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DIGITAL ADAPTATION OF AN ENGLISH TEXT WITH THE USE OF INTERACTIVE DATAPROJECTORS IN LESSONS FOR CHILDREN WITH DYSLEXIA

Bakalářská práce

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Prohlašuji, že jsem bakalářskou práci vypracovala samostatně a použila jsem jen uvedených pramenů a literatury.

V Olomouci 22.4. 2016 ….....

vlastnoruční podpis

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Abstract

It is generally known that dyslexia is the most common learning disorder and there are some useful recommendations how to cope with reading comprehension – to divide the text to smaller parts, to connect key words with pictures or to read and listen to the text simultaneously. In this project I verify an innovative method of reading based on conversion of a printed English text into a digital form with the use of interactive dataprojectors which enable to connect all mentioned recommendations together without the shortening of the text. This way of reading suggests that it is possible to engage dyslexic children in work with texts successfully.

Introduction

This project is focused on children with dyslexia (serious problems in the process of learning to read) and reading comprehension in English. I want to evaluate the effectiveness of an innovative reading method based on adaptation of printed texts into a digital learning material displayed on the interactive dataprojector in the classroom. The main aim of this work is to create the self-designed methodological guideline which could be seen as an inspiration for other teachers of English who are faced with the problem of how to involve a dyslexic child in work with texts.

In this work I outline some important aspects of dyslexia which are responsible for problems with understanding the written word, or more precisely, which make impossible to read the texts written in the classical graphic form and ordering used in common school textbooks.

As a primary school teacher I can see that use of technical devices is normal for most of today´s children. They are able to manipulate with mobile phones, computers and other things. Even today's teachers are already accustomed to using of modern technologies such as laptops, tablets or electronic whiteboards in teaching. Interactive dataprojectors, which I am going to introduce in the practical part of this project as benefical helpers for pupils with dyslexia in lessons of English, are becoming more and more popular for both teachers and pupils.

This bachelor project is divided in two main parts – theoretical and practical. The theoretical one at first briefly deals with the term specific learning difficulties in general because dyslexia belongs to these difficulties. The second chapter is focused on dyslexia itself – the main characteristics are included (definition, causes, manifestations and types). The third chapter deals with the issue of teaching English children with dyslexia, especially reading training and reading comprehension. The whole theoretical part is patterned on publications written by experts on these problems such as Olga Zelinková, Zdena Michalová, Jiří Jošt and some others.

The practical part is based on the theoretical one and also on my own experience with dyslexic pupils and use of an interactive dataprojector at lessons. These kinds of boards

should be perceived as one of the alternatives of working with English texts. After the short introduction, I describe dataprojectors, their basic technical parameters and some practical ways of use. However, the mainstay of the practical part is the third chapter - there I explain stage by stage how to transfer the text from the paper to the electronic form. Through the creation of self-developed materials I want to find out whether the use of the adapted text in this way might improve the reading comprehension of a young dyslexic student and whether it is possible for him to understand the text without its shortening. For verification of the effectiveness of the method I use the didactical test in a form of worksheet with questions relating to the text. At first he reads the text as a whole in the texbook (without its adaptation) and answers the questions. For the second time he works with the adapted one (with use of the interactive dataprojector) and answers the same questions. This method allows to see clearly the differences in the level of understanding.

THEORETICAL PART

1 Specific learning difficulties in general

To read, to write, to count – three basic types of school skills which are expected to handle during the compulsory education. Something that is absolutely natural for a healthy child. But there exist relatively large group of children who have some problems with reading, writing or counting because there is something wrong in their brains. They are not able to capture letters in a text correctly in spite of the fact that they are intelligent and they put all their effort into it.

There are distinguished four basic types of the specific learning difficulties – dyslexia (problems with reading), dysgraphia (problems with writing), dysortographia (problems with spelling and grammar) and dyscalculia (problems with counting). Sometimes it is possible to meet with other types such as dysmusia (inability to reproduce tones and hold rhythm), dyspinxia (inability to draw with correct proportions) and dyspraxia (problems with motor activities - "a clumsy child"). But these ones are not so socially serious so they are not diagnosed so often by special pedagogues or psychologists within Educational and Psychological Counselling. (Zelinková, 2003)

1.1 Definition of specific learning difficulties

Why do we call these difficulties as specific? Because they usually do not appear until a child starts to go to school where some demands are placed on specific abilities of a pupil for reading, ortography, writing and counting. Specific difficulties are not connected with sensory handicaps or with a retardation of intelectual development. (Michalová, 2001)

It is necessary to say that specific learning difficulties are also called developmental. It means that the ability to read or write correctly is not developed completely. We do not talk about slow acquisition of reading, writing or counting at children who are developmentally immature or who are on the border of mental retardation. It is also not possible to think about disorder if there is only one of the manifestations (for example mistaking of short and long vowels). (Zelinková, 2000)

Learning disorders is a term that refers to a heterogeneous group of difficulties that are manifested in the aquisition and use of language, reading, writing, listening and mathematics. These diffficulties have individual characteristics and are formed on the basis of dysfunction of the central nervous system, as well they apply to children with average and better

intelligence. (Zelinková, 2000)

1.2 Main types of specific learning difficulties

1. Dyslexia means specific inability to learn to read with the use of common teaching methods. Its current definition is based on the discrepancy between intelligence measured in a test, and the performance in reading measured in standardized texts. (Michalová, 2001)

Dyslexia is also the best known term among all specific learning difficulties because it affects the school success rate the most, it is the most noticeable. (Zelinková, 2000)

2. Dysgraphia is a specific disorder of writing, it means of graphical expression as such. The process of writing itself depletes child´s capacity of attention so much that it is not able to concentrate on a content and grammar. A pupil with dysgraphia has serious problems with precise motoric skills, its handwriting is usually shaky, unedited, worse readable or unreadable. These children do not remember the shapes of letters and change them. The process of writing is very slow and clumsy in relation to the age of a child. (Michalová, 2001)

According to Michalová there are many features of dysgraphia, here are some of them:

- generally unreadable handwriting in spite of the long time and attention devoted to the task
- tendency to mixing of block letters and cursive writing, irregular size of letters, diversity of shapes, inequality of lines, uneven slope of writing
- inability to keep letters on lines

incomplete words or letters, omission of words in a text

3. Dysortographia means problems with spelling and grammar. It often occurs together with dyslexia and dysgraphia. This disorder does not affect the whole sphere of grammar but only specific dysortographic phenomena. A child with this disorder usually mistakes short and long vowels, does not distinguish syllables *dy-di, ty-ti, ny-ni* (hard and soft consonants in Czech language) or leaves the letters out. (Zelinková, 2000)

There is also a deficiency in sense of language which results in reduced ability of inflection (for example nouns and verbs). (Michalová, 2001)

4. Dyscalculia manifests itself by problems with orientation on a numerical axis, mistaking of numbers (e.g. 2008 – 2800), inability to carry out mathematical operations (addition, subtraction, multiplication and division) and by troubles with spatial and right-left orientation. (Zelinková, 2000)

2 Dyslexia – the most familiar specific learning difficulty

I do not want to talk in detail about all types of specific learning difficulties in this project. I have chosen only one of them – dyslexia.

