

A *Handbook*

of good educational support
for adolescents with
dyslexia



Erasmus+



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MOBILITY OF EDUCATIONAL SERVICES FOR ADOLESCENTS WITH DYSLEXIA

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MOBILITY OF EDUCATIONAL SERVICES FOR ADOLESCENTS WITH DYSLEXIA

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INTRODUCTION

Dear teacher,

You are about to open a handbook written by organisations in four different European countries (Latvia, Bulgaria, the Czech Republic, and Turkey) as part of an international project on adolescents with dyslexia. Dyslexia affects 5–10 per cent of the population and we are sure you have already met a student with dyslexia in your classes.

However, our experience from secondary schools shows that while teachers usually know what dyslexia is they often don't feel competent to provide students with adequate accommodations and other support. It is noteworthy that even though the authors of the handbook come from different countries, the situation is more or less the same in all of them. On the other hand, there have been some legislation and/or practical educational changes in the educational systems in most of our countries (Bulgaria, the Czech Republic, Turkey) in recent years which will probably also improve the inclusion of secondary school students with dyslexia. Latvia still misses proper legislation on the topic and as we agreed teachers' attitudes toward dyslexia seem worse as well and the list of accommodations offered at schools is severely lacking.

Yet, the Latvian organisation Pro Futuro is probably the best at lobbying for students with dyslexia. Activities of Pro Futuro Association are widespread and intense. In fact, all the project partners feel that we can inspire each other and there is a strong need in our countries to broaden knowledge on dyslexia at secondary schools. This was also a starting point of our common project and you can now see one of its results.

Despite the fact we have different school systems and different level of inclusion of secondary school students with dyslexia, we often hear from our teachers and other professionals that the awareness of this topic at secondary schools needs to be raised. Teachers would appreciate training. They would like to find ways how to put into practice what they theoretically know.

The book starts with a theoretical chapter on dyslexia, its causes, symptoms and relevant theories which explain its aetiology. It then continues with practical chapters on creating an individual educational plan (IEP), on subject teaching, language acquisition, reading remediation, specific accommodations for students with dyslexia, and use of ICT. The final part of the book shows several examples of good practice from our partner countries. The information in the handbook is based on research, evidence-based techniques and a wide range of professional literature. The content of the book stems from our frequent experience with secondary school students, their parents, and their teachers. The chapters attempt to cover the most relevant topics which are often discussed during counselling sessions.

The text was written by authors from different countries. In the course of the translation process we tried to adapt the chapters to our school conditions. However, we also found useful to keep some information in its original version as it may serve as a source of inspiration and an example of good practice. Our legislations differ, the way we create IEP's vary, different resources (including ICT) are available and allowed to be used in each country. However, dyslexia is rather the same across various cultures, countries, and languages and students mostly need similar support. Therefore, we consider slight deviations from standard educational situations which we know in our countries, as inspiring and fruitful.

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1. DEFINITION

1.1 Introduction

When was the last day you did not read anything? Can you remember? The answer is probably “no”. We read every day – SMS’s, e-mails, adverts, newspapers, magazines, books, our work, shopping lists, signs, etc. We live in the so called information society and reading and writing are an integral part of our lives. The world has changed a lot in the last hundred years. Today, there is probably no occupation in which people do not need to be able to read and write. Once we learn to read, spell and write we find it very easy. Whenever we see a text, we read it. It is impossible not to read letters when we know how.

However, 5–10% of us find reading very painful and demanding. We should keep in mind that reading is an artificial activity. It is natural to speak. This is something that human beings do. But reading, spelling and writing are results of learning. We have to learn to read and write on purpose. It does not come to us as easily as language. When babies listen to people, they learn to speak. When children watch other people read and write they do not naturally learn how to do it. It takes several years of schooling to learn these skills as they are very complex and we have to involve several cognitive functions and processes to acquire them.

And, sometimes teaching does not work and children despite being capable of it face terrible difficulties learning to read, spell and write. We usually say these people have dyslexia. These people are able to learn but they need a different approach and they use a range of accommodations and tools to overcome their troubles with reading, spelling and writing. Of course, they need support from their parents and teachers throughout their school years – not only in primary school but also in secondary school. If they are not offered such help, we could call this discrimination. Their talents and their potential are wasted, which often causes them to not want to learn in general. These are several reasons why this book was created – the main is to help teachers of adolescent

students to teach individuals with dyslexia. Your students with dyslexia need special approaches but this does not mean regular teachers cannot teach them. They only need to learn how to cooperate with such students, and what support to offer them. You may even eventually see these students as a source of inspiration. They will definitely teach you new professional skills. Furthermore, they will show you that even people who face certain difficulties and may even look less competent at first sight, have much strength. They think in a different way, they learn in a different way, they process information in a different way. And this is interesting!

Let us start with an example:

1. Fred was assessed and then diagnosed with dyslexia at the beginning of his schooling. Fred's parents decided to move Fred from his small village school into a bigger town school. They hoped teachers would know more about dyslexia and would help him better. Unfortunately, this did not come true. When Fred was small, in his first years of school he was a hard-working pupil and he wanted to make his teacher happy. He did his best. For instance, when the teacher started writing something on the board during a break (she prepared work for the next lesson), he sat down and started writing it. He refused the break as he knew he would not be able to copy the text from the board during the standard lesson time. Copying from the board and reading were always very tough tasks for Fred. On the other hand, he had excellent logical thinking, had wide ranging knowledge, and was verbally skilled and very sociable.

As he got older and moved to the second level of his schooling (lower secondary school), his behaviour slightly changed. He still faced troubles with reading, writing and copying from a board. One of his big challenges was to write notes during lessons – he did not manage to write fast enough so the notes were incomplete, he made many mistakes and the information was misspelled, and his writing was often illegible. However, he also knew his teachers were supposed to help him and support him. Most of the teachers did not do so and, thus, he began

to disturb their lessons. He became the class clown, he made jokes, he commented on teachers' work and tasks students were given. This led to big troubles and many conflicts. Some teachers refused to help him at all. His language teacher even placed him at the very back of a classroom where he was unable to follow the work. She just wanted to get rid of him. He got very bad marks in many subjects.

However, it was noteworthy that he worked very well in subjects where teachers supported him. They gave him notes from lessons so he could concentrate on listening and not writing notes. Or they put information on the school website so he knew what he was supposed to learn for the next lesson. They allowed him more time when students read or wrote something. Or, he took oral exams instead of written ones in their subject. They also appreciated his knowledge. His geography teacher often asked him to add information to what she had said as she knew he would know more than other students.

Yet, Fred's parents were often asked to come to school and Fred was often criticised for his behaviour. It was hard to believe that he misbehaved in school because he was so well mannered outside of school. He had never had any other behaviour problems. His conflicts with teachers mirrored his marks – where he had a bad relationship with the teacher, he got bad marks.

After lower secondary school, the school system requires that the student move to another specialized school. Students can either go to a comprehensive secondary school or to a sort of technical school or to an apprentice centre. Fred chose a technical school where the main subject was media studies. He undoubtedly has the potential to complete this school. His potential is even higher. If he wants, he will be able to go to university. However, most of the teachers at his lower secondary school were surprised about his choice. They had recommended the apprentice centre to him and his parents.

Because of Fred's history in lower secondary school, his parents were very much relieved when a psychologist at a counselling centre confirmed

their decision. Fred should definitely study at a school which is completed by a sort of baccalaureate. Fred's parents knew they had a bright son but the attitudes of his teachers had made them unsure.

The psychologist gave Fred a list of recommendations for his secondary school – among them that he take oral exams instead of written ones whenever possible. Fred was told that he should use computer for all of his writing including taking notes during lectures. The psychologist also said that teachers should give him materials from lectures so that he does not have to write that much. Foreign language lessons should emphasize verbal skills and teachers should accept specific mistakes in his written work. When Fred and his parents discussed possible accommodations with the headmaster he accepted all of them. Hopefully, Fred will succeed. He will be able to use his strength (especially his verbal skills and broad general knowledge) and show his talents. He still has four more years of secondary school but he is looking forward to a new beginning.

1.2 Definition of dyslexia

There are several definitions of dyslexia but probably the most frequently used one is the definition introduced by the **International Dyslexia Association (IDA)** in 2002:

“Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized 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.”¹

¹ International Dyslexia Association (2002)

Another organisation that defines dyslexia is the **British Dyslexia Association** (BDA). This organisation uses the term specific learning difficulties. They include dyslexia in a group of these difficulties. Their definition says:

“Specific Learning Difficulties (or SpLDs) affect the way information is learned and processed. They are neurological (rather than psychological), usually run in families and occur independently of intelligence. They can have significant impact on education and learning and on the acquisition of literacy skills.

SpLD is an umbrella term used to cover a range of frequently co-occurring difficulties, more commonly:

- *Dyslexia*
- *Dyspraxia/DCD*
- *Dyscalculia*
- *A.D.D/A.D.H.D*

In general, a student may be diagnosed with a SpLD where there is a lack of achievement at age and ability level, or a large discrepancy between achievement and intellectual ability.

Because of the high level of co-occurrence between different SpLDs, it is important to understand that each profile is unique to the individual and can appear in a variety of ways. The effects of a SpLD are manifested differently for different students and range from mild to severe. It may be difficult to diagnose, to determine impact, and to accommodate.

Unidentified and unsupported dyslexia and related conditions can lead to emotional distress, frustration and poor self-esteem. This can result in a child becoming withdrawn, or more commonly to develop behavioural issues. Rather than focusing on behavioural problems, schools

would be advised instead to address the possible underlying causes, which in many cases may be previously undiagnosed specific learning difficulties.

Dyslexia is a hidden disability thought to affect around 10% of the population, 4% severely. It is the most common of the SpLD's. Dyslexia is usually hereditary. A student with dyslexia may mix up letters within words and words within sentences while reading. They may also have difficulty with spelling words correctly while writing; letter reversals are common. However, dyslexia is not only about literacy, although weaknesses in literacy are often the most visible sign. Dyslexia affects the way information is processed, stored and retrieved, with problems of memory, speed of processing, time perception, organisation and sequencing. Some may also have difficulty navigating a route, left and right and compass directions.²

In other words, dyslexia:

- is innate
- can be hereditary
- is a lif-long condition (i.e. can be observed in adolescence!)

Dyslexia affects reading, spelling and writing and thus all activities which are connected with these skills (including learning math, physics, science, history, etc.).

Dyslexia is independent of family socio-economic status and teaching instructions (cannot be caused by such conditions – but can be intensified by inappropriate teaching and insufficient family support).

You should know that people with dyslexia usually have normal intellect. They can even have above average intelligence. Sometimes we can meet the so called twice exceptional students who have dyslexia and exceptional talents in some other field (remember Fred's knowledge of geography).

² British Dyslexia Association (n.d.)^a

You may have heard that dyslexia is when someone's reading is significantly lower than their intelligence. This is called **discrepancy criterion**. This was a very common way to assess for dyslexia. This approach is **being abandoned** because it is not very precise³. Siegel⁴ argues that it is illogical to calculate the difference between IQ and reading achievement. It presumes intelligent children are good readers and children with poor intelligence are bad readers, which does not have to be true. On the contrary, results of an IQ tests may be affected by language difficulties connected with dyslexia. The most commonly used tests put demands on vocabulary, language, memory skills. You can see how the problems with language and vocabulary uncovered in an IQ test may really be dyslexia. Vellutino and colleagues⁵ add another view. They consider IQ tests too static – they only measure the status quo in comparison with normative population but do not say much about one's potential and needs. Teachers, parents and students need assessment that leads to concrete recommendations and tests of intelligence do not really lead to recommendations. The authors emphasize that assessment should be conducted via criterion-referenced tests so teachers, parents and students understand individual profile of reading abilities and lead to suggestions for effective instruction.

To conclude, profiles of students with dyslexia can vary. Their reading, spelling and writing is always poor but then we have to look for their strengths and weaknesses to tailor interventions to their needs and to find the correct accommodations so they can learn most effectively and at least meet their potential.

1.2.1 Specific features of adolescent reading and writing

When you think about your adolescent students, you probably see and understand that dyslexia can affect their reading, spelling and writing

³ Vellutino, Fletcher, Snowling and Scanlon (2004: 29)

⁴ Siegel (1989: 469–471)

⁵ Vellutino, Fletcher, Snowling and Scanlon (2004: 29–30)

from minimally to maximally. You have to be cautious about misunderstanding their difficulties and/or overlooking them.

Situation 1

Students read very slowly with many mistakes. Their reading is not fluent at all. These are serious symptoms of dyslexia. Surprisingly, despite such painful reading students may comprehend the text. They often need more time to go through the text. You should not make these students read aloud in the classroom.

Situation 2

Students read at a normal or near normal speed and their reading is rather fluent with only a few mistakes. In such cases, ask about the content of the text. A lot of these students can focus very intensely. They do their best to read as precisely as possible. As a consequence, they are unable to follow the content; they put all their efforts into the decoding process. It is useless to ask these students to read aloud in classroom. They need to focus on the information, not on the decoding skill.

Situation 3

Students read rather quickly and fluently and they also comprehend very well. Their dyslexia may be rather compensated in their mother tongue. Yet, you will see them struggle with reading and writing in the foreign languages they are learning. It is much easier to acquire reading in the so called shallow orthographies (such as Bulgarian, Czech, Latvian, and Turkish) than in opaque orthographies (such as English or French)⁶. Secondary school students may somehow manage reading in their mother tongue but dyslexia may manifest strongly in foreign languages they are learning, especially in English.

⁶ Brunswick (2010: 140); Vellutino, Fletcher, Snowling and Scanlon (2004: 18)

1.3 Theories of dyslexia

Why do some students suffer from dyslexia and others do not? Where does it come from? What causes the problems? It is often difficult to answer these questions and scientists have not come to a unifying explanation which would tell us why some people have dyslexia. It is even more complicated because dyslexia cannot be seen. Those who have never faced troubles reading sometimes do not believe it can be a problem for someone else. They tend to accuse people with dyslexia of laziness. They say these people do not try hard enough. The opposite is true. Reading, spelling and writing are very demanding and students with dyslexia sometimes do their best to reach certain standards. It is very exhausting and once they are not appreciated at all they give up. After that they become demotivated and they avoid reading and writing. We are sure that you see or have seen such students in your classroom.

Today, **three main theories of dyslexia dominate**. They may appear as contradictory but it is better to view them as complementary. They are all settled within several perception and memory systems which are linked with various neural circuits and cognitive abilities⁷. When we pay closer attention to them, we can find many similarities. Let us talk about these definitions a bit more for a while. They will help us to understand symptoms of dyslexia.

The starting points of all these theories say:

- *“Reading is primarily a linguistic skill.”*⁸
- *“Normal reading ability assumes adequate language comprehension and fluent word identification... the ability to read depends on the acquisition of a variety of different types of knowledge and skills, which, themselves, depend on normal development of reading-related linguistic and non-linguistic cognitive abilities.”*⁹

⁷ Démonet, Taylor and Chaix (2004: 1451)

⁸ Vellutino, Fletcher, Snowling and Scanlon (2004: 9)

⁹ Vellutino, Fletcher, Snowling and Scanlon (2004: 3)

- *A simple view of reading says “ $R = D \times C$ ” when R is reading, D is decoding, and C is comprehension – as reading develops, the relations between decoding and comprehension change.¹⁰*
- *“Learning to read is a complex process that could be constrained by a number of cognitive factors, ranging from low-level sensory to high-level cognitive processes.”¹¹*

1.3.1 Phonological theory deficit

Phonemes are the smallest units of a word which can be identified when we think about the sound of words. When children learn to manipulate words in their early years, they first learn complete words, then they become able to divide words into syllables and finally they are aware of particular phonemes. In English scientists and teachers also talk about the so called onset and a rime. This means children can say what the first phoneme of a word is (the onset) and then they pronounce the rest of the word is (the rime). After this level they also think about all phonemes of a word. This condition is called phonological awareness.

When we read, spell and write, we need to be able to decode phonemes. This leads to proper identification of words in a text and to being able to write them. When we see a word in front of us we have to be able to identify each phoneme of the word and imagine what the word would sound like. Then we can read the word. After several years of reading experience whole words create our lexicon and then we read them holistically. However, whenever we see a word which is not a part of our lexicon, we use the strategy based on the phonological awareness again.

Research shows that people with dyslexia have **insufficient phonological awareness**. Thus, their ability to decode phonemes and to manipulate them is deficient and this manifests in their reading and spelling skills¹².

¹⁰ Cain (2010: 214, 216)

¹¹ Beneventi, Tømmeesem, Ersladn and Hugdahl (2010: 192)

¹² Démonet, Taylor and Chaix (2004: 1456); Snowling (2000: 137); Vellutino, Fletcher, Snowling and Scanlon (2004: 15)

These abilities are linked with certain neural circuits. They can be observed in terms of auditory processing or phonological processing. This means that people with dyslexia make mistakes when asked to discriminate words which sound similar, they face troubles segmenting words into phonemes and/or blending the phonemes of a word. It looks as if they “do not hear” the phonemes but the main problem lays in the processing of phonemes. They hear without difficulties but higher cognitive functions linked with processing auditory information are affected.

Furthermore, Wolf and Bowers proposed the **double-deficit hypothesis**. According to this approach not only phonological awareness is affected in dyslexia but also processing speed, particularly naming speed¹³. Individuals with such a deficit have trouble retrieving labels and names of letters, words and other verbal materials quickly and fluently. The automatization of naming procedure is slow and constrained. A traditional test mapping such deficit is called rapid automatized naming. Individuals are usually instructed to name colours, objects, letters, and digits presented in several rows as quickly as possible. People without dyslexia score statistically significantly higher in their speed and precision when conducting such task.

Wolf and Bowers even claim that naming speed deficit is more apparent in shallow orthographies (i.e. Latvian, Bulgarian, Turkish, Czech, etc.) where phonological awareness deficit is easier to reduce than in opaque orthographies¹⁴.

