The treatment of dyslexia with photochromatic therapy

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Abstract

Dyslexia is one of the disorders with a greater prevalence among the group of the learning disorders. With the passing years many studies (observations) have been made to explain the causes of dyslexia and to show the newest interventions in this field. This work's purpose is to show one of the methods which improve the ability of the dyslexic children to read, and concretely to increase the speed of reading in this target group.

This method presented in this study is completely new and unexplored by specialists who deal with dyslexic children in Albania. The intervention analyzed in this study is called photochromatic therapy. Photochromatic therapy includes two forms of treatment that are: 1) treatment by photochromatic lens; 2) treatment by colour overlays which have the same effect as photochromatic lens.

Results have shown the use of the colour overlays has increased the speed of reading among dyslexic children. The recommendations in this work offer a new method to treat dyslexic children with the aim to draw specific programs and books with colour pages for this group of children.

Key terms of this paper are: dyslexia, colour overlays, reading speed test, Meares-Irlen syndrome

Introduction

Why I made object of study?

Dyslexia is one of the disorders with a greater prevalence among the group of the learning disorders. Often in schools I had to look around and to meet many dyslexic children.

In addition to great pain by the inability to read, they suffer the pain of being labeled as"forgetful" by their peers. I have always been interested about the function of dyslexic children, but above all what they do to pass their dyslexia. This gave me the impulse to explore more about the dyslexic disorder, and the way they can pass dyslexia. Another reason why i decided to study dyslexia is the fact that in our culture studies on dyslexia are scarce and mostly narrative in nature, while with my study aim to provide an

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intervention for the treatment of dyslexic children. This method that I present in this study is quite new and almost unexplored by specialists who deal with dyslexic children. In the quality of the school psychologist i thought that the study of this target group which will face daily, would be very productive and interesting to become the subject of study. This study is based on a qualitative and quantitative methodologies what makes more richer and clear the view of dyslexia, and the effects that lead to the use of colour overlays in reading ability.

The hypothesis of this study is:

Using of colour overlays in dyslexic children who have problems with reading, improves the speed of reading(number of words read correctly in a minute) to these children.

The purpose of this study is:

This study aims to explore and demonstrate the effect that have colour overlays to the speed of reading on dyslexic children. Furthemore aims to present a new method of treatment, for specialists who deal with dyslexic children.

What I offer in this study?
Scientific tasks of this study are:
To present a clear view on dyslexic disorder and his neurobiology.
To clearly explain the method of colour overlays and how they are used.
To offer some recommendations on how to work with dyslexic children in schools.
In the following we will continue with a review of the literature related to the concept of colour overlays and main theories on dyslexia and its causes.
Then will pass to the study methodology and finally will give conclusions and recommendations needed.

Historical review on dyslexic and colour overlays concept

What is dyslexia and its type

Figure 1:

Definition of dyslexia

Most of the children have difficulty with reading. Their parents seek help for them while these problems often disappear on their own without any specialized intervention. Dyslexia is not that.

If you have suspicions that your child has trouble with reading or is dyslexic, below comes a quick reply: a dyslexic child have sustainable difficulties and unexpected in reading and writing.

The words dyslexia has the origin from the old greek and latin. "Dys" comes from latin and means" trouble' and "lexis" comes from greek and means" words". Your child may have other difficulties. He may have problems with understanding of management guidelines (left/right and up/down), remember some

mathematical facts (figures and tables), and to reiterate the words when he is talking. Below I present some facts about the nature of dyslexia:

- ✓ Dyslexia is a disorder that affects your child ability to write and read
- ✓ A dyslexic child has also lack of other language skills. He manifest problems remembering the words when he wants to use them
- ✓ Dyslexia is a lifelong condition, but with different techniques he could learn to read and to minimize the impact of dyslexia in his life
- ✓ The exact causes of dyslexia are not yet clear, but various studies show differences in the brain between dyslexic and non dyslexic children
- ✓ Dyslexia affects your child's self image

Most evident symptoms of dyslexia are:

- ✓ Slow reading and with errors
- ✓ Assumptions based upon the figures and not to words
- ✓ Exceeding or wrong reading preposition
- ✓ Ignore the prefixes
- ✓ Bad pronunciation of words
- ✓ Messy writing
- ✓ Problems in placing punctuation
- ✓ Exchange of letters with each other
- ✓ Reading a short text for a very long time
- ✓ Reading of the same words several times
- ✓ Exchange of numbers with each other
- ✓ Confusion of letters, that sounds in similar way as: th, f,v
- ✓ Confusion of letters, that look alike: b,d,p,q
- ✓ Reading correctly, but lack of understanding of what is read
- ✓ Clumsiness in writing, reading or performing mathematical operations
- ✓ Erratic and abnormal forms of letters
- ✓ There may be problem with mathematical operations
- ✓ Problems with accuracy in meeting
- ✓ Problems with identifying pm
- ✓ Problems with memory and attention

Research about dyslexia provide information on the causes of dyslexia. Dyslexic child use different part of the brain when reading, while non dyslexic use more part of the brain. Development is characterized by an unexepted difficulty in reading both children and adults who possess intelligence, motivation and proper preparation for a fluent and correctly reading.

Dyslexia(specific reading disability) is one of the most common and studied disorders by group of learning disorders.

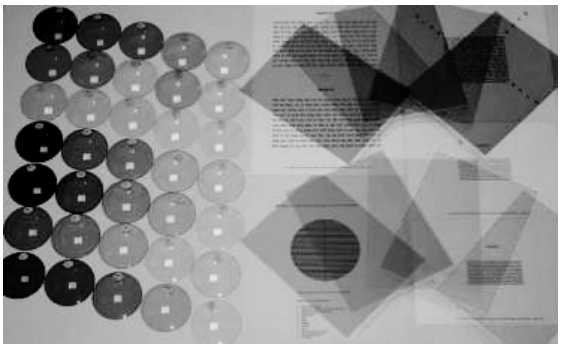
Using of colour overlays and lens for dyslexic

Using of colour overlays or lens is not something new. Evidence show that colour overlays are used in American schools in the thirties. Other writings show the case of a boy in 1958 which can be read with yellow sheet and not in white sheet. Greater development in this area occurred in 1980'. In 1980' Olive Meares, a special teacher from New Zealand, introduced an article in which highlights how visual concerns and reading speed to some

children improved by use of colour overlays. Her work was followed by Helen Irlen, an American psychologist, which reported that some children who have difficulty with vision were able to read better through colour overlays. She emphasized that every individual had a favorite color with which he read better, and it was personal. Helen Irlen spoke for syndrome that she called"Meares-Irlen syndrome". This was defined by optometrist institute as" presence of visual difficulties, which can not be explained by refractive needs, binoculare abnormalities or pathological conditions and which can be improved by the presence of colour overlays. This kind of disability can be associated with movement of letters along reading or headache. The biggest change occurred in 1990' by Bruce Evans and Wilkins Arnold professors who claimed that colour overlays improve reading among dyslexic children. According to Wilkins colour overlays are clinically important when improve reading speed 5% or more. Usually they recommend the use of colour overlays for a period of 6 to 12 weeks.

What are colour overlays and how they are used?

Figure 2:



Colour overlays are colored plastic sheets and are designed to be placed on a text page. Colour overlays can improve not only the speed of reading (Tyrrell, 1995; Wilkins, 1996; Jeanes, 1997)[2] but also reduce symptoms of diffuclty in view. Colour overlays are sold to teachers and opticians in an assessment package, which includes a range of colors. Colour overlays can also join with each other creating a new colour. Basic colors that you can find in every overlays packages are: yellow, orange, red, pink, blue, aqua, green, green lemonade, strong green, gray etc. aal these colors can be combined with each other and form new colors. Each child chooses the color itself which reads better, and this is done after reading trials. Benefits of colours vary from one color to another color (Jeanes, 1997)[3]. Reducing symptoms and improving reading speed were tested under placebo conditions (Wilkins, 1994) and under the terms of brightness and contrast control (Wilkins, 1992). Children who have used colour overlays report a faster reading and elimination of symptoms as headaches, movement of letters etc.

Methodology of the study

Study "the treatment of dyslexia with photochromatic therapy" is a qualitative and quantitative paper which aims to introduce a new intervention about how they are treated dyslexic children. Namely object of the study are dyslexic children who have problems with reading. The method of treating dyslexia by colour overlays is entirely new and unexplored

2. *Tyrrell, 1995; Wilkins,1996,fq 52; Jeanes, 1997,fq 35*
3. *Jeanes,1997,fq 24*

method in our culture both by school psychologist and development specialists. The sample selected for this paper ate two case studies. Both selected cases meet the criteria of being dyslexic children. Children aged 8 years and a half and 9 years are male. The reason why it was selected this age it was intentional because the children should have passed the first grade. This for a very simple reason, reading skills among dyslexic children are measured objectively, just after finishing the first grade. Another reason is that children of this age group, are less likely to manipulate unlike children of an age greater. So the sample was intentional in way that the results obtained are much closer to the truth. The reason why i chose only 2 cases to study, related to the deep analysis and uniqueness that qualifies each case in this study. Selected cases are of the same sex and have the same age. They come from different backgrounds and it brings quite complex and specific element in their overall development.