According to Zelinková it began to talk about dyslexia first because, as it was mentioned, it has the biggest influence on school success rate of a child. We can say that inability to read is the most noticeable. For example, little children usually read aloud in front of the others so it is evident that they have some problems.

I have not yet explained the sense of a prefix *dys-*. It is high time to do it. *Dys-* means discrepancy or mismatch (a function is not developed enough).

2.1 Definitions of dyslexia

Psychologists, educators or remedial teachers have researched dyslexia for many years and there have been many different definitions of it. As Jošt (2011, p. 10-14) writes, currently experts follow two basic definitions of this disorder:

1. Acoording to Diagnostic and Statistical Manual published by American Psychiatric Association in 2000, dyslexia means that the reader´s performance judged from the point of view of quickness, accuracy and understanding, and measured by individually standardized tests, is significantly lower than its expected level which is determined by age, intelligence and adequate educational offer. "*Significantly lower than its expected level"* means the difference (discrepancy) between IQ (intelligence quotient, higher than 90) and reading performance.

2. According to the tenth revision of the International Classification of Diseases (ICD-10, 1990), the main feature of dyslexia is specific and strong disruption of development of reading skill but it cannot be imputed to the mental age, problems with eyesight or inadequate way of educational process. It can affect reading comprehension, ability to recognize read words or loud reading. All these problems usually last until adolescence.

As we can see, both definitions are based on the same theory – there is a noticeable imbalance between intelligence and reading performance in spite of a pupil´s effort and good teaching conditions. Generally known is the fact that dyslexia affects more boys than girls.[1] (Jošt, 2011)

1 Later it will be explained in more detail.

2.2 Causes of dyslexia

The exact cause of dyslexia was not known for a long time but today it seems to be clear. Research shows that the most likely cause is either genetic disorder or brain damage. (Michalová, 2001)

2.2.1 Historical perspective

One of the experts who laid the foundations for this theory (either genetic disorder or brain damage) was Otakar Kučera (1906 – 1980), a psychiatrist from the Children's Psychiatric Hospital in Dolní Počernice in Prague. On the basis of his observation of children with dyslexia in the sixties of the twentieth century, he divided them into four groups according to the cause of their disorders:

1. ENCEPHALOPATHIC GROUP – in fifty percent of cases the minor brain damage occured before birth, in birth or early after it
2. HEREDITARY GROUP – in twenty percent of cases dyslexia occured in some relatives
3. HEREDITARY-ENCEPHALOPATHIC GROUP - in fifteen percent of cases dyslexia was caused by combination of both above mentioned influences
4. UNCLEAR GROUP - in fifteen percent of cases the cause of dyslexia was not clear.

Many things have changed since the last century but Kučera´s research is still the base for many experts. (Michalová, 2001)

It is obvious today that heredity has a much greater influence than it initially appeared. Dyslexia is genetically conditioned by fifty percent, the rest are external influences like brain damage. The most likely it seems that a decisive influence on the development of dyslexia has a gene located on a little protuberance on the sixth chromosome. (Fischer in Matějček and Vágnerová, 2006, p. 13)

2.2.2 Current theories

Today experts are finding that children with dyslexia usually have problems (in addition to reading) in many other spheres such as:

- motor activity
- visual and auditory processes and processing of stimuli
- memory
- structure and function of central nervous system, etc.

These abnormalities manifest themselves in many combinations and in different seriousness. (Zelinková, 2003)

The causes of dyslexia can be viewed at the following three levels (Zelinková, 2003):

1. BIO-MEDICAL
2. COGNITIVE
3. BEHAVIORAL

Ad 1)

It includes:

- *genetics* – numerous studies indicate the main cause on chromosomes 2, 3, 6, 7, 15 and 18
- *structure and functioning of a brain* – for example dysfunction of thalamus, where visual and auditory information is transfered to cerebral cortex, because of large numbers of little neurons which disturb in this part of the brain
- *cerebellar theory* – deficiency in cerebellum which plays an important role in activities of the frontal cortex, including Broca´s speech area
- *hormonal influence* – it seems that one of the causes of dyslexia can be increased level of testosterone

Ad 2)

It includes deficiencies in following spheres of cognitive processes:

- *phonological deficiency* – for example problems with rhyming (*pes – les* in the Czech language)
- *visual deficiency* – exchanges of letters in a word (*klika – kilka*)
- *problems with speech and language* – children with dyslexia usually use only limited range of vocabulary
- *deficiency in process of automation* – school skills are not adopted so quickly
- *deficiency in memory* – significantly impaired short-term memory
- *combination of deficiencies* – in most cases

Ad 3)

It includes:

- *analysis of the reading process*
- *analysis of the writing process*
- *analysis of behavior in reading, writing and common daily activities*

Sometimes is difficult even for experts to determine the cause of dyslexia exactly. Usually there are more than one factor which is responsible for the disorder.

2.2.3 Why boys are more predisposed to dyslexia than girls

Now I would like to clarify some basic causes of this important and interesting phenomenon – at schools we meet more dyslexic boys than girls. Why?

We have to look for an answer in cerebral hemispheres. As Jošt (2011, p. 40-41) describes, the left hemisphere is responsible for processing of linguistic stimuli, the right one for processing of perceptional (visual, auditory) stimuli. A healthy brain is able to analyse sentences, words and syllables by its left hemisphere. This hemisphere is semantic, it means that we understand the meaning with the aid of it. With the aid of the right hemisphere we process sounds and also letters as specific kinds of pictures.

When a little child starts learning to read it first uses the right hemisphere more because it learns to recognize phones and connect them with a correct letter. Later, when a pupil connects letters into syllables and words, it is necessary to activate the left hemisphere. All these things are not difficult for a helthy brain – both hemispheres cooperate.

As Matějček (2006, p. 17) writes, girls´ hemispheres are less specialized. It means that they are more interconnected. These connections enable to transfer activities from one hemisphere to another more easily.

To the contrary, boys´ cerebral hemispheres are separated much more strictly. Dyslexia is caused by disruption in the right hemisphere which resulted in problems with reading because a child is not able to master connection of phones with letters and the left hemisphere does not "help" with it.

2.3 Manifestations of dyslexia

Not all problems with reading mean dyslexia. It has some typical manifestations. As Michalová (2001, p. 17) writes, dyslexic children...

... have troubles with distinguishing of similar shaped letters (e.g. *b – d*; *m – n*)

... have poor ability to connect written and sound form of a phone

... are not able to distinguish phones which sound similarly (e.g. *g – k*; *f – v*)

... usually do not read soft phones in Czech language (e.g. *dě*; *tě*; *ně*...)

... do not follow the correct sequence of letters in words (e.g. *klika – kilka*)

... often add extra letters or syllables to words

... often leave some letters or syllables out

... guess the endings of words according to correctly read beginning

... ignore the length of vowels

... are not able to read with intonation

... do not read prepositional phrases correctly

... do not understand a text which they read

... use „double reading“ (A pupil first reads a word for itself and then aloud.)

