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The effects of compensatory tools and dispensatory measures on self-esteem of adolescents with dyslexia

Supervisor
Ch. Prof. Monica Banzato

Assistant supervisor
Ch. Prof. Francesca Coin
Ch. Prof. Graziano Serragiotto

Graduand
Vera Sonda
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INTRODUCTION

Dyslexia is a theme about which it has been done a lot of studies. Some of them are about the connection between dyslexia and self-esteem. Inspired by these research the present study will try to dig deeper into this link by focusing on the influence that the use of compensatory tools and dispensatory measures by students with dyslexia (attending the 1st and the 2nd year of the same middle school) has to their self-esteem.

The hypothesis is that they can affect in a negative way their self-esteem, above all, when they use these tools and measures in class where they can be teased, because of them, by their classmates.

The present study is addressed to all people who want to be better informed on the subject but, in detail, it can be useful for people who deal with students with dyslexia, such as teachers, tutors and parents.

The first four chapters will provide an introduction concerning the themes necessary to really understand the importance of the purpose of the study.

In detail, chapter I will provide explanations regarding SLD and dyslexia with its different definitions and characteristics while chapter II will be about the connection between dyslexia and self-esteem by taking into consideration the influence of both parents and school. Chapter III will expose the importance of emotions and their link with self-esteem. As regards chapter IV, it will provide a brief but complete description about legislation concerning dyslexia in: Italy, the United Kingdom, America, countries of Oceania, Nordic countries and Europe in general.

After having dealt with these themes, chapter V will explain what compensatory tools and dispensatory measures are by analysing them in detail, and the situations in which it is preferable to use some of them than others, then to

support the importance of using them when competence has been acquired it has been presented the case of a campus organized in San Marino. In addition to it, it will be analysed the application of these tools and measures in Italian schools, by giving more attention to the ones in Veneto.

Moreover, chapter VI will be dedicated to the description of the present project and to research done about the connection between dyslexia and self-esteem and between dyslexia and emotions.

After that, chapter VII will be entirely dedicated to the description of the subjects who completed the questionnaires used in order to do this research. Moreover, the questionnaires and the procedure used and the data which have been collected will be analysed.

Finally, a conclusive paragraph will be inserted in order to summarize what has been discovered thank to this project and to give further suggestions in order to make students use these tools and measures without affecting in a negative way their self-esteem.

I. SLD AND DYSLEXIA

1.1 SLD

SLD (Specific Learning Disabilities) are functional disorders due to a peculiar neuropsychological architecture[1] which causes difficulty in learning and in the stabilization of some identification and writing processes. These disorders are known to be congenital and it has been discovered that they can be transmitted genetically (Stella, 2001).

Developmental disorders make it difficult to learn skills which are fundamental in the scholastic environment such as writing, reading and calculations. These disorders can have different intensity from one another and, as said before, they may cover different areas: if it is related to reading it is called dyslexia, if it is about writing it may be dysgraphia[2] or dysorthography[3], while if it concerns calculations it is called dyscalculia[4].

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[1] Neuropsychology is a part of the neurosciences which studies the relations between the psychic and behavioural experiences and the neurobiological processes which are involved in these experiences. In other words, neuropsychology is interested in the superior mental functions and in their connection with the brain structures. For further information see note 18 p. 14

Neuropsicologia http://www.treccani.it/enciclopedia/neuropsicologia/, date of consultation 22/06/17

[2] On the basis of the Italian law 170/2010, with the term dysgraphia people refer to a specific disorder which causes difficulty in writing.

Law 170/2010, Gazzetta Ufficiale N. 244 del 18 Ottobre 2010

[3] On the basis of the Italian law 170/2010, with the term dysorthography people refer to a specific disorder which consists in having difficulty in transforming spoken language in written language.

Law 170/2010, Gazzetta Ufficiale N. 244 del 18 Ottobre 2010

[4] On the basis of the Italian law 170/2010, with the term dyscalculia people refer to a specific disorder which consists in having difficulty in learning or comprehending arithmetic, in particular in doing calculations and elaborating numbers.

Law 170/2010, Gazzetta Ufficiale N. 244 del 18 Ottobre 2010

1.2 Dyslexia

The SLD most known is developmental dyslexia. It consists in having difficulty in learning the written code due to some peculiar characteristics of the CNS (central nervous system) and of its workings. In detail, in the processes involved in the integration and communication among the different areas of the brain involved in reading. In other words, it is an anomaly of the brain.
Another form of dyslexia is called acquired dyslexia. It is due to a neurological injury caused by some CNS illnesses or by some pathological events (in this case, previously the person was able to read correctly but after a particular event they were not) (Stella, 2001).

1.3 Origin of the term "dyslexia"

The term dyslexia is composed by the two Greek words "dys" and "lexis". The former means faulty or impaired, and the latter means speech (from "legein" meaning to speak). It was originated in 1887, thank to the Professor Dr. Rudolf Berlin [5]who described reading difficulty (Dislessia)[6].
He chose this name because it was in line with the other international medical literature. He also underlined that its term could be changed if a more appropriate one would be coined.

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[5] Rudolf Berlin (1833-1897) was an ophthalmologist whose medical research are considered to be very important. Apart from the creation of the term dyslexia, which has been coined by observing reading difficulty of patients who suffer from headache, Berlin studied the depth perception in animals, the removal of objects in the eye and the left-handed writing behaviour.
Wagner, R. (1973). Rudolf Berlin: Originator of the Term Dyslexia. Ann Dyslexia, 23, 57-63

[6] Dislessia http://www.listenwell.com/Italiano/dislessia.htm, date of consultation 24/06/17

His first patient, named Herr B., went to see Dr. Berlin because he had difficulty with reading. In fact, during a reading text he read few words but then he stopped because he could not continue reading. After having verified that he had not any pathology of the eyes he suspected a physical change in the brain even if he did not know the cause. He did also some post-mortem dissections on six of his patients and, as a result, he found some anatomical lesions in the left hemisphere of the brain (Wagner, 1973).

As regards the causes of this disorder there seem to be two schools of theorists[7]. The first school believes that reading difficulty is due just to a phonological deficit, while the second one think that it involves more than a phonological deficit (Angelakis, 2010).

1.4 Different definitions of dyslexia

Even nowadays an universal definition of dyslexia has not been formulated yet and researchers are still working on this intent but over the years, they all seem to agree on the fact that it is a very complex disorder that can be better understood thank to the improvement of science.

[7] The first school of thought is very popular in Anglo-Saxon literature even if it is important to make a distinction between transparent and opaque languages. Transparent languages are the ones in which each grapheme correspond to a phoneme such as Italian, while in opaque languages this correspondence is not so direct because more than one phoneme corresponds to a grapheme, as it happens in English. In this case, people with dyslexia read slower and make more mistakes in comparison to people with the same difficulty but speaking a transparent language. So, in order to read and write correctly a word, it has to be previously memorized (and this happens also to English native speakers).

Dislessia, la teoria fonologica https://apprendimentomediato.wordpress.com/2016/10/16/dislessia-la-teoria-fonologica/, date of consultation 24/06/17

1.4.1 Definition of 1994

In 1995 Dr. Reid Lyon published in Annals of Dyslexia an elaboration of a definition of dyslexia which was formulated the previous year. After this publication also the Orton Dyslexia Society, now called International Dyslexia Association, agreed with it. It considered dyslexia as "one of several distinct learning disabilities. It is a specific language-based disorder of constitutional origin characterised by difficulties in single-word decoding, usually reflecting insufficient phonological processing abilities. These difficulties in single word decoding are often unexpected in relation to age and other cognitive and academic abilities: they are not the result of generalised developmental disability or sensory impairment. Dyslexia is manifest by variable difficulty with different forms of language, often including, in addition to problems of reading, a conspicuous problem with acquiring proficiency in writing and spelling" (Orton Dyslexia Society, 1994; Understanding Dyslexia[8]).

1.4.2 Definition of 1997

Gersons-Wolferbensberger and Ruijssenaars, in 1997, defined dyslexia as the specific reading difficulty which manifests itself when a child, going to school, does not develop or develop in an incomplete way and with a lot of difficulty, the capacity to automatically identify the written word. In this case, the term "automatically" is not used randomly because it refers to the presence of an automatic process which is characterised by a great speed and accuracy. In

[8] Understanding Dyslexia http://www.lucid-research.com/documents/factsheets/FS19_Understandingdyslexia.pdf, date of consultation 22/06/17

contrast to controlled actions it is realised unconsciously with little attentive effort and it is difficult to ignore and to influence (Stella, 2001).

1.4.3 Definition of 2002

The definition formulated in 1997 has been updated and adopted in 2002 by the International Dyslexia Association (IDA), the National Institute of Child Health and Human Development (NICHD) and by many state education codes, such as New Jersey, Ohio and Utah. It stated that "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" (International Dyslexia Association, 2002).

1.5 Neural basis of dyslexia

In 1891 the French neurologist Dejerine believed that the left rear part of the brain was fundamental for reading thank to new neurobiological studies based on brains analysed post-mortem. These studies underlined some differences between the brain of people with dyslexia and the one of readers without any problems but more proof in support of this theory come from functional

neuroimages[9] which give the opportunity to examine the cerebral functioning during cognitive activities. In this way it is possible to see which parts of the brain are involved during these tasks and also to make a comparison between the functioning of a normal reader brain and the one of a person with dyslexia. The most important thing to bear in mind is that these kinds of techniques (such as magnetic resonance) are not invasive so they can be used more than once without causing any kind of damage and it is for that reason that they are perfect for studying children (Lyon, Shaywitz S. E. & Shaywitz B. A., 2004).

1.6 Dyslexia as a genetic disorder

The suspect that dyslexia was a genetic disorder began when it was observed that it ran in families.

This theory allow to identify the environmental factors which are involved in this disorder (such as familial, educational and social factors) in order to propose the right remedies but it is useful also because by identifying the genes in the brain which affect reading, an early diagnosis of dyslexia will be possible.

Since dyslexia is a complex syndrome it may involve a large number of genes and it is possible it is the reason which explains why the identification of the genes is so difficult (Guardiola, 2001).

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[9] The functional imaging is the study of human brain function based on analysis of data acquired using brain imaging modalities such as the functional Magnetic Resonance Imaging (fMRI). The aim is to understand how the brain works, in terms of its physiology, functional architecture and dynamics. One of the most important aspect of the modern functional imaging is the fact that it is not invasive and that it offers a wider field of view by the representation of the activity across the brain.

Penny, D. W.; Friston, K. J. (2007). Functional imaging. http://www.scholarpedia.org/article/Functional_imaging, date of consultation 22/06/17

1.7 Dyslexia as a disability

Dyslexia is often considered as a physical disability. On one hand, it may be comprehensible to consider it in this way because people with SLD are disadvantaged in comparison to people without any difficulty. In other words, people with SLD can automatically use all the measures planned for disabled people. On the other hand, all the associations of dyslexia are discussing a lot about the correctness of this statement.

Generally, disabilities are contemplated in medical point of view, only recently people tried to adopt a "social" approach to disability. It changes many things, for example from a medical conception a disability is a deficit, a pathological status different from normality which can be cured thank to corrections, therapies and rehabilitations. On the contrary from a social perspective disability is thought to be the relationship between a person's abilities and the environment in which they live, in other words not a deficit but simply a difference in abilities so the problem can be solved by changing the environment so to guarantee access and integration to everybody.

In the case of dyslexia, it is fundamental to reorganise the workflow in order to help people with this difficulty to do activities within their reach (Lombardi, 2012).

1.8 The importance of fluency

As it has been underlined in the definition of dyslexia of 2002[10] what actually characterises people with dyslexia is the fact that they are not able to read in a fluent way. In detail, fluency is considered to be the ability to read quickly and

[10] See paragraph 1.4.3 Definition of 2002 p. 5

accurately a text and understand it. It is in fact what differentiate a capable reader from an inexperienced one.

Reader with dyslexia can improve their accuracy while reading but it will not be fluent and, as a consequence, their reading will remain slow and laborious.

As said before, not only, can fluency and accuracy influence the reading but they can also influence reading comprehension. As a consequence a person with dyslexia may have some problems in developing their vocabulary and background knowledge (Lyon, Shaywitz S. E. & Shaywitz B. A., 2004).

1.9 Dual-route approach of reading aloud

It seems that De Saussure was the first who enunciated the dual-route conception of reading in 1922. It consists on the fact that a word can be read in two ways, both of which work through a system of visual analysis. Thank to this system a word can be globally perceived by a distributed attention process[11] . These two ways of reading are called lexical route and phonological route. With the lexical route the word is globally read and recognised by the comparison

[11] Generally, attention can be considered to be the function which regulates the cognitive activity which is the elaboration of information from the external world and thank to the attention and the organization of the received information, people can behave in an adequate way. As regards attention it is of interest to note that people can refer to different concepts: the arousal (the physiological preparation thank to which a person can receive different stimuli) and the pre-attentive elaboration of stimuli (the fact that some stimuli catch people's attention without their will). There are also different types of attention: sustained attention (which let people to be concentrated on a specific task without being distracted), selective attention (which is the ability to select the stimuli to which a person wants to focus), alternating attention (the ability to switch the focus from a task to another) and finally distributed attention (which is the ability of paying attention simultaneously to more than one tasks). Concerning this last one, it depends also on the nature of the tasks. The more the tasks are similar to one another, the more difficult it is for the person to stay focused. In other words, the quality of the execution of the tasks depends on the quantity of resources involved in the tasks.

Teorie dell'attenzione http://www.hyperlabs.net/ergonomia/menini/attenzione/01.html, date of consultation 30/06/17

between the visual characteristics of the word and the lexical representation of it which has been previously memorized. On the other hand, the phonological route does not work like that. In this case the word is read as a result of the composition in a sequence of phonemes of the graphemes in which the word has been previously divided. In this way, people associate the phoneme to the relative grapheme by following the phonetic rules of the word language. It is the mechanism which explains why people can read also new words whose meaning they do not know.