In the classroom setting students with problems in automatized naming often have troubles quickly retrieving an answer, especially when an answer consists of a single word and/or a concept. They usually claim they know the answer but when they are encouraged to show their knowledge, they fail. It helps them when we let them talk about the word/concept in a broader way. They may describe what they mean; say what it is used for, what it looks like, etc. After a while the name usually

¹³ Wolf and Bowers (1999: 415–416)

¹⁴ Wolf and Bowers (1999: 420)

comes into their mind and they are able to give a correct answer. They often only need more time to name various phenomena precisely. The names are in their lexicon but their retrieval is a bit complicated.

1.3.2 Specific procedural learning difficulties hypothesis

Cognitive neuroscience has recently shifted its attention from symptom-based approaches to a neural systems approach. In other words, when examining various functions, processes and/or their deficits it appears more fruitful to focus on complex brain systems (neural circuits) that work together than on simple locus of a deficit¹⁵. We process information in a more complex way and even dyslexia as a specific learning difficulty is manifested by more than a single deficit. Each cognitive activity combines several neural circuits and can be better characterized in terms of an individual profile. Such profile will then refer to one's strengths and weaknesses, not only to a particular weakness¹⁶. Therefore, Nicolson and Fawcett (previously known for their cerebellar theory) introduced a new approach entitled **specific procedural learning deficit hypothesis** (SPLD hypothesis).

There are three main neural systems involved in information processing:

1. sensory system;
2. declarative system;
3. procedural system¹⁷.

Declarative and procedural systems are also called declarative and procedural learning and they produce declarative and procedural memories¹⁸. The declarative system is used for factual information and it is fairly explicit. We have to be aware of absorbing information, we learn purposefully. The procedural system is used to learn skills and it is more

¹⁵ Nicolson, Fawcett, Brookes and Needle (2010: 196)

¹⁶ Nicolson and Fawcett (2011: 124)

¹⁷ Nicolson, Fawcett, Brookes and Needle (2010: 194)

¹⁸ Nicolson, Fawcett, Brookes and Needle (2010: 196)

implicit. Finally, the skill is automatized which is carried out by the proceduralization process.

The SPLD hypothesis says that the **language-based procedural learning system is affected in individuals with dyslexia**¹⁹. Thus, reading, spelling and writing do not become automatized processes. This can be often seen in situations when individuals with dyslexia put much effort into their work. After such moments they often hear comment such as: “if you try harder, you will succeed”. However, they have already tried hard. It is very exhausting to work so hard all the time. They have to focus very intensely on activities which are automatic and obvious to their peers. This means that apart from carrying out a task given at school they also have to pay close attention to reading and/or spelling and/or writing. While they have to put in lots of effort, their peers without dyslexia do such activities unconsciously and they are able to put all of their energy on the school task. Eventually, students with dyslexia give up paying full attention to reading and/or spelling and/or writing because these activities are too demanding and require too much energy. The whole work then lasts too long. In such cases they may excel at geography, history, art, math, etc. but they make mistakes in their writing; they read texts too slowly and with errors, etc.

An important aspect of this dual model of learning which included declarative and procedural systems is that the declarative system may take over the procedural one when this is deficient (and vice versa). The work lasts longer as it is based on purposeful activity. But it can compensate for mistakes and difficulties caused by the procedural system²⁰.

SPLD hypothesis does not deny the phonological deficit. However, the authors claim the deficit arises from several factors. The phonological deficit is very strong in dyslexia. However, it does not explain all difficulties people with dyslexia face²¹. This is the reason why they consider

¹⁹ Nicolson, Fawcett, Brookes and Needle (2010: 208)

²⁰ Ullman (2004: 243)

²¹ Nicolson, Fawcett, Brookes and Needle (2010: 207)

the SPLD hypothesis which focuses on a specific learning process as more fruitful for further prevention and intervention in dyslexia.

1.3.3 Visual magnocellular deficit theory

The third most often cited theory says that dyslexia affects magnocellular system which is responsible for timing visual events in the process of reading and for following moving targets²². This theory emphasizes perceptual instability in dyslexia which has an impact on orthography skills. Stein says only a third of individuals with dyslexia have purely phonological deficits, another third faces visual/orthographic difficulties and the last third has problems in both areas to an equal extent²³.

1.3.4 Conclusions

At first sight you may find the various theories confusing and too complicated. However, after a more thorough survey they appear compatible and interconnected. They give explanations to similar concepts and tell us how to understand basic reading and writing problems of our students in classroom. As we have said above, reading and writing are very complex activities which require a whole range of cognitive skills and abilities. Both reading and writing are artificial – a result of a social consensus. Thus, it takes time and energy to acquire them. When we process information within reading and/or writing modality, the whole procedure can be affected at several points.

A study by Reid et al. brought interesting outcomes on this topic. They assessed adults with dyslexia with the aim to characterize their cognitive profiles. The whole sample divided into several groups according to various cognitive problems which were observed. They faced either phonological deficit, or visual magnocellular deficit, or cerebellar deficit, or combination of all three problems. The researchers concluded that none of the current three main theories can explain all cases of dyslexia²⁴.

²² Stein (2001: 12, 26)

²³ Stein (2001: 12, 23–24)

²⁴ Reid, Szczerbinski, Iskierka-Kasperek and Hansen (2006: 18)

However, all the assessed adults with dyslexia scored worse on literacy tests (compared to controls without dyslexia), except a reading comprehension test²⁵. This result proves dyslexia is a life-long condition and its primary symptom lies in decoding texts. A high number of individuals with dyslexia do not face problems with comprehension once they have enough time and appropriate conditions to read a text.

1.4 Symptoms of dyslexia

As we have already said, dyslexia is most clearly seen in difficulties in reading, spelling and writing. When individuals with dyslexia get older (e.g. at secondary schools), phonological deficits are still prevalent but there are other cognitive processes which may be affected. Students with dyslexia report more cognitive lapses in areas of planning, attention, and working memory²⁶.

British Dyslexia Association provides an inspiring review of **symptoms of dyslexia at different ages** on its website. Let us look at the lists of symptoms at school age:

Primary school age:

Has particular difficulty with reading and spelling.

Puts letters and figures the wrong way round.

Has difficulty remembering tables, alphabet, formulae etc.

Leaves letters out of words or puts them in the wrong order.

Still occasionally confuses 'b' and 'd' and words such as 'no/on'.

Still needs to use fingers or marks on paper to make simple calculations.

Poor concentration.

Has problems understanding what he/she has read.

Takes longer than average to do written work.

Problems processing language at speed.

²⁵ Reid, Szczerbinski, Iskierka-Kasperek and Hansen (2006: 17)

²⁶ Beneventi, Tømmesem, Ersladn and Hugdahl (2010: 201); Smith-Spark, Fawcett, Nicolson and Fisk (2004: 181)

Primary school age non-language indicators:

Has difficulty with tying shoe laces, tie, dressing.

Has difficulty telling left from right, order of days of the week, months of the year etc.

Surprises you because in other ways he/she is bright and alert.

Has a poor sense of direction and still confuses left and right.

Lacks confidence and has a poor self-image.

Aged 12 or over:

As for primary schools, plus:

Still reads inaccurately.

Still has difficulties in spelling.

Needs to have instructions and telephone numbers repeated.

Gets 'tied up' using long words, e.g. 'preliminary', 'philosophical'.

Confuses places, times, dates.

Has difficulty with planning and writing essays.

Has difficulty processing complex language or long series of instructions at speed.

Aged 12 or over non-language indicators:

Has poor confidence and self-esteem.

Has areas of strength as well as weakness.²⁷

1.5 Legislation on dyslexia

Our project is carried out by four different European countries. In most modern countries, dyslexia is accepted as one of special educational needs. Different countries have different legal documents which cover these problems. The starting point certainly is that every child has a right to be educated.

Once a student has difficulties learning, we have to do our best to help him or her learn the knowledge and skills they need. Legislation of our

²⁷ British Dyslexia Association (n.d.)^b

partner countries refers to dyslexia in a different way. It is definitely noteworthy to think about different approaches to students with dyslexia. It can be inspiring. It may also reassure us that our approach is appropriate. It can make us think about possible adaptation and improvement of our legal system. Let us look at the legislation on dyslexia which is currently available in our partner countries.

In **Latvia** the term dyslexia is very little mentioned and thus obscure in the legislation. Dyslexia is listed in the regulations about educational medical commissions that issue a certificate that a student has a special need. Students with dyslexia are usually assigned codes of either language impairment or learning disability (LD) programme. There are no licensed programmes in secondary schools of the codes that are most commonly assigned for students with dyslexia. This means that adolescents with dyslexia are practically left without support.

Students with dyslexia, younger than secondary school age, are placed in three speech therapy special schools or special language impairment programmes (20 special classes out of 800 schools). Students with dyslexia receive the same education as students with 19 other diagnoses (speech problems, specific language impairment, etc.) that are clustered in this programme. As a result of this, they do not receive individualized, specific and intensive reading instruction. Accommodation is very scarce – the only accommodation used in most schools is extra time for work. IT and assistive technologies are practically not used – only in separate cases if parents buy a student a computer. The lack of services for students is exacerbated when students reach secondary school.

In **Bulgaria** there is no overall governmental policy concerning dyslexia, nor obligatory legal acts which are binding. While certain documents have been produced and distributed, practice shows that in the absence of a monitoring procedure, implementation of these documents is left to individual initiative of employers, school headmasters and University administrators. The main dyslexia related regulation is the Ordinance 1 for

education of children and students with special educational needs but even there the word "dyslexia" itself cannot be found. 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 Universities.

The Czech Republic has a rather long tradition of professional care for people with dyslexia, especially for children. A child with dyslexia is considered to be a child with special educational needs (SEN). Once the child starts attending school, his/her special needs have to be treated in accordance with the School Law no. 561/2004 (paragraph no. 16), which is the main document concerning all students with dyslexia at elementary schools, secondary schools and also schools of further studies. The information from the School Law is further elaborated in Regulations (Public notices) published by The Ministry of Education on counselling services and on education of students with SEN.

According to the current legislation students with medium and severe dyslexia are "included" in educational process, which means that a school creates an "individual educational plan" (IEP) for a particular student. This plan includes appropriate teaching methods, use of necessary teaching aids, suitable methods of examination, accommodations, compensatory tools (including ICT), and treatment. Students and their parents participate in the process of IEP development; IEP states both rights and duties of each student with dyslexia, his/her parents, and his/her teachers. In addition, schools get financial support to educate integrated students which allows them to buy necessary teaching aids and supply students with extra lessons of education and/or remedial lessons. However, these extra lessons are mostly organized at elementary schools. There are only few secondary schools which offer such support as well.

A change of the School Law, particularly the paragraph no. 16 concerning students with SEN, is planned in 2016. After this change accommodations should be much more available to all students with SEN.

Turkey started including students with disabilities in general education classrooms after the Act 573 was passed in 1997. As a result of this law, inclusion became mandatory. According to the Special Education Guidelines (SEG, 2000) in full-time mainstream schools, number of students can not exceed 14 in pre-schools and 30 in primary schools. Furthermore, only two students who have the same type of disability may be placed in the same classroom (MEB, 2000). Even though the students who are diagnosed with a disability have individual educational plans (IEP), there is a lack of staff and resources to support these students in classroom settings. The students who are most frequently included in mainstream classrooms are those with mild mental retardation or with dyslexia (Specific Learning Difficulties).

Even though MEB has recognized dyslexia since 1997, the establishment of norms and use of IEP's only began in the last few years. Teachers are getting more support through school counsellors and state run Research and Guidance Centres (RAM). However, classroom teachers still get limited support and it is difficult to organize differentiated teaching in their classrooms. 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.

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2. INDIVIDUAL EDUCATION PLAN

For parents:

This book is primarily for teachers, but we know that many parents will read it too, and we think that these are some specific things that a parent whose child is in the IEP process should know.

If your child's teacher or school recommends that your child have an IEP, it is not an insult. It simply means that the school is ready to provide specific and individualized help for your child.

You should expect and demand to be involved in this process. You know your child better than anyone else. Be ready to work with the school and various experts to create a plan that helps your child.

You can and should expect that you and your child get a clear explanation of why the school thinks that an IEP is necessary and what you can expect in the process.

If you feel at all intimidated or confused by the process, try and find another parent who has gone through the process to help you ask questions. In some cases there are parent advocates available to you. If that is the case, work closely with the advocate.

Finally, explain to your child what is happening and why it is being done.

Above all - believe in your child!

As we have said in this manual it is important that teachers provide learning materials based on each student's strengths, prior knowledge, skills and interests. An Individual Education Plan is one way to assure that this happens. There are several key themes relating IEP to future success:

- It creates coordination between teachers – remediation providers – parents and school administration.
- The IEP simultaneously holds students to high academic standards, while assuring that the goals maximize use of his or her gifts and strengths.
- Self-advocacy skills are incorporated into the plans and transition services provided to the students 2–3 years before the end of compulsory education²⁸.
- Students are included in their regular IEP Meetings to give them a chance to practice social, advocacy and communication skills that they will need in the future.
- Clubs and extracurricular activities also should have an important place in the planning process, to enable students to find and use their talents.

Individualised education plans should be written in such a way as to maximise its communicative facility to school administrators, teachers, parents and students²⁹.

You should understand that IEPs are seen as the sine qua non of special education. It may be different where you live, but the importance of preparation and implementation of IEPs for children with special educational needs is accepted and supported by law in many countries. “An individual education plan can be the medium by which we put the special into special education”³⁰. It goes beyond what is normally visible and available in curriculum, specifies the accommodations and tailor-made strategies offered for a particular student.

“An Individual Education Plan (IEP) is a written document prepared for a named student which specifies the learning goals that are to be

²⁸ European Agency for Development in Special Needs Education (2006)

²⁹ Lucido (2013)

³⁰ Nugent (2005: 3)

achieved by the student over a set period of time and the teaching strategies, resources and supports necessary to achieve those goals.”³¹

The law in your country may be different but most of the time the basic standards and requirements such as the content of the IEPs, contributors of its formulation and ways of communicating it to stakeholders are similar. Every child or youngster receiving special education services from preschool through secondary school graduation can be eligible for an IEP. In countries where legislation exists it is often a legally binding document^{32, 33}. Schools are responsible to manage individualised education programme, develop individual plans for the students who are qualified eligible for special education services and implement the necessary procedures. During the whole process a team works with family to create IEP. This collaborative approach has a direct impact on the official document and foundation of parent school partnership. The main reasons your student has an IEP are to make sure that your student can fully participate in the regular classroom (inclusiveness), broaden his/her access to general education curriculum, maximise his or her independence and involvement in goal setting, and strengthen the role of his or her parents in the process³⁴.

2.1 Eligibility

If you live in a country with IEP legislation, then referral, assessment and identification are the prerequisites of the planning process. These identification procedures will determine whether your student either is eligible for or has an IEP. These evaluations are generally conducted by multidisciplinary team work and take some time. However, please remember that you don't have to wait for your student to be formally identified as having a special educational need (as having dyslexic diffi-

³¹ National Council for Special Education (2006)

³² European Agency for Development in Special Needs Education (2003)

³³ National Council for Special Education (2006)

³⁴ European Agency for Development in Special Needs Education(2009)

culties) before you intervene or start to provide some accommodations. Your decision to intervene should come when you notice that a student has more difficulties with reading than his or her peers³⁵.

2.2 Participants in the IEP Process

- IEP Coordinator (the person responsible for the whole process)
- A representative of the school system
- The student's parents
- The student
- The general education teacher
- Special education teacher
- School counsellor/ school psychologist or educational psychologists
- Other individuals who have knowledge or special expertise about the child.

Each participant brings important information to the IEP meeting. They provide critical information to be addressed in IEP and work together as equal team members to write the student's Individualized Education Plan. Each person's information adds to the team's understanding of the student and what services he or she needs. As a teacher, you probably know the most about the student's functioning and problems in the classroom. You should be prepared with your observations and concerns. This open perspective will ensure a shared sense of responsibility of educating student with dyslexia and other difficulties among all involved professionals³⁶.

2.3 Components of the IEP

To help decide what special education and related services the student needs, generally the IEP team starts by looking at the child's evaluation results. These can include classroom tests, individual tests given to establish the student's eligibility, and observations by teachers, parents,

³⁵ Rose (2009)

³⁶ ERIC Digest (2001)

professionals, related service providers, administrators, and others. Information and conclusions from formal and informal assessments are reviewed to cover all details about student's academic and social skills in school environment. This information will help the IEP Team Members describe the student's "present levels of educational performance" and this performance will be a base to build student's IEP and what studies/work will be carried out with student during the academic year. Each accomplished step will be the starting point or a grounding base for further skills required for the student's grade level.

Matters to be specified in the education plan shall include:

- *The nature and degree of the child's abilities, skills and talents;*
- *The nature and degree of the child's special educational needs and how those needs affect his or her educational development;*
- *The present level of educational performance of the child;*
- *The special educational needs of the child;*
- *The special education and related support services to be provided to the child to enable the child to benefit from education and to participate in the life of the school;*
- *Where appropriate, the special education and related services to be provided to the child to enable the child to effectively make the transition from pre-school education to primary school education;*
- *Where appropriate, the special education and related support services to be provided to the child to enable the child to effectively make the transition from primary school education to post-primary school education, and*
- *The goals which the child is to achieve over a period not exceeding 12 months.*

Essential Elements Table EPSEN Act, 2004³⁷

³⁷ Education for Persons with special Educational needs Act 2004 (2006)

2.4 Goals

The next step is creation of specific, measurable, agreed, realistic and time bound (SMART) goals and short term objectives³⁸.

Specific goals and objectives are target areas of academic achievement and social skills. The terms “goal” and “objective” sometime seem to mean the same thing. In IEPs, there is a difference between them. Annual goals should enable the student to progress in general curriculum. Objectives are milestones of the progress and the short-term steps to reach goals³⁹ and both goals and objectives should include clear descriptions of knowledge and skills student will gain and how his or her progress will be measured. Measurement sometimes means using objective tests and other times counting occurrences or observing the outcomes of provisions. Goals and objectives should be realistic and relevant but not too restrictive to limit the student’s options. Goals and objectives should also be time bound to enable IEP team monitor the progress of the student at regular intervals.

2.4.1 Examples of goals and objectives

Goal: Ömer will increase reading comprehension skills to objective criteria as measured by the objectives listed below.