I consider necessary to mention that dyslexia usually does not appear separately. The most often combination is dyslexia with dysgraphia so there can appear some other features which are typical for dysgraphia. (Michalová, 2001)

2.4 Types of dyslexia

As I wrote above, reading performance of a dyslexic pupil has some typical features. Some of them can manifest themselves more strongly, some of them less.

Remedial teachers are used to divide dyslexia into four basic groups according to a predominant manifestation. The most understandable characterization provides Zelinková. She herself refers to a study of a Lithuanian author A. Lalajeva, published in 1983.

Lalajeva (in Zelinková, 2000, p. 16-17) classifies these types of dyslexia:

1. PHONEMIC TYPE: a child is not able to hear differences between phonems (e.g. ko<u>s</u>a – ko<u>z</u>a; <u>n</u>áš – <u>v</u>áš...)
2. OPTICAL TYPE: a child has serious problems with visual and spatial analysis, it is not able to remember correct shapes of letters
3. AGRAMMATICAL TYPE: a child has problems mainly with grammatical forms, morphology (shapes of words) and syntax (word order, relations between words)
4. SEMANTIC TYPE: a child does not understand the meaning of a text (it does not know what it reads about).

For comparison, Matějček (in Jošt, 2011, p. 32-33) also divides dyslexia into more types but his ones are little bit different from Lalajeva.

1. TYPE A: problems lie in the basic organization of sensory data (eyesight or hearing) even though we do not talk about visual or hearing defect. This type is divided in A1 and A2.

- A1 – a child understands meaning of the words and can repeat them very well but it is

not able to catch the order of single phones or syllables, it "does not hear" them. These pupils are good at rewriting of a text which they see ahead but make many mistakes in dictations.

- A2 – a child permanently mistakes similar letters (*b – d*) or does not follow the
- correct sequence of letters in words. Reading is slow and insecure, a pupil "does not see" letters. Many years ago it was called “lexical blindness“.

1. TYPE B: dyslexia is accompanied by minimal brain dysfunction (most often by attention deficit hyperactivity disorder – ADHD), a child is restless and impulsive.
2. TYPE C: a child has problems with summary or synthesis of a text. Type C is divided in C1 and C2.

- C1 – a pupil is able to read correctly but does not understand the meaning of the text.
- C2 – a pupil recognizes single letters but is not able to connect them into the words. It does not read, only syllabicates.

It is evident that their divisions are very similar but Matějček unlike Lalajeva takes into consideration minimal brain dysfunction.

3 Dyslexia and foreign languages

This project is not only about dyslexia in general. Now I would like to aim my attention on English as a foreign language at children with this difficulty. This chapter is patterned on books written by Olga Zelinková and Zdena Michalová.

Zelinková ranks among the pioneers in teaching foreign languages to children with dyslexia in the Czech Republic. I met this brilliant lady few years ago when she organized a training course for teachers of foreign languages in our town. The topic of the course was *"Dyslexia and foreign languages"* and it was more than interesting.

It has been a very discussed question among teachers for many years – how to teach English (or other languages) to children with specific learning difficulties? It is obvious nowdays that ability to communicate in English becomes more and more important if a young man wants to get a good job. Nobody holds the view that foreign language should be left out completely from education in pupils with dyslexia. So it is necessary to find some feasible ways and methods of teaching.

But what to do concretely if you have fifteen children in a group and one or two of them have serious problems with reading?

I personally work on the assumption that if a child with dyslexia is able to handle some activity, then it can do any other healthy child as well. So if we use such a method of reading which does not lead to the shortening of the text, then it is possible very well to teach all children together without separation of healthy pupils from dyslexic ones.

3.1 The main goal of teaching a foreign language

Zelinková aims her attention not only on vocabulary but on the whole practical using of language. An idea of her work, and I absolutely agree with her point of view, could be expressed like this: *the main goal of teaching a foreign language is achieving of a basic communicative competence*. It means that a pupil should be able to introduce himself, ask for directions (for example to the railway station) or understand simple answers. (Zelinková, 2006)

She recommends following principles of teaching (and learning) for dyslexic children:

- Involve as many senses as possible (It means: *"Hear, look, say, write and point to"*)
- Speak as much as possible, even with mistakes. It cannot be the aim of teaching to speak *perfectly* (without mistakes) but speak and understand.

- Teach in small steps, there should be logical relations between topics which follow.
- Teach together the words which have similar graphical structure (e.g. *should – could*)
- Repeat. Repetition leads to automation.
- Respect individuality of a child.
- Prefer speech and listening to writing. Do not force a child to read aloud.

From my own experience I must say that all principles mentioned above work. Moreover, teachers of English have advantage against the others because they usually teach only a half of a class. It provides much more individual approach to pupils not only with dyslexia but also to the others.

3.2 How dyslexia and its accompanying symptoms affects foreign language learning

As Zelinková (2006, p. 26) writes, individuals with dyslexia have in a different extent and depth affected following spheres of a language:

- *phonology* (language sound) – it is difficult to distinguish the connection between printed form of words and their pronunciation
- *morphology* (word forms - prefixes and suffixes) - a child is not able to recognize a familiar word as a part of a new one (e.g. sing → sing*er*)
- *grammar* (rules of the language) – a child does not understand why we use '*s*' at the end of the verb in the third person of singular in present simple (*I like...* but *He likes...*)
- *syntax* (relationships between words in the sentence) – a child does not understand, for example, why adjectives stand before nouns
- *semantics* (meanings of expressions) – a child learns a new word but it is not able to use it in a different sentence

The child with dyslexia needs not only much more time to perform tasks, but also additional information, explanations and instructions. It is also necessary to repeat all things again and again, return back in the curriculum and adequately change types of activities during the lesson. (Zelinková, 2006)

3.3 Principles of reading comprehension at children with dyslexia

Dyslexic children usually have serious problems with perception of a content of the

text, so it is clear that it is not possible to use common methods of reading comprehension. (Jucovičová, Žáčková, 2008)

Zelinková (2006, p. 78 – 84) describes the following principles of working with English texts at children with dyslexia:

- **Multisensory approach** is most used. It allows the student to receive information from the channel, which is developed the best. It connects vision, hearing, touch and kinesthetic perception. The activities of the pupil consistently combines speech, perception of pictures, objects, experiencing specific situations, and join the movement and response.

  Vision: the pupil can see the pictures, objects or situations and connects them with written words. It is necessary to use big and colourful letters.

  Hearing: the child listens to pronunciation of the teacher or classmates. It has the opportunity to repeat the words several times.

  Speech: the child should speak as much as possible, repeat the words and phrases.

  Motor activity: the child shows the content of the word with movement.
- **Communicative approach** means to perceive the speaker, to understand his message and to express all needs and ideas. It is preferred the ability to communicate. Also, the aim is to teach students to guess based on the context of the text. Answers should have an easy form.
- **Sequential approach** means to progress in small steps. The pupil must first cope with one paragraph, then it is possible to continue to the next. Everything must be interlinked.
- **Structured approach** implies the acquisition of units that have the same or similar graphic layout *(hat – cat)*.

