http://www.invatasingur.ro/tutoriale/dactilografie/qwerty.php>
- Blind typing course: <https://www.typingstudy.com/ro/>
- Agile fingers: <https://agilefingers.com/ro>

#### 6.3.4. Poland

- ✓ Exercises, tasks and ideas from:

- [www.cmppp.pl](http://www.cmppp.pl), [www.dardysleksji.pl](http://www.dardysleksji.pl), [www.dysleksja-poradnik.org](http://www.dysleksja-poradnik.org), [www.ptd.edu.pl](http://www.ptd.edu.pl), [www.dysleksja.pl](http://www.dysleksja.pl), [www.niepelnosprawni.pl](http://www.niepelnosprawni.pl), [www.radzialow.net/publikacje](http://www.radzialow.net/publikacje), <http://dysleksja.univ.gda.pl>, [www.bpp.com.pl/ptd/index.htm](http://www.bpp.com.pl/ptd/index.htm), [www.cmpp.edu.pl](http://www.cmpp.edu.pl), [www.men.waw.pl/prawo/rozp](http://www.men.waw.pl/prawo/rozp), <http://edusek.ids.pl/nauczyciel/porady>, [www.terapiapedagogiczna.republika.pl](http://www.terapiapedagogiczna.republika.pl),
- [www.dyslektykwszkole.pl](http://www.dyslektykwszkole.pl)
- ✓ Therapeutic Programme „ORTOGRAFFITI” [www.ortograffiti.pl](http://www.ortograffiti.pl)
- ✓ Software „Ortography for Primary Education”
- ✓ The gallery of abilities”- box of practical didactic devices
- ✓ PUS – Pomóż-Ułóż-Sprawdz – the set of blocks for young dyslexic students
- ✓ RoboBraille- [www.robobraille.org](http://www.robobraille.org) – an e-mail and web-based service capable of automatically transforming documents into a variety of alternate formats, including audio files, e-books, DAISY books, etc. Available in 16 languages, including Polish.

### 6.3.5. Italy

#### SPEECH

- ✓ Facilitoffice - [www.facilitoffice.org](http://www.facilitoffice.org) - free
- ✓ Clip claxon - <https://sites.google.com/site/clipclaxon/home> - free
- ✓ Epico - [www.anastasis.it](http://www.anastasis.it) - subscription due
- ✓ Carlo mobile pro - [www.anastasis.it](http://www.anastasis.it) - subscription due
- ✓ Personal reader - [www.anastasis.it](http://www.anastasis.it) - subscription due
- ✓ Alfa reader - [www.erickson.it](http://www.erickson.it) - subscription due
- ✓ Leggixme - <https://sites.google.com/site/leggixme/> - free
- ✓ Superquaderno - [www.anastasis.it](http://www.anastasis.it) - subscription due
- ✓ Geco - [www.anastasis.it](http://www.anastasis.it) - subscription due

#### WRITING

- ✓ Google docs - free
- ✓ MSWord spell checker - subscription due

## MIND MAPPING TOOL

- ✓ CMAP - <https://cmap.ihmc.us/> - free
- ✓ Freemind - <https://sourceforge.net/> - free
- ✓ Supermappe - [www.anastasis.it](http://www.anastasis.it) - subscription due
- ✓ Ipermappe - [www.erickson.it](http://www.erickson.it) - subscription due
- ✓ Mindmaple - <http://www.mindmaple.com/> - subscription due
- ✓ Mindomo.com
- ✓ Coggle.com