- Ömer will state the main idea of the story 4/5 opportunities to do so.
- Ömer will relate information (i.e. Past events, stories, situations, etc.) sequentially 4/5 opportunities to do so.
- Ömer will identify what happened first, in the middle, and last regarding a previous read story, past event, or situation.
- When relating information, Ömer will provide an initial background statement, include important pieces of relational information and leave out irrelevant details.

³⁸ National Council for Special Education (2006)

³⁹ Heitin (n. d.)

Goal: Cem will increase writing skills to 9th grade level in the area of Ideas and Content, as measured by analysis of writing samples (objectives)

- Write a main idea with some supporting details on a topic.
- Research and write to convey understanding of a topic using at least one resource.
- Write clear, focused main ideas and supporting details on a topic.
- Include appropriate facts and details on a chosen topic.
- Use writing to generate a learning log and journals to record new information.
- Will answer who, what, where, why and when questions to 70% accuracy on a given passage.

Examples of appropriate words to use when writing targets⁴⁰

- *To name (orally or in writing)*
- *To write*
- *To match*
- *To differentiate (by selecting, marking, separating into groups)*
- *To recite/say*
- *To identify*
- *To find*
- *To list*
- *To classify*
- *To order*
- *To compare*
- *To describe*
- *To construct (draw, make, build)*
- *To demonstrate (perform procedure with or without verbal explanation)*

Appropriate terminology for writing goals and objectives by National Council for Special Education (2006)

⁴⁰ National Council for Special Education (2006)

The following should be stated clearly in the IEP:

- The specific educational services to be provided,
- program modifications or supports,
- description of all adjustments for central examinations,
- specific accommodations that will be given to the student,
- the projected date for initiation of the services and the expected duration of those services.

In other words, your student's IEP should clearly state how often, how long and in what location the school will provide the specified services and modifications, and when the services and/or modifications will begin. Before graduating from compulsory education the IEP should provide for each student (with a difficulty), a statement of the transition services which focuses on the student's courses of study (advanced courses for higher education or a vocational education programs)⁴¹.

There should be a strong connection between IEP and classroom activities. The goals and objectives of IEP should cover all the areas in which the student cannot substantially benefit from the regular education programmes. Once the IEP is developed, recorded and signed by all team members, the student's services and individualized programme begin. There could be minor adjustments in goals and objectives during the academic year but major changes (such as: changes about services, placement, etc.) require new meetings, and members should be notified in writing.

Communication between parents and professionals is very important. Parents can share valuable information about student's possible problems with the individualised programme. When student have difficulty at school, parents may be able to address possible causes and offer solutions.

⁴¹ Office of Special Education and Rehabilitative Services U.S. Department of Education, (2000)

In the best case your school has a coordinator for the IEP team, or the representative from school should coordinate and monitor the services provided for the student. A lot of people might be in charge for the delivery of proposed services and it is important that the student should be able to reach those services in time as mentioned in his/her IEP. Appropriate delivery, frequency, location and duration of the whole services from special education to accommodations and modifications described in the IEP should be supervised by the responsible team member.

In order to monitor student's progress toward his or her annual goals, progress reports are prepared and communicated to all stakeholders. If you do not get these reports, it would be good for you to request them. The strengths and parental concerns, the results of the initial and recent evaluation of student and also the results of school and central examinations should be considered in the progress reports⁴².

When dealing with difficulties of dyslexia young people should not be alone. They need to feel the support and understanding the parents and other adults at school may offer to and deserve to see friendly faces around them. IEP Meetings are the most appropriate channels to communicate a collective understanding and positive feelings to the young person. Also, the meeting provides us chance to show our appreciation for her or his continuous diligent efforts.

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3. READING REMEDIATION FOR ADOLESCENTS WITH DYSLEXIA

According to OECD PISA research data there are 17% of 15-year old that read in the lowest reading competency level out of five in Latvia. This number does not include students with dyslexia or any other reading disability as all formally diagnosed special needs students are excluded from the research. As indicates the survey done in the project “Mobility of Educational Services for Adolescents with Dyslexia” the number of students with some kind of formal recognition of reading problems is very small in high schools: in Latvia these are less than 1% of the students⁴³. In contrast to this low number, the teachers in secondary schools recognize almost 11% of their students as struggling readers⁴⁴.

3.1 Reading remediation

The suggestions and recommendations for this section are based on best practice brief “Effective Instruction for Struggling Adolescent Readers: A Practice Brief” prepared by experts in reading from several USA universities and literacy promoting institutions in 2008.

In many countries there is practice to provide reading remediation to struggling readers beyond primary grades because of the general acknowledgment how important reading is to acquiring school subject content areas, prepare for their future and also learning about the world in general. Reading remediation for adolescents is provided in the USA and UK. Regardless of the very high level of ICT compensation for poor reading in adolescents, reading intervention is also provided to students in Denmark, Sweden and Norway.

Reading remediation for adolescents is direct reading instruction that is provided specifically for students whose reading is considerably below grade level. The USA researchers in their manual of best practice for

⁴³ Boneva et al. (2015: 20–21)

⁴⁴ Ibid, 20.

reading remediation define adolescents as students beyond primary school grades (grades 1–3). We in this Manual will refer to junior high and secondary school students as adolescents. What is important there is no substantial difference how reading remediation is provided to a 4th grader or to a 12th grader.

Reading remediation of adolescents includes word level reading or word study, fluency improvement, enriching vocabulary and comprehension boosting.

For adolescents there will not be concentration on phonemic awareness and phonics which is learning how letters and their combinations represent the sounds of a language. We hope and assume that these aspects of reading have been taught in the primary level. Reading remediation for adolescents with dyslexia or any other reading difficulty will include

- Word study;
- Fluency;
- Vocabulary;
- Comprehension
- Motivation.

Motivation is a new aspect of reading instruction as for adolescents it is very important what they are reading to keep them interested and to also enrich their general and specific subject field knowledge.

Motivation is an inherent part of all reading remediation also in word study, fluency and vocabulary level so it will not be discussed here separately. Reading comprehension is described in the previous chapter on subject teaching.

3.2 Word study

Many adolescent readers struggle with decoding words so they must be given a chance to improve these skills. Reading words fluently and accurately improves reading comprehension so it is a very important skill to understand what one is reading.

Students should be taught to break words into their structural parts (prefix, root, suffix, and stem). Those who struggle reading separate words benefit from direct instruction in word study. The level and contents of word study should be matched with their needs not chronological age or grade level.

Advanced word study teaches students to break multi syllable words into syllables and blend these syllables together, to analyse morphological and semantic parts of words.

What teachers should do:

- Help students to understand words and then divide words into their constituent syllable types.
- Help students learn to recognize and read multisyllabic words and use blending to read those words.
- Help students to be able to identify irregular words – words that do not have clear patterns.
- Help students understand the meanings of common prefixes, suffixes, inflectional endings, and roots. They should be taught how words relate to one another (e.g., trans: transfer, translate, transform, transition).
- Help students see how to break words into word parts. Then they should be taught to put word parts together to make words using their roots, bases, or other features.
- Help students understand how structural analysis can be used to decode words the student does not know⁴⁵.

3.3 Fluency

Many adolescents do not read fluently even if they read separate words accurately. Even though fluency automatically does not cause comprehension, it is very dependent on precise and fluent reading of the text. Most struggling readers do not read fluently. Reading remediation pro-

⁴⁵ Boardman, Roberts, Vaughn, Wexler, Murray and Kosanovich (2008: 7)

grams for adolescents do not concentrate on fluency even though it is very important.

Reading fluency can be improved on two basic ways – by oral repeated monitored reading of a passage where a good reader is giving feedback and/or non-repetitive wide reading.

Whether repeated oral reading or non-repetitive wide reading is the instruction of choice it is necessary to track students' gains in fluency and provide frequent feedback to ensure that students are practicing reading as accurately as possible. Students can monitor their own progress by maintaining a graph that shows changes in performance over time. Fluency practice should be supported by having a teacher, tutor, or capable peer provide appropriate models of fluent reading and corrective feedback. It is important to involve students in monitoring their own progress toward reading fluency goals⁴⁶.

Students should be reading passages—that they are interested in—at their independent or instructional reading level. They can practice fluency with consecutive (following one another) passages (as in a novel or text book) or a series of passages (short readings) of similar difficulty. Do not have students re-read the same passage repeatedly. As students improve, increase passage difficulty by selecting texts with new and challenging vocabulary and content⁴⁷.

Example:

Experience of work with children and young people with dyslexia shows that what works best is:

- *Start with very simple text (far below their reading level) – this gives them the feeling of success and motivates them to want to try something more difficult*
- *Proceed slowly with more difficult texts, paying special attention to the accuracy and punctuation. If you come to the text that is too dif-*

⁴⁶ Ibid, p. 11.

⁴⁷ Ibid, p. 12.

ficult for the student (more inaccurately read words), it is better to go back to the easier one in order to keep the motivation.

- *All the time register and show the progress (increasing difficulty level; decreasing number of inaccurately read words; increasing speed, etc.).*
- *Use a voice recorder to record reading from time to time, so the student could “hear” his/her progress.*

3.4 Vocabulary

The authors of “Effective instruction for adolescent struggling readers: A practice brief” say: *“Knowing the meaning of words relates strongly to reading comprehension and overall academic success. When students understand the meanings of the words they encounter in text and have strategies to figure out unknown words, they are more likely to understand the content of what they are reading. However, vocabulary knowledge is more than simply understanding the meanings of words as we read. Vocabulary knowledge involves word consciousness, the awareness of the richness and varied uses of language. Word-conscious students are interested in words and enjoy using and hearing others use words well. They know the importance of learning new words and of mastering strategies associated with word learning”*⁴⁸.

In order for you to have good vocabulary instruction your classroom work should engage students in learning new words and in learning word consciousness. To have word consciousness means understanding the etymology, structure, first and further meanings, various connotations of the definitions of the word or word group. Your students also need to learn to “figure out” new or unfamiliar words using what they know about similar words or word classes and context.

⁴⁸ Ibid, p. 13.

Your vocabulary instruction should include these three areas:

- Additive vocabulary where you explain specific words;
- Generative vocabulary instruction involving word-learning strategies, to help your students have independent word learning; and
- Academic vocabulary instruction where your students learn about vocabulary for specific academic content areas.

While you can use these strategies as effective tools for helping all of your students, you will find them most important for helping your students with specific learning difficulties⁴⁹.

Generative Vocabulary Instruction

Generative vocabulary instruction builds from the relatedness of words and classes of words. You can help your students develop the skills needed to identify what new or unfamiliar words mean by having them use their existing knowledge of specific words and word parts. You use specific instances of particular words or word parts and systematic practice in the use of morphemic and contextual cues to help your students to understand how to identify similar or related words or classes of words.

- Frequently have your students read familiar and unfamiliar texts at a variety of levels (of course, use texts at your students' independent reading level – reading about 9 out of every 10 words) and for a variety of purposes. As you would understand, the more your students read, the more likely they are to have to apply the strategies for understanding unfamiliar words.
- It is not enough to read the words. You should create opportunities for your students to use the target vocabulary words aloud in small- and large-group exercises that develop and explain what the students read.
- You should also use the words aloud in order for students to see the link between oral language and reading. You should also make these links explicit.

⁴⁹ Ibid, p. 15.

- Help your students to become word conscious by having exercises where they talk about how authors use words, play word games, and explore playful uses of words such as idioms, palindromes, and oxymorons.
- By using key word strategies with phonetic or visual links to target words, you use a known word to cue your students to the target word; for example, associating the key word “fear” with the vocabulary word “ferocious” because “a person would fear a ferocious animal”.
- Show students how to break words into parts and to use context clues, root words, prefixes, suffixes, and word families to identify their meaning⁵⁰.

Academic Vocabulary Instruction

When doing academic vocabulary instruction, you bring your students to the meanings of words in the specific context of your subject area. To help your students to have knowledge of focused academic vocabulary you use both additive and generative instructional practices. For centuries, philosophers have debated the differences, if any, in understanding the meanings of words and understanding the nature of the concept those words represent. You can assume that while simply understanding the vocabulary is not the same as understanding the subject, knowing the most important language goes hand-in-hand with understanding the subject. You can do these things:

- Use content-area materials to identify important vocabulary. These may be more difficult words, but because they are related to important or difficult ideas, they will be very useful. In everyday life, the word “mitosis” may not, in general, get much daily use, but in the course of learning about or discussing cell division and reproduction, it is critical vocabulary. Its meaning, of course, is multilayered. Your students will not have the sophisticated understanding of the concept

⁵⁰ Ibid, p. 18.

that a working cell biologist would have, but you can put them on the road to that knowledge.

- You can help your students have a deeper understanding by having them read and use the word in a variety of contexts. A sixth class science student's need may be met by knowing that mitosis is *"the process in cell division by which the nucleus divides typically consisting of four stages, prophase, metaphase, anaphase, and telophase, and normally resulting in two new nuclei, each of which contains a complete copy of the parental chromosomes"* (Wikipedia, n.d.).
- He or she may also know that karyokinesis is sometimes used to describe the same process. The detail at which you need your students to understand the phases of mitosis depends on local curriculum demands, your student's aptitude or excitement, or the instructional goals.
- You can develop and implement assessment procedures where target words are identified and your students are explicitly told the words they need to learn. You can pre-assess vocabulary knowledge and then teach the unit while using curriculum based progress monitoring where vocabulary development is tracked. And also assess how well they really understand the vocabulary (e.g. Can the student define the word? Use it in a sentence? Provide a synonym or antonym?).
- Have explicit instruction in the specific words the students need knowledge of in order to make sense of a specific text or content area. You can provide simple definitions before they read, generate examples and non-examples, or co-create semantic maps with word families or list multiple uses of the word or words of interest. By giving explicit knowledge of the most important words you increase vocabulary and reading comprehension. This is especially effective for your students with disabilities.
- Your vocabulary development instruction can be enhanced by the use of ICT. The use of gamification can engage your students. Use online dictionaries and reference materials to verify and extend the knowledge of your target vocabulary, and hyperlinks (clickable words con-

tained in online passages) to give students more information quickly and in many contexts⁵¹.

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⁵¹ Ibid, p.19.

4. DYSLEXIA AND LEARNING PREFERENCES

4.1 Introduction

Dyslexia is a learning difference. This means students with dyslexia are capable to learn. However, we need to think about their learning preferences, about the way how to mediate information to them, how to teach them. In fact, this is nothing teachers have to do for students with dyslexia only. Once you work with a class of 20–30 students, you have to presume each has some specific individual needs and preferences. The previous as well as the following chapters focus on particular teaching approaches suitable for students with dyslexia. Let us now consider some general accommodations teachers should include in their teaching to adjust the whole situation to all different students they teach. In other words, individual adjustments of teaching may help students with dyslexia but also any other students in the class. Thus, every teacher can work with students with dyslexia on this level even when they do not know much about dyslexia. Thinking about individual preferences of each student in a class belongs to fundamental professional skills of teachers.

4.2 Learning preferences

Students learn under various conditions. Sometimes, their preferences even differ in connection with a particular subject or a topic of a subject. When considering students with dyslexia, it is even more crucial to think about their particular way of learning as the most common ones usually do not work for them. Instructions such as, “read it repeatedly until you remember the content” or “neat notes help learning” do not work for them. Furthermore, they can decrease their motivation. As reading and writing causes them difficulties, they obviously do not want to use these channels to process information.

Let us have a look at various aspects of learning preferences. We can consider them from several perspectives. A combination of them leads to individual profiles. We should think about students’ preferences but

we could also discuss them with students, which can help them to become aware of their preferred way of learning (either at school or at home).

Reid⁵² offers a list of **various aspects of the educational process** which may have **impact on learning and study achievements**. Among others are:

- environment in which a student studies;
- mood, i.e. emotional conditions which accompany study and school life but also current state of mind at a particular learning situation;
- self-confidence which may differ at different school subjects and learning situations depending on a variability of requirements, school duties and/or teacher's approach to students;
- motivation for school work;
- teachers' teaching style, i.e. typical features of one's teaching and a way how teachers communicate with students;
- students' learning style (see below);
- characteristics of a task, including instruction, the modality it requires to be completed, its complexity, abstraction, etc.;
- material which is used while completing a certain task;
- additional support mechanisms such as daytime when we work, presence of other people who support a learner, physical position while learning (e.g. sitting at a desk, in an armchair, on a traffic means)⁵³, complete silence vs. listening to music, etc.

Goodwin and Thomson⁵⁴ consider the presence of other people. Certain learners prefer working on their own while others like group work. Some like learning at a public place (e.g. a library, a café) and others need to sit at home in a quiet place. Other people also play a role as resource support. Some students require direct support and encouragement (possibly

⁵² Reid (2006: 7)

⁵³ Goodwin and Thomson (2010: 26)

⁵⁴ Goodwin and Thomson (2010: 26)

in face-to-face situations, which means they probably need individual teaching at home as a part of their homework preparation for school), others are rather happy with structured lessons and they only need precise instructions from their teachers. There may be also students who learn best when sitting alone, watching a document, reading a book, etc.

All these elements should be considered when we think about a success and/or failure of a student. When a student needs a stronger individual approach in accordance with his/her difficulties, learning preferences have to be included. Sometimes students need a sort of analysis of their specific learning preferences. It is useful to discuss these with them, maybe even offer them counselling on learning preferences and/or recommend a counsellor who would help a student define specific conditions under which his/her learning is most effective.

There is a wide range of learning style typologies, i.e. preferred strategies of learning⁵⁵. One which is frequently referred to speaks about sensory aspects of learning⁵⁶, about a preferred modality through which learning occurs easily and rather quickly. The styles are then entitled visual, auditory, and kinaesthetic. They often work in a combination but some learners can be very strict in the use of one of the styles which suits them best.