This is the difference between the two routes of reading aloud but, actually, the lexical way can be divided into the lexical semantic route and the lexical non-semantic route. The former implies four stages:

1) Identification of some graphemes;
2) Identification of the word;
3) Comprehension of its meaning;
4) Pronunciation of the word.

In other words, the lexical semantic route allows to have access to both the meaning and the phonological form of the word. On the other hand, with the latter the identification system of the word is directly linked to its phonological form. In this way people obtain the phonological form of the word without passing through the meaning of it (Coltheart, 2005).

1.10 Different types of developmental dyslexia

Uta Frith[12] defined three different types of dyslexia in 1985. It is defined:

[12] Uta Frith was born in 1941 in Germany and actually she is working at the Institute of Cognitive Neuroscience at the University College London. She is a developmental psychologist who conducted very important research about dyslexia and autism on which she has written several books, such as “Autism: Explaining the Enigma” which introduces the cognitive neuroscience of autism.

- Superficial, when the lexical route is compromised and the person has reading difficulty;
- Phonological, when there are problems with the phonological route and, as a consequence, there is not a correct connection between the grapheme and the relative phoneme. In this case the lexical route is used in order to read;
- Deep, when the lexical semantic route is seriously damaged (Corrai)[13].

1.11 Characteristics of people with SLD

The beginning of dyslexia can be noted in children who manifest language difficulties during pre-scholar age even if the most evident evidences can be observed when children start school and so when they start reading.

Nowadays, dyslexia is a more and more important theme because among people with SLD, at least the 80% suffers from dyslexia.

Briefly, people with SLD have some common characteristics. They are non-disabled people with normal intellectual and social ability in fact these problems are due to their genetic makeup. As mentioned before, SLD are not easily predictable before children start going to school (just language disturb can be considered as a sign of possible learning problems) and they cannot be "cured" but functional consequences can be modified thank to appropriate didactic and educational measures.

Often also behaviour problems come with these disorders, such as anxiety and the avoidance of activities which are considered to embarrass people by

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Uta Frith https://en.wikipedia.org/wiki/Uta_Frith, date of consultation 03/07/17

[13] Corrai, S. La dislessia: definizione e caratteristiche http://www.tesionline.it/v2/appunto.jsp?id=949, date of consultation 07/04/17

underlying their difficulties. As a consequence all this could be the cause of the loss of self-esteem[14] and aggressive behaviour.

As regards co-morbidity, SLD are often associated with ADHD (Attention-Deficit Hyperactivity Disorder)[15]. SLD children, for example, are unable to maintain attention for a long time and this can be considered as both the cause and the consequence of learning disturbs. In other words, children can have problems in maintaining the attention because of the effort needed to the task, vice versa, doing a task can be a problem due to the attention deficit (Stella, 2001).

1.12 How people with dyslexia see words

At this point it is very important to understand how a person with dyslexia actually sees words. To this intent a cooperative will be helpful. This cooperative is a software house and a training centre which works in the field of disability and special educational needs (SEN)[16]. In detail it, above all, produces specific compensatory software for people with dyslexia. It has produced a video in order to try to represent how people with dyslexia see a text so to give

[14] See chapter II. DYSLEXIA AND SELF-ESTEEM p. 21

[15] ADHD is the acronym which stands for Attention Deficit Hyperactivity Disorder. It is a neurobiological disorder which manifests itself during childhood. Its characteristics are a high level of inattention, impulsivity and hyperactivity that are not appropriate to the age of the person. This disorder tends to be present during the entire life causing more and more difficulties, for example, adults have often a low level of study, have working and relational problems and tend to change very frequently their partner and friends. Unfortunately, they are more likely to be involved in accidents and matrimonial and legal problems.

ADHD http://www.istitutodineuroscienze.it/servizi/programma/adhd/, date of consultation 01/07/17

[16] With the "label" SEN people refer to students who need special attention for many reasons. It can be because of social and cultural disadvantage, specific learning disorders or specific developmental disorders and problems due to a new and unknown culture and language.

BES http://www.marche.istruzione.it/dsa/allegati/dir271212.pdf, date of consultation 20/07/17

people who do not have reading problems an idea of what means to have dyslexia. It has been underlined also the fact that it is impossible to reproduce dyslexia in a realistic way because every person see in different ways. The photos in the following page represents the same text. The first one represents the simulation of how people with dyslexia see, while the second one represents how people with no reading problems see.

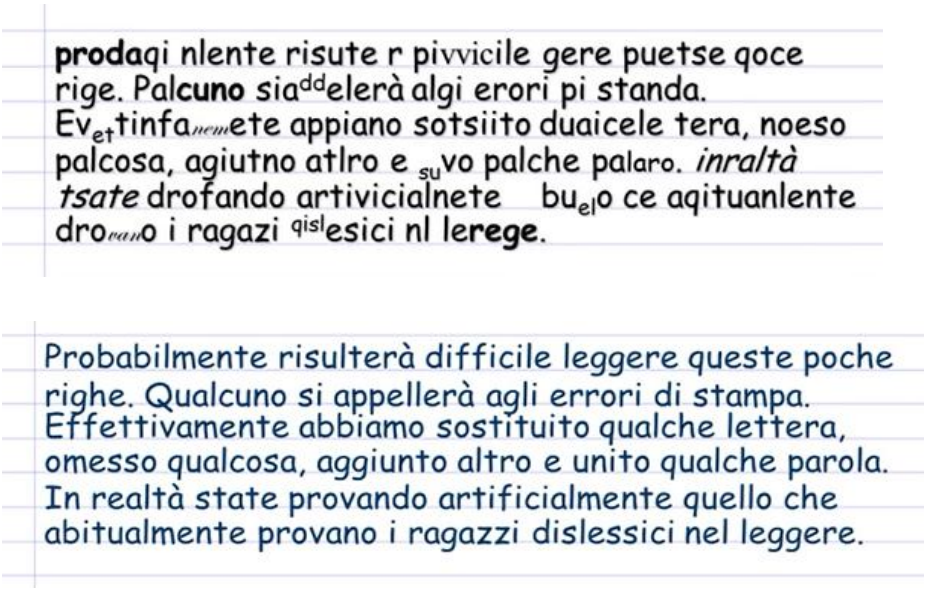

Figure 1 e 2 a simulation of how people with dyslexia see and the same text seen by people with no reading problems.
(Source: http://www.anastasis.it/dislessia-e-dsa, date of consultation: 20/07/17)

1.13 Research on dyslexia

In the following paragraphs a brief description of the most important research on dyslexia will be presented. It is necessary to bear in mind that they are not all the studies that have been done in this field because dyslexia is a complex theme (due to its interdisciplinary traits) which is still being studied.

The history of dyslexia (and of all the research that have been made on this theme) can be divided in four major periods. The first one is called “the origins”, the second one “the beginnings”, the third one “the evolution” and the last one “modern theories” and they all will be analysed in detail in the following paragraphs.

Dyslexia has always existed but it is only thank to the birth of the institutionalized public education that teachers, having the opportunity to be in contact with a large number of students, could note which ones had reading problems, such as dyslexia.

It is important to remember that the first writing systems were born thousands years ago and, over years, they developed into the ones that are used nowadays. From the beginning, all forms of communication (especially writing and reading) have been reserved to a very small part of society.

In 1943, thank to the German Gutenberg who invented the printing press, reading and writing became more popular even if they still remained reserved to the élite of the society composed by intellectuals (Guardiola, 2001).

1.13.1 The origins

The origins of the studies about dyslexia are due to acquired aphasia[17] because these patients claimed also the loss of their reading ability but at that time researchers did not know that all of this was because of brain injuries. It was only in the XVI century when philosophers and physicians agreed to the fact that thought was located in the brain instead of in the heart thank to the Austrian

[17] The term aphasia has been introduced by the French doctor Trousseau in order to describe a series of acquired disorders of language which compromise linguistic functions (which have been previously normally developed) due to brain injuries.

Afasia http://www.treccani.it/enciclopedia/afasia_%28Universo-del-Corpo%29/, date of consultation 13/07/17

doctor Franz Joseph Gall who believed that each part of the brain was in charge of a specific function. In addition to this theory, Pierre Paul Broca[18] discovered that language functions are located in the frontal lobe of the brain which is involved with language and which has taken the same name of its inventor: Broca's area.

As said before[19] Berlin created the term "dyslexia" in 1887 but before that doctor Kussmaul proposed the term "word blindness" in order to indicate an aphasic patient who complained about the loss of their ability to read. In order to refer to people with this kind of problem, the French neurologist Charcot, in 1887, suggested the term "alexia" which was later defined as "a form of verbal amnesia in which the patient has lost the memory of the conventional meaning of graphic symbols" by Critchley (Critchley, 1964; Guardiola, 2001).

One of the most relevant discoveries was the one of Dejerine who, in 1892, localized the lobe involved with this disorder. He stated that reading problems are due to a lesion "to the parietal lobe and the middle and inferior segments of the left occipital lobe, including the fibres connecting both occipital lobes" (Guardiola, 2001).

It becomes clear that at this time developmental dyslexia did not exist. By using this term they just referred to a disorder caused by a cerebral injury which nowadays is called acquired dyslexia[20].

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[18] Pierre Paul Broca was a French anthropologist, anatomist and physician. He is famous above all for the Broca's area but, in addition to it, on April 21st 1861, he funded neuropsychology by presenting a case of one of his aphasic patients at the Society of Anthropology of Paris. Neuropsychology can be defined as the study of the relationship between mental functions and mental structures even if the term was first used by the Canadian psychologist Donald Hebb. See note 1 p. 1

Manga, D.; Campos, F. R. (2014) *La aproximación neuropsicológica a la dyslexia evolutiva. I: Maduración cerebral*. Infancia y Aprendizaje.

[19] See paragraph 1.3 Origin of the term "dyslexia" p. 2

[20] See paragraph 1.2 Dyslexia p. 2

1.13.2 The beginnings

Developmental dyslexia was born in Great Britain thank to the large number of articles and debates encouraged by academic and professional journals. In this way scientific knowledge improved and dyslexia was considered as a disease of the visual system by ophthalmologists. Speaking of a visual disease, James Hinshelwood, a Scottish optic surgeon on December 21st 1895, published an article entitled "The Lancet" about word blindness and visual memory. The consequences of this publication were really important for the history of developmental dyslexia. In fact, after having read this article, a doctor of Seaford, named W. Pringle Morgan, published his own article about one of his patients, a fourteen-year-old boy, who was not able to learn how to read, in the British Medical Journal. This article, published on November 7th 1896, was considered to be the first one concerning congenital word blindness and his author, as a consequence, the father of what is now called developmental dyslexia (Guardiola, 2001).

In addition to Morgan, a British ophthalmologist called James Hinshelwood, between 1896 and 1911, suggested a possible congenital nature of dyslexia by publishing many articles and reports. In other words, thank to Hinshelwood dyslexia started to be seeing from a medical point of view.

In 1917 he collected all the knowledge on this theme and published the "Congenital Word Blindness" with which he stated that "the defect involved the acquisition and storage in the brain of the visual memories of letters and words. This defect was hereditary, but remediable, and more common in boys" (Hinshelwood, 1917; Guardiola, 2001). He also divided people with dyslexia in three groups. The first one, "Alexia", was for patients with mental retardation and reading difficulties, the second one "Dyslexia", for patients with small

delays in learning to read, and the last one “Word Blindness” to indicate the pure reading disability.

In 1917, not only did Hinshelwood describe clinical cases, but he started analysing the syndrome.

Meanwhile, in America the neurologist Samuel Torrey Orton discovered the correlation between the delay in learning to read and left-handedness thank to the fact that he had the opportunity to analyse his patients’ language difficulties. It is of interest to note also that there is a large number of ambidextrous who reported a delay in learning to read.

Regarding mistakes, he found that not only were they due to the inversion of isolated letters (such as “b” instead of “d”), but also of letters in words (for example “was” for “saw”). Thank to these studies of mistakes, in 1925, he formulated a theory called “strephosymbolia” (or twisted symbols) and underlined the hereditary trait of dyslexia.

After his death, precisely after 1948, the Orton Society was found in USA in order to encourage the study of people with dyslexia, in particular their functional and social problems to improve their well-being. Later it was renamed Orton Dyslexia Society and, finally it became the International Dyslexia Association (Guardiola, 2001).

In Europe, the Scandinavian countries were the most active concerning this theme. For example, in Copenhagen, Edith Norrie, who suffered from dyslexia herself, founded the Word Blind Institute in 1938 with the aim to diagnose and to teach to people with dyslexia.

Heritability of dyslexia has eventually been established by Hallgren in 1950 and a neurologist of Copenhagen called Knud Hermann, after having analysed a great amount of cases of patients with dyslexia for about 30 years, defined dyslexia as “a deficit in the acquisition of an age-appropriate level of reading and writing ability; this deficit is due to constitutional (hereditary) factors, it is

often accompanied by difficulties with other kinds of symbols (numeric, musical, etc.), it exists in the absence of other cognitive or sensory deficits, and in the absence of inhibitory influences, past or present, in the internal or external environment" (Guardiola, 2001).

1.13.3 The evolution

This period covers 20 years (from 1950 to 1970) and during that time also psychologists, sociologists and educators became interested in dyslexia. As a consequence they started studying environmental factors which influence people's difficulties, for example the inefficacy of the educative method.

At that time it was a common thought that dyslexia could be improved with the help of an appropriate method.

The psychotherapist Phyllis Blanchard divided reading difficulties in two groups: neurotic, which referred to the fact that emotional problems arose before reading difficulties, and non-neurotic. In addition to this, Blanchard and Gates underlined that the majority of people with dyslexia had emotional problems which were caused by their reading difficulties. Studies on this theme were conducted by R. D. Rabinovich whose aim was to identify neurotic reactions of people who have to deal with reading problems.

Magdalen Vernon, a Psychology Professor, believed that dyslexia had a multifactorial origin with visual, auditory or abstract reasoning problems while Alfred Tomatis proposed that dyslexia was a problem concerning only the auditory system (Guardiola, 2001).