3.4 Reading training stage by stage

Now I am going to describe some useful methods how to teach English children with dyslexia as are recommended by experts on this issue. Before we get to work with the text itself, it is necessary to be prepared properly.

3.4.1 Learning new vocabulary

As Michalová (2001, p. 65) writes (and Zelinková holds the same opinion), used teaching methods should be as simple as possible – here is not true that the more varied and

diverse the method is, the better.

Michalová recommends following principles of learning new words:

- Repeat a few words (new and old) every day and divide them into two groups (remembered/unremembered).
- Learn new words in thematic groups (days of the week; at school; animals; etc.).
- Connect a word with a picture or a thing.
- Try to remember the word in both "directions" (Czech → English; English → Czech)
- It is better to learn more times at shorter intervals than many words at once.
- The first reading is the most effective.
- It is useful to hear new words on audio carrier.
- It is necessary to make simple sentences immediately.
- It helps to connect sentences with action pictures.

3.4.2 Learning new grammar

Besides vocabulary it is necessary to know the rules of grammar. They usually represent a big problem for children with dyslexia in the mother tongue, let alone in English. But if we want a child to read and work with the texts, it is necessary to handle it, too. Janíková (in Zelinková, 2006, p. 89) recommends:

- When you explain new grammar, start with an example, not with a rule as such (rules explain later).
- Focus just on one phenomenon.
- Apply the principle of illustration.
- Repeat every phenomenon in various types of exercises and situations.
- Tolerate mistakes that do not affect the sense, at least in the initial stages.

  I would like to add: be patient, there is no hurry.

3.4.3 Reading technique

In the beginning, the most important things are: use texts with bigger letters, clear layout, sufficient division into paragraphs and not too long. (Zelinková, 2006)

According to Zelinková (2006, p. 92), we should follow these steps:

1. Listening to the text at the audio record
2. Listening to the same text read by the teacher

3. The teacher reads the text again slowly by sentences and pupils clap their hands if they hear for example a key word (or some other thematic words).
4. Reading by sentences together – a dyslexic child can repeat some parts by heart, it is not a bad way.
5. Individual reading of the text
6. Translation of the text, making questions, searching for answers.
7. It is also useful to use pictures, drawings or pantomime.

We must remember that the aim is not precise and fluent reading but understanding the contents of the text.

Here are some other useful recommendations for reading with dyslexic children by Zelinková (2006, p. 93):

- "Look at the text and say what it is going to be about." - a pupil tries to guess by a title of an article, key words or pictures (in the beginning).
- A pupil find some words in the text and tries to explain what they could mean.

3.4.4 Reading comprehension - feedback

The main aim of reading (or work with a text in generall) should be the reading comprehension. If a child does not understand what it has just read about, there is no point in futher working with the text.

The feedback should be continuous. It means – few questins after each paragraph. It is usually ineffective to ask all questions at the end of the whole text, it is too long. (Zelinková, 2006)

First, we ask questions about key words. It is good to mark these words with a different colour (I use the red colour the most) and connect them with pictures. When a child answers the key words questions, we can go on.

The form of the feedback is either written (a worksheet), oral (a teacher asks questions) or a combination of both (the best, in my experience).

At this point I can conclude the theoretical part of my project. Everything important has been said and now I can focus on the demonstration exercises - how to handle the text so that it is manageable for a pupil with dyslexia.

PRACTICAL PART

1 Introduction

The pivotal theme of my work is dyslexia. As it was mentioned, dyslexia means problems with reading. Units in common English books for students are usually divided into several parts and the first one is, in most cases, an article with new vocabulary. For a child with dyslexia this represents the most difficult thing in learning – to work with texts.

But also teachers are usually afraid of this situation. In the practipal part of my work I want to show in detail that it is possible very well to engage a child with dyslexia to reading or working with texts (and it is not necessary to worry about it).

I also consider important to mention some basic information about our school. It is a common primary school which is located in the city centre. Pupils are usually from six to fifteen years old, the number of children is around five hundred. Approximately every twentieth child has a specific learning difficulty such as dyslexia (problems with reading), dysgraphia (problems with writing), dysortographia (problems with spelling and grammar) or dyscalculia (problems with counting). All these children are taught together with the others, we do not have any special classes. I work with them every day and I can see that they are able to learn almost everything. But it is not possible to use common methods of teaching, of course.

1.1 The aim and method of the practical part

The aim of the practical part is to describe in detail individual steps of editing of the text written in English so that it is understandable for pupils with dyslexia, with use of a laptop connected to the interactive dataprojector in the classroom.

This method is based on recommendations of experts and on my own experience with a dyslexic boy who was my pupil for two years. The text is actually transferred to the presentation, which can be edited as needed, unlike printed worksheets. One of the most important aspects of this innovative method is that the text is not curtailed.

I would like to create a simple guide for other teachers of English who are faced with the problem of how to involve a dyslexic child in reading with understanding because many pupils with dyslexia are excused by parents and they tend to abuse their position.

2 Interactive dataprojectors

We all know a classical school board hung on a front wall in a classroom. It is necessary to use a piece of chalk if we want to write on it, and a sponge or a rag to wash it. Boards have been an inseparable part of teaching since Komensky´s era.

It is clear that boards in the classrooms are used as an important tool of teaching. Teachers write on them to demonstrate everything needed and necessary – arithmetical problems in Maths, grammatical rules in languages, chemical symbols and other things. In simple terms – we all need boards for learning and teaching, they are the most used tools at schools.

But we live in the twenty-first century and school facilities has greatly changed over the last few decades. Teachers are much more used to working with modern technologies and in addition to classical boards in the classrooms, we can also see interactive data projectors.

2.1 Basic technical information

For the purpose of my project it is not necessary to describe the dataprojector in great detail because this is not a technical work. We need to know only common user information.

As it was mentioned, dataprojectors work like screens or monitors of computers. They are placed (usually hung) on the front wall in the classroom next to the classical board (see Figure 1). The teacher can choose any colour of the background.