Example:

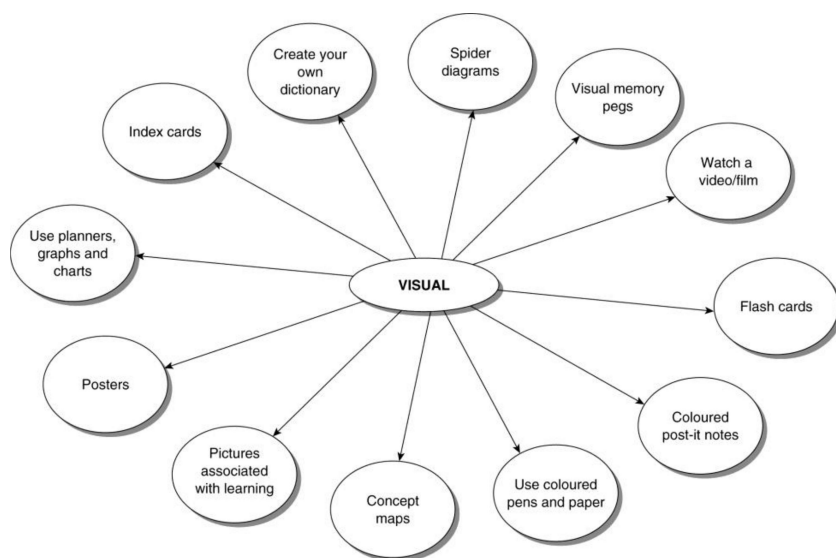
Some students with dyslexia prefer auditory style which serves as a sort of compensation for their writing difficulties. In such cases they need to listen to teachers as taking notes complicate their concentration. They really learn best when they only listen or they get involved in discussions with others; they lead a dialogue, etc. – without any writing. On the other hand, some others prefer visual information but often in

⁵⁵ Mortimore (2008: 6)

⁵⁶ Goodwin and Thomson (2010: 27); Hargreaves (ed.) (2007: 13)

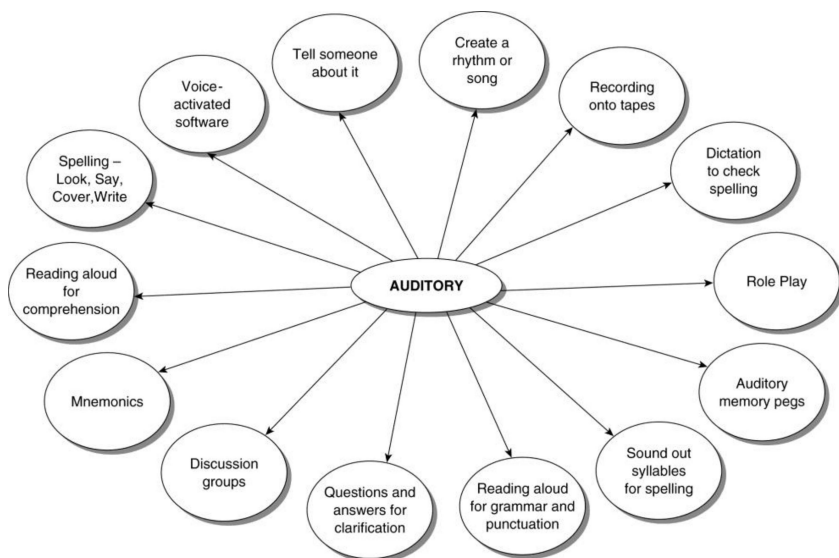
other than verbal form. They like pictures, charts, tables, watching documents, drawing, etc. These preferences may then be rather strong as they also serve as compensatory mechanisms and students purposefully develop them.

Hargreaves⁵⁷ offers complex lists of activities which can stimulate a particular learning style.

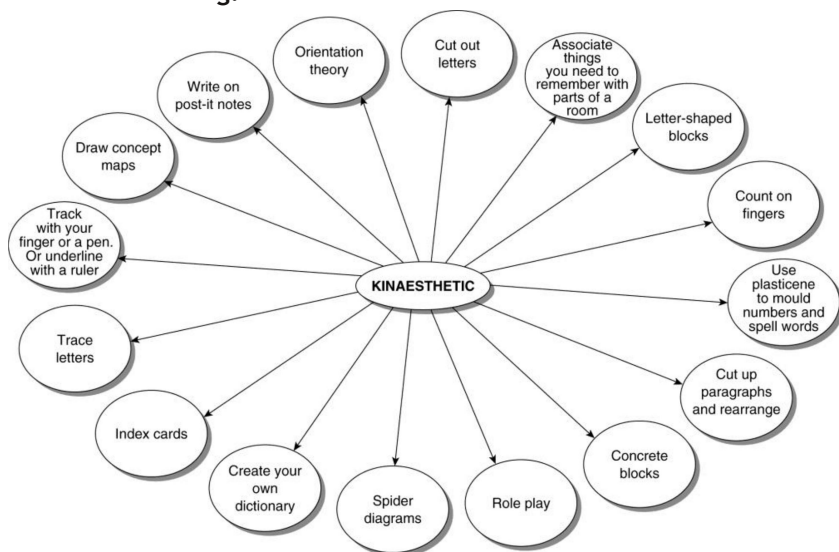


Picture 1 – Visual learning style – possible activities which support learning.

⁵⁷ Hargreaves (ed.) (2007: 13–18)

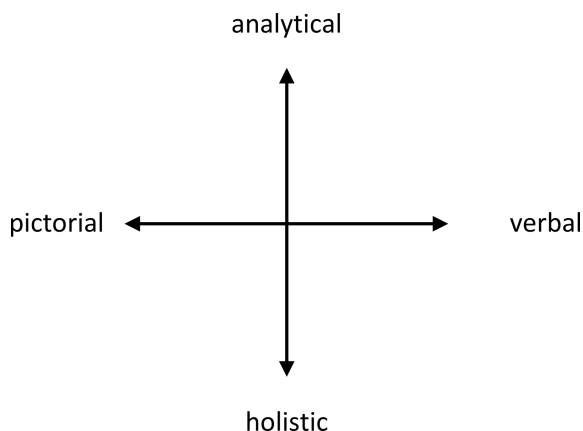


Picture 2 – Auditory learning style – possible activities which support learning.



Picture 3 – Kinaesthetic learning style – possible activities which support learning.

Apart from learning style there is also a concept of **cognitive styles**, which are considered more general. Cognitive styles refer to ways how we process information⁵⁸. No matter whether we are involved in learning, doing homework, or we solve any other kind of problems (such as packing for holidays, planning a family dinner, painting a flat, etc.), we may prefer a certain way how to think about the problem. One of the most common typologies combines two different scales of processing information as the following picture shows.



Picture 4 – Two scales of processing information.

The analytical style requires sequencing, putting information in order, work step by step. On the contrary, the holistic style is more context-like. Those who prefer this way of processing information need stories, exhibitions, documentaries, etc. The more information they get, the better they remember details as well as logic links among different resources.

The pictorial style works with pictures, charts, graphic symbols, etc. People who prefer this style tend to think in pictures rather than words.

⁵⁸ Goodwin and Thomson (2010: 28–29); Mortimore (2008: 128)

The opposite end of the scale is the verbal style which requires verbal information – spoken and/or written.

As the scales cross each other, the styles can be combined into four variations. Furthermore, we can also combine the cognitive styles with learning styles. Thus, we can have students who show a wide range of learning preferences, e.g. a student with verbal and holistic cognitive style in combination with auditory learning style will tend to prefer listening to stories, discussions, conference talks, etc. Information presented in broad context in verbal way will probably help him/her learn.

However, we must not forget there are other variables that play a role in the process of learning. The styles do not cover every problem. Furthermore, many students do not use a preferred style, or their preferences differ depending on a topic and/or subject. Reid⁵⁹ emphasizes that the use of learning preferences depends on:

1. a particular task as different students use different skills and abilities to complete their work;
2. an output, i.e. what format answers and/or solutions require;
3. on a specific support students get when completing the task.

4.3 Summary

While working with students think about their learning preferences and discuss with them what way of learning suits them best. They can even use some assessment tools to observe their learning preferences.

The learning preferences need to be considered during different stages of learning and across various educational situations. They appear when giving instructions and subject teaching. They also affect homework preparation. And they should be included in variable formats of tests and exams – examination tasks can be given in many different ways (questions and answer is only one option).

⁵⁹ Reid (2006: 120)

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5. HOW TO IMPROVE/OPTIMISE SUBJECT TEACHING AT SECONDARY SCHOOLS

Subject teachers spend the most time with students, but often do not understand the needs of a student with dyslexia. This can have consequences for the student with a learning disability. According to research cited in *Preparing General Education Teachers to Improve Outcomes for Students With Disabilities* (a report from American Association of Colleges for Teacher Education and National Center for Learning Disabilities)⁶⁰ students with disabilities are much less likely to see university as being possible for them. Students with disabilities are also less likely than their peers to see teachers as meeting their needs. We know that secondary school students with dyslexia are at least as capable as their peers so want to see them have every chance for success. It is our hope that teachers can use the tools in this manual as a starting point for understanding how they can better help their students with dyslexia succeed.

We wrote this section with the needs of teachers in mind. This does not mean that parents and students will not find it useful, but that it should be considered a tool to work with teachers to be sure that your child is getting the most help he or she can.

We begin with a list of most common accommodations used by and helpful for secondary school students with dyslexia and then describe a series of tools and techniques that can be used.

5.1 The most common accommodations for secondary school students

Accommodations in the classrooms are techniques or technologies that help students to effectively learn. As you read this list, you will probably notice that many of these accommodations would also help students who do not have dyslexia.

⁶⁰ Blanton, Pugach and Florian (2011: 11)

Accommodations are most helpful when they somehow compensate for something related to the primary weakness (reading) that students with dyslexia have. Accommodations change the way information is presented, and do not change the actual information or classroom expectation.

Among the most common and useful accommodations⁶¹ are:

1. **Extra time** – students with dyslexia often benefit from having more time than other students to complete tasks or tests in class.
2. **Individual tutoring** and/or attention given to what a student has written (to make sure his/her notes are correct).
3. **Use of grammar etc. summaries** when working.
4. **Use of a scribe** – some students with dyslexia benefit from having someone who can record their responses on tests or take notes for them.
5. **Text to be read in a class given in advance** – students can first read them at home to get ready for the class
6. **No note taking** – students with dyslexia struggle with writing. Allow them to record lessons or give them gap fill notes.
7. **No handwritten assignments in class** – allow students to either use word processors (with context and/or predictive spellcheck) in class if they absolutely must create text in class or give answers verbally. There absolutely must be a reason for the writing.
8. **Using audio material whenever possible** – many books are available in audio version. If you assign text, try and use versions that are in electronic form so that students with dyslexia can use text-to-speech to read them.
9. **Using computers in class** – this everyday tool helps students with dyslexia to do a range of tasks in the class and should be encouraged.
10. **Providing directions one step at a time** – This helps students with dyslexia to not get trapped in text directions.

⁶¹ Reading Horizons (2014)

11. **Preview and review often** – By doing this, you give your students explicit awareness of what is important and what they should focus on.
12. **Tell students when they are going to change tasks** – By giving students with dyslexia time to shift from task to task, you can give them the chance to finish writing or reading and not to shift to other tasks. It also allows them to understand and remember main points.
13. **Work in short or shorter increments** – Even in secondary school, students have limited attention. By working in shorter increments, you allow your students to stay focused and to understand what is really important.
14. **Have visual outlines available for students** – especially when you lecture. The outlines allow students with dyslexia to see relationships. These relationships may not be clear to them when they are reading. Make them explicit so that reading is a supplement.
15. **Make the pace of your instruction slower** – We all have to fulfil curriculum and other requirements, but it helps students when we can and do slow down. Students with dyslexia particularly benefit when they need the instruction to add to what they often laboriously read.
16. **Explicit connections** – students with dyslexia are quite intelligent, but they often have reading comprehension problems. These comprehension problems might show up in your classroom by them not seeing connections that others see. The best accommodation is showing the connections, and by showing the students where you find these connections in the text they read.

Think of Richard:

Richard is in the second year of upper secondary school. He is a quiet boy and you never see him take notes or volunteer to answer questions when you are making a presentation or doing tasks in class.

You notice that he does well on multiple choice questions (this is not true of all students with dyslexia) when he is given enough time, but rarely writes complete answers even on short answer quizzes or tests.

What can you do to help him be prepared for tests and able to display his knowledge?

Give quizzes or tests toward the end of the class period so that you can allow him to continue to work during the break between classes. Preview the questions that you will ask during class and remind students that they can review answers and be ready in class. Give Richard your notes or an outline so that he can follow the logical flow of what you are presenting.

5.2 Literacy instruction for adolescents to improve reading and comprehension

Remember that your students with dyslexia have difficulties with reading quickly and effectively. If they have gotten good remediation, the reading may be better, but it is unlikely to be as good as that of your other students. You may notice the reading problems in a number of ways but it is most important that you understand that these students read not only slowly, but sometimes also struggle with comprehension.

Students with dyslexia who are in your class may not be able to read the text you assigned. They may struggle with decoding so much that they do not have the cognitive space to deal with the text in higher order manners.

What higher order issues might they miss?

- Seeing sequences that are not explicitly stated
- Understanding implicit connections between ideas
- Identifying or noting new words
- Identifying definitions for new words
- Seeing the structure of the text or textbook that they are reading

How can you help?

When you assign any reading, explain why the reading is assigned. Tell the students why they are reading it and say what they should be attentive too.

If you use a textbook:

- Explain the text book – how is it structured?
- Are there summaries? Where are they?
- Is vocabulary somehow identified (bold, lists etc.)? If so, explain it. If not, help them make lists of new language.
- Explain the structure of chapters. Tell students about summaries, use of charts and tables and value of review and summary questions.
- If the textbook does not have review questions, help students by giving them review questions or by helping them to create reviews.

If you do not use a textbook:

- Explain each reading that you will assign – why is it assigned? What can the student expect from it?
- Help the students make review questions that summarise readings
- Help the students make lists of vocabulary or new uses of language.

Finally, it is important that you tell students about the meta skills that they are developing in learning to use texts this way. Remind them that most academic texts have similar structures and help them to see how academic and non-academic texts in similar areas may have different structures.

Help Students Learn SQ3R – Survey – Question – Read – Recite – Review

Most readers somehow naturally learn what text involves and understand how various different kinds of text are constructed and how they can be used. This is not so for students with dyslexia so we need to explicitly teach and review at least one way of approaching text.

One such approach is called SQ3R⁶². As a subject teacher, at the beginning of the school year teach this method to all students.

The 5 elements of SQ3R are:

1. **S – Survey** – help your students to understand that it is a good strategy to look through the text that they are to read. They should look for signposts such as headings, bold texts, numbered lists, pictures, diagrams, charts etc. These things are important to note because they sometimes have information not explicitly mentioned in the text or provide support. Headings especially help good readers to see the structure of the text.
2. **Q – Question** – encourage your students to question the text. You can do this directly by asking them to submit questions that they think the text might answer or by getting them to brainstorm about what they expect from the text.
3. **R – Read** – then the students read the text.
4. **R – Recite** – after reading the text the students should then recite what they learned. They return to the questions that they wrote or even talk about what surprised them. Another way of reciting the text is to answer review questions or create their own outline or mind-map of the text.
5. **R – Review** – finally, the students should review the text at varying times from when they first read it.

It is a good idea to return to the SQ3R approach on a regular basis. Ask students about the structure of a specific text. Have students submit review questions to share with others. They should see this not as a task but simply something good readers do in order to get the most from a text.

⁶² BBC (2015)

In this section we suggested several ways to work with text. These techniques are all metaskills that students need to practice repeatedly in order to master them. Meta skills are those skills that are used generally in learning situations and are not specifically related to the subject area being taught⁶³. It is incumbent on you to help your students learn them and then remind them to use the tools.

Example:

It is the beginning of the school year for Mrs. Jones. She is a chemistry teacher and wants to really help her students to use the text tools to best learn chemistry.

What did she do?

- 1. In the first class she carefully reviewed the text book she would use.*
- 2. She talked about the structure of the book as a whole by explaining the table of contents.*
- 3. Then, she looked at several individual chapters to show the students that each chapter has a summary at the beginning, headings throughout the chapter and then review questions and problems.*
- 4. Finally, she reviewed the SQ3R method and talked about what kinds of questions a chemistry student might ask of text.*
- 5. Several times during the school year she returned to these ideas and asked her students how and whether they were using the SQ3R approach.*

To encourage her students to use the technique, she gave extra credit points for students who submitted questions that they wrote.

Note-taking

Even if your student with dyslexia does not have dysgraphia, the student most likely will struggle to take notes in class when they are needed.

⁶³ Social Science Dictionary (2016)

What can you do?

- At the beginning of the school year talk about when they might be expected to take notes and help them to create a system for keeping those notes.
- Avoid situations where notes are needed. When possible do not lecture.
- Review at least one method for notetaking⁶⁴. These methods give structure and assure that your student is being consistent.
- Tell the students ahead when you plan to lecture. Tell them the main subjects and encourage them to do appropriate reading ahead.
- When you do need to lecture, make sure that your lectures use a clear structure with lots of signposting language. Always explain the structure at the beginning of the lecture.
- Allow students to use recording devices to record lectures. This allows the student to give full attention to the lecture or lesson.
- Allow the student to use their computer to take notes.
- Give the student an outline, or better, a gap-fill outline. This highlights what is really important in the lecture and also gives the structure of the lesson or lecture.
- Allow time at the end of the lecture for questions for clarity.
- Give students mind-maps or other visual structures that show the relationships of the ideas.
- Following lectures, give students review questions to answer. This will show you whether your lecture was clear and help students understand what more they should revise.

We reviewed several ways that students who struggle with reading can be helped to write or keep better notes. It is very important to note that this should be made explicit for the students. Students who struggle with reading often are at a disadvantage because they are expending all of

⁶⁴ <http://coe.jmu.edu/learningtoolbox/notetaking.html>

their energy just to stay on pace and never learn the meta skills needed to be effective.

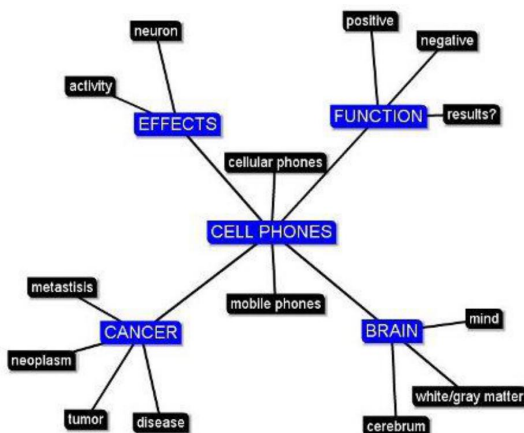
Alternative ways of information recording (mind-maps, reviews, charts, tables)

Notes are one way of recording information and having it available for review. There are a number of other methods that can be used and that may be more useful for students with dyslexia. These tools can be used not only for lecture situations, but for structuring reading, creating a synthesis of information from many sources and for review in general.