The term “specific language disability”[21] was formulated by Silver and Hagin in 1960, while “developmental dyslexia” was proposed by Macdonald Critchley in order to indicate people with phonological deficits.

The theory of the asymmetry in the temporal plane and dyslexia is due to the discovery made by Geschwind and Levitsky in 1968. They found an asymmetry in the part of the brain dedicated to language, in particular, the temporal plane. In fact, if “normal” brains are considered, in the majority of them the temporal plane is larger in the left hemisphere than in the right one while in a low percentage this area has approximately the same size in both hemispheres. Geschwind made other important discoveries too, for example he observed that the percentage of males with dyslexia was higher in comparison to the one of females (Guardiola, 2001).

1.13.4 Modern theories

This period of the history of dyslexia is the last one and started in the 1970s thank to the birth of new disciplines, for example neuroscience and cognitive psychology. As regards psychology, the American psychologist Isabelle Y. Liberman underlined the relevance that speech has to the development of reading skills and in 1971 she followed in the footsteps of Orton[22] by analysing children’s mistakes because in her opinion there were not just visual or reversal errors. Besides, she found that reading difficulties were connected to linguistic problems. In support of this theory, the Soviet neuropsychologist Aleksandr Lurija, who can be considered the first real neuropsychologist of history,

[21] See paragraph 1.1 SLD p. 1

[22] See paragraph 1.13.2 The beginnings p. 15

realized that for naming tasks[23], speech is affected and it, in turn, is with writing and reading part of the same activity. In addition to this, other studies have underlined that generally, people with dyslexia are slow in naming tasks although they have a good vocabulary.

According to Lurija mental processes are functional systems and it means that they are composed by complex groups of sub-functions, each of which depends on a specific brain structure. In other words, Lurija suggested that a cognitive process depends on more brain areas which are functionally connected to each other (Guardiola, 2001).

In 1972, Naidoo stated that not only have people with dyslexia phonological problems, but they have memory problems too. In particular with storage capacity.

The psychologists Peter Bryant and Lynette Bradley underlined the importance of phoneme awareness even at 4 and 5 years of age in order to predict reading and spelling skills.

By observing mistakes made by people with dyslexia Tallal and her colleagues discovered that their problem was to perceive and process rapid stimuli and this explains also the fact that they made many errors when they were asked to discriminate stimuli very quickly.

In 1981, Pavlidis's studies showed that reading problems may be due to abnormal eye movements. He drew this conclusion after having compared 12 children with dyslexia and 12 without and as a result the first ones had a poor performance with tasks which implied visual fixation and saccadic eye movements (Maffioletti & Facchin, 2016). Then also other researchers have underlined that children with dyslexia have visual fixation of lower quality than

[23] These kinds of tasks ask participants to recall to their memory the name of objects that are shown to them in order to assess their level of language impairment.

Naming task https://psychologydictionary.org/naming-task/, date of consultation 13/07/17

their peers without reading difficulties. As regards this result, some French researchers have hypothesized that this discrepancy in the results might be due to limited attentive capacities and/or to a not complete development of cortical areas which control fixation system.

Another researcher, Keith Stanovich, found that the lack of accuracy and speed in reading affected, in a negative way, people's comprehension, vocabulary and intelligence.

To sum up, all the most important modern theories agreed to the fact that dyslexia involves phonological and word recognition problems, besides Philip Gough stated that there are two factors involved in the comprehension of a text: word decoding and oral comprehension and a deficit in the first one is the cause of dyslexia (Guardiola, 2001).

II. DYSLEXIA AND SELF-ESTEEM

In the following paragraphs a brief description of some research on self-esteem will be presented. This new theme is very important because in the last years researchers have been interested in the connection between self-esteem and dyslexia, above all, in the way self-esteem is negatively influenced by reading difficulty, such as dyslexia.

2.1 Definitions of self-esteem

First of all it is of a great importance to specify the word "self-esteem" which nowadays is overused and on which there is not a general and universal definition.

In 1890, when "The principles of psychology" was first published, William James[1] gave his definition of self-esteem. "I, who for the time have staked my all on being a psychologist, am mortified if others know much more psychology than I. But I am contented to wallow in the grossest ignorance of Greek. My deficiencies there give me no sense of personal humiliation at all. Had I "pretensions" to be a linguist, it would have been just the reverse... With no attempt there can be no failure; with no failure no humiliations. So our self-feeling in this world depends entirely on what we back ourselves to be and do. It

[1] William James was born in America in 1842. He was a psychologist and a philosopher who created and was president of the "Society for Phychical Research" which is one of the first laboratories of sperimental psychology in America from 1894 to 1895. He worked as a professor of Philology at Harvard University and at the beginning of the 1900s he was the most famous philosopher of America. In 1909 he went to Europe to see Sigmund Freud and the following year he died at the age of 68.

William James http://biografieonline.it/biografia.htm?BioID=1613&biografia=William+James, date of consultation 04/07/2017

is determined by the ratio of our actualities to our supposed potentialities; a fraction of which our pretensions are the dominator and the numerator our success: thus,

$$\text{self-esteem} = \frac{\text{success}}{\text{pretensions}}$$

such a fraction may be increased as well by diminishing the dominator as by increasing the numerator" (James, 1890; Branden, 2016).

Stanley Coopersmith[2], in "The Antecedents of Self-Esteem" in 1967 defined self-esteem as the personal judgement of value which manifests itself through the attitude with regard to themselves.

Another definition of self-esteem is provided by Richard L. Bednar, M. Gaiwan Wells and Scott R. Peterson in "Self-Esteem: Paradoxes and Innovations in Clinical Theory and Practice" published in 1989. They believed that self-esteem is a sense of self acceptance. It is the value that a person think to have, based on an accurate self perception.

Finally, in 1990, "Towards a State of Self-Esteem: The Final Report of the California Task Force to Promote Self and Personal and Social Responsibility" stated that self-esteem is the recognition of one's value and importance, the person in question is responsible of themselves and of their actions towards people (Branden, 2016).

According to the American psychotherapist Nathaniel Branden[3], who was a pioneer in this field, self-esteem can be considered as the feeling of being

[2] Stanley Coopersmith was born in 1926 in America. He was an educator, a personality theorist, a therapist and a writer. His major work was the book "The Antecedents of Self-Esteem" which was published in 1967. He died in 1979.

Stanley Coopersmith https://stanleycoopersmith.wikispaces.com/, date of consultation 04/07/2017

[3] Nathaniel Branden was born in 1930 in Canada. He is a psychotherapist and a writer who developed psychological theories and new treatment modalities concerning self-esteem. After having conducted his studies in America, his consultations were requested by companies from all over the world. As said before, he was also a writer, in fact, he has been author of numerous books which have been translated into eighteen languages and sold about 3 million of copies. He died in Los Angeles in 2014.

adequate to life and to its requests. In detail, it is the faith: in the ability of thinking and overcoming the challenges of life; in everyone's right to be successful and happy; in the right to fulfil desires and needs and, above all, in the fact that everyone deserves it. As a consequence, with a high level of self-esteem not only do people feel better, but they also live better and react to the events of life in a more appropriate way because, these people are more likely to be successful due to the fact that they have more perseverance. In other words, self-esteem is a deep human necessity, essential for the development of capacity for adaptation.

Self-esteem is not always stable, it may vary from childhood to adulthood according to both internal and external factors. The former are ideas, beliefs and behaviour, while the latter are environmental factors such as messages transmitted verbally and non-verbally, or experiences provoked by parents, teachers and other significant figures for the person.

Self-esteem is so important because if a person does not have it they feel a sense of unsuitableness, of not being "enough", a sense of guilt, shame or inferiority, a lack of self-acceptance and self-confidence (Branden, 2016).

2.1.1 First conferences about self-esteem

During the 80s the idea of self-esteem became more and more relevant when the importance of the individual became central. In particular, teachers referred to problems of self-esteem when they had unsuccessful students. In America, a National Council for self-esteem has been created and more or less every week there was a conference about this topic.

Nathaniel Branden https://stanleycoopersmith.wikispaces.com/, date of consultation 03/07/2017

Anyway, the theme of self-esteem did not affect just America but other countries too. In fact, the first international conference about self-esteem took place in Oslo in 1990. In this occasion teachers, psychologists and psychotherapists from all over the world participated in order to assist to seminars, laboratories and conferences concerning the connection of self-esteem to personal development, scholastic system, social problems and organization of work. Starting from that conference, the International Council was created (Branden, 2016).

2.2 Connection between self-esteem and dyslexia

It is of interest to address the theme of self-esteem herein because, as stated before, parents and teachers are external factors[4] which can influence their children and students' level of self-esteem. In addition to this, if we consider people with dyslexia the situation becomes more complicated.

2.2.1 Parents' influence on their children's self-esteem

According to Stanley Coopersmith the better way to have a good self-esteem is to have parents with a good level of self-esteem who help their children in this intent. Parents' behaviour is crucial. In fact, if parents are affectionate and respectful, do not use humiliation to control their children and, above all, believe in their children's ability, they are more likely to interiorize their attitude and reach a sane level of self-esteem (Branden, 2016).

Despite the fact that there are not studies which demonstrate this theory, having an appropriate example to follow cannot be a bad thing. Besides, in this way,

[4] See paragraph 2.1 Definitions of self-esteem p. 21

children feel more accepted as a person of value. They have not unlimited freedom and this give them security and the opportunity to evaluate their behaviour and their parents are interested in them and, in particular, also in their social and scholastic life. They have high level of expectation regarding behaviour and performance.

At this point it is obvious that if children have difficulty at school, such as dyslexia, their parents' understanding and support are crucial to ensure their children well-being inside and outside the walls of school (Terras, Thompson & Minnis, 2009).

2.2.2 The influence of school in students' self-esteem

For many students, school is like a second home. Having a teacher who trust their students' competence and skills may be fundamental if at home the situation is not comfortable.

On the contrary, some students perceive school as a prison where teachers have neither self-esteem nor the preparation needed to do their work. They cannot be defined "good" teachers because they do not inspire their students, on the contrary they humiliate and ridicule them. Also making comparison among students (of the same class and among different classes) is not a good idea because, in this way, a student emerges at the expense of another one. As a consequence, students' terror to fail becomes bigger and bigger.

As for parents, teachers have to have a good level of self-esteem in order to instil it to their students. Teachers with low self-esteem tend to be more punitive, impatient and authoritative and are more concentrated to students' weaknesses than to their strengths.

Even students who have bad marks can have a good self-esteem. In fact, there are more reasons for which students are not good at school, one of it can be dyslexia.

Promotion of self-esteem is crucial in school for two reasons. First of all, to help students proceed with studies, and second, to prepare them face the world which need for people who think with their head and not for robots so, having a good self-esteem becomes fundamental.

It is important that the school environment makes students at ease and do not creates favouritism. Each student needs attention, but somebody more than the others, such as, students with dyslexia, who tend to be bullied by their peers for their difficulty. According to Howard Gardner[5], each person is different from the others so there is no reason to teach them in the same way because everyone has their own cognitive style.

To conclude, what is important is to have deep trust in students' ability and to transmit it to them (Branden, 2016).

2.3 Research on the connection between self-esteem and dyslexia

Many studies have been conducted concerning this topic. It is of interest to note that there is not an agreement among researchers on the validity of the

[5] Howard Gardner was born in 1943 in America. He is a psychologist and a professor of Harvard University. He was the pioneer of the theory of multiple intelligences which has been first published in 1983 in the book "Frames of Mind: The Theory of Multiple Intelligences". This theory is based on studies that he has done on people with neuropsychological injuries. Thank to his research he distinguished 9 kinds of intelligences derived from different brain structures and that develop independently from one another. These types of intelligences are: linguistic, interpersonal, intrapersonal, corporal, logical-mathematical, spatial, musical, naturalistic and existential (these last two have been added in the 1990s).

La bibliografia di Gardner Howard http://www.wuz.it/biografia/1809/gardner-howard.html, date of consultation 04/07/2017

connection between high levels of anxiety, low self-esteem and dyslexia and it is for that reason that more and more studies have to be done in this field.

As an example, in 2016 Novita published an article in the European Journal of Special Needs Education in order to contribute with more data to the studies about secondary symptoms of dyslexia that have been done so far. The expression "second symptoms" refers to high level of anxiety and low self-esteem as a consequence of reading problems. Her study, which involved 124 children between 8 and 11 years, revealed that both children with and without dyslexia have similar level of anxiety and self-esteem in general but, if self-esteem in the school setting is taken into consideration people with dyslexia showed a lower level of self-esteem compared to their peers (Novita, 2016). It is important to bear in mind that this study does not control environmental factors (such as class type) which are fundamental in shaping students' self-esteem.

Terras, Thompson and Minnis published an article in Dyslexia in 2009 regarding low self-esteem and behavioural and emotional problems affecting people with dyslexia. After their research they stated that it exists a connection between low academic self-esteem and emotional symptoms relating to reading difficulties, as a consequence it can be said with certainty that this situation may be improved by a good level of self-esteem and of understanding of their disorder. In this way, children may avoid some of their difficulties. As regards the understanding of dyslexia it can help children to set realistic goals which make them more concentrated in their successes than in their failures but it is fundamental that also their parents, teachers and peers have a good understanding of their problem. In fact, it has been demonstrated that supportive parents and peer relations contribute to create a more positive self-concept in people with reading difficulty (Terras, Thompson & Minnis, 2009).

Referring back to what Novita analysed also Alexander-Passe conducted a study about both the possible causes of the secondary symptoms of stress and their

manifestations in people with dyslexia in 2006. This research showed that the highest level of stress is proved between the third and the fifth year at school. This fact demonstrated to have very important consequences in both emotional and psychological field. The former refers to the fact that during this period children prove negative emotions, such as shyness, loneliness and fear, while the latter considers psychological manifestation due to this stress in this sense students have reported to suffer from nausea, tremors and rapid heart-beat (Novita, 2016).

Thank to this research (and also others done in the same field) it is possible to note how much emotions too are affected by reading difficulties it is for that reason that in the following paragraphs the theme of emotions will be analysed.