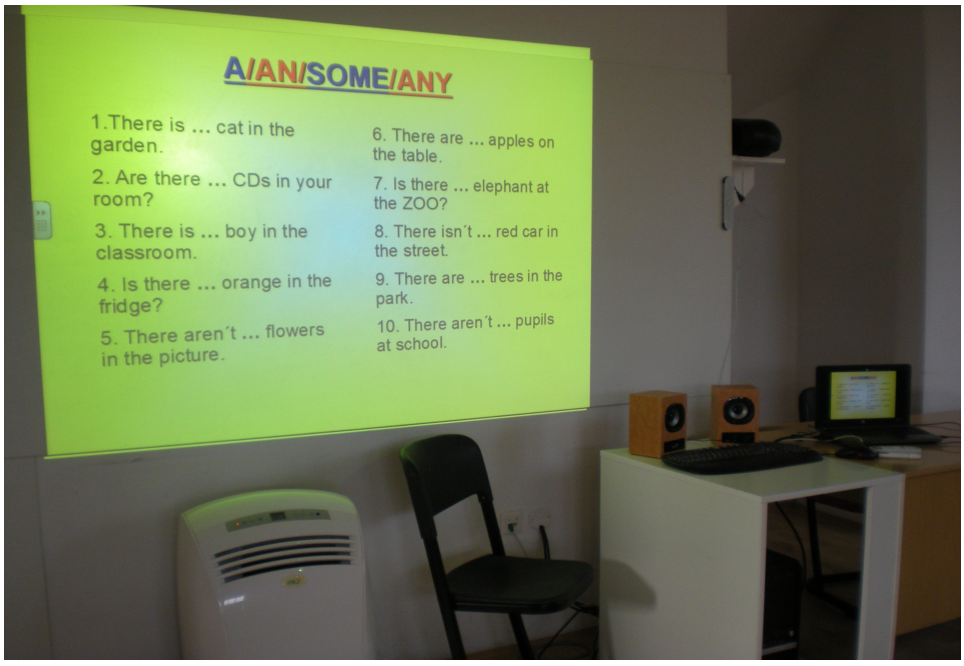

Figure 1 - Dataprojector in the classroom

Right opposite to the projector there is a special apparatus which transmits a light signal to the dataprojector (see Figure 2).

Figure 2 - Light apparatus

We also need a remote control to switch on the projector, and a special pen because it is not possible to use classical chalk if we want to write something (see Figure 3).

Figure 3 - Remote control and special pen

The projector is connected with a computer or a laptop by a special transmission cable. I use the portable laptop because I can prepare a lesson in it in advance, for example at home

(see Figure 4).

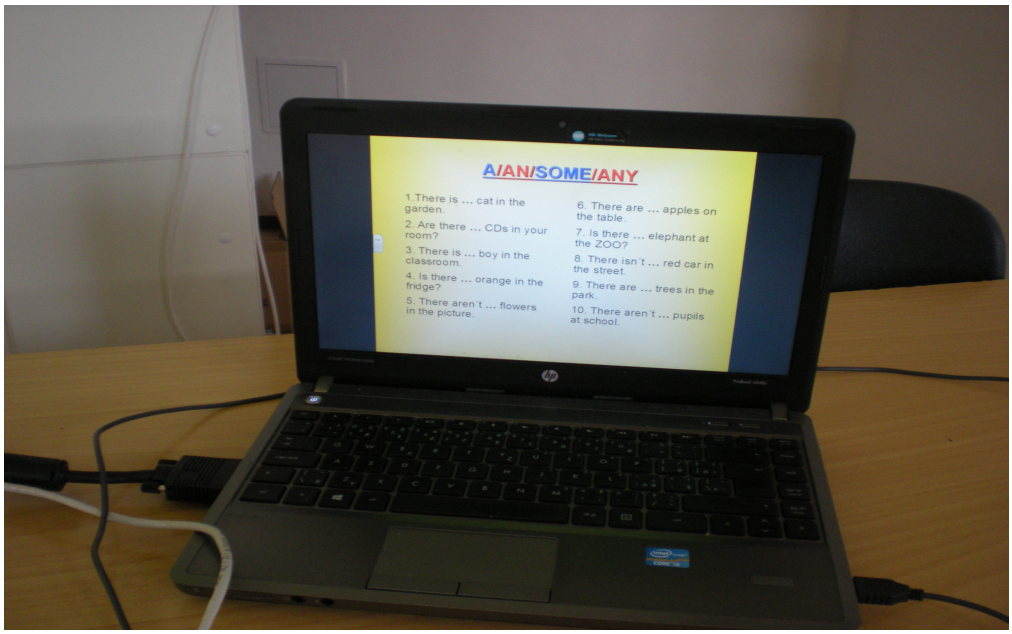

Figure 4 - Laptop connected with dataprojector

There are some other useful parts of interactive dataprojectors – for example loudspeakers. I can put a CD into the laptop and pupils can practise listening or watch a video. It is also posiible to work on the Internet.

2.2 Examples of use of the dataprojector in lessons of English

Now I would like to describe some activities in my lesson of English with use of the dataprojector. I always prepare the lesson in advance. I have many things saved in my laptop so I do not need to create everything again. I usually only decide what to use according to the topic of the lesson.

The first part is usually a warm-up exercise. My pupils´ favourite activity is a quiz with jumbled letters in words.

Example:

The topic of the lesson are adjectives. Pupils have the task of finding six of them. They see them on the dataprojector. I use the 'impres programme' most often (see Figure 5).

Figure 5 - Jumbled Adjectives Quiz

The first three successful solvers get a small A (three small ones mean one big A to a pupil´s book). On another slide I show the right words (see Figure 6).

Figure 6 - Adjective Quiz - right words

At children with dyslexia I tolerate three or four correct words – they usually find and write correctly words such as *nice, fast, dark* or *ugly.* Longer words such as *beautiful* are usually too difficult for them even in a normal shape. But on the other hand there are many English words which are short and are more suitable. It is possible to highlight the first letter, too (e.g. ceni → ce***n***i).

Important part of learning English is vocabulary. The best and easiest way is using of the dictionary on the Internet. Pupils see the word in English with phonetic transcription and they also can hear it (see Figure 7). For dyslexic children this is a very good way of learning – to see and listen simultaneously. Dataprojectors enable to connect to the Internet by the laptop.

Figure 7 - Dictionary on the Internet

Most often we can find new words in the articles which are usually at the beginning of each new lesson in the textbook. Work with English texts will be the central theme of the practical part of my project.

3 Adaptation of an English text with use of the dataprojector

Now I am going to demonstrate in practice how to adapt English texts to dyslexic children so that they are able to understand. The sample text is taken from the student´s book called *Project 2,* written by Tom Hutchinson and published by Oxford University Press in 1999. We have been teaching by Projects for more than ten years at our school and we have very good experience with them. Project 2 is used in the sixth year.

3.1 Dividing of the text in smaller parts

It is evident that a common text in a common English student's book is too difficult for a child with dyslexia and it is absolutely ineffective to try to work with it in a form which it is written in. It is much more effective to divide the text into smaller thematic parts. For this purpose I make a presentation in my laptop where I divide the text into paragraphs – each paragraph to one slide of presentation. It means that I must rewrite the text to my laptop, which takes some time, but I prepare every text only once and than I can use it for other and other children.

For the illustration I choose an article called *Pets* (Hutchinson, 1999, p.20).

The whole text: 242 words; 1.163 letters; topic - Pets

"Hi, I´m Amy. I´ve got two pets – a rabbit and a hamster. The rabbit is a female and her name is Flopsy. She´s about three years old now. I keep her in a hutch in the garden, but I play with her every day when I come home from school. I put her on the lawn. She likes that, because she can run around and she eats the grass, too.