Mind-maps

Mindmapping is a tool to show relationships between and within ideas. It can be used in many subject areas and helps students with dyslexia to see the relationships between points and subpoints in lectures, text and in other settings. There is a much research that supports the use of mindmapping and other visual relationships tools in improving text comprehension⁶⁵

An example:



66

⁶⁵ Buzan (2014)

⁶⁶ DeSales Library Guide (2012)

This is a mind map created to understand the relationship between mobile phones and a variety of issues and problems. It starts with a core idea – cell phones – and then the student created nodes of ideas related to cell phones, and then for each node, adds ideas or words associated with it. Overall it is a visual representation of how the core thought leads to others and shows the relationships between the associated thoughts.

Using mind maps in different subject areas:

- Natural sciences – students can create mind maps to show relationships between and within ideas in individual chapters of text books. They can also use them to help structure presentations, essays, lab work or reports.
- Literature – visual organisation can be used by students to map relationships between literary concepts, characters in works of literature and track plot in novels and other literature.
- Mathematics – visual organisation can be used by students to map how proofs (for example in trigonometry) are done. They can also help students see relationships between specific areas of mathematics and problem solving.
- Business or economics – one very popular contemporary visual tool used in business is the Business Model Canvas⁶⁷. This tool helps students of business or economics to keep a visual record of their thinking of the important parts of a new business.

Visual organisation tools are very important in helping students creating structure in written works⁶⁸. Writing is a process and not a task only. A visual organisation tool helps the writer/student with the following tasks:

- Idea selection
- Seeing or creating a structure for the work

⁶⁷ Ostervalder (2012)

⁶⁸ Teaching English (2014)

- Sequencing the work
- Assuring that important points are not ignored.

You as the teacher can help the student by asking that they create mind maps or other visualisations as they proceed through the writing process. One visualisation is likely not enough. By having process points, you can help your student stay on task, focused and effective.

Available tools/software

More and more tools for creating visual organisation are available. To decide which ones to use, you should consider the following:

- Availability – is it actually available to the student? Free or open source tools are often quite good.
- Do you understand the tool or are you willing to learn? Simply recommending a tool is not enough, and you should be ready to help students learn to use it and then make sure they are using it.
- Capabilities – consider what you want to do and look for tools that actually allow it to be done. Some tools, for example, can go from table of contents in a document to a visual representation and from visual representation to a table of contents (and to presentation slides).

Here are some commonly used and popular tools⁶⁹:

Use tables and graphs to help students understand

Especially in the sciences, tables and graphs are used to display information in an accessible and clear way. For your students with dyslexia, these displays may help them the most.

Tables of information help students to see the relationship between different elements in a clear manner. You should help your students by helping them to understand the conventions of tables. Show them that rows and columns should have labels and that the labels tell the viewer what is in that row or column. Ask them specific questions regarding the

⁶⁹ <http://www.digitaltrends.com/computing/best-mind-mapping-tools/>

data or information in tables. You should ask them both explicit information questions and questions about relationships.

Questions might include⁷⁰:

- *“Is the design of the investigation accurately reflected in the information used?”*
- *What does the table or graph not tell us about the design of the investigation?*
- *What does the information in the table or graph tell us? (Are there any patterns in the data?)*
- *What does the data shown not tell us that might invalidate our interpretation?*
- *Do the patterns suggest an association, a difference, or a change between the variables?*
- *Can we use the pattern in the data to predict and generalise? (This includes being aware of the limitations of the presentation of the data.)*
- *Are there alternative interpretations for the pattern of the data? Might other factors be causing the pattern? Have the limitations of the data been clearly identified?”*

Providing information in a variety of ways helps all students to have multiple points of access to the knowledge that you want them to gain. You also help students by giving them ways to see relationships between ideas and learn how to question information and data.

Writing essays and assignments

Your students with dyslexia and dysgraphia may particularly and obviously struggle with written work. There are a number of things that you can do to help them:

- Only give written work when it is really needed – is there an alternative way to do the task? Presentation? Oral report?

⁷⁰ Gott and Dugan (2003)

- Provide clear instructions on what the final work should look like. Numbers of words, pages etc. can help the student with dyslexia really understand.
- Give many check points and process control points. At the very least students should be required to turn in and be given feedback on:
 - Topic
 - Outline of approach (table of contents)
 - The research approach
 - Research results
 - An initial draft
 - A second draft
 - Final product.
- Grading should be clear and based on rules or curriculum requirements that are meaningful for skills development.

In general, your students with dyslexia should only do meaningful writing. The writing should help the student to develop real, subject related skills. They should also be allowed to use all electronic tools that are available.

Summary

Your students with dyslexia may seem to present a challenge, but we hope you now see that they are really a window to even better pedagogy. To meet their needs you simply should do a number of things that even the best students can benefit from.

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6. DYSLEXIA AND FOREIGN LANGUAGE ACQUISITION

We realize that today, learning to use languages other than native language is very important. We share this chapter with you so that foreign language teachers have specific information and so non-foreign language teachers can understand the methods used to help students with dyslexia learn second languages. This matters because you may see a student struggle with foreign language and yet not struggle in your subject. It is important that the whole school team understand the particular struggles a student with dyslexia has in learning language – whether native or second.

This chapter of the Handbook is based mostly on the book “Teaching Languages to Students with Specific Learning Differences” by Anne Margaret Smith and Judit Kormos, and the online course of Lancaster University “Dyslexia and Foreign Language Teaching” that in turn draws from this book to a big extent. This approach – to use a limited number of sources – is chosen to give coherence to the problem and the solutions suggested.

While the book “Teaching Languages to Students with Specific Learning Differences” uses the term “second language” or L2, in many cases it could be replaced with the term “foreign language” as not all learners of a new language at school have been familiarised with it before, outside the classroom. Many, if not most, students learn English at school, giving it a status as a contemporary Lingua Franca, but in many countries there are requirements for students to study other languages. We use the terms second language and foreign language as synonyms because reading and writing are taught to students just the same as these aspects of a foreign language. So what we mean by foreign language is a language that your student has not encountered at home or school before.

Most definitions of dyslexia include the idea that it is a problem with accurate and fluent word recognition. This also means that, by extension, additional difficulties that may lead to problems with spelling and processing spoken information. So, dyslexia is associated with a number

of language related problems. Therefore, it is easy to see why a student with dyslexia might struggle with parts of learning any foreign language or languages.

As already stressed in this Handbook, the main focus on helping students with dyslexia in secondary school is a *“whole-staff initiative and not one in which individual teachers can opt out”*⁷¹.

6.1 Manifestations of dyslexia in foreign language acquisition

Students with dyslexia **process verbal information differently** from those who do not have dyslexia.

Students with dyslexia may have working memory problems and generally have what is termed reduced phonemic awareness. This manifests in difficulties in sound discrimination (e.g. short-long vowels) and sound-letter correspondence. You can see this in difficulty with spelling, writing, and reading in both first and foreign language work.

In addition to students with dyslexia have shorter memory spans when it comes to processing language input. It means that they can store smaller amount of information in their working memory. For example, when people try to remember a new telephone number they have to keep all the digits in their short-term memory for some time. People with dyslexia can remember fewer numbers than those without memory problems. This has wide ranging effects on learning in general because students with dyslexia **can remember fewer pieces of information** at a time, whether it be instructions, how to carry out tasks, or new words in a language. We do not only rely on working memory when we process incoming language, but also when we carry out other cognitive tasks.

When you do mental arithmetic, you need to hold all the intermediary results of the calculation in your working memory so you get the right answer. The same is when we have to manipulate pieces of language simultaneously. This is the reason why your students with dyslexia might

⁷¹ Reid (2003: 262)

struggle with holding on to the meaning of words + grammar + sentence construction.

The Lancaster University team of the course “Dyslexia and Foreign Language Teaching” stresses that: *“Dyslexia should not be seen as a disability that hinders people in their daily life, but as a difference in acquiring new knowledge and skills. These students can learn successfully. They will need adjustments in the teaching process and the environment, and assistance in developing efficient strategies”*⁷².

Your students’ range from light to very serious. This is why it is important that you try new techniques, respond to the student’s specific needs, and generally try to be as flexible as you can.

Here are some things you might see in your student’s with dyslexia:

- mix up letters,
- misread words,
- read more slowly;
- have difficulties understanding the meaning of text and
- he or she might struggle to simultaneously read (decode) and understand.

Difficulties for students with dyslexia in the process of foreign language acquisition may not be so obvious in the student’s first language (if it transparent – good sound-letter correspondence) but quite serious in the foreign language. One area that you might not see problems in native language but might see in English is spelling. This is specific to languages such as English because they use a so-called deep orthography. This means that often there is no direct one-to-one correspondence to a sound and its representation as a letter – letters and letter combinations sometimes represent more than one sound.

Orthographic systems fall within two major categories. The difference is in how sounds and letters are related. If a student with dyslexia has

⁷² Dyslexia and Foreign Language Teaching (Online) (2015)

had a good reading remediation and has achieved good level of reading/writing/spelling in his/her native language, he/she still may struggle in foreign language lessons. You may see a student with dyslexia struggle despite having had good reading remediation in their native language.

Another language area where dyslexia manifests is in new vocabulary acquisition. Students with dyslexia may need to see new words and work with them many more times to understand it than does their non-dyslexic colleagues. He or she needs more practise and revision opportunities to internalise novel words. Modern technology, multi-sensory approach, games, etc. really help them to achieve better results in this.

You may notice that some of your students with dyslexia excel in using foreign languages orally while some struggle with it. While it is true that reading is almost always a struggle for students with dyslexia, listening (understanding) and speaking can be as strong as or even stronger than that of students without dyslexia. This was noticed and pointed out by the researchers already many years ago – R. L. Sparks and L. Ganschaw in 1991 formulated Linguistic Coding Differences Hypothesis: *“Poor readers have problems with phonological/orthographic (sound and sound/symbol) and syntactic (grammatical) but not the semantic (meaning) components of language”*⁷³. You may notice this in students who find it difficult to plan what they want to say, find the right words, pronounce the words correctly, and use grammar accurately.

Students with dyslexia despite their efforts cannot progress as fast as their classmates. Please keep in mind that your student with dyslexia is aware of his or her struggles and can easily see when he or she falls behind others. The online course *“Dyslexia and Foreign Language Acquisition”* team calls for sensitivity and identification with students with dyslexia: *“Imagine how you would feel and what you would do in this case. Your first feelings would be of frustration, anger. And you would quickly lose your self-esteem. Your first reaction would be to flee, and give up, and think about choosing some other activity where your difficulties*

⁷³ Ganschaw, Spark and Javorsky (1998: 249)

would not be so obvious. Unfortunately, frustration and demotivation often happen. Losing motivation, students with dyslexia give up trying to learn a foreign language in a classroom. So they are deprived of the opportunity to acquire an essential skill in our globalised world-speaking another language.”

Teachers’ role is to motivate and help their students with dyslexia to become decent and efficient learners of a foreign or second language.

6.2 Multi-sensory teaching methods

Multi-sensory teaching methods are some of the methods “that can enhance the success of language learning of students with an SpLD”⁷⁴. Teaching students with specific learning difficulties it is very important to follow general good teaching practice.

Multi-sensory structured learning (MSL) approach can be used for both foreign and second language acquisition. MSL is one of the most widely used methods in teaching reading and spelling skills in English as the first language and in foreign language instruction of students with an SpLD.

Multi-sensory structured learning approach teaches elements of the foreign language – the sound and spelling system, vocabulary and grammar – through the activation of auditory, visual, tactile and kinaesthetic channels. It means that learning a new word, student repeats the word several times after the teacher (auditory channel), draws a picture to enhance memorization (visual channel), and acts it out (kinaesthetic channel). The use of several sensory channels facilitates encoding in memory as the use of senses makes learning memorable and enjoyable. This approach is helpful not only for students with dyslexia but also for other students. Many students with SpLD have weaker phonological processing skills and because of that “have difficulties encoding verbally presented information”⁷⁵. If students are given a chance to use more

⁷⁴ Kormos and Smith (2012: 126)

⁷⁵ Kormos and Smith (2012: 127)

sensory channels when learning the effect of, their weak phonological processing can be minimised.

The MSL also takes notice of the **difficulty of students with dyslexia in committing verbal information to long-term memory**. The authors of the book “Teaching Languages to Students with Specific Learning Differences” state that: *“Learning another language requires the memorization of different types of verbal information: sound sequences, letter combinations, words, phrases and larger linguistic constructions, which might be particularly challenging for learners with an SpLD, whose phonological short-term memory might be able to hold less information than that of their peers”*.⁷⁶ But students with dyslexia can master all these language elements if they *“are presented in small units and are practised extensively in different settings”*. *“Progress in small steps and overlearning are, therefore, key components of the MSL approach. The MSL approach stresses the importance of practising different aspects of the second language until they become automatic, yet learning is not boring and monotonous due to the application of a large variety of multi-sensory teaching and learning tasks.”*

Another important aspect of MSL approach is that it offers students with SpLD a chance to find the learning strategies, organising their learning and controlling their feelings in the learning process. It is very important that teachers give different examples of learning strategies that can help their students with dyslexia. After your students with dyslexia have found learning strategies that work best for them, you should be ready to monitor and support learners in consistent use of these strategies.

While MSL has a foundation in good general pedagogy in language teaching, it has some distinctive characteristics. The first of those is direct and explicit teaching of the foreign language rules. This approach is different from communicative language teaching methodology where

⁷⁶ Kormos and Smith (2012: 127)

learners are given rich communicative opportunities and are expected to deduce the rules of the foreign language from this contact with the target language. Students with SpLD have difficulties in inferring language rules both in their native and foreign languages and thus they need very direct explanations of all linguistic systems of a language: phonology, spelling, morphology and syntax.

The second difference of MSL approach and communicative language teaching methodology is the use of drills. Drills are simple substitution exercises used for practising grammatical structures. In a drill the same question is repeated many times until a student can give a grammatically accurate answer. The authors of the book “Teaching Languages to Students with Specific Learning Difficulties” conclude that: *“This type of drilling, which has somewhat fallen out of use in modern language classroom, due to its perceived lack of communicative value, provides language learners a sentence frame that they can memorize and use with minimal changes and thereby helps the acquisition of syntactic and morphological system of L2”*⁷⁷.

Here are the basic principles of the MSL approach (as defined by Schneider and Evers⁷⁸):

- multi-sensory;
- carefully structured;
- cumulative;
- frequent revision;
- explicit explanation of linguistic structures;
- ample practice, drills and
- learning strategy training.

To conclude, teaching foreign languages to students with dyslexia does not ask for radically different teaching methods used in the mainstream

⁷⁷ Kormos and Smith (2012: 129)

⁷⁸ Shneider and Evers (2009: 56)

classroom. The main three differences are the importance of explicit teaching of language structures, slower pace of progress and frequent revision.

6.3 Teaching the sound and spelling system

Students with dyslexia should be taught explicitly how to pronounce sounds and how sounds correspond to letters of the foreign language taught. It is useful to demonstrate how the vocal apparatus is used to produce specific sounds. The students should be given the chance to experiment with the sounds of the new language.

It is also important to teach how sounds correspond to letters (In English this aspect of language is called phonics and many modern textbooks give very clear phonics rules from the very beginning of teaching English as a foreign language, e.g. textbook series “Family and Friends”. This is especially important if the native language of a student has shallow (or transparent) orthography but the foreign language – deep (or non-transparent / opaque) orthography.

Alphabetic orthographic systems are divided into categories based on the consistency of the letter-to-sound relation: this is called orthographic depth. **Deep orthographies** have many unpredictable and unstable sound-letter relationships, and have complex relationships such as, for instance, multi-letter graphemes or frequent irregularities. **Shallow orthographies** have simple letter-sound relations. In languages that have a shallow orthography, a given letter or letter cluster is always pronounced the same way, while words in a deep orthography may use the same letters or clusters for a number of different pronunciations⁷⁹.

English has deep orthography and as it is most widely taught foreign language in the EU, then teachers must understand sensitised how difficult it is for students with dyslexia and especially for students with dyslexia with a mother tongue that has shallow orthography.

⁷⁹ Comenius multilateral project “DysTEFL – Dyslexia for Teachers of English as a Foreign Language”(Online) (2012)

Even though teaching sound-letter correspondence is usually done in the mother tongue classes, the spelling is a neglected aspect of teaching foreign languages. Even though a big part of English spelling is regular, many of its words need to be memorized. To enhance rote learning **mnemonic exercises** are very useful. They are funny sentences or small rhymes with every word of them starting with a letter that forms the spelling of a concrete word, e.g. a mnemonic rhyme for the spelling of “geography” is “George Eggert’s Old Grandfather Rode A Pony Home Yesterday”. It is productive for students with SpLD to use activities that **increase their phonological awareness** in the foreign language as dividing words into syllables and identifying sounds in words.

In order to avoid students mixing up similar sounds and letters that look the same you should teach these in separate classes: for example, the letters “p” and “b” and English letter combinations “oa” and “oo” should not be taught in the same class.