III. Emotions

Everyone knows what emotions are but explaining them results more complicated. For example, the Longman dictionary defines them as “a strong human feeling” which, according to Barsalou definition, emerges in the moment when a person gives a meaning to a sensory input by using their learning and past experiences. This process is called conceptualization. To consider something meaningful means to categorize it, and even if there is not an agreement on how it happens, what is certain is that it works. This process is realized by what is called “episodic memory network” and it consists in a series of brain regions which recall past experiences for use in the present.

It is still unknown if emotions lasts many seconds or are just instants (Lindquist, Wager, Kober, Bliss-Moreau & Barrett, 2012).

Researchers agreed on the fact that basic emotions, and precisely, individual categories such as disgust, anger, fear, happiness, and sadness relate to states which lead behaviour and cognition. These emotional states are believed to be inherited and biologically basic so it means that it is not possible to divide them into more basic parts. Notwithstanding, researchers are divided in groups with different beliefs. On one hand there is who underlines the universal trait of emotions meaning that for every emotional category corresponds a series of distinctive universal signals but also physiology, past events, past experiences and their memory. In other words, they believe that everyone can feel the same emotional categories but they are filtered by one’s culture and learning. On the other hand, there are theorists who support a developmental approach which consists in the fact that since birth, everybody has a set of “first order emotions” which respond to stimuli through emotions. This set of emotions is believed to develop as the years passed into a more complex combination of emotions,

behaviours and cognitions. Finally, other theorists argued that emotions are specific behavioural adaptation which humans share with other mammalian animals (Lindquist, Wager, Kober, Bliss-Moreau & Barrett, 2012).

All the theorists agreed on the fact that each emotional category has its own root in different mechanisms in the brain and body.

Amygdala is thought to have a really important role concerning fear. In fact, it is either the part which "controls" fear in the brain or it is the most important centre of the fear circuit, while anterior insula is believed to be the location of disgust. Anger is localized in the orbitofrontal cortex even if this region is so large that is very likely to be involved in more psychological phenomenon. Sadness is situated in the pregenual anterior cingulated cortex and subgenual anterior cingulated cortex and happiness is thought to be localized in the left prefrontal cortex.

These emotions are considered to be basic because they are characterized by a strong localization in the brain even if some researchers do not agree with this statement because they are convinced that these categories are too varied to be located each just in one area of the brain but they agreed to the fact that

These five basic emotions cause specific body expressions. These body expressions and emotions are two different and independent processes even if there are two schools of thought about that in fact, Darwin in 1872 stated that first of all there was the feeling and, after it, the emotional expression, while in 1884, James thought the exact opposite and so that the feeling was preceded by the emotional expression (Lindquist, Wager, Kober, Bliss-Moreau & Barrett, 2012).

It has to be said also that not all emotions are the same from each other. They can be divided in two groups: primary and secondary emotions. The former group includes happiness, sadness, fear, anger, surprise and disgust while the latter is composed by what are commonly called social emotions such as

embarrassment, jealousy, guilt, pride and background emotions for example malaise, well-being, calm and tension. It is of interest to note also that emotions influence both psychological and behavioural adjustments.

The trait that distinguishes primary emotions from the others is not shared among theorists, in fact on one hand, some of them believe that every emotional episode is part of a specific emotional category and is the result of neural responses which happen in a located part of the brain. On the other hand, theorists hypothesized that primary emotions are located in a subcortical circuit and finally, others thought that emotions have to be located in the brain in order to be considered as natural kinds (Lindquist, Wager, Kober, Bliss-Moreau & Barrett, 2012).

3.1 Transmission of emotions

Emotions can be culturally transmitted. Having parents who can positively react to emotions is a good model for children to adopt in order to help them deal with them. Culture is an important factor in order to understand how emotions are experienced but, above all, expressed. In fact some cultures prefer not to experience or express emotions and because of it, communication results more difficult. Also how parents react to children's manifestation of emotions is interesting and can explain many children's behaviour. It has been demonstrated that if parents avoid their children's negative emotions they will connect it to other negative ones. For example, if children are angry and parents reject to discuss about it with them, they will group anger with fear, guilt or anxiety (Lindquist, Wager, Kober, Bliss-Moreau and Barrett, 2012).

3.2 The importance of emotions

Emotion is very important in everyday life but it has a fundamental role also in learning. The tripolar method is based on it. It is a model which identifies three causes which determine people's actions. They are: obligation, need and pleasure.

The first (obligation) one is thought to be the worst motivation since it does not produce acquisition. It happens because it activate an affective filter which does not let new information to pass to the long-term memory.

The second one (need) has two limits: the first is that the need has to be perceived and the second one is that it lasts until the need has been satisfied.

The last one is based on a positive emotion: pleasure. It is the best motivation to learn because it is connected with long-term strategies. If students feel the pleasure to learn, they will succeed (Balboni, 2013).

3.3 Research on the relation between emotions and self-esteem

Terwogt, Rieffe, Miers, Jellesma and Tolland in 2006 published an article in Infant and Child Development concerning emotions. They stated that emotions have a really strong impact on people and, in particular, they give physical signals, such as the change of the heart rate, perspiration, stomach problems and many more which can also overtax the body having as a result permanent somatic dysfunctions because people may not be aware of the emotions that they are feeling.

Self-esteem and emotions are connected to each other. It is demonstrated that when a person has low self-esteem they are more likely to think about negative thoughts and memories. On the contrary, if a person has a good level of self-

esteem they try to think positive in order to change their mood into a positive one.

In other words low self-esteem provokes negative thoughts and feelings and weaken the one's ability to cope with negative feelings which increase their stress level and, as a consequence, it induces failure. On the contrary, having positive thoughts and feelings will lead to high level of self-esteem and to success. This is the reason which explains why negative emotions (connected with negative thoughts and feelings) provoke more somatic reactions than positive ones (Terwogt, Rieffe, Miers, Jellesma & Tolland, 2006).

Many studies have been done in both the fields of emotions and self-esteem.

Regarding this last one there are research conducted in order to discover its connection with dyslexia while emotions are above all studied in general and the aim of these works is the discovery of their functioning and not their influence on people with dyslexia even if the connection between emotions and self-esteem is fundamental in order to help people with dyslexia to positively deal with their disorder.

IV. LEGISLATION CONCERNING DYSLEXIA

4.1. Italian law on dyslexia

As regards legislation on dyslexia it is important to underline that, in Italy, on the 8th October 2010 was promulgated the law n. 170. It can be considered as a framework law which, on one hand, provides general principles and characteristics about learning difficulty, but on the other hand it does not give detailed and specific dispositions to adopt in order to help people with dyslexia cope with their problem. This is due to the fact that, as said before, the content of this law (which will be analysed later) is general and, as a consequence, it requires more specific laws. This law can be considered incomplete for the reason explained before, but also because it does not consider the didactic area of interest, as a matter of fact it does not mention the IEP[1] which stands for Individualized Education Program.

What differentiates this law from all the others which have been promulgated about dyslexia is that it is the only one which is specifically addressed to guarantee equal rights for students with SLD (Specific Learning Disabilities). In other words, its purpose is to provide accessibility to education to all students (included also the ones with SLD) and to establish general traits of compensatory tools and dispensatory measures to help students with dyslexia (Lombardi, 2012).

[1] See paragraph 4.1.1 Individualized Education Program (IEP) p. 36

The first article of this law recognises dyslexia, dysgraphia[2], dysorthography[3] and dyscalculia[4] as Specific Learning Disabilities which, as said in the first chapter[5], can exist together or not and specify that these disabilities appear when people's cognitive capacity is fine and there are neither neurological pathologies nor sensorial deficit but, they can be a severe problem in doing everyday activities (Law 170/2010, article 1).

The second article is dedicated to the purpose of this law. It points out that first of all it is important to guarantee the education right to all students but also to promote their scholastic success by introducing some didactic measures to help them to reduce emotional and relational discomforts which are typical in this kind of situation[6]. In doing so students have to be evaluated with different tests and type of evaluation.

Then the role of teachers is taken into consideration. They are fundamental in attracting students' parents interest in this theme so that to promote early diagnosis and rehabilitative didactic paths. This indicate that communication among school, families and health services during students' education has a central role, above all, in this kind of situation. Finally, the last aim of this law is to assure equal opportunities concerning social and professional development to all students (Law 170/2010, article 2).

The third article concerns diagnosis. It reports that diagnosis of SLD is conducted by some specialized treatments, assured by the National Health Service and then communicated by the family to the school of the student taken into account. In the case a student, after having participated to some activities whose aim was to help them, has still difficulty, the school has to report the

[2] See note 2 pag.1

[3] See note 3 pag.1

[4] See note 4 pag.1

[5] See paragraph 1.1 SLD p. 1

[6] See paragraph 2.2 Connection between self-esteem and dyslexia p. 24

situation to the family in question. It has also to be noted that the school too has to start, after having obtained the consensus from the family involved, doing activities which can help the discovery of new suspected cases of students with SLD (Law 170/2010, article 3).

The use of compensatory tools and dispensatory measures is discussed in the fifth article of this law. In fact, it promotes an individualised and personalised didactic[7] which respects the personal characteristics of the students, such as their possible bilingualism. Regarding compensatory tools and dispensatory measures, the former include alternative means of learning and technology, while the latter exempt students from certain types of activities.

In addition to it, this law considers for parents of students with SLD the opportunity of having flexible working hours in order to help their children with school activities (Law 170/2010, article 5).

4.1.1 Individualized Education Program (IEP)

The IEP[8] is a document which aim is to collect all special education services that each student with dyslexia (and not just with it) need in order to help them reaching scholastic objectives. It means that it is a personalized program which is different from a student to another according to their necessity.

An IEP is written by the student's class council at the beginning of every school year after having received the diagnosis of SLD (Dyslexia Alliance)[9].

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[7] The term "individualised" didactic is used to indicate when a student adopts different paths in order to reach the same goals of their classmates, while the term "personalized" didactic is used when both the paths and goals are different from a student with SLD and their peers.

Didattica Persuasiva https://didatticapersuasiva.com/didattica/individualizzazione-personalizzazione-integrazione/, date of consultation 31/07/17

[8] See paragraph 4.2.2 America p. 42 for the comparison with the IEP in America.

[9] Dyslexia Alliance http://www.dyslexiaalliance.org/what-is-an-iep.html, date of consultation 27/07/17

The compilation of this document is composed by three phases. First of all there is a meeting among teachers, parents and a specialist as a psychologist who describes the student's strengths and weaknesses and the characteristics of their disorder. Then the IEP is written by the class council. In this occasion each teacher has the opportunity to identify the educational goals for their subject and the compensatory tools and dispensatory measures that can be used in order to reach these objectives. Finally, the IEP is presented to the student's family in order to obtain its consensus and make effective this document.

It is of interest to note that this document is not fixed, in fact it can be modified or updated every moment it is considered necessary.

An IEP has to consider at least these points:

- Student's personal data;
- Type of disorder;
- Individual educational activities;
- Personal educational activities;
- Compensatory tools that can be used;
- Dispensatory measures that can be adopted;
- Personalized evaluation and tests.

(AGIAD)[10]

4.1.2 Other laws concerning dyslexia

On the 5th February 1992 was promulgated the law n. 104 in order to guarantee the respect of the rights and social integration of disabled people. People with SLD are not considered part of the group of the disabled and this could be a

[10] AGIAD http://www.agiad.it/newsite/index.php?option=com_content&view=article&id=24&Itemid=161, date of consultation 27/07/2017

problem because, in this way, special needs teachers are not allow to support students with dyslexia (even if in the most serious cases).

The ministerial note protocol n. 4674 written on the 10th October 2007 was interested in the difficulty a student has when learning a foreign language[11] above all in its written form. It is for that reason that it has been decided to introduce the possibility to allow students with SLD to compensate with an oral evaluation the written test and regarding this one it has been admitted to give them extra time to complete it. In addition to it, with the ministerial decree n. 5669 written in 2011 it has been given to students with serious cases of SLD the opportunity to be exonerated from the learning of a foreign language (Law 104/1992).

Finally, this ministerial decree has also underlined the modality of teacher training, educational and didactic measures (such as compensatory tools and dispensatory measures) and types of tests and evaluation in order to guarantee the right to education to students with SLD[12].

4.1.3 Italian Dyslexia Association (AID)

In Italy it is thought to be about 1.900.000 people with dyslexia so it became more and more important to better understand and, above all, sensitize people about it. The Italian Dyslexia Association is an example how this purpose can be reached. It collaborates together with institutions and services regarding educational development of children and its members are parents of children

[11] See note 7 p. 3

[12] DSA leggimi al contrario http://dsaleggimialcontrario.altervista.org/i-disturbi-specifici-apprendimento-d-s-quadro-normativo-giurisdizionale/, date of consultation 28/07/17

with dyslexia, adults with this disorder, doctors, psychologists, speech therapists and teachers (Associazione Italiana Dislessia)[13].

4.2 Legislation and associations on dyslexia in the world

4.2.1 The United Kingdom

The theme of dyslexia has great importance for Anglo-Saxon countries due to the spelling irregularity of English[14].

As said before, in the United Kingdom dyslexia was treated from the medical point of view[15]. Macdonald Critchley, who was a British neurologist and former president of The World Federation of Neurology, was famous for his numerous publications and in 1964, he did the first British attempt to resume the acknowledge about dyslexia in so far by publishing the book "Developmental Dyslexia". During the 1960s there have been numerous changes according dyslexia in Great Britain, for example, in 1963 the Word Blind Centre was built in London (Pollak, Una visione d'insieme della dislessia nel Regno Unito e nel resto dell'Europa)[16]. It has to be said that it was not the first one because Denmark built the first Word Blind Institute in 1936. Anyway this centre has inspired the construction of many voluntary local associations about dyslexia all built between 1965 and 1972 when the British Dyslexia Association (BDA) was founded. The BDA wanted to influence government and other institutions in

[13] Associazione Italiana Dislessia https://www.aiditalia.org/, date of consultation 31/07/17

[14] See note 7 pag. 3

[15] See paragraph 1.13.2 The beginnings pag. 15

[16] Pollak, Una visione d'insieme della dislessia nel Regno Unito e nel resto dell'Europa http://docplayer.it/8766713-Una-visione-d-insieme-della-dislessia-nel-regno-unito-e-nel-resto-dell-europa-dr-david-pollak-de-montfort-university-leicester-england.html, date of consultation 10/03/2017

order to create a dyslexia friendly society so that people with dyslexia will be able to use their full potential. In doing so, the BDA supported education of people with dyslexia by sustaining schools. In addition to this, it aimed also at the reduction of the number of people with dyslexia involved in criminality.