### 6.3.6. Portugal

- ✓ **Electronic dictionary and electronic encyclopaedia** – A book collection or information available on a website. <https://www.dicio.com.br/enciclopedia/>
- ✓ **e-book** – Digital book - [https://pt.wikipedia.org/wiki/Livro\\_digital](https://pt.wikipedia.org/wiki/Livro_digital)
- ✓ **Spell checker** – Checking Portuguese spelling  
[https://tecnologia.uol.com.br/album/use\\_corretor\\_automatico\\_a\\_seu\\_favor\\_Word\\_album.htm](https://tecnologia.uol.com.br/album/use_corretor_automatico_a_seu_favor_Word_album.htm)
- ✓ **Eu Sei (I know)** – Pedagogical Interactive activities for Preschool, Primary school and lower secondary: <http://nonio.eses.pt/eusei/>
- ✓ **E-books** –National Reading Plan Digital library  
<http://www.planonacionaldeleitura.gov.pt/bibliotecadigital/>
- ✓ **Didactic games** – Games for children about seasons of the year, multiplication table, diphthongs, numbers, Traffic rules and so on. <http://jogosdidacticos.blogspot.pt/>
- ✓ **OpenDyslexic** – Free open- source typeface that allows dyslexic people to read more easily <https://www.opendyslexic.org/>
- ✓ **Easy Reader:** For dyslexic readers, low vision or blindness:  
<https://yourdolphin.com/easyreader>
- ✓ **Ministry of Education Schools Site** – A great number of educational resources for all subjects and school years  
[https://www.portaldasescolas.pt/portal/server.pt/community/00\\_recursoeducativos/259](https://www.portaldasescolas.pt/portal/server.pt/community/00_recursoeducativos/259)

- ✓ **Software and free resources for Special Needs** - Software and free resources for Special Needs, including several categories, such as accessibility, amplifier, Apps and Widgets, dyslexia, screen reader, synthesizer (speech synthesizer, voice recognition and narrator to make communication, Reading and writing easier. <https://freewarenewsite.wordpress.com/>
- ✓ **ECR e LEXICON** – ECR for maintaining attention and concentration difficulties, visual motor coordination, fine psychomotor skills, memorization and vocabulary. *Lexicon* prevents learning and reading difficulties and improves these skills; it includes visual differentiation and phonological transcription of graphic similar letters. <http://cercifaf.org.pt/cerci/index.php/gratuito/cercifaf-recursos-download>
- ✓ **Kit Special Needs** – Free software for special needs <http://www.acessibilidade.net/at/kit2004/educativo.htm>
- ✓ **WordTalk** – Add-in for the different versions of MS Word, useful against reading difficulties. It acts as a 'text reader' and creates a spoken sound version of the text you read or write and reads it back to you as it highlights the words. It contains a speaking dictionary. It is possible to adjust highlight colours, change the speech speed, change text to speech and record a mp3 file. <http://www.wordtalk.org.uk/Download/> <https://youtu.be/SicL4gkIR5g>  
Tutorials: Overview WordTalk – <https://youtu.be/SicL4gkIR5g>  
Using Wordtalk - <https://youtu.be/AHPeeI4CAo>
- ✓ **Microsoft Speak Command** – The speech synthesizer of the Microsoft operative system can also be adjusted to be visible on Word, Outlook, Powerpoint and OneNote toolbars; the instructions are on the support pages of MS Office (quick access toolbar) [https://support.office.com/en-us/article/using-the-speak-text-to-speech-feature-459e7704-a76d-4fe2-ab48-189d6b83333c#\\_toc282684835](https://support.office.com/en-us/article/using-the-speak-text-to-speech-feature-459e7704-a76d-4fe2-ab48-189d6b83333c#_toc282684835)
- ✓ **Philips FreeSpeech 2000** – This software allows voice recognition in Portuguese and you can create texts without using the keyboard. While using the microphone, you can dictate words that are converted into text <https://www.dictation.philips.com/products/>
- ✓ You can download free from <http://uploaded.net/file/33brpy>
- ✓ See Brazilian site – <http://distrofico.amplarede.com.br/2010/02/philips-freespeech-2000-em-portugues/>
- ✓ **Dictate (Microsoft)** – Microsoft free APP (add-in) that recognizes voice/dictation on Word, Powerpoint and Outlook. It recognizes Portuguese, among other languages. You

can also translate from other languages. Download - <http://dictate.ms/>; FAQ - <http://dictate.ms/FAQ>; Tutorial «Unboxing MS Dictate» – <https://youtu.be/OdVvo3c4uDQ>