There are many spelling games and tasks teaching sound and letter correspondences available on the internet. Use these sites to give students chances to practice pronunciation and spelling both in classroom and at home:

http://cambridgeenglishonline.com/Phonetics_Focus/

<http://www.bbc.co.uk/skillswise/topic-group/spelling>

6.4 Teaching vocabulary

The on-line course “Dyslexia and Foreign Language teaching” suggests the following approach to vocabulary teaching: Learning new lexical items involves quite a complex process of combining information about the sound, pronunciation, meaning, and spelling, as well as pragmatic information relating to how the new items can be used in context. It is usually best to limit the number of items to be learned – a maximum of six to eight new words – and to focus explicitly on attaching the pronunciation to the meaning before moving on to the spelling and other as-

pects of the item. New items should be presented in a context that is familiar to learners whenever possible. It is also a good idea not to teach items that are too similar in any aspect in one lesson. For example, students may struggle with differentiating “who” and “how”, or perhaps “when” and “where” as they are phonologically and syntactically similar. Unfortunately, of course, in many syllabuses these items will be presented at about the same time. But it is more helpful to learners with dyslexia to focus on one of these at a time. And only move onto another similar item when the first is firmly established. In presenting a new item it is useful to provide a kinaesthetic or physical cue – like a mime or a gesture – as well as a visual cue to complement the pronunciation. This helps to prompt retrieval of the word later.

You can use pictures or sketches made by your students as visual cues. This will reinforce the item in their memories.

When you introduce new words, you should revise and use them frequently – at least in three to four following classes and then they should be periodically revised for at least two weeks. Kormos and Smith in their book suggest that *“students with an SpLD should not be overloaded with all the different information concerning a particular word in one lesson”*⁸⁰. They advise that it is useful that students first learn the pronunciation of a new word in languages where the pronunciation cannot be deduced from the spelling. Just the same at first they learn only the most frequent meaning of the new word. Only when the students have learnt basic form, they are exposed to more information about the word – spelling, other meanings, morphological and syntactic characteristics.

Other ways to induce memory by using movement and visuals are:

- showing a picture of or miming a new word;
- a student tracing words on paper, a desk or in the air (this probably would be more suitable for primary school students);
- use of flashcards;

⁸⁰ Kormos and Smith (2012: 133)

- drawings of concrete words in the vocabulary lists;
- using mind maps and
- different interactive games on portable devices.

It is very important not to teach new words in isolation but in context which will help the students to anchor them to mental images that in their turn will facilitate recall of these words from long-term memory.

As Kormos and Smith note in their book it is ideal if revision of new vocabulary of foreign language is a daily routine for learners with dyslexia spending ten to fifteen minutes on practising new words every day⁸¹.

Basic principles of teaching vocabulary to students with an SpLD:

- limited amount of new vocabulary in a lesson;
- explicit teaching;
- extensive practice;
- multi-sensory presentation and practice techniques;
- frequent revision;
- separate teaching of similar sounding words and words with similar meaning and
- teaching sound-meaning corresponding first.

6.5 Teaching grammar

Teaching grammar just as teaching vocabulary must be performed explicitly. Students with dyslexia and other SpLD can derive general rules from the communicative input but still it is good if all the rules are clearly explained. It is helpful if grammatical structures are presented in the context of their communicative functions. However, teachers should avoid complicated linguistic terminology – for students with dyslexia even understanding words “verbs, nouns and adjectives” can be difficult not to speak of terms of grammatical tenses in English or any other foreign language. Sometimes use of the linguistic terminology can mislead a

⁸¹ Kormos and Smith (2012: 134)

student from using the correct grammatical form that he/she knows practically but gets mislead and confused by the term he/she cannot comprehend.

Be sure to present the new constructions in a familiar context so that your students gain the basic understanding how the new structure should be used. It should also build on what students already know. **And just one small development should be presented at a time.** So, for example, if students have become comfortable with forming positive simple present sentences, they may be ready to progress on to forming negative simple present sentences. But forming questions in the present simple, may be a further step for another session, another time. The rules relating to the new construction need to be pointed out and made explicit along with any common exceptions.

Students may well be able to infer the rules from exposure to the language just as well as any other student could, but there is always a risk that students with dyslexia may be making different connections from those that most of us make. And therefore, they may build a slightly different set of rules resulting in nonstandard usage, which unfortunately often becomes fixed. As with any new language students with dyslexia in addition to clear explanation and need to practice a so they can master it. In the best case, you will do it in a way that gives all the sensory channels a chance to be activated. For example, colours could be a way to show the different parts of speech – this will help your students see how sentences are formed.

Once students have had the opportunity to practise using the new structure orally, activities that incorporate the use of text can be added. As a first step you could offer a supported framework. For example, students could be asked to complete some sentences with some words missing. Or to rearrange individual word cards to make a sentence. We need to make sure that there is not too sudden an increase in the demands of the task, such that free writing might present. Otherwise, the attention of the learner may be taken away from the grammar point under consideration

to tackle more fundamental issues of letter formation or spelling. Eventually of course, tasks may be presented that do require free writing.

But even at this point the topic should be familiar, and plenty of time should be allowed for thinking through how to express the ideas.

So in conclusion, we can see that there are several challenges facing learners with dyslexia when they come to develop their vocabulary and grammar in a foreign language, **mainly due to phonological processing, memory, and sequencing constraints**. However, for every challenge we can find a solution or a strategy that will help your students to progress.

The most important thing for you to keep in mind is that your students with dyslexia will show a complex mix of strengths and challenges. Your exciting task is to provide instruction that compensates for weakness and leverages strengths.

6.6 Teaching reading

There are two phases to reading: “(1) *lower order decoding processes, which involve recognizing letter-sound correspondences and words as well as processing morphological and syntactic structures, and (2) higher-order processing, in the course of which readers understand and evaluate the information conveyed by the text*”⁸². Reading problems of students with dyslexia and other SpLD are mostly caused by lower order decoding problems. And higher-order skills build on the effective functioning of the student’s ability to decode the text thus students with dyslexia may show general text comprehension difficulties (as they cannot read the texts well enough).

So reading in a foreign language for students with dyslexia might become really difficult. That is why you should only start your students should start reading texts above the sentence level after a longer oral language learning/teaching time. This helps the students to become more confident language learners and this oral language learning phase serves as a foundation before reading is introduced. So the students

⁸² Kormos and Smith (2012: 135)

should start reading in a foreign language after learning many words and grammatical structures orally and they first have to start reading only one word, not text, level. Foreign language word reading should also be practiced frequently even after students start reading longer texts. Repeated practice on word recognition enhances word decoding skills, which is essential for successful reading.

When choosing texts for reading for students with dyslexia, some considerations should be taken into account:

- shorten reading texts for students with dyslexia,
- or divide them into shorter sections and
- use illustrations, glossaries of unknown words, quick and easy comprehension questions;
- give them easier reading tasks, such as finding key information instead of reading for detail and
- choose motivating, culturally and socially appropriate texts;
- the level of difficulty of the text should match the reading proficiency level of a student, otherwise he/she will lose interest in it;
- texts should not contain many unknown words and grammatical structures;
- the layout, format and presentation of the text need to be adjusted for the needs of students with dyslexia and
- when it is possible use digital texts as they give the students a chance to modify the font and the size of the letters from one side, and from the other side they often are combined with visual material and audio content.

Pre-reading activities are useful for any reader but they are especially beneficial for students with reading disabilities. Pre-reading activities can give the students a successful reading experience by

- activating students' background knowledge on the theme by discussing it with the teacher or in small groups;

- the students purpose to read by asking them to find some specific information and
- pre-teaching of key vocabulary that can help in understanding the global meaning of the text.

Again – pre-teaching of new words should be limited to 6–8 items not to overwhelm the students. Just the same as the new words, also new grammatical constructions are to be explained before reading.

Students with dyslexia should not be asked to read aloud and be expected to understand what they have read at the same time⁸³. Doing this can be both totally ineffective and humiliating for students with an SpLD. Reading for students with dyslexia should be short but focussed and each reading session should be followed by a discussion about the read text. The teacher can first read out the text to understand the main informational context, and on second reading students might look for more detailed information. The comprehension of the text can be checked with a few questions that require short answers. Multiple-choice tasks with a high number of possible answers can be confusing and gap-fill tasks that require extensive additional reading may place additional stress and anxiety on students.

To conclude, the reading tasks for students with dyslexia in foreign language or languages class or classes should be carefully structured and should build reading skills gradually and cumulatively.

6.7 Teaching listening

Teaching listening to students with dyslexia is similar to teaching reading but there are also some differences. Generally, students with an SpLD find listening less difficult and anxiety-causing than reading. Still, also listening tasks should be adapted to the students' needs.

Students with an SpLD often have auditory discrimination problems of sounds that may become more serious in a foreign language as there

⁸³ Kormos and Smith (2012: 136)

might exist sounds that do not exist in a student's native language. So it may be difficult for him/her to discriminate similarly sounding words while listening to the text. Students with dyslexia may find it difficult to concentrate on a stream of oral language for a long time and then keep it in their working memory. It means that oral input should consist of short pieces of talking. Accompanying visual input (e.g. short film extracts, videos and webcasts) can increase students' interest, keep their attention and support in understanding the spoken text. Again, just the same as with reading, listening text should not be too difficult in vocabulary and grammatical structure.

When students with dyslexia are listening to a text they should not be asked to read or take notes at the same time as it is cumbersome for them. They have to focus all their attention just on listening. It is advised that when listening to a text for the first time, learners should just listen and concentrate on understanding the main meaning and **they should not be asked to do a parallel task**. When students have understood the general idea of the text, they can focus on details by listening again and fill in the missing information in tables, flowcharts and giving answers to questions. The listening process can be interrupted at some intervals to give students with dyslexia a chance to record their answers. If students have extreme difficulties in foreign language reading or writing, tasks involving these skills can be substituted with oral comprehension questions.

On a final listening, learners with dyslexia are asked to focus on those parts of the text that caused difficulties in the first go. The teacher should explain all vocabulary and grammar items that caused problems in listening initially.

When checking understanding in the listening tasks it is really helpful for dyslexic learners to be able to check, first of all, in pairs or in small groups before checking with the whole class.

Listening to texts is very useful for learners with an SpLD as it gives them rich exposure to vocabulary, idioms, grammatical structure and just knowledge inherent in the text as these students might have limited exposure to texts by reading.

Post-listening communicative activities also develop speaking and writing skills. Students with an SpLD benefit from learning listening strategies such as predicting what the text will be about and what will follow in the text, focusing both on the main idea and details and making informed guesses.

Here are some webpages for materials for listening and reading:

<http://www.readwritethink.org/>

www.gutenberg.org

6.8 Teaching speaking

Speaking is a foreign language skill in which students with dyslexia can excel and have considerably less difficulties as in reading, writing and even listening. Here it is very important to remember the discrepancy pointed out by Ganshow and Sparks and which states that many students with dyslexia may experience severe difficulties in spelling and grammar of a foreign language while their semantic skills – understanding and speaking of the language – can be very strong. Teachers should not neglect this sometimes dramatic difference in student skills and not equate ones with the others – the very strong ones with the very weak ones or the other way round but keep developing and accessing highly the strong skills while accommodating teaching the weak ones.

To build up the skills and confidence of students with dyslexia in their spoken abilities, it is very important to practice speaking from the very beginning of foreign language/languages acquisition. Students very consciously have to be encouraged to form at least short utterances to respond to questions. There are many interactive activities available on the Internet that can improve student's pronunciation and intonation at the word and sentence level (e.g. <https://www.englishcentral.com>).

These activities give students a chance to progress from simple one-two word responses to longer and more complex sentences. This is MSL cumulative teaching principle in practice – progressing from smaller logical language units to longer and more sophisticated ones. Due to the fact that students with dyslexia have difficulties in encoding foreign language words and expressions in long-term memory, they need frequent and varied practice opportunities to use the language to be learnt meaningfully.

As students with SpLD find it difficult to manage both communicative content and linguistic form, it is important to revise the vocabulary and grammatical structures needed to successfully communicate. This means that vocabulary and syntactic structures to be used should be explicitly brought to students' attention always when they are needed, e.g., by providing supporting information by writing them on the board or providing handouts to students so they can stay focused and precise. Students with an SpLD also need longer planning and rehearsing time before speaking publicly.

To take away stress and anxiety, it is advised that students with dyslexia may speak in small groups and not in front of the whole class or large audience. The teacher gives these students feedback while they are in a small protected group where the stage fright is smaller.

Modern technologies can be of great help to give extra textual support (Like Power Point) or time to rehearse speaking and to avoid fear of big audience – students can film each other with cameras built in their mobile phones or prepare podcasts or webcasts. This means not only giving students extra low stress practice but it can be a truly enjoyable way to learn.

6.9 Teaching writing

Difficulties in producing connected written text in a foreign language or languages is a way how dyslexia manifests for many students even after they have overcome serious reading problems in their native language as

a result of good remediation and spelling problems are controlled by computers and spell checkers. Producing longer texts in writing still can be very challenging for learners with SpLD. As Kormos and Smith states, therefore, in a large number of language learning contexts these learners are often exempted from the writing requirements set by the curricula⁸⁴. Exemption from text-level writing is possible if students can use only oral language outside the classroom. Still, there are many situations in which students with an SpLD are expected to demonstrate high level of writing proficiency like it is in Latvia where two written essays are a part of a high stake centralised exam for every student intending to graduate from the secondary school. In these cases, the teaching of writing has to take in to account both the difficulties students have with lower level skills of writing like handwriting and spelling and the higher level cognitive skills like organizational aspects.

To accommodate students with dyslexia and other specific learning difficulties the following should be taken into consideration:

- writing should be introduced gradually – starting from very short sentence level tasks (filling in selected pieces of information);
- if students show great difficulties with handwriting and spelling, they need a lot of help and scaffolding;
- writing tasks must be interesting and motivating and give the feeling of success and accomplishment;
- the use of modern technologies may replace or complement paper and pen writing activities;
- students should be requested and taught to do proper planning of their writing – by brainstorming, producing outlines, using free writing or any other pre-planning activity;
- providing learners with a model text, writing frame or template and
- a student may use different colour or shape coding for different parts of a paragraph, (e.g., topic sentence – red, supporting example – green)

⁸⁴ Kormos and Smith (2012: 141)

or an essay (e.g., introduction – rectangular, body – circle, conclusion – triangle)⁸⁵.

It is important before the writing activity to revise some vocabulary and grammatical structures necessary for a particular topic. It is also effective to select on grammar aspect students should concentrate on while writing an essay, for example, capitalization or use of connective phrases. This immediate reminder improves accuracy. However, these focusing points should be very limited not to put too much stress on students with dyslexia.

Writing using **modern technologies** – chatting, writing blogs and sharing documents – can be effective way to improve writing and reading skills of students with an SpLD. These online writing activities expose the writing of students to a wider, and hopefully more meaningful audience, and give students with dyslexia chance to edit these texts by spell and grammar checkers thus making them more manageable than pen and paper writing tasks.

Writing task should be short or, if longer texts need to be provided, then their writing must be split in several steps. The student with dyslexia needs both support from his/her teacher and use of assistive devices – laptop, electronic dictionaries and spellcheckers.

Although it is a very important skill to be able to self-correct oneself, students with dyslexia might find problems in the structure of their writing while still unable to identify spelling and grammar mistakes in their work. Similarly, students with dyslexia may not benefit from a teacher correcting their mistakes without proper, timely and specific feedback; and providing them with the correct form. Correction in written work should not be overwhelming as too many marks in his/her writing may be discouraging and demotivating. Instead, it is much more effective to concentrate on some aspect of the essay, e.g., structure of the writing while avoiding commenting on grammar mistakes. The teacher can make

⁸⁵ Kormos and Smith (2012: 142)

several copies of the writing of a student and then comment on a different aspect of his/her writing with a different focus.

Good resources for improving writing:

<http://specialed.about.com/od/readingliteracy/a/Writing-and-Dyslexia-Hub.htm>

Summary of key points:

- Students with an SpLD benefit from explicit explanation in every aspect of foreign language learning including grammar, pronunciation, spelling as well as the creation and understanding of written and spoken texts.
- Frequent and varied practice and periodic revision activities help learners with an SpLD anchor foreign language items and constructions in long-term memory.
- Drills, sentence and task frames and models help the automatising of foreign language grammatical constructions and are conducive to the development of speaking and writing skills.
- Slow progress in small cumulative steps provides learners with an SpLD with sufficient practice opportunities and gives them a sense of accomplishment. The careful structuring and pacing of production (speaking and writing) and perception (reading and listening) tasks is of great importance.
- Pre-teaching activities aid students with an SpLD to cope with listening and reading texts and with the difficulties they might experience in producing oral and written discourse.
- Modelling and practising the application of learning strategies helps learners to discover the techniques that they can efficiently apply to overcome their foreign language learning difficulties⁸⁶.

⁸⁶ Kormos and Smith (2012: 143)

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7. THE USE OF ICT IN CONNECTION WITH DYSLEXIA

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Information and communication technologies (ICT) in all their forms and varieties are part of our daily lives. The use of ICT changed business, finance, medicine, sports, entertainment and education. The use of these technologies changed our private, organizational and social lives. However, such changes can't be compared with the enormous positive change these technologies made in the life of the disabled people.

The applications of such technologies change the educational options of people with disabilities and they change positively their attitude towards education. Computing technology has the potential to impact a broad range of disabilities including those related to cognition. This chapter will focus specifically on assistive technologies and how they could be used as a supportive tool for students with dyslexia.

Dr. Olga Petkova

7.1 What is assistive technology?

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

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"⁸⁷. It promotes greater independence by enabling people to perform tasks that they were formerly unable to accomplish, or had great difficulty accomplishing, by providing

⁸⁷ Assistive Technology Act (2004)

enhancements to, or changing methods of interacting with, the technology needed to accomplish such tasks.

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”*⁸⁸.

Assistive technology is not used to directly improve knowledge. Learning software is designed to give you knowledge about a given subject and when then knowledge is gained, the software can be discarded. Assistive technology helps facilitate the learning, and may be used with a variety of learning content. It is rarely thrown away (assuming it proved to be useful!).

Put simply, assistive technology can be described as any technology that assists, but how the term is used will depend on the context. So those with motor difficulties may have a very different understanding of assisting technology to those considering the needs of individuals with dyslexia.

7.2 Assistive technologies – 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 SpLD 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 Lewis⁸⁹, assistive technology serves two major purposes: to augment

⁸⁸ British Assistive Technology Association <http://www.bataonline.org/further-assistive-technology-definition>

⁸⁹ Lewis (1998: 16–26).

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.

Current computer operating systems and software can help students to read, write, to organise their ideas and thoughts, to extract information – which was difficult or even impossible for these students in the past. Both the Windows and Mac operating systems have built-in tools to assist users with learning disabilities.