The first British schools specialised for students with dyslexia were founded in the 1960s and many attempts to improve life of people with dyslexia were local, such as the Helen Arkell Centre who had dyslexia herself and decided to create her own foundation in 1972 for teachers' training and students' education (Pollak, Una visione d'insieme della dislessia nel Regno Unito e nel resto dell'Europa)[17].

The first reference of dyslexia in British legislation was in 1970 with the Chronically Sick and Disabled Persons Act according to which Local Education Authority had to guarantee a special educative treatment for children with dyslexia. It stated that "it shall be the duty of every local education authority to provide the Secretary of State at such times as he may direct with information on the provision made by that local education authority of special educational facilities for children who suffer from acute dyslexia" (Chronically Sick and Disabled Persons Act sec. 27; Lombardi, 2012).

This act underlined that dyslexia was seen from a medical point of view, in addition to it, it refers to acute dyslexia and not to SLD.

A government court of inquiry about children and young disabled people's education published the Warnock Report in 1978 with which the concept of Special Education Needs (SEN)[18] was introduced.

Dyslexia was not among the recognised official disabilities in fact, the Education Act which was "an Act to make provision with respect to children

[17] See note 16 p. 39

[18] See note 16 p. 11

with special educational needs"[19] (Lombardi, 2012), did not use the word dyslexia but preferred "learning difficulty". Until that moment, people with dyslexia were Educationally Sub Normal (ESN) (Lombardi, 2012).

In 1996 a law on education was promulgated. It was applied in England and Wales and gave precise details to what schools and Local Education Authorities (LEAs) had to do in order to fulfil the needs of students with learning difficulty and to provide training for specialist teachers in order to create dyslexia-friendly schools[20].

The fact that special education needs have been defined was very important because it changed the way people with dyslexia were seen by others. People with learning difficulty and with disability were not divided into different categories and this was really helpful because due to it dyslexia did not made people feel ignorant. In addition to it, it was an opportunity to better understand dyslexia. Anyway, in 2001 disability was diversified from people who have special educational needs. It was based on the fact that, unlike people with special educational needs, disabled people have a physical or mental disablement which has a negative impact on the ability of doing daily activities.

The European Dyslexia Association (EDA) was founded in 1987. Its slogan is "No Matter Which Country, No Matter Which Language, Dyslexia Is Everywhere" (EDA)[21]. The aim of this association is to share information about dyslexia and, in detail, about different measures adopted by the various countries in order to support people with dyslexia. In other words, its purpose is to share knowledge concerning reading difficulty. They are convinced that this way would only bring benefits. EDA was founded as an international voluntary

[19] The Education Act was written in 1981, based on the report of 1978. (Lombardi, 2012)

[20] In order to help students, LEAs have to evaluate the student so to prepare a statement of special educational needs. In this way it will be possible for the student to use helpful measures. (Pollak, Una visione d'insieme della dislessia nel Regno Unito e nel resto dell'Europa) see note 16 p.39

[21] EDA http://eda-info.eu/about-the-eda?showall=&start=3, date of consultation 29/07/17

association by 8 association of dyslexia in Belgium, Denmark, France, Germany, Ireland, Netherlands, Norway and United Kingdom. From its creation EDA has grown a lot, and today it counts 44 associations in 30 European countries and 3 foreign continents: Brazil, Canada and Israel (Pollak, Una visione d'insieme della dislessia nel Regno Unito e nel resto dell'Europa).

In the United Kingdom, dyslexia is regulated by the Education Act of 1996 but also by the Disability Discrimination Act of 1995 which was integrated with the Special Educational Needs and Disability Act in 2001, which, in turn, after four years has been substituted by a new Disability Discrimination Act. Thank to these two laws, people with dyslexia can benefit from the same adequate support as people with disability (Lombardi, 2012).

4.2.2 America

The USA have the most complete legislation concerning dyslexia. In fact, people with SLD are protected by the Individual with Disabilities Education Act (IDEA) amended in 2004 after the No Child Left Behind Act was promulgated in 2001 and the American with Disabilities Act 1990 amended in 2008 (Lombardi, 2012).

As regards IDEA, this federal law stated also the importance for public schools to prepare an IEP[22] for all students who need special services. In other words, for students who will benefit from services which are different from the ones that are normally used at school.

An IEP has to consider all the following points, by law:

- The present level of performance (called PLOP);
- Student's yearly educational purposes;

[22] See paragraph 4.1.1 Individualized Education Program (IEP) p. 36 for the comparison with the IEP in Italy.

- Supports and services adopted by the school to help students;
- Modifications and accommodations provided by the school. The former refers to the modifications about what is taught to students and what the teachers expect from them, while the latter refers to the modalities that students adopt in order to show what they have learned;
- Accommodations that students can use when they have to do a test;
- Students' evaluation (modalities and timing);
- Transition planning which prepares students for life after high school.

(Dyslexia Alliance)[23]

In order for a student to obtain a IEP there has to verify two conditions: an evaluation and a decision. The former is asked by parents, teachers and anyone who realizes that a student is facing difficulties. In this phase, students will be asked to do some tests by a specialist as a psychologist; the latter is the decision to make the student use special education services made by parents and school officials. The decision is based on a team which is composed by the student's parents, their teachers and a specialist. According to IDEA a person can benefit from a special education if they have any of the following 13 disabilities: autism, deaf-blindness, deafness, emotional disturbance, hearing impairment, intellectual disability, multiple disabilities, orthopaedic impairment, other health impairment (including ADHD), specific learning disability, speech or language impairment, traumatic brain injury and visual impairment, including blindness (Understood)[24].

If the student has one of these 13 disabilities, the team proceeds with the compilation of the IEP.

[23] Dyslexia Alliance http://www.dyslexiaalliance.org/what-is-an-iep.html, date of consultation 27/07/17

[24] Understood https://www.understood.org/en/school-learning/your-childs-rights/basics-about-childs-rights/, date of consultation 31/07/17

As regards the Canadian country, its main characteristic is its being multi-ethnic and multilingual. In fact, English and French are the two official languages of the country with many others spoken by the immigrants who moved there. Canada is dealing with dyslexia for a long time but it is necessary to bear in mind that the Canadian school system is the responsibility of the provinces which can make decision autonomously. As a result each province has its own education policies but they all recognise the existence of dyslexia (even if they prefer using the term "learning disability" instead of dyslexia) and of SLD (Lombardi, 2012). The main aim of Canada concerning dyslexia is the diagnosis and the creation of an IEP whose purpose is to help people with learning disabilities to succeed in school by using also compensative tools and dispensative measures (provided by the law) which include more time during exams and the exoneration from certain types of activities.
Finally, we can conclude by noticing that Canada is one of the most advanced countries concerning dyslexia (Lombardi, 2012).

4.2.3 Countries of Oceania

Until 2010 Australia did not recognize dyslexia as a SLD and the proof of it is a document addressed to the Parliamentary Secretary for disability and child care. It is entitled "Helping people with dyslexia: a national action agenda" and it clearly reports "[...] that dyslexia is not recognised as a specific disability under the Disability Discrimination Act 1992 and that the education and employment system do not recognize or support people with dyslexia" (Bond Coltheart, Connell, Firth, Hardy, Nayton, Shaw & Weeks, 2010; Lombardi, 2012). This document presented also 12 recommendations "designed to improve both access and equity in the everyday lives of Australian children and adults currently

struggling with his hidden disability" (Bond Coltheart, Connell, Firth, Hardy, Nayton, Shaw & Weeks 2010; Lombardi, 2012).

New Zealand has a very advanced legislation for the recognition of civil rights and it is for that reason that it is strange that, according to the International Book of Dyslexia[25], in New Zealand "most schools and teachers do not think of dyslexia as a real entity" (Smythe, Blenkhorn, Evans, Siegel & Draffan 2010; Lombardi, 2012).

4.2.4 Nordic countries

Sweden, Norway, Denmark and Finland have not specific dispositions for students with SLD. In detail, in Denmark dyslexia is called "*ordblindhed*" which means "word blindness" but there is a series of specific laws for students with disability and SLD are considered part of it. In Norway, situation is similar and the same can be said for Sweden and Finland (Lombardi, 2012).

4.2.5 Europe

The least prepared European country on the field dyslexia is France. As reported by the International Book of Dyslexia[26] "until very recently the existence of dyslexia was not officially acknowledged in French schools" (Smythe,

[25] The International Book of Dyslexia was written by Ian Smythe, John Everatt and Robin Salter in 2003. It is considered to be the most wide-ranging book available concerning dyslexia. This volume is the result of the work of many experts in this field. They described "specific difficulties in over 15 different languages, revealing that dyslexia relates not just to cognitive strengths and weaknesses, but also to the language and script in question". Wiley http://eu.wiley.com/WileyCDA/WileyTitle/productCd-0471498416.html, date of consultation 29/07/2017

[26] See note 25 p. 45

Blenkhorn, Evans, Siegel & Draffan, 2010; Lombardi, 2012). As a consequence, it has not been provided a law in order to help French people with dyslexia and it is a big problem if the irregularity of the orthography of the French language is taken into consideration.

On the contrary, Germany is aware of the problem of dyslexia, in fact, on one hand some Landers provide extra hours to assist students with dyslexia, on the other hand, other Landers have integrated this assistance directly in the scholastic curriculum (Lombardi, 2012).

Spain considers dyslexia as a disability and it is for that reason that it is regulated by laws concerning physical disabilities (Lombardi, 2012).

In Bulgaria there are screening programs whose purpose is to identify students with dyslexia and recovery and reinforcement activities are organised directly by the schools even if there are not specific laws for dyslexia and, as a consequence, there is not an obligation to adopt compensatory tools and dispensatory measures (Lombardi, 2012).

Croatia can be considered one of the most developed countries of eastern Europe because it boasts an advanced legislation on this theme. In detail, a screening (provided for by law) is done during kindergarten and it is repeated before primary school. This screening is fundamental to diagnose dyslexia as soon as possible. If a student turn out to have dyslexia, an IEP will be provided.

All this attention to dyslexia is due to the fact that, from 1991, it is considered as a SLD even if this advanced legislation has effect just during primary school (Lombardi, 2012).

There are other eastern European countries which pay their attention on dyslexia. In Hungary, for example, a law was promulgated in 1963 and thank to it language therapists and (from the 1990s also) teachers have to attend specific classes about dyslexia. On the other hand, people with dyslexia are considered disabled people, and in more detail “mentally retarded people”. They have the

opportunity to adopt compensatory tools and dispensatory measures but, it has been underlined that there is a general tendency to exonerate them from the study of foreign languages. This propensity is wrong from two points of view: scientific and methodological. As regards the former point of view, it has been demonstrated that dyslexia does not affect every language (in other words, multilingual people with dyslexia do not show this disorder in all languages), while the latter underlines the negative effect that this exoneration can have on students' self-esteem[27] (Daloiso, 2009; Lombardi, 2012).

In Poland, from 2001 a ministerial decree stated the right of students with dyslexia and in Austria too dyslexia is an important theme, even if it has not specific laws in support of people with dyslexia.

[27] See paragraph 2.2 Connection between self-esteem and dyslexia p.24

V. COMPENSATORY TOOLS AND DISPENSATORY MEASURES IN THE EDUCATIONAL FIELD

As said in the previous chapter[1], the law 170/2010 (and more precisely the fifth article) reports the importance of the use of the appropriate measures and tools in order to help students with dyslexia to have the same opportunities of learning of their peers. As a matter of fact, dyslexia put students who have it in a disadvantaged position in comparison to their classmates because they do not have the same means to face scholastic challenges. The following paragraph of the present chapter will provide an exploration of these measures and tools but first of all will be explain why they are so important for students with dyslexia.

5.1 Reasons for adopting compensatory tools and dispensatory measures

In order to understand the reason which led to the introduction of compensatory tools and dispensatory measures[2] in education it is important to clarify that the biological nature of dyslexia do not have to become an alibi: by the students for not doing certain types of tasks or for not making efforts, and by the teachers for not paying more and specific attention to students with this disorder during the school hours.

[1] See paragraph 4.1. Italian law on dyslexia p. 34

[2] See paragraph 5.2 Dispensatory measures p. 50 and 5.3 Compensatory tools p. 51

In fact, as it has been explained by Stella (2001) the fact that a disorder has a biological basis it does not mean that people are dealing with a pathology that is just for specialists concern. In other words, all constitutional disorders can be modified because of time and measures which have been adopted in order to help students. Functional disorders, such as dyslexia, can be contrasted and reduced by the use of the appropriate measures. It means that early diagnosis and the adoption of the right measures are fundamental. In fact they can really make the difference because if they are not used the situation can also worsen.

In order to help students they have to be observed and their evaluation have to be done frequently so that teachers can adopt an individual didactic[3] for students who need a specific program which respects their characteristics because their disorder does not give them all the resources that they need to adapt to the standard method used by the teacher for the majority of their students. As a matter of fact, if students with dyslexia and, in general, with SLD are not supported by the school with the appropriate measures they have to face more difficulties than the ones that they have for their disorder and, as a consequence, it can increase their discomfort. This change of the method of teaching has to consider students with SLD as students who have functional limits due to their health conditions. In this way, they will no longer considered as lazy or listless students but as people with a deficit.