- ✓ Audio technologies – voice recording and reproduction software  
<https://play.google.com/store/apps/details?id=vr.audio.voicerecorder&hl=pt> (eg: Audacity, Wavosaur, Vocaroo, Soundcloud, etc).
- ✓ **Organizing ideas and information technologies** – conceptual maps, diagrams, collection organizers and others (eg: Pinterest, Livebinders, Symbaloo, Bubbl.us - <https://bubbl.us/>)
- ✓ Mind42 (it creates mind maps, a special diagram that allows information to be visually organized): <https://mind42.com/>, Popplet ( Popplet is an iPad and web tool that allows the capture and organization of ideas. <http://popplet.com/> (etc)
- ✓ **Writing Technologies** – there are functions on the word processors that help people with writing difficulties, such as word predictors or spelling checkers: some APPS can be installed. Virtual keyboard – you can enter a text on the computer using other means different from the conventional keyboard [https://www.youtube.com/watch?v=\\_ziOP0yWF5k](https://www.youtube.com/watch?v=_ziOP0yWF5k) .
- ✓ **Text to speech** – It converts a texto into an audio file. It differs from the screen reader as this one is integrated in the operative system and reads not only the texto as all other operations performed on the computer
- ✓ **Word predictor:** Eugénio, o génio das palavras (Eugenio, the word genius) –
- ✓ <http://www.l2f.inesc-id.pt/~lco/eugenio/> - as you write, it predicts the possible words using the first letters. It helps those with greater writing difficulties.
- ✓ There is also a word predictor available on Word.
- ✓ **Virtual keyboard - (Google)** <https://www.baixaki.com.pt/download/teclado-virtual-do-google-.htm>
- ✓ **Voice recognition** –Writing on Word using voice with dictation function <https://www.techtudo.com.br/dicas-e-tutoriais/2018/06/como-escrever-no-word-usando-a-voz-com-a-funcao-ditado.ghtml>
- ✓ **Reading technologies**, for those with vision problems, speech synthesizers - <https://youtu.be/Hf663--0544>,
- ✓ Characters recognition, optical reading, documents on alternative layout (eg: SlideTalk - <http://youtu.be/ZOY19SJSyWI>, Balabolka - <https://youtu.be/Hf663--0544>, Readspeaker - <https://youtu.be/Hf663--0544>, Philips Free Speech 2000, Daisy Reader, etc).

- ✓ **OCR** – Optical characters recognition – it converts PDF and digitalized images into WORD
- ✓ **Mobile technologies**
- ✓ Due to their portability, simple interface, processing speed and communication and information capacities, computers, tablets and smartphones offer all students, including those with special needs, a wide range of learning opportunities.
- ✓ **Accessible PDF (Claro SW)** – free PDF reading APP (speech synthesizer), with amplifying and colour contrast functions <https://www.clarosoftware.com/>
- ✓ Text fonts that maximize letter reading
- ✓ Other types of support can also be very useful for students with some needs, for instance: inclined reading desks for an ergonomically correct reading position or computer work, writing adaptive equipment, printable embossing paper, keyboard grids, symbols/images tables:
- ✓ **Software Comercial “Zoom Ex”** - <http://www.woodlaketechnologies.com/Zoom-Exp/abi500.htm>
- ✓ **Links:**
- ✓ **Dyslexia Site** <https://dislexia.pt/blog/fontes-de-texto/>