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

A research study done in 1991 showed that when computers are combined with effective instruction in revision, word processing could yield benefits for students with written language disabilities⁹⁰.

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.)
- **Improving writing and organizational skills.** Technology can enable students with dyslexia to develop a concept map for a research paper and write an essay using grade-level vocabulary or words they otherwise wouldn't use without a computer due to poor spelling skills.
- **Working towards grade-level reading skills.** There are different software programmes to be used so the computer either reads the text digitally or presents it at a lower grade level for students with reading difficulties.
- **Improving note-taking skills.** It is one of the biggest challenges for students with dyslexia, especially in the upper-secondary schools when the amount of learning material dramatically increases. Many

⁹⁰ MacArthur, Graham and Schwartz (1991: 230–236).

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.

The Survey, held as a part of the project MoDyslexia, all participants from the three target groups (teachers, adolescents with reading difficulties and parents) admit the important role that assistive technologies could play in the support of students with dyslexia and specific learning difficulties. At the same time they share that at school technologies are not used enough. Which are the reasons for this situation:

- Teachers do not have proper knowledge about the potential of modern technologies and how they could be used as a supportive tool for students with dyslexia and other specific learning difficulties.

“I know there Technology can help my students, especially those with LD, but I don’t have enough knowledge how to use them. Teachers need training” (E.K., Math Teacher in a high school)

- Although interviewed teachers while teachers admit that there are many students in their classes who struggle with reading and/or writing, the number of officially diagnosed adolescents with dyslexia in partner countries (at some level the Czech Republic can be considered as exception) is quite low. Teachers are reluctant to allow students with reading/writing difficulties who are not officially diagnosed to

use assistive technologies in class because they worry about thereaction of other studnets and their parents.

“Every time I tried to give some extra support to those of my students who have reading difficulties (like letting them to type there homework, there was a negative reaction from other students and their parents.” (T.N. Literature Teacher, upper-secondary school)

- When a student is not officially diagnosed with SpLD he/she and his/her parents cannot insist on being allowed officially to use assistive technologies at school. At the same time many parents refuse their children to be assessed/diagnosed.

“I try to help my son who has problems with reading long texts using scanners and screen readers. I encourage him to use technology – but he can do it only at home, it is not officially allowed at school.” (P.Tz., a father of a 18 y/o student)

- Although technologies develop very fast, and many new software is available nowadays, still there are some assistive software that is not available in some languages (e.g. no Speech-to-text is available in Bulgarian)

“I use Speech-to-text for my English homework, but there is not such software available in my language.” (J.L., 16 y/o)

7.3 Specific software for adolescents with dyslexia

According to Levin and Scherfenberg, technology is the gift our generation can give to many children and adults with different kind of disabilities⁹¹.

Using technology fosters belonging and interactive participation in general education classrooms for students with SpLD⁹². It increases the frequency of assignment completion and contributes to improved motivation⁹³. Nowadays when in many countries the efforts are focused on the inclusive education it is obvious that the effective use of assistive technology can

⁹¹ Levin and Scherfenberg(1990)

⁹² Bryant and Bryant (1998: 41–54)

⁹³ Bahr, Nelsonand VanMeter (1996: 355–370)

play great role in this process giving the students with learning difficulties a sense of belonging to group, a chance to participate in all activities, and to be given the equal opportunities as any other student. But the use of assistive technology is only the beginning of a long road to independence, not the end⁹⁴. By combining a few simple tools and strategies, secondary-age students with dyslexia can increase their active participation across school, home, work, and community settings⁹⁵.

7.3.1. Assistive software

Assistive software refers to computer programs designed for specialised hardware used by people to overcome their difficulties. Examples include programs for screen magnification, screen reading, speech recognition, text-to-speech, Braille printers, Braille scanners, touch screen displays, etc.

Three types of assistive software believed to be the most useful for learners with dyslexia are described in this section.

Text-to-speech

Print materials in the classroom – books, handouts and tests – can make learning harder for those who have trouble reading. Using digital text with text-to-speech functionality can make the process easier. (Some websites have this feature, too.) Researchers⁹⁶ have found that the combination of seeing and hearing text when reading:

- improves word recognition;
- increases the ability to pay attention and remember information;
- allows learners to focus on comprehension instead of sounding out words;
- increases students' staying power for reading assignments;
- helps students recognize and fix errors in their own writing.

⁹⁴ Fleisch (1989: 1–11)

⁹⁵ Wise(1997)

⁹⁶ Parr (2013: 2–4)

Text-to-speech (TTS) software is an assistive technology tool that can be used to help people who have trouble reading. The Individuals with Disabilities Education Act (IDEA)⁹⁷ says that eligible kids with learning and attention issues should be able to access the same learning materials as other students. Using software that turns written material into audio is a way to make that happen for learners with reading issues like dyslexia.

Text-to-speech technology allows users to see text and hear it read aloud at the same time. As the text appears on the screen, it's spoken. Some software uses a computer-generated voice. Others use a recorded human voice. There are different types of text-to-speech software.

- **Screen readers:** iPads and iPhones have text-to-speech features, as do many other smartphones. The software reads text files and even the names of programs or folders that the user points to on the screen. This is also helpful for kids who have issues with vision.
- **Speak Selection** is a text-to-speech software that lets the user specify which blocks of text he/she wants the phone to read aloud. He/she can also use Highlight Text so that each word is highlighted as it is spoken. This feature can help struggling readers follow along.
- **Text readers:** This software converts written text into speech. It can read some types of files and web pages aloud. Text readers also can highlight words as they're read, so the user can follow along. This combination of seeing and hearing the text at the same time activates both visual and auditory perceptions.
- **POET:** This tool, created by the Benetech DIAGRAM Center, creates image descriptions for DAISY (Digital Accessible Information System) books. Once a user uploads and creates a description, it's available for the next reader who downloads the DAISY file.

Text-to-speech tools can be used with different kinds of technology, from computers to mobile devices. It's often used with optical character recognition (OCR, see below).

⁹⁷ The Individuals with Disabilities Education Act (IDEA)

Some devices, such as the iPad, feature apps that read digital books. The user can choose whether to use the read-aloud function. Other controls that can help are:

- Font size and colour
- Brightness and contrast
- Type of voice (male, female or computerized)
- Rate of speech

Leap Frog books may be a good alternative if you don't have access to an iPad or iPhone.

Example:

Dan is 16, in 9th grade in Vocational High School of Tourism. Some of his teachers share that Dan has serious difficulties with reading and writing, but at the same time obtains deep knowledge in some areas (especially in Geography), much beyond the school programme. This is clearly seen in oral examinations. At the same time his tests results are quite low and don't match the expectations.

Conversation with his parents reveals that at primary school Dan had difficulties to learn letters and how to read, dictations were a big problem. Dan's mother still helps him with school work, reading long texts for him, proof-reading his writings, etc.

The boy likes watching documentaries and popular science programs, like Discovery and National Geographic where his extensive knowledge comes from. He would like to continue his education in a college or university, but at the same time his low self-esteem and some negative experience at school make him afraid of possible failure.

Collecting all this information, the pedagogical counsellor suggests that Dan be allowed to use TTS software while doing lessons at home and during the tests in the school. This was allowed and has become a tipping point for the young man, and the positive results are noticed by everybody very soon.

Speech-to-text

The definition given by Techopedia (www.techopedia.com) states: *“Speech-to-text software is a type of software that effectively takes audio content and transcribes it into written words in a word processor or other display destination”*⁹⁸.

So, if Text-to-speech software allows the individual with dyslexia to listen to other people’s writing, Speech-to-text offers the opportunity to use own voice for writing directly onto the computer. Clearly this avoids the problems around handwriting, typing and spelling, as well as speed. In the last years the availability of this software rapidly increases through smart phones and tablets.

Undoubtedly, Speech-to-text software is a great supporting tool for every learner with dyslexia. However, there are few points to consider before you advise somebody to use it.

- In order to have the best transcription, the user needs to train the software to his voice, which means reading text from the screen. Clearly this is a problem for somebody with dyslexia.
- For error correction, a number of alternatives are offered. But the user needs to be able to read and interpret those to decide which is correct. The problem could be solved if the user chooses the option that allows the suggested words to be read aloud.
- The user needs to be VERY careful to continually save the text while using Speech-to-text, to ensure he doesn’t lose everything accidentally.
- If Speech-to-text is used on an iPhone, the user should know that he won’t be able to see the text all the time, but only after he stops talking.
- While the voice commands on iPhone and Android are of good quality, the quality of dictation is better on the desktop versions.

Apps like Dragon Dictation or Google’s VoiceNote allow students to record their voices and turn their speech into text. This helps students with

⁹⁸ Techopedia (Online, n.d.)

dyslexia who have trouble with writing to compose essays or compositions.

Scanner/OCR

OCR (Optical character recognition) is a technology that scans printed material into a computer or handheld unit and converts it to digital text. It plays an important role in transforming printed materials into digital text files. These digital files can be very helpful to kids and adults who have trouble reading. That's because digital text can be used with software programs that support reading in a variety of ways.

Digital text is one of the formats that make printed information accessible to more people. It is especially helpful for those who have reading difficulties and for people with learning issues such as dyslexia. The digital format gives readers the opportunity to see words on a screen while hearing them read aloud. It could also be used with small kids to develop independent reading skills.

OCR was first introduced in the 1990's. Today you would find OCR built into the software of many programmes and devices (computers, tablets, phones, etc.). Some of these devices can automatically convert a scanned or photographed document into digital text. There are even portable OCR devices called reading pens that can scan and read back text.

OCR makes it possible to make changes to the digital text. What can be done with the digital text depends on which reading software you're using. Common options include:

- Highlighting words, sentences or paragraphs
- Speaking words aloud using text-to-speech

Changing the size of text and/or the colour

- Placing digital "bookmarks" that enable users to move around within the text (such as moving directly from the Table of Contents to Chapter Four).

7.3.2 Learning software

Learning software refers to computer programs designed for specialised hardware used by people to master certain skills. Two types of learning software are presented in this section.

Learning to Type software

One of the main challenges for people with dyslexia is writing (because of their difficulties with spelling and structuring the text), and respectively – the note taking. Here the assistive technologies could help tremendously. There are many free or commercial software products that help with taking notes (like Evernote, Springpad, MS One Note, etc.). But in order to be able to use their full potential the person should have good typing skills.

Online typing training programmes are a great way to learn typing well, and to improve accuracy and speed.

The best thing about these programmes is that they are 100% web based so you don't need to purchase and install any software. Taking an online typing course can help improve user's typing speed and accuracy enabling him to get his work done faster and efficiently. Also, by improving the typing speed and accuracy, the user will become more proficient using many of the popular software applications such as Microsoft Word, Excel, PowerPoint, etc. As the typing speed and accuracy improves, the person will be less likely to make errors and typos when keying documents. As the one becomes more proficient in typing, his reading, spelling, punctuation, and proofreading skills will also improve.

It's never too late to learn how to type properly. There are a lot of on-line touch-typing courses available in almost every language. What a person should do is just to make a little research and to find the one that best suits him. Most of the courses are 100% web-based online and the only thing that is needed is Internet access through one of the major browsers. By completing the course lessons, skill builders, reinforcements and exercises, and utilizing all of features included within a course, the

user will obtain one of the most valuable skills for everyday use – learning how to type.

Mind-mapping software

The term "mind map" was made popular by British psychologist Tony Buzan in BBC TV series, called Use Your Head⁹⁹ hosted by him in 1974. Buzan promoted his conception of diagramming key words in a colourful, radiant, tree-like structure.

However, it is believed that the use of visual "maps" of information goes back centuries and was used by educators, engineers, psychologists, and others for learning, brainstorming, and problem solving.

Using mind maps has proven to be a very useful way to help 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).

Why is mind mapping useful for students with dyslexia?

- Because mind maps use images, colours, shape, size and symbols to map out information in a visual and well-structured way that is easier to comprehend and proceed. If you compare a plain text with a mind map that contains the same information, it's clear which one is more „dyslexia friendly“.
- Students, especially those in upper-secondary schools, colleges and universities have to produce a considerable amount of written texts. For students with dyslexia sometimes it seems like an impossible task. However, when you draw a mind map you can see your ideas, you can „move“ them around, organising them differently and finding the best structure for your ideas and thoughts.

⁹⁹ Buzan (1974)

- Mind maps can help with dyslexia by breaking down large pieces of information into easy-to-see (very visual) and easy-to-read (with a limited amount of words) chunks.

In the Internet could be found many free or commercial online mind mapping tools (see the list at the end of this chapter), and they are available in many languages.

7.4 Audio books

Audio books are kind of electronic books. In fact, it is a piece of artistic or academic text that is read by an actor, and in many cases, especially lately – by the author. Using audio books as an educational tool saves a lot of time and has proven highly effective, especially for learners who have reading difficulties.

The beginning of audio books' history could be dated in the first decades of the 20th century. Around 1920–1930, they already could be easily found in many public libraries and schools in the US and in some European countries. Nowadays audio books are part of everyday life for many people elsewhere in the world.

Initially, audio books and textbooks were produce in order to facilitate the blind or people with visual impairment, because not many of them could read braille. At the beginning records were made on platters, later – on cassettes, but today they could be found on CD and mp3-format.

They are widely available, can be listened to on a computer, mobile phone, mp3-player, or any other mobile device.

There are dozens of websites that provide free or commercial access to thousands of audio books in many languages (see the list at the end of this chapter).

Example

Every year students in Bulgaria are given a list with numerous book tittles which they have to read during the summer holiday. The number and the amount of the reading material increase with every next grade.

Some of the books are not easy even for students without reading difficulties, because being written long time ago their style and vocabulary is quite different from the style and vocabulary used by the young generation. What to talk about students with dyslexia?

Ellie is 14 years old. She has just finished 8th grade. She is smart, very skilful girl, but her reading is far behind the grade level. She is a hard-working student and her academic results are good because of her efforts and the support she gets from her parents.

Every year Ellie tries to read at least some of the books in the list, starts enthusiastically but very soon she gives up.

The same was this year, after 8th grade. After getting the list of books from her Literature teacher, and seeing that in the list there are more than twenty titles, Ellie felt frustrated and was absolutely sure she would not be able to read all these books. She was about to give up even before starting.

While surfing the Internet Ellie came across a website which offered audio books. Being poor reader she became curious. She tried some free books and found it much easier to listen to the books instead of reading them. And because she didn't need to put efforts in the reading itself, she could easily understand the text and she got interested.

Ellie kept searching and found many of the books from her „obligatory literature“ list available. She shared her discovery with her parents. Knowing their daughter well, parents were not very optimistic, but being supportive parents they agreed to buy some books, and to see how it will work for Ellie.

Ellie started with the smallest book. She uploaded the file on her smart phone and this allowed her to listen to the book even when she was out of home – travelling in the tram, shopping, or walking in the park. At the beginning it was just fun as everything new that one tries, but very soon she found herself interested in what she was listening to. In a couple of days, the book was finished, and Ellie uploaded a new file...

When the new school year started Ellie's teacher and her classmates were very surprised to learn that she had „read“ much more than anyone else in the class. And what surprised Ellie was that she wasn't any more afraid to try „real“ reading of a „real“ book...

7.5 E-books

“An electronic book (variously: e-book, eBook, e-Book, ebook, digital book or e-edition) is a book-length publication in digital form, consisting of text, images, or both, readable on computers or other electronic devices¹⁰⁰.”

The electronic book is a file that unites all available information in it, such as text, audio and/or visual content that enables easy distribution and storage.

There are many types of e-books formats available. The most common of those, in proper e-book format are;

EPUB – The EPUB format is arguably the most commonly known of all the e-book formats. It is widely supported across all platforms and eReaders. The .epub or OEBPS format is an open standard for e-books created by the International Digital Publishing Forum (IDPF)¹⁰¹.

It combines three IDPF open standards:

- Open Publication Structure (OPS) 2.0¹⁰², which describes the content markup (either XHTML or Daisy DTBook);
- Open Packaging Format (OPF) 2.0¹⁰³, which describes the structure of an .epub in XML;
- OEBPS Container Format (OCF) 1.0, which bundles files together (as a renamed ZIP file)¹⁰⁴.

¹⁰⁰ Oxford Dictionaries (2010)

¹⁰¹ International Digital Publishing Forum

¹⁰² International Digital Publishing Forum

¹⁰³ International Digital Publishing Forum

¹⁰⁴ Wikipedia

It is worth noting that **EPUB3**¹⁰⁵, the latest iteration was created to address a number of valid criticisms such as EPUP's unsuitability for specialised formatting, lack of support for MathML, linking within EPU documents and lack of annotation.

MOBI – The Mobipocket ebook format is perhaps the next most commonly known ebook format. Owned by Amazon, the Mobipocket has the prc or .mobi extensions and supports indexing at a high degree of compression. Like EPUB 3, MOBI can also display reflowable content and fixed width layout.

7.6 Daisy books

DAISY (the Digital Accessible Information System) is the emerging world standard for digital talking books. It is originating in Sweden in 1994 and was developed to offer an alternative reading experience for people with visual impairment and reading disability. The Digital Accessible Information System (DAISY) Consortium¹⁰⁶ was formed In May 1996 in order to lead the worldwide transition from analogue to Digital Talking Books.

DAISY gives the user almost the same flexibility that readers of standard books have: navigation by chapter, section, or page. Readers can choose to read or not footnotes or the additional information dedicated to users of the audio version.

There are three types of DAISY books.

- **Audio-only DAISY** (referred to as DAISY 2.02¹⁰⁷), which is the most common. This format provides minimal text content and a set of recordings that the reader hears when the book is played.
- **Text-only DAISY** books have no audio recording. Their main advantage is their small file size; the disadvantage is that these books require a text-to-speech system to be incorporated in the playback device.

¹⁰⁵ International Digital Publishing Forum

¹⁰⁶ DAISY Consortium

¹⁰⁷ DAISY Consortium

- **Full-text, full-audio DAISY book.** In this kind of book both the text and the audio are present and can be synchronized so the reader can see it on the screen and to listen to it at the same time.

DAISY is not just an MP3 conversion tool, but also allows listeners to navigate small or large documents, even complex documents such as an encyclopaedia or textbook, which would be otherwise impossible using conventional audio recordings¹⁰⁸.