It is of interest to say also that when dealing with this disorder the purpose cannot be to eliminate the deficit but to reach the best performance despite the deficit (Stella, 2001).

[3]See note 7 p. 36

5.2 Dispensatory measures

In the present paragraph dispensatory measures will be taken into consideration by giving an explanation about what they are and the way they can be applied in schools.

With the expression "dispensatory measures" people refers to all the activities that students with dyslexia are exonerated to do because of their disorder. They are allow not to do these tasks because they are very difficult for them and they do not improve their learning. These measures are used during all years of one's education (Fogarolo & Scapin, 2010). For example, they are:

- Exonerated from the study of a foreign language;
- Exonerated from reading aloud in class;
- Exonerated from reading alone too long texts;
- Exonerated from all activities which involve the evaluation of reading;
- Planned oral exams and the opportunity to postpone them or do them privately only with the teacher;
- Tests with less exercises;
- Extra time for doing tests;
- Foreign language tests written with a bigger font;
- During oral evaluation lexical ability has to be taken into consideration;
- Integrate written tests with oral ones about the same contents.

(DSA: Disturbi Specifici di Apprendimento)[4]

These measures are certainly important but their purpose is that students with dyslexia avoid discomfort situations at school. It means that they are not a solution but the awareness of the existence of the problem and that it is fundamental not to worsen it (Fogarolo & Scapin, 2009).

[4] DSA: Disturbi Specifici di Apprendimento http://www.istruzione.it/urp/dsa.shtml, date of consultation 07/08/17

5.3 Compensatory tools

With the expression “compensatory tools” people refer to all the tools that students with dyslexia can use in order to compensate the functional weakness due to their disorder. These tools are important because they reduce the distance between students with dyslexia and their classmates by giving them the same means to face school activities. In addition to it, it is of interest to notice also that these tools are adopted, above all, during primary school but that have the best results during secondary school (when they are linked to digital texts) when they can offer an alternative system to study (Fogarolo & Scapin, 2010).

Not only do these aids support students with dyslexia, but they promote and develop people’s abilities too. This implies that it is necessary that the school adapt itself to the students with disabilities (such as dyslexia) an not the contrary (Stella, 2001).

First of all, it is important to clarify that computers are great compensatory tools but only if students can use it with competence. In other words, they have to be able to adapt it with flexibility to their needs, otherwise it is just another obstacle they find in their scholastic path (they can, in fact, stigmatize the diversity of students that use them a lead to a lower level of self-esteem).

The competence is the result of a formative process in which teachers are involved and do not just let their students to use the computer during classes.

At this point it is important to specify some other two important concepts: compensatory technologies and compensatory strategies.

On one hand, with the expression “compensatory technologies” people refer to the computer (which is by far the most important) and to the systems of voice recorder and reproduction which will be all analysed in the following paragraphs. In general, with these tools the assistance of an adult is required, at least in the beginning because they can be counter-productive if used without

competence and they are useful, above all, for students with severe disorders (to avoid the possibility to create more complications to students with a soft disorder).

On the other hand, compensatory strategies are all the processes, work or learning styles that can reduce (if not overcome) the limits of their disorder.

These strategies can be found directly by the students by using analogies, assonances and visual or auditory references. An example can be the integration of different graphic and visual codes such as maps, diagrams and all other visual forms of communication that can be used to reinforce and substitute the written part. As said before students adopt these strategies by themselves but they can also ask for help to their peers. In this way help will be mutual and all students will have benefits (Fogarolo & Scapin, 2010).

In the following diagram it will be possible to notice how compensatory technologies, strategies and competence have to work together in order to really compensate students disorder.

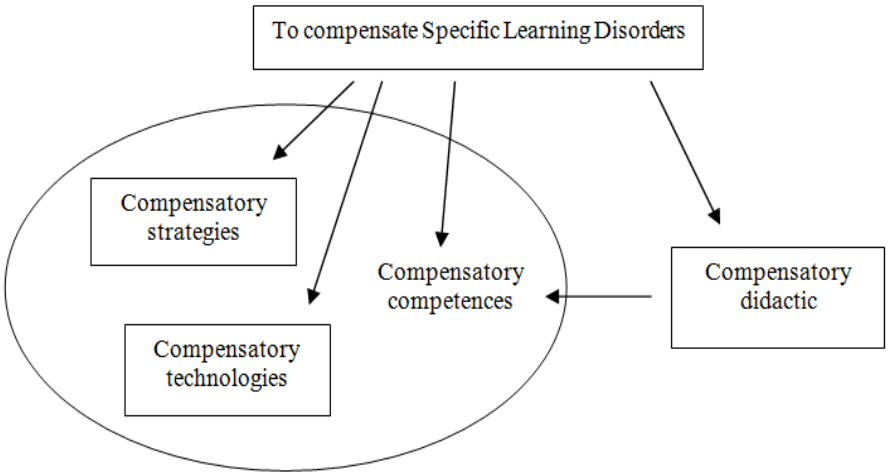

Figure 3 diagram which shows the connection among compensatory technologies, strategies and competence.
(Source: Fogarolo & Scapin, 2010)

5.3.1 Method of study

The method of study is considered to be the first compensatory tool for students with SLD. This theme seems to be simple but, actually, it is really complex because it includes cognitive and learning strategies, students' organization of time and their emotional situation. Even the school has to support students in their learning to learn process even if Italian classes are characterized by their heterogeneity due to the presence of students with special needs (because of a disability, developmental disorders and socio-economic, linguistic and cultural disadvantages). The right answer to a situation like that is the introduction of a didactic that can be adapted to all the students thank to individualized and personalized actions[5] designed to guarantee the educational success to each student (Cajola & Traversetti, 2016).

The method of study is fundamental for an effective and adequate learning and finding a good one can prevent students from dropping out of school early.

As a consequence, method of study has become an educational necessity that has to be promoted in every school. It is important to find time for teaching and learning abilities connected with the acquisition of a flexible and personal method of study. This implies:

- Knowing what the study is;
- Organizing in an efficient way the study time;
- Knowing how to motivate themselves;
- Knowing how to organize a daily, weekly and monthly study plan;
- Evaluating one's own results;
- Elaborating strategies to remember what has been studied to take notes and to organize maps.

[5] See note 7 p. 36

In other words the acquisition of a method of study comprehends a series of different processes because when studying all factors which characterize a person are involved (Cajola & Traversetti, 2016).

5.3.2 Computers

Computer is a very efficient resource but it has to be bear in mind the factor time. In fact, it is fundamental that students who use the computer spend the same amount of time as their peers to do a task, otherwise it can lead to failure. Fortunately, typing can be as fast as writing after some practise (Fogarolo & Scapin, 2010).

Due to their complexity, computers can be used in different ways. For example:

- by using their standard **programs of word processing** (even if there are also some specific ones) which allow students to simplify the revisions of the text they have composed. Generally, the result will be a orderly, standardised and more easily legible text. The clearance of the text is fundamental to proceed with its revision and usually students are frustrated when it is the teacher who underlines their mistakes. This discourages students with dyslexia but the situation is really different when they see their mistakes underlined on the computer screen. In both cases the correction is done by underlying the word in red but if it is done by the computer students feel helped by it and not humiliated.

  In addition to these general advantages, suggestions given by the spellchecker make the students verify and make a comparison among possible solutions. It has been proven that this activity of lexical comparison increases orthographic lexis. In other words, it improves students' writing ability (Stella, 2001).

Finally, there is also the possibility to have mistakes automatically corrected by using the **automatic spelling correction software**. On the subject, a research was made in order to understand the consequence of the constant use of automatic autocorrecting software. In this research were involved 49 undergraduate students attending Cardiff University. Its results showed that automatic autocorrecting software can lead to a better assimilation and recall of the contents and generally to a better comprehension and writing (Hiscox, Leonavičiūtė & Humby, 2014).

Jordan underlined also that with this method students with dyslexia can have more self-confidence which improve "their self-esteem, academic achievement and future career choices" (Jordan, 2002; Hiscox, Leonavičiūtė & Humby, 2014).

- by using the **speech synthesis** which allows students to have a text read by the computer. This tool has both advantages and disadvantages such as the expressivity of the reading voice. As said before it is important to link writing to something visual and in this case it can be realised by letting the student know at any time the word that is being read. There are also two systems that can be adopted in order to maintain the sign of the word that has to be read. The first one, consists in the highlighting of the word that has been read which, generally, change colour. The second one, consists in the highlighting of a text section by the student and then activate the speech synthesis to it so that the student knows exactly which part of the text is being read. In this way, reading becomes an active operation because it is the student who controls the word flow according to their need.

- by using **online encyclopaedias**, **dictionaries** and **translators**. There are also some multimedia encyclopaedias that have the possibility to copy the text so to have it read by a software of speech synthesis.

5.3.3 The recorder

Even the recorder is a useful resource for students with dyslexia. It consists in adapting a tool which already exists to another use.

It has many advantages such as the fact that the human voice is more expressive and this facilitates comprehension and attention. In addition to it, in this way students are more independent from the computer and it means that they can hear it for free and everywhere.

On the other hand, it is very difficult to integrate the recorded voice with the visual support and for written books, it is necessary someone (better if an expert reader) who reads aloud and record it. Obviously, this process requires many time (and sometimes money too) so it is for this reason that the recorder is rarely used as a daily compensatory tool.

If it is used at school it can be a helpful resource. Students can record their lessons which are automatically saved and listen to them at home (Fogarolo & Scapin, 2010).

5.3.4 Maps

There are different definitions of concept maps, for example Gineprini and Guastavigna (2006) defined them as a graphic representation of concept expressed in a synthetic form (word-concept) inside of a geometric form and

linked among them by lines which have the function of showing relations among words thank to connectors as it is showed by the following map.

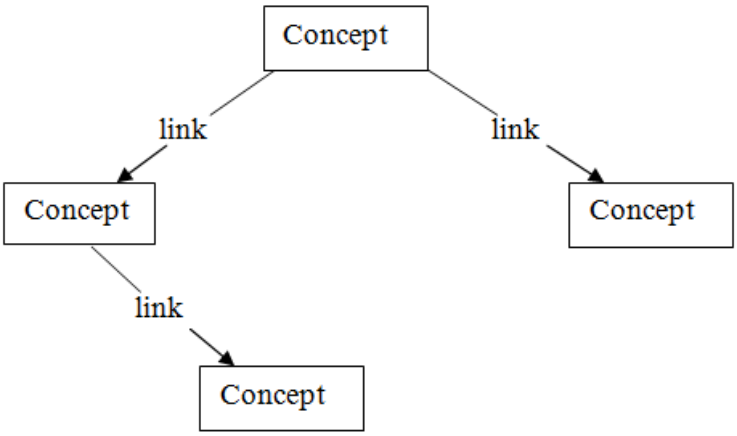

Figure 4 Key elements of a concept map.
(Source: Fogarolo & Scapin, 2010)

Representation is characterized by subjective and objective traits and it is of interest to underline also that there are three kinds of maps: **cognitive** and **concept** maps, which represent how knowledge is organized in the mind and **structural maps**, which represent knowledge areas assimilated and structured by the person in an objective way (Fogarolo & Scapin, 2010).

Representation through maps is one of the most powerful compensatory strategies that students with SLD can use. They are useful, above all, because they integrate textual communication with the visual one and it is, as said before[6], particularly adapt for students with reading difficulty.

In this case, computer can be used to realize a project which has to be develop by a person after having understood the structure and organization of represented information. In fact, maps can be made by hand but for students with dyslexia it is preferable to use a computer which can help them organise

[6] See paragraph 5.3 Compensatory tools p. 51

the space and the ideas and maintain the forms, colours and fonts having as a result the facilitation of their writing and reading (Fogarolo & Scapin, 2010).
A map may have also different structures which can be preferred according to the purpose:

- In the **radial structure** the map is organized around a central concept to which secondary connections are linked in different directions. This structure is particularly useful in the case a map has to be integrated or updated so it is perfect for the brainstorming[7].

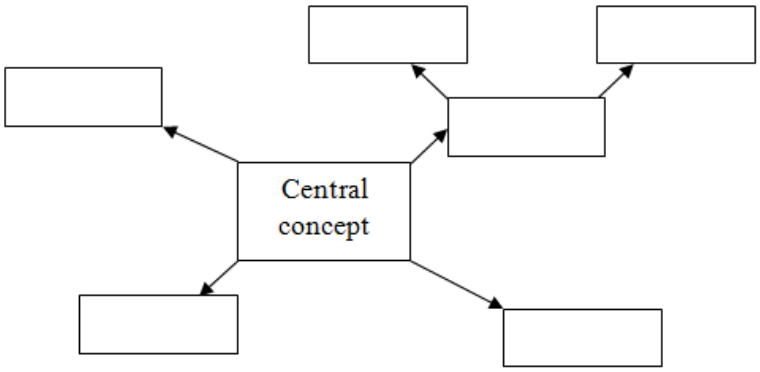

Figure 5 Map with radial structure.
(Source: Fogarolo & Scapin, 2010)

- The **vertical structure** shows the concepts with branches from the top to the bottom. In this case it becomes fundamental the order in which links are organised.

[7] Brainstorming is "when a group of people meet in order to try to develop ideas and thinks of ways of solving problems". Longman dictionary of contemporary English, Longman (2009).

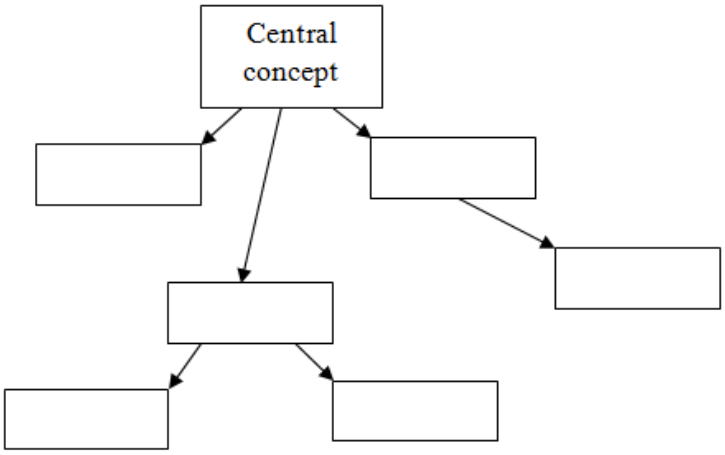

Figure 6 Map with vertical structure.
(Source: Fogarolo & Scapin, 2010)

- The **reticular structure** implies the concepts to have neither a sequential order nor a hierarchy and this means that its consultation can proceed from any directions and can start and finish at any point.