## Online Resources

### Mind Mapping Tools

MindView - <http://www.matchware.com/en/default.htm>

Mindjet - <https://www.mindjet.com/>

MindGenius - <http://www.mindgenius.com/>

iMindMap - <http://imindmap.com/>

Spark Space - <http://www.spark-space.com/>

Inspiration - <http://www.inspiration.com/>

Claro Ideas – <https://www.clarosoftware.com>

Xmind - <http://www.xmind.net/> (free)

Freemind - <http://sourceforge.net/projects/freemind/> (free)

### **Online Dictionaries**

<http://www.thefreedictionary.com/>

<http://dictionary.reference.com/>

<http://www.eurodict.com/>

### **The Best Online Encyclopaedias**

<http://www.refseek.com/directory/encyclopedias.html>

### **Talking Word Processors**

<http://www.donjohnston.com>

<http://www.intellitools.com>

<http://www.readingmadeeasy.com>

<http://www.wordtalk.org.uk>

<https://www.enablemart.com/talking-word-processor>

<https://www.texthelp.com/en-gb>

<http://www.premierathome.com/products/TalkingWordProcessor.php>

### **Online Calendars**

[https://calendar.google.com/calendar/render?pli=1#main\\_7](https://calendar.google.com/calendar/render?pli=1#main_7)

<https://www.zoho.com/calendar/>

<http://whichtime.com/>

<https://www.keepandshare.com/>

<https://doodle.com/online-calendar>

Creating a dyslexia friendly classroom:

<https://www.thoughtco.com/creating-a-dyslexia-friendly-classroom-3111082>

### **Some more resources in English:**

✓ **Apps:**

- Sticky Notes + Widget
- <https://play.google.com/store/apps/details?id=com.symcoding.widget.stickynotes>
- School Planner
- <https://play.google.com/store/apps/details?id=daldev.android.gradehelper>
  
- ABC Alphabets Phonic Sounds  
<https://play.google.com/store/apps/details?id=abc.alphabet.phonic.sounds.app.kids>
- ABC Song - Rhymes Videos, Games, Phonics Learning
- <https://play.google.com/store/apps/details?id=kidzooly.rhymes>
  
- iWordQ US is an easy-to-use writing and reading application to assist struggling writers and readers.  
<https://itunes.apple.com/ca/app/iwordq-us/id557929840?mt=8&ign-mpt=uo%3D4>

✓ **Software:**

- Read & write dyslexia software
- <https://www.texthelp.com/en-us/products/read-write/assistive-technology-dyslexia-software/>
  
- Literacy & Dyslexia Software for Education
- <https://www.texthelp.com/en-us/sectors/education/>
  
- Writing & spelling software Co:Writer, this simple-to-use software corrects and offers suggestions for basic spelling and grammar mistakes when its user inputs words into web pages, e-mails, and applications like Microsoft Word. This software easily integrates with Write Out Loud.
- <https://learningtools.donjohnston.com/product/cowriter/>

✓ **Text-to-speech**

- Verbose is an easy and convenient text-to-speech converter that can read aloud or save spoken text to mp3 files.
- <https://www.nch.com.au/verbose/index.html>
- Write Out Loud, this text-to-speech program has the essential tools to help its users spell and choose words correctly. The program allows its users to easily create error-free word documents and easily integrates with Co:Writer.  
<http://donjohnston.com/writeoutloud/>

✓ **Audio books:**

- Stories of sleeping children in audio format
- [Miette's Bedtime Story Podcast](#)
- Several hundred carefully selected audio books
- [Podio Books](#)
- A selection of books and educational content in audio format
- [Oculture Free Audio & Podcasts](#)
- Stories and educational reading in audio format.
- [StoryNory](#)
- A rich section of educational audio materials



- [Learn Out Loud](#)
- Stories and educational reading in audio format
- [StoryLine Online](#)
- Free resources, including audiobooks
- [FreelyEducate.com](#)
- Over 7000 free ebooks and audiobooks.
- [Books Should Be Free](#)
- Old materials dedicated to children
- [Kiddie Records Weekly](#)
  