My hamster´s name is Hammy and he´s a male. Hamsters don´t live very long. They only live for about two or three years. Hammy is about one year old. I keep him in a cage in the house. His cage is on a small table in the hall. I can´t keep him in my bedroom, because hamsters are nocturnal and they are very noisy at night. Hammy´s got a wheel in his cage and he runs around it. I play with him in the evening before I go to bed.

Every month my mum takes me to the pet shop in town. It´s my favourite shop. There are lots of animals there. I buy food for Flopsy and Hammy at the pet shop. They eat vegetables, too, and Hammy likes nuts. I feed them every day and I put clean water in their water bottles, too. I clean the cage and the hutch on Saturday morning.

Have you got a pet? All my friends have. We all love our pets, but do they love us?"

The very first thing which we usually do with the text is listening. Pupils listen to the article several times. It is better to use the dataprojector than a CD player because of loudspeakers which provide better sound quality. The aim of listening is to capture as many key words as possible.

I highlight key words in every paragraph. Because this article is about pets, especially about a rabbit and a hamster, there are also pictures of them on the very first slide (see Figure 8). It is necessary to connect two or three most important words with pictures in the beginning. When pupils see what the article is about, we can go on.

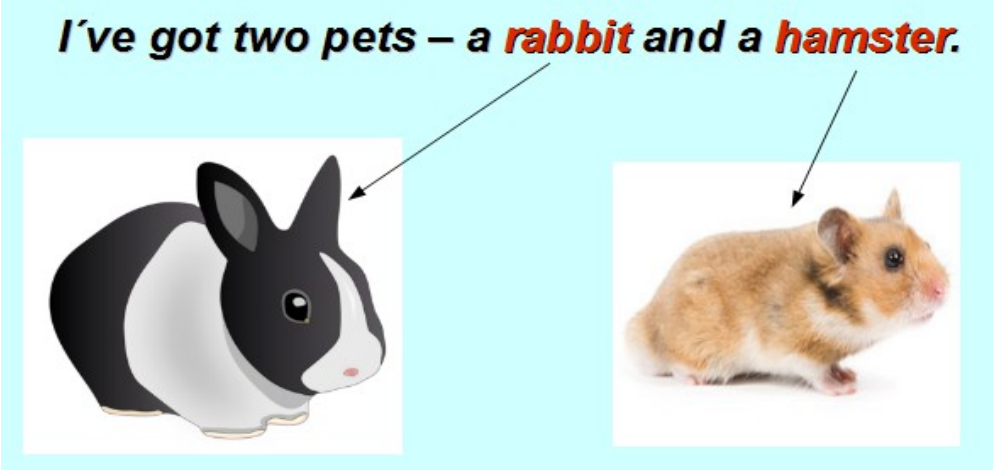

Figure 8 - Key words of the text connected with pictures

Another slide is the whole first paragraph from the text with highlighted key words (see Figure 9). Pupils watch the text and listen to the CD simultaneously. They are supposed to focus on pronunciation.

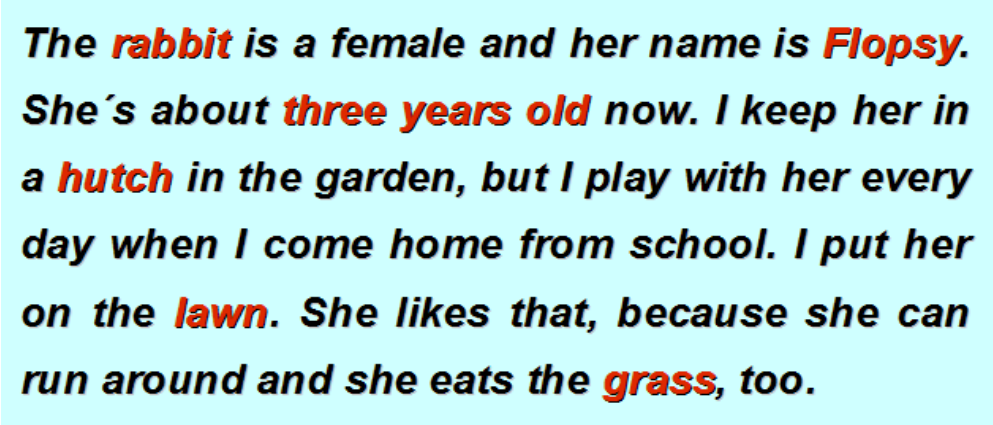

Figure 9 - The first paragraph of the text

note: There is a very good source of pictures on the Internet called Openclipart. All images are freely available.

3.2 Connection of pictures with key words

We always connect all "red" words with pictures. I highlight only such ones which are essential for overall understanding (see Figure 10).

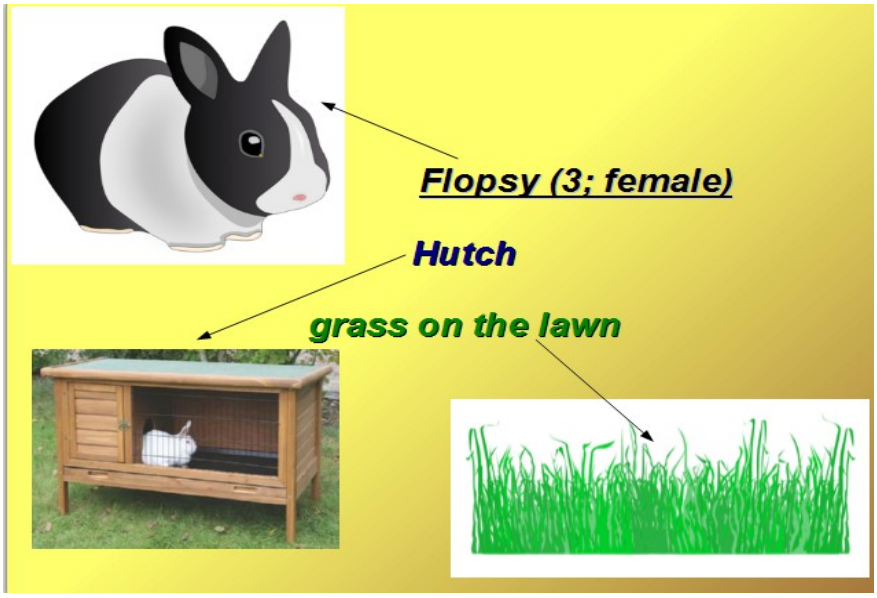

Figure 10 - Pictures to the first paragraph of the text

All other paragraphs are always rewritten in the same way, I do not change even colours of highlighted words (see Figures 11, 12, 13 and 14). This routine in reading helps a lot.

My **hamster**´s name is **Hammy** and he´s a male. Hamsters don´t live very long. They only live for about two or three years. Hammy is about **one year old**. I keep him in a **cage** in the house. His cage is on a small table in the hall. I can´t keep him in my bedroom, because hamsters are nocturnal and they are very noisy at night. Hammy´s got a **wheel** in his cage and he runs around it. I play with him in the evening before I go to bed.