  Due to its characteristics, this structure has to be used with caution and it is better if it is composed with different font or colours so to facilitate the reading (Fogarolo & Scapin, 2010).

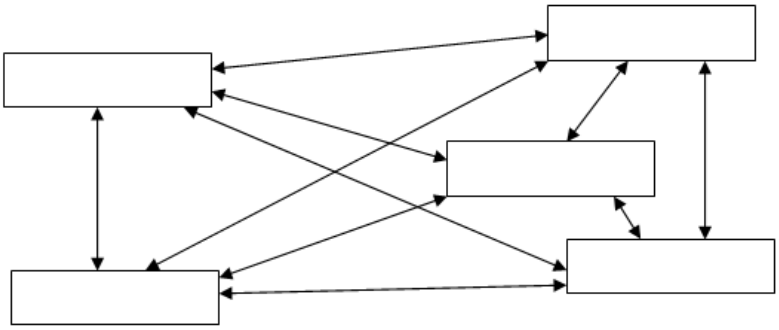

Figure 7 Map with reticular structure.
(Source: Fogarolo & Scapin, 2010)

These maps are useful not only for students with SLD but also for their peers because they help to organize their knowledge and facilitate the elaboration, comprehension and memorisation of new information. In general, they are helpful above all for students with dyslexia because their consultation consists in a graphic analysis, in fact the text to decode is composed just by few words so, also a student with dyslexia, with the adequate practice, is able to read and understand them without any problem. In addition to it, even when they have to study big contents, they are united in little space and this facilitate their visual memory (Fogarolo & Scapin, 2010).

5.3.5 Other compensatory strategies: lists and tables

In addition to computers, recorders, maps and the study method there are other compensatory tools that can be used by students with dyslexia. They are, for example: lists and tables. According to the students' needs and the class they are attending, lists can be about months, units of measurements, geometric formula, Italian regions, chemical elements and so on.
All these tools aim to compensate memory difficulties but they positively influence also comprehension and planning processes (Fogarolo & Scapin, 2010).

5.4 Tools and measures' application according to students' needs

In this paragraph will be presented some examples of how compensatory tools and dispensatory measures can be applied according to students' needs.

When students read slow and make mistakes when reading it is likely that they have also difficulty in written comprehension. In order to help them with this problems the following compensatory tools and dispensatory measures can be adopted:

- The use of the computer with speech synthesis, the recorder and digital dictionaries (even during tests);
- Concept maps to summarize the main concepts;
- Have the instructions read by the teacher;
- Avoid asking them to read aloud;
- Substitute written tests with oral ones and let them use their maps.

If there is difficulty in the automatism of writing and reading it is necessary to:

- Avoid to make students take notes, copy texts or expressions and dictation exercises;
- Give them notes or any other kind of support (digital too) so to integrate books;
- Let them use the recorder.

If for students it is difficult to remember categorisations a solution can be:

- To promote the use of maps;
- To use tests with multiple choices and to give more importance to the correctness of grammatical forms instead of their theoretical acquisitions;

If the problem is to recall knowledge to memory it will be helpful to:

- Promote the use of maps during oral exams;
- Avoid demanding mnemonic study.

If the student gets tired too easily it can be useful to:

- Plan oral exams and tests and avoid their superimposition;

- Avoid asking them for doing tasks the last hours of school time;
- Reduce the amount of homework.

Finally, in order to promote metacognitive[8] activities teachers can:

- Promote preview, mental representation, visual mnemonic techniques and personalized study abilities;
- Evaluate contents and no the forms;
- Promote control and self-verification mechanisms;
- Reinforce students' self-esteem by avoiding underling just their difficulties.

(Russo, Misure compensative ed ausili informatici per i bambini con Disturbo Specifico dell'Apprendimento[9])

5.5 Are these tools and measures useful if used alone?

Compensatory tools and dispensatory measures are, without any doubt, fundamental in order to help students with SLD but it is important to underline also that they are not the solution for their difficulties. In fact, they cannot solve the problems as it happens when short-sighted people buy their first pair of glasses.

Speaking of which, Fogarolo and Tressoldi made a research in 2011 which stated that these tools and measures, in order to be alternative or complementary means to help students who need them, have to be accompanied with a phase of learning of their use in order to be really useful.

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[8] Metacognitive is the awareness that a person has about their cognitive abilities (and so brain functions). Cognitive abilities are brain-based skills we need to carry out any task from the simplest to the most complex.

[9] Russo, V. *Misure compensative ed ausili informatici per i bambini con Disturbo Specifico dell'Apprendimento* http://www.scuolebrofferio.it/wp-content/uploads/2012/12/strumenti_compensativi_e_dispensativi.pdf, date of consultation 16/08/17

Technologies can almost entirely substitute traditional tools in both reading and writing and they can be used without any problem at school and at home. In certain situations they are used as supports or just at home.

It depends on the cases in fact, it is a matter for IEP[10], which clarify also the use of these measures and tools for each student, according to the student's clinical conditions.

Anyway, it is preferable, when possible, to limit their use just to some field, for example reading or writing (Fogarolo & Tressoldi, 2011).

As said before[11], it is not sufficient to give students the tools they need. In order to be really efficient students have to learn to use them in the right and proper way. As a consequence training is fundamental to actually make these tools effective. In order to do so, before starting it is important to control the presence of all the conditions needed to guarantee the success of students' training process. There are two types of conditions: personal and environmental.

The former considers all the aspects concerning the person. In other words, the field of student's psychology is taken into consideration. Generally, personal conditions refer to lack of both motivation and acceptation. Motivation is, in fact, fundamental in order to learn anything[12], and without it there is no acquisition of new notions. Acceptation too is important but if problems come from the fact that students refuse all this for the fact that they feel they are different from their peers, limit their use just at home during individual study can be a solution.

On the other hand, the latter needs at least an adult at school or at home who can help student during the beginning of their training. At this point it becomes

[10] See paragraph 4.1.1 Individualized Education Program (IEP) p. 36

[11] See paragraph 5.3 Compensatory tools p. 51

[12] See paragraph 3.2 The importance of emotions p. 32

obvious that there has to be a good communication among the student and their family and school (Fogarolo & Tressoldi, 2011).

Final decision about the possible adoption of compensatory tools is based on the comparison between the advantages and disadvantages due to their use. In other words, advantages have to be more than the disadvantages.

Convenience depends on students' needs, advantages (better marks and less working time) but also possible side effects, such as discomfort, complications and risks of being "labelled" because of them, have to be taken into consideration. These side effects are not fixed or absolute, they depend on the student's attitude, competences and environment (Fogarolo & Tressoldi, 2011).

Fogarolo and Tressoldi have proposed two general categories according to the intensity of the disorder: severe disorder and minor disorder.

The former refers to students with reading and writing abilities below average and due to the seriousness of this disorder, in these cases the only possible solution is to adopt compensatory tools which can only produce advantages for students.

The latter involves all the other situations in which it is necessary to consider both the efficacy of the non-technological tools that students already use and possible side effects of the introduction of technological ones.

Generally, it can be said that with young students[13] technological compensatory tools can be positively used while older ones, who have already found their method of study, usually have less motivation for their adoption even if it is mostly during middle school that compensatory tools are introduced to students.

Usually, minor disorders can be compensated in an efficient way through the organization of reading time, the improvement of the method of study and the limited use of the computer (Fogarolo & Tressoldi, 2011).

[13] In this case, the expression "young students" refers to students attending primary school and the first years of middle school.

5.5.1 The case of the campus of San Marino

AID[14] in collaboration with the University of San Marino, the Developmental Dyslexia Research Institute (IRIDE)[15], University of Urbino and the cooperative Anastasis have organised four campus to which have participated 60 Italian students aged between 10 and 14 years with severe dyslexia. The aims of these campus were to underline the importance of technological tools and metacognitive[16] strategies for written comprehension in order to make students reach scholastic success and to increase students' motivation and self-esteem.

Regarding this last point, it has been observed that students have arrived to the campus with low levels of self-esteem, scared and discouraged. It has already been noticed[17] that dyslexia can have serious psychological consequences, such as the "learned helplessness". In this case students appear listless and without the desire to redeem themselves (Stanovich, 2004; Berton, Ciceri, Craighero, Dazzi, Grandi, Lampugnani, Meloni, Peroni, Savelli, Staffa & Stella, 2006).

During these campus students were asked to do typical scholastic tasks with the help of a computer so to increase their motivation (which results fundamental for learning)[18] and curiosity by: creating a facilitative work environment, proposing alternative way of learning such as the use of different senses or of maps. These campus were addressed to both students and their parents because families usually participate actively to their children's disorder. It is for that reason that parents attend more and more frequently the campus. In fact, it is a

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[14] See paragraph 4.1.3 Italian Dyslexia Association (AID) p. 38

[15] This institute unites three different Italian University: the one of Modena and Reggio Emilia, the one of the studies of Urbino and the one of the studies of Insburia (Varese). Sos Dislessia http://www.sosdislessia.it/chi-siamo/, date of consultation 19/08/17

[16] See note 8 p. 62

[17] See paragraph 2.2 Connection between self-esteem and dyslexia p. 24

[18] See paragraph 3.2 The importance of emotions p. 32

very important resource because parents often support their children, also during their homework, but the problem in this it is that they sometimes tend to do the homework instead of their children. It is due to many reasons: they try to help them, there is no many time for them to stay together etc. but they do not realize that, in this way they reinforce their children's loss of confidence. Anyway, by attending these kinds of campus also parents learn new strategies in order to really help their children. For example, they have to learn to support the use of compensatory tools by continuing helping their children and not substituting them in doing their homework (Berton, Ciceri, Craighero, Dazzi, Grandi, Lampugnani, Meloni, Peroni, Savelli, Staffa & Stella, 2006).

As a result, students who attended these campus improved their scholastic performance. In detail, they improve the quantity and quality of activities done and regarding the psychological field, they demonstrated to have more and more motivation to face new tasks by using compensatory tools.

The introduction of technology implies a new didactic adopted by teachers and new way of learning for students with dyslexia.

During these campus it has been proved the efficacy of studying with maps. In fact, students were asked to report a text that they themselves had found in the Internet. The first time they reported it right after they found it, while the second one they were allowed to present it after four days and with the help of a map they had used to summarize it.

Results showed that the second presentation was, for each student, more organized and accurate than the first one, in both the choice of the lexis and of the quantity of notions. In addition to it, students reported it with both more confidently and clarity, as researches had hypothesized (Berton, Ciceri, Craighero, Dazzi, Grandi, Lampugnani, Meloni, Peroni, Savelli, Staffa & Stella, 2006).

5.6 Application of compensatory tools and dispensatory measures in Italian schools

Students use more frequently computers at home than at school but this situation has to change in the future in order to make them use technological compensatory tools at school (Fogarolo & Scapin, 2010).

In order to do so and transform classes into more technological ones, the "Piano Nazionale per la Scuola Digitale", "Piano LIM" and the project "Cl@ssi 2.0" have been introduced (Ghidoni, Valenti, Ventriglia, Gozio & Craighero, 2012).

On the subject Ghidoni, Valenti, Ventriglia, Gozio and Craighero did an interesting research in 2012. Thank to the use of a questionnaire, filled in by more than 3.000 teachers, from all over Italy, who had attended a training course[19] on SLD. The aim of this research was to verify what "facilitations", provided for by the law 170/2010[20], have been introduced in Italy to help students with SLD.

The questionnaire investigated the following aspects:

- General knowledge of teachers about SLD;
- The adoption of technological tools to compensate students' disorder in the schools they work for;
- The adoption of forms of evaluation adequate for students with SLD;
- The use of compensatory tools and dispensatory measures.

(Ghidoni, Valenti, Ventriglia, Gozio & Craighero, 2012)

These questionnaires were given to teachers from Piedmont, Emilia Romagna, Tuscany, Abruzzo, Calabria and Sardinia and results showed that resource distribution is not homogeneous among Italian regions. In fact, north regions

[19] In some regions one-day training courses were organized while in others there have been planned advanced training courses which involve three meetings for teachers of middle and high schools.

[20] See paragraph 4.1. Italian law on dyslexia p. 34

appear to use more resources than the south ones. In addition to it, results underlined that, generally, dispensatory measures are more easily applied than compensatory tools and this is due to the fact that they do not need dedication, resources or tools and among compensatory tools, the ones without technological traits are more frequently adopted, such as tables, schemas and maps.

Before analysing in more details the results it is important to bear in mind the limits of this questionnaire. In fact, teachers who participated had all participated to a training course so they were interested in the subject but just 60% of the questionnaires have been filled in, moreover, it is not possible to verify if data really corresponded to reality (Ghidoni, Valenti, Ventriglia, Gozio & Craighero, 2012).

The majority of teachers of Piedmont, Emilia Romagna, Tuscany and Sardinia know the laws concerning SLD while there seem to be a computer lab in almost all schools with Internet connection while there is a general lack of computers in all classes.

Special evaluation for students with SLD is globally applied, except for computerised texts.

Regarding the use of compensatory tools, it is of interest to notice that even in the regions where there is a better situation they are not very used. For example, recording the lessons is really frequent in Piedmont (with almost 70%[21]) while this practice is not so used in Calabria (almost 17%). Digital books generally are not very used in fact their use percentage do not exceed 20% (with the exception of the Emilia Romagna with 36%). Tables and maps are the most used with percentages over 72% and the maximum of 92% in Emilia Romagna while Calabria recorded the lowest percentage (49%).

[21] All percentages are rounded off upwards.