- ✓ **Learning to type:**
  - Learn Touch Typing for free
    - <https://www.typingclub.com/>
    - Teach and Learn Typing Free!
    - <https://www.typing.com/>
  - ✓ **RoboBraille** – document converter capable of automatically converting documents into a variety of alternate formats, including audio files, e-books, DAISY books, etc.  
<http://www.robobraille.org/ro>
  
  - ✓ **PC with spellchecker**

## REFERENCES

- Anderson, J. R. (2004). [Cognitive psychology and its implications \(6th ed.\)](#). Worth Publishers. p. 519
- Assistive Technology Act (2004) 'To amend the Assistive Technology Act of 1998 to support programs of grants to States to address the assistive technology needs of individuals with disabilities, and for other purposes( (Online) Available: <http://www.gpo.gov/fdsys/pkg/PLAW-108publ364/html/PLAW-108publ364.htm> (accessed November 10, 2015)
- Associação Portuguesa de Dislexia (Portuguese Dyslexia Association). Retrieved from: <http://www.dislex.co.pt/>
- Atkinson, R. C., & Shiffrin, R. M. (1968). Chapter: Human memory: A proposed system and its control processes. In Spence, K. W., & Spence, J. T. *The psychology of learning and motivation* (Volume 2). New York: Academic Press. pp. 89–195
- Bahr, C. M., Nelson, N. W., & VanMeter, A. M. (1996) 'The effects of text-based and graphics-based software tools on planning and organizing of stories', *Journal of Learning Disabilities*, vol. 29, pp. 355-370.
- Baydık, B.(2011) Study of Usage of Reading Strategies of Students with Reading Difficulties and Teaching Practices of Teachers on Understanding Reading. *Education and Science*, 6(162).
- Berryhill, M. (2008, May 09). Visual memory and the brain. Available at: [http://www.visionsciences.org/symposia2008\\_4.html](http://www.visionsciences.org/symposia2008_4.html) (Last accessed on 8 July 2018)
- Beukelman, D. R., Hunt-Berg, M. and Rankin, J. L. (1994) Ponder the possibilities: Computersupported writing for struggling writers. *Learning Disabilities Research & Practice*, vol. 9, pp. 169-178
- British Assistive Technology Association (Online) Available: <http://www.bataonline.org/further-assistive-technology-definition> (accessed October 21, 2015)
- Bryant, D. P. & Bryant, B. R. (1998) 'Using assistive technology adaptations to include students with learning disabilities in cooperative learning activities", *Journal of Learning Disabilities*, vol. 31, 41-54
- Buzan, T. (1974). '*Use your head*'. London: BBC Books.
- Christenson, S.L. and S.M.Sheridan. *School and families: Creating essential connections for learning*. Guilford Press, NY, 2001
- Clark, Terry (1987). "Echoic memory explored and applied". *Journal of Consumer Marketing* 4 (1): 39–46.
- David, C., Rosan, A. (2017). *Principles of Diagnosis Based on Scientific Evidence in Specific Learning Disorders*, Cluj Napoca, Argonaut; Limes
- DAISY Consortium (Online) Available: <http://www.daisy.org> (accessed October 9, 2015)