Figure 11 - The second paragraph of the text

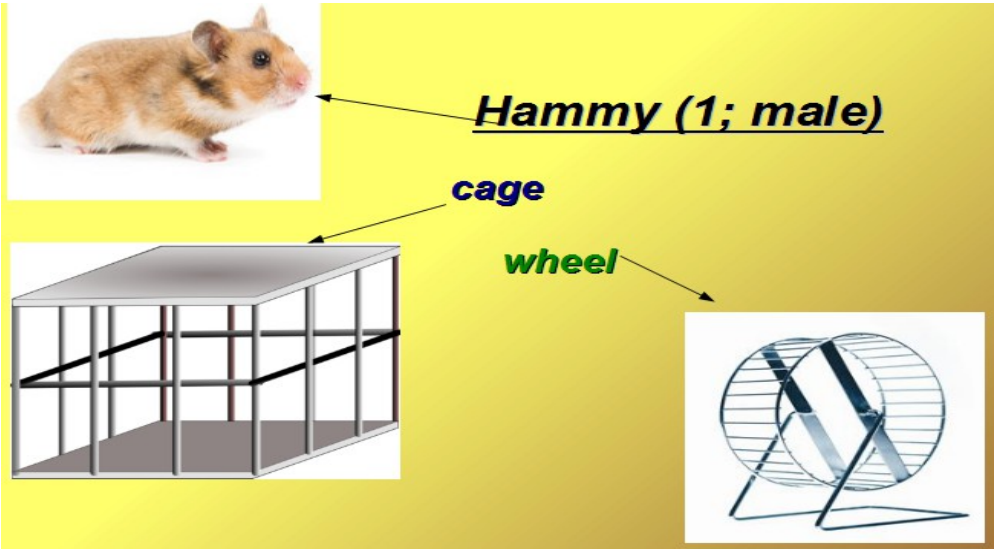

Figure 12 - Pictures to the second paragraph

Every month my mum takes me to the pet shop in town. It´s my favourite shop. There are lots of animals there. I buy food for Flopsy and Hammy at the pet shop. They eat vegetables, too, and Hammy likes nuts. I feed them every day and I put clean water in their water bottles, too. I clean the cage and the hutch on Saturday morning.

Figure 13 - The third paragraph of the text

Figure 14 - Pictures to the third paragraph

3.3 Understanding of the text

It is necessary to make sure that a child understands the contents of the text. The article *"Pets"* seems to be relatively long even for a healthy child, but it is not an exception in all Project books to work with texts of similar length and we must anticipate that the dyslexic pupil will have some problems.

3.3.1 Reading versus listening comprehension

Personally, I work on the assumption that for practical life of all people (not only of dyslexic ones) is important to understand the spoken word and to speak, first of all. Pupils with dyslexia are not supposed to be teachers of languages or translators of books in future. They need to be able to use foreign languages in daily life. So if we work with the articles in units, we concentrate our effort mainly on *listening comprehension* rather than reading as such itself. It means listening as a main source of understanding. In reading we focus only on key words and pictures which they are connected with. I do not want to eliminate reading completely but key words are enough for practising at dyslexic pupils.

We always listen to the paragraphs more than once with all children in a group. The text in the book is the same as on the board and it is better for some weaker students to see key words connected with pictures.

After each paragraph I stop playing CD and firstly we pay attention to key words – children must repeat them and try to remember them. Than I want them to remember and repeat other words or parts of sentences. I always ask if they understand what the words mean. If they do not understand I try to explain it in English or I say it in Czech, it depends on the concrete word.

3.3.2 Feedback – control questions

In the end I ask questions about the text. Healthy children can work with the book and answer them in written form (e.g. on worksheets). Children with dyslexia answer in oral form.

Below are the answers of my dyslexic pupil, for the purpose of my project I call him Adam. He is twelve and he has dyslexia combined with dysgraphia. Adam is very talkative and he is usually in a good mood but sometimes he is a little bit frustrated because of his disorder. He attends a common class where he has got many friends. He comes from very good family environment, he has got one healthy brother. Adam´s mother is a positive woman, she supports him in everything he does. He likes sports, especially floorball.

For better comparison I put Adam´s answers to the table (see Table 1). First, Adam is

working with the worksheet. He is reading the text in the book and listening to it without its adaptation in presentation, as if he was healthy. Than he is trying to answer the questions. He knows that he is cooperating on my project so he is keen on doing it as good as possible.

Than he is working with the text adapted to the presentation a he is answering the questions in oral form.

Questions to the text:	**Answers in written form with use of the original text in the book:**	**Answers in oral form with use of the adapted text in the presentation with emphasis on listening:**
1. Who is talking about pets?	AMI	"Amy"
2. The telling is about two pets. Do you remember them?	RABIT HAMSTR	"rabbit, hamster"
3. What is the rabbit´s name? How old is she?	FLOPY	"Flopsy. Is three."
4. Where does Amy keep her?	HUTH	"hutch in garden"
5. What does Flopsy eat in the garden?		"grass"
6. What else do you remember about Flopsy?		"like run"
7. What is the hamster´s name? How old is he?	HAMY	"Hammy. Is one."
8. Where does Amy keep him?	KLEC	"cage in home"
9. Hammy cannot be in the bedroom. Why?		"He is noisy."
10. What does Hammy have in his cage?	KOLO	"wheel"
11. Where does Amy go with her mother every month?		"pet shop"
12. What does Amy buy there?		"food for Flopsy and Hammy"
13. What does Hammy like, too?		"nuts"
14. When does Amy clean the cage and the hutch?		"in morning in Saturday"
15. Can you explain these words?		
MALE		"boy animal"
FEMALE		"girl animal"
NOCTURNAL		"life in night"

Table 1 – The table of pupil´s answers about the text

3.3.3 Comparison of pupil´s results

We can see it absolutely clearly – when Adam works with use of the classical method he is not able to answer correctly almost anywhere (in the middle column). Somewhere he

answers in Czech, most of answers are missing. I do not take into account the correct transcription of words. When he sees the results of his efforts, he is very disappointed.

But if he can listen to the text for several times (usually twice the whole text and then one more time in individual paragraphs), the text is divided into smaller parts and key words are connected with pictures, he is much more successful (the rightmost column). He does not write the answers but we talk about the text. I am asking, he is answering. I can hear that he knows what the article is about, despite the fact that his answers are not completely right (he does not use the articles or correct prepositions). But he understands and he is not afraid of speaking. We both can be satisfied.

One of our most respected experts on dyslexia, Olga Zelinková, recommends to prefer listening to reading and writing and also work in small steps. If I, as a teacher of Adam, follow these rules in the classroom, then Adam is successful. If he is successful, he is happy and he has the desire to do more work. He does not feel frustrated and even his classmates do not perceive that he has a problem with reading.

3.4 Problems

As it was said above, the adaptation of the English text into presentation is simple and it really works. But dataprojectors are dependent on electricity, so when the source fails, it is not possible to use them. But it does not happen very often.