For the realization of this study were used several instruments which are:

- The first instrument are colour overlays, which are standardized and professional. This instrument was ordered online at www.crossboweducation. com, Stafford, USA.
- Another instrument is reading speed test by Arnold Wilkins, which is a standardized and highly professional test. I try to adapt to our culture.

Reading speed test by (Wilkins, 1996)[4] contains a certain amount of common words.

Children were asked to read the text that looks like a prose passage which consist of common words. This kind of test is designed to measure pace of reading to children who have visual-perceptual disorders, as the movement of letters or fog and to dyslexic children who have difficulty in reading.

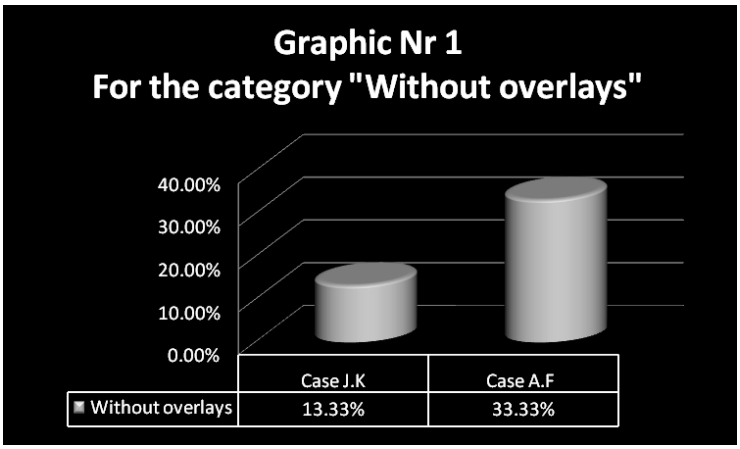
- Another method used in this study is the experiment. The experiment lasted for a period of 8 weeks and consisted in the below implementation of multiple tests to identify how improved or not the speed of reading to dyslexic children by the use of colour overlays.
- Survey: was assistant in obtaining information primarily nonverbal, about children's behavior and the outward expression of inward emotional state. Children were observed during the meetings that I had with them.
- Another method are case studies. Respectively two case studies aged 8 years and a half, and 9 years male sex. For both cases was collected life history by analyzing every possible detail of their life that has led to their disorder. Life history is collected by an assessment inventory that is completed by parents.
- The final method is semi-structured interviews with relevant teachers of both cases studies and school psychologists.

Results and discussion

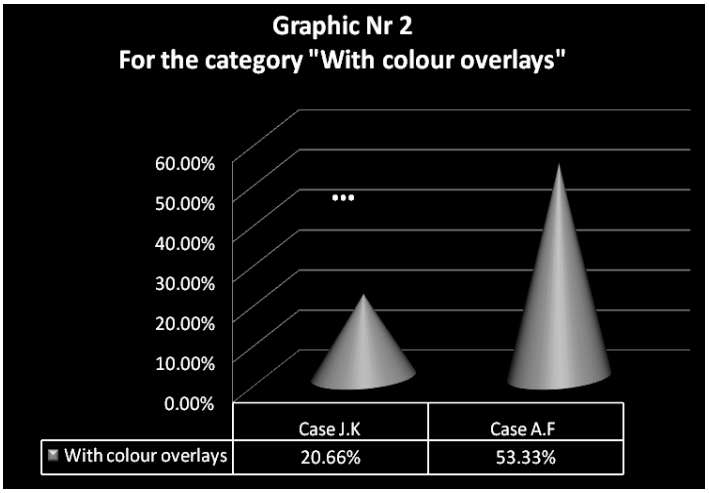
As seen from the results it seems obvious that the hypothesis raised at the beginning of this study is confirmed. So the use of colour overlays bring improvement in the speed of reading to dyslexic children who have difficulty in reading.