7.7 Further online programmes and material

In the pages above were presented some of the assistive and learning software tools that could be used to support adolescents with dyslexia both in the classroom and at home. However, there are much more programmes and materials that could be helpful. Some of them are presented below.

Online dictionaries

The online dictionaries are quite popular and beneficial. There is no doubt in the fact that dictionaries are of great importance. Of course, you still can use your paper bound dictionaries, but one of the big advantages of the online ones is the fact that they regularly update the meaning and examples in order to help users in solving their language or meaning related problems.

For example Dictionaries24¹⁰⁹ gives the opportunity to use dictionaries in more than thirty languages for free.

In addition, you can save a lot of money by selecting online dictionaries over the traditional option. In this case you won't have to keep buying a new dictionary every year in order to keep it updated.

Another benefit of online dictionary is that it is convenient to use. You don't need to turn hundred pages to find what you need. You just need

¹⁰⁸ DAISY Digital Talking Book

¹⁰⁹ Dictionary24

to enter the word in the search box and you will get its meaning along with some examples of its use. It makes the whole thing much easier.

Online encyclopaedias

Electronic encyclopaedias can be used in much the same way as printed encyclopaedias, with the added benefits of electronic support for organizing, copying, and printing material from them. Electronic encyclopaedias have the added advantage of offering more than text and illustrations. Most also have movies, sound, and audio. In addition, having Search option electronic and online encyclopaedias give the students (especially to those with reading difficulties) the opportunity to easily find the word with no necessity to go through hundred pages of a paper based version. When working online, a student would need to simply get the encyclopaedia of their choice and key in a search term.

Another advantage of web-based encyclopaedias is that they provide students with updated information. In the event the facts change, these changes will likely be reflected with the online reference materials. With printed materials this just is not possible. When a book is printed, it wouldn't be changed, at least until the next edition.

Melnick wrote:

“Why would children want to use electronic encyclopaedia rather than the traditional bound volumes? The most obvious answers are motivation and ease of use. While observing a middle-school librarian instruct a child in the use of the electronic encyclopaedia (which took only about 5 minutes), I noticed that several other children gathered to watch the search. When the librarian finished, another child, John, who had been watching, sat down and began a search on mammals. Within minutes, he was able to successfully define his search and skim relevant articles that would have been spread over several bound volumes of the encyclopaedia.

Another feature that makes the electronic encyclopaedia unique is Hypertext. For instance, John encountered several difficult words in the text... If these words were highlighted, he was able to have a voice pronounce the word for him and give a brief definition of it. Even if the word was not highlighted, by placing the cursor over the word and clicking the mouse, John was presented with a complete dictionary entry of that word” ¹¹⁰.

Online planners/calendars

The benefits of an online calendar for students with dyslexia, who very often have difficulties with the time management, are wonderful. The first one is that an online calendar can be accessed from anything that can connect to the internet – any computer, tablet, iPad or smart phone. This means that it is impossible to forget or lose, unlike a physical planner. You also can choose the option to be sent an e-mail or a text message as a reminder.

“After starting to use Google Calendar¹¹¹ I manage my time much better. Now I am able to put the dates of tests, dates when I have to submit my projects or assignments into a calendar, for all school subjects. When I can see all my duties arranged makes things much easier for me. I choose to receive reminders as a text message, so I can’t miss any of the deadlines. And the best thing about Google online calendar: I don’t need to put efforts in decoding my horrible handwriting.” (Martin, 19; upper-secondary school student with dyslexia).

Talking Word Processor

Computers change the writing process making it easier to develop and record ideas, to edit the text, and to publish and share with others. Different programmes could be used during different phases of the writing process.

¹¹⁰ Melnick(1991: 433)

¹¹¹ Google Calendar

Talking word processors (see the list at the end of this chapter) give the student auditory feedback to support the writing process. Separate words, sentences, paragraphs, or the whole text can be read aloud while the student types. Features can be customized to individual student needs by selecting what text is read from drop-down menus. Students can also select other features such as background colour, text colour, and font size, and can also add graphics. Most talking word processors also include a talking spell checking system, which allows students to spell check the whole document or highlight specific words for spell checking. All these features offer students effective visual and auditory strategies.

Another useful tool to help writing is word prediction, which enables users to make choices, find words, phrases and complete sentences. Word prediction programmes suggest words based on frequency of use, and most recently used words in accordance with the grammatically correct usage of words.

Writers compose and edit more efficiently when using computer-supported writing tools¹¹². Computers improve the quality and quantity of writing. They allow moving the focus from the writing mechanics to the content and structure of the text composed. Finally, computers make it possible for students who struggle with handwriting to submit neat printed homework/assignments.

7.8 What is available in partner countries

7.8.1 Latvia

In Latvian the only available tools are:

- Standard spell checkers
- Text-to-speech that is very expensive and used only in visually impaired special school

¹¹² Beukelman, Hunt-Berg and Rankin (1994: 169–178)

7.8.2 Bulgaria

- PC with spellchecker
- Screen Reader (Bulgarian) Free Download from <http://www.screen-reader.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.cielacom.com/cielacom_ebooks/bezplatni-knigi/bezplatni-knigi-na-b-lgarski-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

7.8.3 The Czech Republic

- PC with spellchecker
- Text-to-speech:
 - freeware – Balabolka (Czech language)
 - commercial programme – Claro Read (Czech version)
- Learning to type:
 - www.slunecnice.cz/sw/psani-susta/ – freeware programme (to be uploaded into a computer)
 - commercial programmes of various kinds
 - www.nedatluj.cz – on-line programme
- On-line training programmes:
 - www.tablexia.cz – for lower secondary school students
 - www.kamernet.cz – dtto
 - www.dys2.org
 - www.jazyky-bez-barier.cz – English learning for students with dyslexia
- PC training programmes:
 - “ABC do škol” (a programme to be uploaded in a computer) – for early readers
 - DysCom – (a programme to be uploaded in a computer) – for early readers
 - “Včelka” – a new brand on-line programme for early readers

- Speech-to-text:
 - Newton Dictate (Czech version)
- On-line audiobooks available on several websites
 - www.zvukoveknihy.cz
 - www.rozhlas.cz/ctenarskydenik/portal/
 - www.kralovstvimluvenehoslova.cz
 - available also commercially in shops
- Voice recorder (by Olympus – adapted in cooperation with British dyslexia association – available in the Czech Republic)
- E-books – available commercially in shops

7.8.4 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"
 - "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.
- "Letter Shaker" – for especially foreign language teaching.
- "Open dyslexic" font in office programmes,
- "Freeplane: concept mapping programme" – which is free and user friendly programme.
- "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

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>

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

Online Calendars

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>

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8. EXAMPLES OF GOOD PRACTICE

8.1 Dyslexia Friendly Quality Mark for vocational high schools (Bulgaria)

As a result of an EU funded project (Transfer of Innovation Programme) since 2011 in Ruse (Bulgaria) there are three vocational high schools that have been awarded a Dyslexia Friendly Quality Mark.

The Dyslexia Friendly Quality Mark (DFQM) System was created by the British Dyslexia Association /BDA/ and in the United Kingdom it is applicable to educational institutions of all levels. In Bulgaria at this point the System is adapted only for vocational high schools.

The program aims at providing support and understanding by the schools for learners with dyslexia so they can improve their skills and talents and develop new skills. If a school is awarded the DFQM it means that everybody in this school (the whole pedagogical and administrative staff) has good understanding of the needs of students with dyslexia and resources these needs to be satisfied are available.

The program gives vocational schools the opportunity to make the management structure more efficient, to ensure the identification of dyslexic symptoms in the students, to effectively use available resources, to provide a continuous professional development of the pedagogical staff and to build a stable and trustful collaboration with students, parents, external experts.

Dyslexia friendly schools are able to identify and respond to the “unexpected difficulties” that a dyslexic learner may encounter. Trainers/tutors are expected to identify and respond to a range of diverse learning needs in mainstream settings. Appropriate responses and support can make a significant difference to individuals who have dyslexia and help to ensure that they achieve their potential.

Vocational training provides many opportunities for the adolescents with dyslexia. Some individuals with dyslexia may have had negative experiences within previous educational levels and see such training as the

opportunity to utilise the strengths and talents that they have. Some individuals may not even be aware that they have dyslexia. This is, however, likely to pose a range of challenges for schools. For example, they may be dealing with low levels of basic skills, low levels of self esteem and confidence, and disengagement from learning, etc.

The Dyslexia Friendly Quality Mark is made up of standards that cover 5 areas, these are:

Effectiveness of Management Structure.

- Identification of Dyslexia/SpLD.
- Effectiveness of Resources (Physical Environment, Teaching and Learning).
- Continuing Professional Development.
- Partnership with Learners, Parents/Carers and External Specialists.

Under each of the above headings are criteria that must be achieved in order to demonstrate that the standard for a Dyslexia Friendly Quality Mark has been met.

The preparation phase includes training for all teachers and administrative staff on dyslexia – what is dyslexia, symptoms in different age, difficulties caused by dyslexia, emotional issues, different learning styles, how to communicate with parents, etc. Through this training teachers understand the necessity to support students with dyslexia, implementing different teaching styles that would better match the diversity of students' learning styles. The Quality Mark System supports the improvement of teachers' skills, their continuous professional training and supportive attitude towards students with dyslexia.

In order to receive the Quality Mark a school should not only demonstrate a willingness to answer the needs of learners with dyslexia, but it should prove that some steps have been taken to introduce and implement approaches that respect diversity, while increasing the positive experience of students and teachers. Among these steps are: providing

additional educational services for students with dyslexia (individual consultations, help with assignments, extra time in exams and tests, alternative educational materials, etc.)

At the same time the Quality Mark offers parents the assurance that their children will be understood and supported adequately so they can improve their skills, gain more knowledge in order to be able to learn and work independently. Parents are encouraged to deepen their knowledge and understanding on the issue, to be active participants in their children's education and to collaborate with the school.

8.2 „I got it!“ - A complex programme for secondary school students with dyslexia (Czech Republic)

The programme “I got it!” was created between 2009 and 2011 at DYS-centrum Praha o.s. The authors are Lenka Krejčová and Zuzana Pospíšilová. The programme consists of twelve lessons. The target group involves students with dyslexia who attend secondary schools. It is a paper and pencil programme.

Before creating the programme, we conducted a deep resources research to get a solid theoretical background of the programme. We searched for the most typical problems of adolescents with dyslexia and also the most suitable methods of intervention. Our intention was to develop an evidence-based programme targeted at adolescents with dyslexia. The main theoretical sources of information included:

- crucial dyslexia theories¹¹³ ;
- mediated learning experience theory¹¹⁴;
- conceptual learning theory¹¹⁵;

¹¹³ e.g. Shaywitz (2005); Snowling (2000); Vellutino, Fletcher and Scanlon (2004)

¹¹⁴ Feuerstein, Feuerstein and Falik (2010); Kozulin (1998)

¹¹⁵ Sloutsky (2010)

- implicit and explicit information processing and implicit and explicit learning theory¹¹⁶;
- cognitive styles and learning preferences theories¹¹⁷.

Each lesson of the programme starts with a task concerning reading practice. Students learn to use a megacognitive strategy of SQ3R, i.e.:

- S – survey the texts;
- Q – ask questions about the text;
- R – read the text;
- R – respond answers stated before the reading;
- R – review what you have just read.

The texts are real samples from scientific books (usually parts of chapters and/or whole chapters) and students have to learn how to read and understand such texts. This situation simulates reading textbooks and other formal materials used at secondary schools and further in universities. Each reading practice is also followed by two tasks which include training of structuring a text into paragraphs, use of titles and subtitles, transformation of a text into other forms (e.g. charts, mind maps, graphs, schemes), searching key words, etc.

Every lesson also includes some other tasks which focus on various areas which may be affected by dyslexia. Sometimes they are not affected and students excel at the task, which makes them proud of themselves. Sometimes we have to train more. However, the aim is to understand and to manage the all the work. The other topics involve verbal skills development, decoding strategies, spatial orientation, memory, social skills. Yet, the emphasis is always put on reading. Every task is also connected with students' activities and experiences at school and everyday life. We always want to make them get an insight how they can use what they have just learned during a lesson. They are encour-

¹¹⁶ Nicolson and Fawcett (2008)

¹¹⁷ Hargreaves (2007); Mortimore (2008); Reid (2005)

aged to use all their skills and abilities and they often refer how they have improved their study.

The programme can be conducted either individually or in small groups. Necessary parts of each lesson are sharing experiences and bridge the work into life. It always depends on students how fast we move to another topic and/or a lesson. The priority is their understanding and learning and/or improving their skills.

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the past four decades?', *Journal of Child Psychology and Psychiatry*, vol. 45, no. 1, pp. 2–40.

8.3 Pedagogic intervention for students with reading disabilities in Swedish secondary schools

Sweden is a country with a high awareness about reading disabilities and the best support for students with these challenges. Together with Denmark and Norway, it is a country with regular monitoring of students reading progress, valid dyslexia identification tools, good reading remediation and wide and accessible application of various information and communication technology (ICT) to assist students with dyslexia in every school, in every level of education including higher.

One challenge for those with dyslexia is in the transition from primary school to secondary school. As high school students in Sweden may choose not to inform the high school they apply to/enter after finishing the elementary school about their reading disability, high school administration doesn't necessarily learn about a student's dyslexia/reading disability. Thus, all secondary level schools (gymnasiums, vocational schools, etc) administer their own reading and mathematics skills screening tests to identify the students with weaker basic academic skills.

The reading performance is divided into seven proficiency levels – 7th being the highest and the 1st – the lowest. Those students who scores fall into the 1st and 2nd levels are offered an additional class of Swedish and English a week with their respective subject teachers. The thinking behind this is that students with dyslexia have difficulty automatizing not only reading but also other language based skills such as grammar and orthography and an extra lesson with their subject teacher gives the at risk students a possibility to overtrain, overlearn, and more frequently review the subject content thus keeping to the expected age norm/standard. This is extremely important for acquisition of English as a foreign language as weak phonemic awareness and phonemic memory make it

difficult for somebody with dyslexia to learn a foreign language in an academic setting.

The students and parents are informed about this offer in the beginning of the school year and the parents have to sign an agreement that their child will attend the two classes regularly. Parents and students may choose to decline the offer but then they are informed about the possible consequences. The minimum term for extra classes with the Swedish and English teachers is one semester. If a student's performance improves, the student may not have to attend extra classes next semester.

In case a Swedish or English teacher notices weak performance in the classroom of a student whose reading level has been 3 or 4, the teacher may suggest an extra Swedish and English class also for this student. This situation can arise because sometimes only functioning in the classroom really shows the true proficiency level of a student.

In case a student performs badly on a mathematics test, he/she is offered an extra class a week with his/her mathematics teacher.

In addition to regular and early academic intervention there are ICT, assistive technologies, audio and digital books available to the students with reading disabilities. There are special education teachers in schools to aid students in using those.

In some countries, decisions for whether or not a student gets accommodation on high stake exams is based on diagnostic testing or even separate testing. In Sweden these decisions are made based on the student's everyday use of pedagogic intervention and accommodation. So, use of accommodation in one level of education legitimizes its use in the next level of education and on high stake exams.

Many students with reading disabilities are identified by screening at their schools; and relatively few choose to undergo full testing in pedagogic psychological centers. Sometimes parents choose outside testing because they believe that it will speed up receiving additional pedagogic services at school.

8.4 Example of good practice from Turkey

This study presents a good practice example on adolescents with dyslexia in Turkey. It describes the diagnosis and support processes of a dyslexic adolescent Mert, who is a student in high school. Mert's dyslexia story began when he was in 2nd grade in primary school. After the assessment phase he was provided therapeutic support and later continued with private lessons. The evaluation was repeated later and each time symptoms of dyslexia were clearly seen.

The support programme consists primarily of cognitive intervention methods to improve attention and perception skills. The programme includes:

Practices towards Attention Skills:

- Identification, grouping
- Focus of Attention
- Continuation of attention
- Re-concentration

Practices towards Visual Perception Skills:

- Visual Differentiation
- Visual figure-background relationship
- Distance-depth dimension perception

Practices towards Auditory Perception Skills:

- Auditory Differentiation
- Auditory figure-background relationship
- Auditory sequencing
- Phonological Awareness

Practices towards Tactual/Kinaesthetic Perception Skills:

- Tactual Differentiation
- Kinaesthetic Differentiation

Practices on organizational skills:

- Planning
- Planned study

- Independent Study
- Efficient use of the time

Practices for developing Memory:

- Visual-auditory memory
- Short-term memory
- Long-term memory
- Working memory

These practices are on high spirits for the student and have increased his self-confidence due to their increasing effects of awareness.

The student become more eager to studying his lessons, and started to adapt the planned “lesson programme” and “studying methods”.

At this point, an evaluation was asked from his Turkish and Maths subject teachers. The evaluation showed that he was not at the level of 1st Grade of High School but at the grade of 1st Grade of Secondary School and he should close the gap. Although he was reluctant for the first days, seeing his progress in understanding the lessons have improved his presence in the classes.

Following the training support which includes attention and perception skills and studies on Turkish and Maths lessons, therapeutic interviews was focused on with the student. He was, then, supported on the topics of Self-knowledge, thinking about the answers to “What am I feeling?”, “So, what am I doing?” questions to become aware of the feelings and talk about them. Methods of anger control were determined and an important progress was recorded using cognitive-behavioural method. Feedback was positive.

When the student passed to 2nd Grade in high school, trainings continued on both attention and learning fields and class subjects. His interest in reading (though it was really difficult) gradually increased.

By the use of reading methods such as, timed reading, repeated reading with sentence method, using reading techniques to reduce reading with mistakes, with slow and confident steps, he gradually reduced resisting reading.

His understanding and finding the correct answer in tests has gradually developed as his reading developed.

In order to improve his success in tests, in addition to reading studies, test techniques, optical reading, and time usage methods were studied.

In 3rd grade of the high school, frequency of support studies with the student reduced gradually. This lead to the increase of the student's auto controlling, ability to implement the given techniques to every field of his life, realise his mistakes and go into the effort of handling with them.