Another, more substantial barrier can be for many schools the high purchase price of technologies. One interactive dataprojector costs about twenty five thousand Czech Crowns. But most of schools have at least one or two projectors, most often in language classrooms. And there are many projects announced by the Ministry of Education or European funds.

Concretely our school has dataprojectors in all classrooms because we participated in a big project called *"Digital Learning Material"* in 2012. All teachers were supposed to make a certain number of preparations in electronic form relating to their subjects. These preparations were published on the Czech school portal *(dumy.cz)* for other teachers. As a reward the school obtained twenty interactive dataprojectors and the same amount of laptops from the funds of the European Union.

The big advantage for the school is an active headmaster or headmistress because these projects are usually administratively exacting. Me and my colleagues are lucky in this respect because our headmistress has a lot of experience and she is always ready to get

involved in similar projects.

3.5 Simply but effectively

Almost at the end of this chapter I have to mention some of my personal observations. Many teachers perceive children with dyslexia as a problem, so they usually choose the easiest way – to excuse them, not to involve them in reading. But it should not be a solution. This method can lead to the isolation of the child in the teaching of foreign languages, and later to worse position on the labour market.

I do not want to say that my way of adaptation of texts is the only correct. My intention was to show it as one of many alternatives. I am not an expert in information technologies, too, but how many teachers are? It is not necessary – I make very simple presentations in my laptop and I can connect a few cables in the classroom.

There is another crucial advantage – it can be used not only for dyslexic pupils but for all. So it solves another big problem – how to involve all children in reading without separation of healthy and dyslexic ones. They can work with texts all together and it leads to much greater work efficiency. Adam never works with the abridged text and I never prepare my lessons twice – first for all children and then for Adam.

Conclusion

It is clear that there are many boys and girls like Adam at Czech schools – children who have serious problems with reading, children with dyslexia. They attend common classes and learn to read, to write and to count as their healthy classmates. They are taught by individual education plans and teachers are supposed to follow them in all subjects, including foreign languages. It is said that in approximately fifty years English will become the official language in more than half of the world. *"Do you speak English?"* - who has never heard this question?

We know many proven methods which can help dyslexic children with learning, there are a lot of experts on dyslexia in our country. If I come to the library I can find many interesting books about dyslexia, it is the most documented specific learning difficulty. We know its definition, causes and manifestations very well. We know what to do but sometimes we have problems with how to do – how to help them with reading concretely when we have an average of twelve children in a group and one of them has dyslexia. It is not possible to divide our person in two parts.

In this bachelor project I have demonstrated one of the possible alternatives of working with the English texts with use of modern technologies. The main recommendations how to read the English articles so that dyslexic children are able to understand, is dividing the text into smaller parts, connection of key words with pictures and using of listening. Interactive dataprojectors enable us to do all these things simultaneously. Moreover, it is not so difficult as it might seem.

If I summarize briefly the individual steps, I divide the text into separate slides in the presentation, highlight all key words and connect them with pictures. In the classroom I connect the laptop with the projector and the loudspeakers, put the CD in, and chlildren watch the text and listen to it at the same time. Than I ask some control questions and pupils answer – healthy ones in written form, dyslexic ones in oral form.

I follow the simple assumption that everything what the child with dyslexia can handle, the healthy child can handle, too. This method can be used for all children because it is not necessary to short the text, we read it whole.

At the very end of my project I would like to say: children with dyslexia are really able to cope with almost anything if they have suitable conditions. And they often do not perceive themselves as pupils with disorder if they are not separated from others children.

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Own sources:

All the figures in the practical part were created by the author of this bachelor project.

LIST OF APPENDICES

Appendix 1:

Worksheet with pupil´s answers in written form with use of the original text in the book

Project 2, page 20, "PETS"

1. Who is talking about pets?

.....

2. The telling is about two pets. Do you remember them?

.....

3. What is the rabbit´s name? How old is she?

.....

4. Where does Amy keep her?

.....

5. What does Flopsy eat in the garden?

.....

6. What else do you remember about Flopsy?

.....

7. What is the hamster´s name? How old is he?

.....

8. Where does Amy keep him?

.....

9. Hammy cannot be in the bedroom. Why?

.....

10. What does Hammy have in his cage?

.....

11. Where does Amy go with her mother every month?

.....

12. What does Amy buy there?

.....

13. What does Hammy like, too?

.....

14. When does Amy clean the cage and the hutch?

.....

15. Can you explain these words?

- *male* .....
- *female* .....
- *nocturnal* .....

Resumé

Bakalářská práce je zaměřena na využití interaktivních dataprojektorů při práci s textem v hodinách anglického jazyka u dětí s dyslexií. Jedná se o transformaci textu bez jeho zkracování z tištěné do digitální podoby vytvořením prezentce. Tato forma umoňuje učiteli rozdělit text do menších a pro dyslektického žáka přehlednějších úseků, vyznačit barevně klíčová slova a spojit je s obrázky, a také využít poslech textu (dataprojektory jsou vybaveny reproduktory). Metoda je založena na předpokladu, že to, co zvládne dítě s poruchou, zvládne rovněž dítě zdravé a není tedy třeba žáky s dyslexií předem ze čtení omlouvat či je vylučovat. Porovnáním odpovědí za použití didaktického testu byl učiněn závěr, že při práci s upraveným textem byl dyslektický chlapec ve svých odpovědích daleko přesnější a jeho úroveň porozumění obsahu byla mnohem vyšší než po zpracování téhož článku v klasické knižní podobě.

ANOTACE

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Katedra nebo ústav:	Ústav cizích jazyků
Vedoucí práce:	Mgr. Zuzana Bartsch Veselá, Ph.D.
Rok obhajoby:	2016

Název práce:	Digitální úprava anglického textu s využitím interaktivních dataprojektorů v hodinách pro děti s dyslexií
Název v angličtině:	Digital adaptation of an English text with the use of interactive dataprojectors in lessons for children with dyslexia
Anotace práce:	Bakalářská práce pojednává o využití interaktivních dataprojektorů k transformaci anglicky psaného textu do digitální podoby pro děti s dyslexií. V teoretické části jsou popsány základní aspekty dyslexie a jejich vliv na proces čtení. Cílem praktické části bylo vytvoření návodu pro převod psaného textu do digitální formy a ověření, zda je tato metoda účinná pro čtení s porozuměním.
Klíčová slova:	Dyslexie, cizí jazyk, interaktivní dataprojektor, čtení s porozuměním
Anotace v angličtině:	My bachelor project deals with the use of interactive dataprojectors for transformation of an English text to the digital form for children with dyslexia. In the theoretical part, basic aspects of dyslexia are described and their influence on process of reading. The objectives of the practical part were to create the guideline for conversion of a written text to the digital form and verify whether this method is effective for reading with comprehension.
Klíčová slova v angličtině:	Dyslexia, foreign language, interactive dataprojector, reading with comprehension
Přílohy vázané v práci:	Příloha č. 1 – Pracovní list s odpověďmi žáka v psané formě při použití originálního textu v učebnici
Rozsah práce:	32
Jazyk práce:	Angličtina