- DAISY Digital Talking Book (Online) Available: [http://www.ask-it.org/documents/best\\_practices/bp\\_daisy\\_digital.doc](http://www.ask-it.org/documents/best_practices/bp_daisy_digital.doc) (accessed October 9, 2015)
- Denckla MB, Rudel RG, Chapman C, Kreger J. Motor proficiency in dyslexic children with and without attentional disorders. *Arch Neurol* 1985;43:228–31.
- Dictionary24. Free online dictionary. (Online) Available: [www.dictionaries24.com](http://www.dictionaries24.com) (accessed November 5, 2015)
- Dyslexia Statistics: <https://www.dyslexia-reading-well.com/dyslexia-statistics.html> (last accessed 7 July 2018)
- Dyslexia Style Guide <http://www.bdadyslexia.org.uk/about-dyslexia/further-information/dyslexia-style-guide.html>
- DysTRANS: International Need Analysis, 2018. Available at [https://issuu.com/emanuelaeto9/docs/international\\_analysis](https://issuu.com/emanuelaeto9/docs/international_analysis) (Last accessed on 5 July 2018)
- Европейския стълб на социалните права [https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles\\_bg](https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles_bg)
- Fleisch, J. (1989) ‘Assistive Technology: A Parent's Perspective’, *Nichy News Digest*, No. 13, pp. 1-11.
- Google Calendar (Online) Available: [https://calendar.google.com/calendar/render?pli=1#main\\_7](https://calendar.google.com/calendar/render?pli=1#main_7)
- International Digital Publishing Forum (Online) <http://idpf.org/> (accessed September 16, 2015)
- Kaplan BJ, Wilson NB, Dewey D, Crawford SG. DCD may not be a discrete disorder. *Hum Mov Sci* 1998;17:471–90
- Korkmazlar, O. (2003). Öğrenme bozukluğu ve özel eğitim [Learning disabilities and special education]. *Farklı gelisen çocuklar*, 147-171
- Legge 170/2010: “Nuove norme in materia di disturbi specifici di apprendimento in ambito scolastico” (Law 170/2010: "New rules on specific learning disabilities in the school environment"). Retrieved from: <https://www.aiditalia.org/it/dislessia-a-scuola/legge-170-2010>
- Lewis, L. B. (1998) ‘Assistive technology and learning disabilities: Today's realities and tomorrow's promises’, *Journal of Learning Disabilities*, vol. 31, pp. 16-26
- Levin, J., & Scherfenberg, L. (1990). *Breaking barriers: How children and adults with severe disabilities can access the world through simple technology*. AbleNet: Minneapolis, MN.
- MacArthur, C. A., Graham, S., & Schwartz, S. S. (1991). A model for writing instruction: Integrating word processing and strategy instruction into a process approach to writing. *Learning Disabilities Research & Practice*, 6, 230-236.
- Матанова, В. Дислексия. СОФИ-Р. София. 2001

- Maxwell, R. (2013) Spatial Orientation and the Brain: The Effects of Map Reading and Navigation. Available online. Retrieved from <https://www.gislounge.com/spatial-orientation-and-the-brain-the-effects-of-map-reading-and-navigation/>
- Melnick, S.A. (1991) 'Electronic Encyclopedias on Compact Disk (Reading Technology)', *Reading Teacher*, vol. 44, no. 6, pp. 433.
- Murphy, R. (2013) Spatial orientation: Which way is up? Available online. Retrieved from <http://www.developlearning.co.nz/blog/spatial-orientation-which-way>
- Nespor, M. & Bafile, L. (2008). I suoni del linguaggio” Bologna: Il Mulino
- Nicolson, R. and A.Fawcett, *Dyslexia, Learning and the Brain*, MITT Press, 2008
- Nicolson RI, Fawcett AJ, Dean P. Developmental dyslexia: the cerebellar deficit hypothesis. *Trends Neurosci* 2001;24: 508–11.
- Barringer et al., 2010 pag. XVII.
- Oxford Dictionaries. April 2010. Oxford Dictionaries. April 2010. Oxford University Press. (Online) Available: [http://www.oxforddictionaries.com/us/definition/american\\_english/e-book](http://www.oxforddictionaries.com/us/definition/american_english/e-book) (accessed September 2, 2015).
- Parr, M. (2013) 'Text-to-speech technology as inclusive reading practice: Changing perspectives, overcoming barriers, Learning Landscapes', *Living in the Digital World: Possibilities and Challenges*, vol. 6, no. 2, pp. 303-322, Available: <http://www.learninglandscapes.ca/images/documents/11-no12/parr.pdf> (accessed December 29, 2015)
- Psychology Glossary. Echoic Memory Defined. Available at: <http://www.alleydog.com/glossary/definition.php?term=Echoic%20Memory>
- Radvansky, Gabriel (2005). *Human Memory*. Boston: Allyn and Bacon. pp. 65–75
- Rose, J. 'Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties', available at <http://www.thedyslexia-spldtrust.org.uk/media/downloads/inline/the-rose-report.1294933674.pdf> (accessed July 4, 2018)
- Techopedia (Online) Available: <https://www.techopedia.com/definition/23767/speech-to-text-software> (accessed October 21, 2015)
- The Individuals with Disabilities Education Act (IDEA) (Online) Available: <http://idea.ed.gov/> (accessed December 28, 2015)
- Tulving, Endel (1985) How many memory systems are there? *American Psychologist*, Vol 40(4), Apr 1985, 385-398. Retrieved from: <http://dx.doi.org/10.1037/0003-066X.40.4.385>
- Wise, M. (1997) 'Participating in High School and Beyond: AT Strategies for Learners with Significant Disabilities', Paper presented at Charting the C's, Brainerd, MN.
- Wikipedia. The Free Encyclopedia (Online) Available: [https://en.wikipedia.org/wiki/Open\\_eBook](https://en.wikipedia.org/wiki/Open_eBook) (accessed September 16, 2015).