4. *(Wilkins, 1996),fq 96*

Graphic nr 1 – express the number of words read in a minute in percentage without colour overlays in both cases.



Graphic nr 2 – express the number of words read in a minute in percentage with colour overlays in both cases.



So it is clear that those who make the difference in improving reading speed are risk and protective factors to each of the children involved in the study. So we face an instrument as colour overlays that brings different results to case studies. This shows once again how special are children in the pace of development and in the potential for self-improvement.

What studies have said about colour overlays?

Jeanes (1997) claims that children who use systematically colour overlays, have a reading speed increase ranging from 15% to 25%. This result is obtained by reading speed test, in which children are required to read a set of common words as soon as possible (Wilkins, 1996). In one of the recent studies conducted by Wilkins and Jeanes were selected 283 children aged 8 years to read with colour overlays and without colour overlays. Results turned out that their reading speed increased by 18%. In a study carried out by Greg Robinson who has done analysis of previous studies about the use of colour overlays shows that colour overlays are effective when used systematically and for a long time over

6 months (Irlen Robinson, 1996; Whiting, Robinson,Parrot, 1994)[5]. According to them, the use of colour overlays increase the clarity of what is read, the speed and understanding.

Other research shows that the use of colour overlays reduces eye and head pain (Chronicle& Wilkins, 1991; Good, Taylor & Mortimer, 1991; Whiting, Robinson& Parrot, 1994), and brings an increase in reading speed and improves self-image in dyslexic children (Irlen & Robinson, 1996; Whiting, Robinson & Parrot, 1994), and improvements in eye movements (Fletcher & Martinez, 1994; Robinson& Foreman, 1999a; Tyrrell, Holland, Dennis, & Wilkins, 1995)[6].

While other studies show that success of colour overlays depends by their size. Usually small colour overlays sized A3 or A4 are more effective in increasing the speed of reading (Wilkins, 1996; Jeanes, 1997). While large colour overlays have not proved very effective.

However, other researchers raise the question of how can we be sure that the improvement of reading comes from the use of colour overlays and not by a simple change in our motivation?

Another researcher is Bouldoukian shows that the improvement of reading is not related to our motivation but with the effect that brings colour overlays in reading speed.

So as you can see, regarding the use of colour overlays has a group of researchers who claim that their use is effective, while the other group claim that they are not effective because create dependence for children. However, the discussion is still open to explain what happens to dyslexic children or exactly in their neurobiology when using these colour overlays. Recent studies have focused more on this area to make a difference between colour overlays and colored glasses, but the last are more expensive.

A question that requires a lot of research is the question why look at the world through colors? So far, the only explanation is related to the fact that in the retina are a few light-sensitive cells called photo-receptor. This types of cells are divided into two types according to their shape, specifically have conical and cylindrical. Such a range of cells have different lengths to light waves. However, studies continue to explain even more the colour overlays implications.

Conclusions

Based on the results obtained from measuring instruments and methods used i have reached the following conclusions:

- Number of children with dyslexic disorder who are not identified and specifically with difficulties in reading is much greater than what we know, for the lack of information and appropriate methods to recognize and detect such issues.
- Teachers and psychologists should be careful and very professional in identifying and how are treated dyslexic children who have difficulties in reading.
- Teachers must promote or support the use of colour overlays to dyslexic children who have difficulties in reading.
- Parents of children play a leading role and supporting initiatives that teachers and psychologists take with the child, and should be informed about everything as a teachers in way that they reach to manage different situations regarding with the requirements that children have.
- Designers of curricula in schools, when draw up these programs, should take in considerate special needs of dyslexic children who have problems with reading.

5. *Irlen Robinson, 1996, fq53; Whiting, Robinson, Parrot,1994,fq 42-50.*
6. *Fletcher& Martinez, 1994, fq 16; Robinson& Foreman, 1999a, fq 26-35; Tyrrell, Holland, Dennis, & Wilkins, 1995,25-28.*

Recommendations

Based on the study results, i find necessary to offer several recommendations purposely helping dyslexic children who have difficulty in reading. The recommendations are as follows:

- To made further studies in the field of dyslexia and on the effect of using colour overlays.
- To designed special programs in educational curricula for the treatment of dyslexic children.
- To realized alternative books teaching, for this target group, where their contents to be with different colours.
- To allowed the use of colour overlays in school by teachers, board of directors and pupil as an alternative methods for the treatment of dyslexic children.
- To implemented specialized software for the treatment of these children.

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