## ANNEX 1

### CHARACTERISTICS OF DIFFERENT LEARNERS

Visual Learner	Auditory Learner
<ul style="list-style-type: none"><li>• Mind sometimes strays during verbal activities</li><li>• Observes rather than talks or acts</li><li>• Organised in approach to tasks</li><li>• Likes to read</li><li>• Usually a good speller</li><li>• Memorises by seeing graphics and pictures</li><li>• Not too distractible</li></ul>	<ul style="list-style-type: none"><li>• Talks to self</li><li>• Enjoys talking</li><li>• Easily distracted</li><li>• Has more difficulty with written directions</li><li>• Likes to be read to</li><li>• Memorises by sequence</li><li>• Enjoys music</li><li>• Whispers to self while reading</li></ul>

## ANNEX 2

### GLOBAL or ANALYTIC LEARNER

**Global Learner**

- Learns by discussion and cooperates in group efforts
- Does several things at once and may skip steps/details
- Sees the big picture and relationships between ideas
- Reads between the lines and sees many options
- Works hard to please and tries to avoid conflict
- Goes with the flow and is generally flexible
- Tends to avoid individual competition
- Paraphrases in explaining a perspective

dyslexic individual is his difficulties with

Wh

- better organize his time;
- complete all the tasks on time

This will lead to better achievements and outcomes.

\* It could be helpful if colours or pictures or simbols are used.

Sample

Start Time	Duration	Activity	Done
2 pm	40 min	History lesson	
2:40 pm	10 min	Break – Memory Game	
2:50 pm	40 min	Math – Lesson and Homework	
3:30 pm	10 min	Break – Listening to music	
.....			
.....			

.....			
6 pm	90 min	Sport	
.....			

## Template 2: QUESTIONS AND ANSWERS

**Why do we need it?** – Dyslexic individuals have difficulties with reading, and many of them have difficulty understanding what they have read. It is difficult for them to extract what is important in the text and to learn it. This template will teach the students to read actively.

**What is the aim?** –

- To increase the effectiveness of the reading;
- to help the students to define the aims of reading;
- to train the ability to ask questions;
- to reflex the previous knowledge;
- to increase the level of understanding

**How to fill it in?**

1. Before reading the text, look at the title and pictures.
2. Think of questions you would like the text to answer. Write the questions on the chart below.
3. As you read parts of the text write down the answers to your questions on the other side of the chart.

Sample

**Title of the text:** \_\_\_\_\_ **Diamonds** \_\_\_\_\_

### Template 3: KEY WORDS

**Why do we need it?** – Every subject has its own set of concepts, which should be well understood and learnt so a student could use these concepts properly.

**What is the aim?** –

To encourage the student to find out by himself the meaning of the concepts; to increase the level of understanding; to help the student to better perform his/her knowledge on a topic.

**How to fill it in?**

1. Write the key words in the first column;
2. Look up the meaning of the word in a dictionary and write it down in the “Meaning” column;
3. Give a proper example in the third column.

Sample

My Questions	The Text's Answers
Where they can be found?	South Africa
What is their structure?	An carbon's isotope
What they are used for?	Jewelry, Medicine, Fine mechanics
.....	

**Topic:** \_\_\_\_\_ **Main parts of the sentence** \_\_\_\_\_

Key words	Meaning	Example
subject	refers to the part of the sentence that tells whom or what the sentence is addressing; it can be a noun, a pronoun or a noun phrase	John opened the door.  ("John" is subject because he is the actor in the sentence.)
predicate		



.....		
.....		

**Template 4: OLD KNOWLEDGE – NEW KNOWLEDGE**

**Why do we need it?** – Dyslexics often have problem extracting the most important information from the text they are reading and also with structuring and presenting their thoughts and opinions both orally and in writing.

**What is the aim?** –

- To increase the effectiveness of the reading;
- to help the students to structure their own opinion, based on the information in the text and on their previous knowledge;
- to increase the level of understanding

**How to fill it in?**

1. Read the title of the text carefully and write in the first column facts you already know on the topic;
2. While reading the paragraphs of the text write in the middle column facts from the text you don't know.
3. In the third column write the questions you would like to get an answer to, or topics on which you need some additional information. These questions the student can address to teachers, tutors or parents or to look for the answer in internet or library.

Sample

**Title of the text:** \_\_\_\_\_ **Diamonds** \_\_\_\_\_

What I already know	New facts from the text	What else I would like to know
Could be found in South America	Could be also found in South Africa	Where else?
Used in jewellery	Used also in medicine, fine mechanics	Any other area of usage?
-	An carbon's isotope	Is there any other carbon's isotopes?
		Who discovered the diamonds? When? Where?

## ANNEX 4

### MIND MAPS

The term "mind map" was made popular by British psychologist Tony Buzan in BBC TV series, called Use Your Head<sup>37</sup> hosted by him in 1974. But it is believed that a similar technique has being used for much longer time.

It has been proven that mind maps are very useful for students with dyslexia (and actually useful for all students) to extract information from a text, to organise it, to remember and to retrieve it more effectively. Mind maps can help a student with dyslexia to diffuse good ideas to the structure, which after that could be easily turned into an essay for example (something that students with dyslexia find difficult).

You can find a lot of explanations and examples how to make a mind map in Internet. You may prefer to find Tony Buzan's books, where it is explained and shown step by step.

Here are just few simple advices:

- Before teaching your child to make mind maps learn how to do it yourself;
- Use white paper and set it up in landscape format;
- Always start from the centre: it could be a word or a picture, or a symbol, that presents the main idea (or the topic of the essay you are about to write; e.g. "My Home");

---

<sup>37</sup> Buzan (1974)

- Then the sub-topics come out of the centre to form the radial structure of the map (e.g. “The House”, “The Garden”, “The Family”, etc.);
- You can use words/phrases, or appropriate pictures, or just a symbol;
- You can do each level in different colour – it will help to see the hierarchy in the structure.
- When you teach your child to make mind maps at first let him concentrate on the ideas, and you draw the map and write the words for him. But regarding pictures or symbols to be used always ask him – what to draw, or which symbol to use – this will help him to easier remember and recall the story later.

You can find much more info and guidance how to learn making mind maps and how to teach your child to do so, if you take a look at: <https://mindmapsunleashed.com/mind-mapping-for-children>

Below are two examples of mind maps – the first one – for creative writing; and the second – for teaching/learning grammar.