The percentages about the use of calculators, audio resources, software and online dictionaries are very similar among these regions, but what surprise the most is the use of computers with speech synthesis. They are used the least in Calabria and Abruzzo (11-12%) and in the other regions they do not exceed 20% except Emilia Romagna with 24%.

As said before, dispensatory measures are more easily adopted than compensatory tools but results showed that there is big discrepancies even in their use. In fact, Piedmont, Emilia Romagna and Tuscany seem to be the ones that use them the most (60-80%), then there are Sardinia and Abruzzo with 50-60% and finally Calabria with 30-40%. It has to be noticed also that the dispensatory measures more adopted is extra time during texts while the least used is the exoneration from copying from the blackboard (Ghidoni, Valenti, Ventriglia, Gozio & Craighero, 2012).

5.6.1 In Veneto

Regarding the situation in Veneto the Venetian coordination of AID[22] in 2008 did research about the efficacy of the computer used as compensatory tools for students with SLD. For this intent, they gave a questionnaire to almost 100 students with SLD, all attending from the 4th class of primary school to the high school (so they are aged between 11 and 19 years old) in Veneto. They have the following disorders: 35% of students has dyslexia, 55% has dyslexia associated with dysgraphia, dysorthography and dyscalculia while 10% has no dyslexia and for 65% of the students the use of the computer as compensatory tool is provided, while 30% of students has a special need teacher. In detail, the aim of the questionnaire was also to investigate the role of the school: if it has helped

[22] See paragraph 4.1.3 Italian Dyslexia Association (AID) p. 38

students use these tools or if it has had a negative attitude toward technological tools. It is important to bear in mind that it is not easy to evaluate the efficacy of compensatory tools by using a questionnaire due to the fact that rarely students with SLD who use the computer have the opportunity to make a comparison between their performances with the ones of their peers with difficulties similar to their ones and it means that they have not general references about computer skills to which compare their ones (Fogarolo & Scapin, 2009).

Results showed that the majority of students have a computer at home but just one in five has it at school. Generally, it can be said that, although having adequate tools, students use the computer just for surfing the Internet, sending e-mails etc. so they use it the same way as their peers without any disorder. In other words, they do not use it as a compensatory tool.

In certain situations students reported that they have the feeling that the use of the computer during classes is not well-accepted by their teachers but, compensatory tools are usually used as dispensatory ones and so teachers let students to use them without a real participation in educational aspects (Fogarolo & Scapin, 2009).

VI. EXPLORATORY STUDY

The intent of this chapter is to provide a brief but complete presentation of the present project but also of the studies done regarding the connection between self-esteem and dyslexia and between emotions and dyslexia. It can be noticed that the border between emotions and self-esteem concerning dyslexia is not so clear but in the following paragraphs an attempt to divide them in two different categories will be made.

6.1 Brief description of the present project

The aim of the present study[1] is to investigate how the use of compensatory tools and dispensatory measures affect students' self-esteem. In particular of 20 students with dyslexia who attend a middle school in Veneto.

Seen the importance and the increasing diffusion of dyslexia, a lot of research have been done in order to try to clarify this theme. In detail, the present project will take into consideration the effects that these tools and measures has on adolescents' self-esteem. For this intent it has been asked students to fill in the Italian adaptation of the questionnaire "Five Scales Test of Self-Esteem for Children" made by Pope, McHale and Craighead. In this way, it has been possible to analyse students' self-esteem divided into four different domains: academic, bodily, familial and interpersonal. In addition to this questionnaire it has been formulated a new one in order to obtain students feelings and impressions concerning their use of compensatory tools and dispensatory measures.

[1] This study will be analyse in detail in the following chapter VII. METHOD p. 85

As said before, a lot of studies and research have been done concerning dyslexia but no one was interested in how much and in what way these tools and measures influence students' self-esteem. They paid attention, above all, to the connection between dyslexia and self-esteem in general (which is a fundamental theme in order to really understand consequences of this disorder and how to help people who have it) and between dyslexia and emotions (even if there is a smaller number of research about this theme).

6.2 Research concerning dyslexia and self-esteem

Many research have been made concerning the influence of dyslexia in people's self-esteem. For example, Chapman noticed that people with learning disability are more likely to see themselves in a negative way (in all aspects) in comparison to their peers. This statement was based on the majority of studies made between 1974 and 1986 (Chapman, 1988; Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016).

During the years, it has been discovered that this negative self-image concerns only the academic field and not their general thought about themselves (Sabornie, 1994; Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016).

Marinelli, Romano, Cristalli, Franzese and Di Filippo did research in 2016 concerning the levels of self-esteem of children with dyslexia and, in detail, how children's gender and age affected it. In addition to it they analysed also if dyslexia influences just the academic domain of self-esteem or also the others. For this research 41 students (12 attending the 2nd year, 22 attending the 4th year and 7 of the 5th year all of primary school) with dyslexia participated by filling in some tests about reading ability, the presence of dysorthography and depression and the attribution of success and failure. Results showed that not only do people with dyslexia have low level of self-esteem in the academic field

but they have a deficit also in the others. Generally, girls resulted to have lower self-esteem than boys but they all seem to attribute their success to internal causes and their failure to external causes. Anxiety due to school is experienced only by bigger girls (Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016). It can be said that reading difficulties make people with dyslexia think that they cannot do it and this thought increases the possibilities of failure (Hiebert, Wong & Hunter, 1982; Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016).

Moreover, students' self-image created at school influences their personality and the sense of incompetence and it is a problem in making new friends because usually when classmates choose their friends, they base their choice on their scholastic results and teachers' praise (Gadeyne, Ghesquiere & Onghena, 2004; Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016).

As a consequence, people with SLD tend to stay alone because of the small number of their friends, they usually prefer avoiding social activities and are less accepted than their classmates. They are often refused by their peers because of their relational, behavioural and scholastic difficulties. All this lead students to have low levels of self-esteem (Kuhne & Wiener, 2000; Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016).

The theory of Seligman on "learned helplessness" seem to explain why students with dyslexia are more likely to suffer from depression. In fact, in his opinion when a person feel that they can do nothing in order to control what surrounds them, they tend to suffer from depression. In general, if failures are connected with incompetence and so with something that cannot be controlled they develop the learned helplessness, on the contrary, if they are due to lack of effort a solution is possible (Dweck, 2000; Marinelli, Romano, Cristalli, Franzese & Di Filippo, 2016).

In 1973, Rosenthal did research about the development of self-esteem in children with dyslexia. In doing so participants were asked to fill in the

Coopersmith Self-Esteem Inventory questionnaire. The group of participants was composed by children with dyslexia from both understanding and non-understanding families, children with no difficulties and children with asthma (who were included because they too had a disability which is well-known). Thank to this study it has been demonstrated first of all that children with a disability (in this case dyslexia and asthma) have low levels of self-esteem and between people with dyslexia, the ones living in families who understand their difficulties have better levels of self-esteem than the ones with non-understanding families (Rosenthal, 1973; Humphrey, 2002).

An interview of 22 children with dyslexia, their parents and teachers, revealed that they felt "disappointed, frustrated, ashamed, fed up, sad, depressed, angry and embarrassed by their difficulties" (Riddick, 1996; Humphrey, 2002). In addition to it, about half the children interviewed reported "they had been teased about their difficulties and many had had bad experiences in mainstream education involving teachers who were ignorant of, or did not acknowledge the existence of, dyslexia" (Riddick, 1996; Humphrey, 2002).

Since 1999 it was discovered that having a good self-esteem has a positive functioning of the ego and a sense of control. On the contrary, having low levels of self-esteem can lead just to anxiety and depression[2] (Mruk, 1999; Humphrey, 2002). As a consequence, it has been demonstrated that children having low levels of self-esteem had the wish to be someone else, and in each case this "new person" was someone popular and without dyslexia (Maines & Robinson, 1988; Humphrey, 2002).

People with dyslexia and low levels of self-esteem are not always anxious they can react the opposite way in fact, they can become aggressive by denigrating

[2] See paragraph 6.3 Research concerning dyslexia and emotions p. 79

the others and bragging. This kind of behaviour is typical when the person in question denies their conditions (Humphrey, 2002).

Other research showed that students who have learning disabilities manifest low self-concept during reading tasks and even if with the years they will have a more positive idea about themselves, during reading tasks they will tend to keep a low self-concept (Bender & Wall, 1994; Bender, 2008; Zeinab, Mihandoost, Elias, Nor & Mahmud, 2010). It has been found that students with and without learning disabilities have the same general self-concept, but when it comes to the academic field, students with difficulties show to have lower self-concept than the ones without learning disabilities (Kloomok & Cosden, 1994; Zeinab, Mihandoost, Elias, Nor & Mahmud, 2010). It has to be underlined also that self-concept regarding the academic area has to take into consideration many factors in different subjects but it is of interest to know also that many studies have been conducted on the possible influence of the scholastic setting. It resulted that students with dyslexia who went to schools specialized for learning disabilities showed better self-concept than the ones who went to mainstream schools even if this discrepancy is not so deep concerning the other domains (Crozier, Ress, Morris-Beattie and Bellin, 1999; Humphrey, 2002; Zeinab, Mihandoost, Elias, Nor & Mahmud, 2010).

As reported in the second chapter[3] parents, teachers and peers' understanding is fundamental in order for people with dyslexia to have a better self-concept (Terras, Thompson & Minnis, 2009).

Regarding self-esteem, Terras, Thompson and Minnis did a study in 2009. Their purpose was to investigate specific aspects of children with dyslexia, in particular, they wanted to analyse their self-esteem and socio-emotional and behavioural difficulties. In this study 68 children participated, all aged between

[3] See paragraph 2.5 Research on the connection between self-esteem and dyslexia p. 26

8 and 16 years old (44 males and 24 females). All these aspects were looked into by the use of some questionnaires and results were the same as the ones of the other studies and therefore children with dyslexia have lower levels of self-perception in the academic domain than people without this disorder. With respect to the relationships between people with dyslexia and their peers and family, it resulted that this kind of difficulties (such as reading ones) affect negatively also these relationships even if the majority of the parents and half of the children who participated to this study, reported to have a good understanding of their difficulties and parents stated their children to have less problems in building relationships with their peers, when they have a positive attitude towards their disorder. In conclusion, thank to this study it is possible to notice that both attitude and understanding of the difficulties have impact on people's self-esteem and on their relationships. In fact, having a positive attitude and a good understanding will lead to higher levels of self-esteem and to the building of good relationships with both their family and peers and, as a consequence, children who have a positive attitude towards their difficulties reported to have a better perception of their academic abilities but also of their global self-concept (Terras, Thompson & Minnis, 2009).

This study revealed also that half of the children that participated had been bullied because of their disorder and they protected themselves by concealing their academic failures and emotions or by considering just their academic successes obtained when reading was not required (Terras, Thompson & Minnis, 2009).

Another research concerning dyslexia and self-esteem was done by Leonova and Grilo in 2009. In this research 66 children (35 with dyslexia and 31 as control group) participated. They all lived in Switzerland and spoke French and the ones with dyslexia attended schools specialized for students with spelling and reading difficulties. They did a questionnaire about self-esteem done by Harter so to

analyse all different domains of self-esteem and results showed that students attending specialized schools have better levels of self-esteem than the ones attending normal schools and this is due to the fact that specialized schools give students the opportunity to make a comparison between themselves and people having their same difficulties and that can improve their self-esteem, in particular in the academic domain. It is important also to bear in mind that this study has its limitations, such the small number of participants and the fact that students were from just one specialized school (Leonova & Grilo, 2009).

6.2.1 Teachers' attitude towards dyslexia

Sometimes it happens that teachers refuse to believe that their students have dyslexia and the risks of this kind of situation is that students are "labelled" with adjectives such as "lazy", "thick" or "stupid" by their own teachers (Humphrey, 2002). On the contrary, teachers who understand learning difficulties develop also the ability to deal with them (Gwernan-Jones & Burden, 2010) and this is thought to be fundamental for the learning of students with difficulties. In fact, it has been proved that teachers' beliefs concerning learning disabilities influence their teaching success (Bramwell & Pajares, 1999; Gwernan-Jones & Burden, 2010) in fact, the higher is their level of self-efficacy, the more they are open to try new methods and ideas (Tschannen-Moran & Wolfok-Hoy, 2001; Gwernan-Jones & Burden, 2010). Relationship between students and teachers is really important above all if students have learning difficulties because their disorder can cause academic failures but if they have a good relationship with their teachers, they can emotionally support and motivate their students (Murray & Malmgren, 2005; Pasta, Mendola, Prino, Longobardi & Gastaldi, 2013) and, as a consequence, they are more cooperative and hard-working and they can

obtain better academic results (Meehan, Hughes & Cavell, 2003; Pasta, Mendola, Prino, Longobardi & Gastaldi, 2013).

The fact that students are "labelled" with the word "dyslexia" has negative consequences not only in students' self-esteem, but also in teachers' behaviour. In fact, when some teachers know the diagnosis of dyslexia of some of their students they may expect less from them than from their classmates and if teachers consider dyslexia as a permanent disorder they will not interact with them as much as they do with the other students. Research has been done in order to understand if teachers' expectations can influence students' academic results. In doing so, 9 male and 21 female Dutch teachers participated to this study and were asked to choose some of their students for the research. As a result also 307 students (46 with dyslexia and 261 without) participated. For this study the "implicit and explicit teacher attitudes, teacher expectations, teacher-dependent measure of student achievement and teacher-independent measure of academic achievement and the control variables (such as students' gender and the possible presence of behavioural disorders)" were analysed (Hornstra, Denessen, Bakker, Van den Bergh & Voeten, 2010). To discover teachers' implicit attitudes towards dyslexia it has been used an evaluative priming task[4] using as prime the word "dyslexia" which was presented for a very short time and then it was analysed the word's evaluative connotation. Regarding explicit teacher attitudes, teachers were asked to fill in a questionnaire and to measure their expectations they were asked to evaluate some of their students'

[4] The basic idea of this kind of tasks is that "many or most of the associations between concepts are actually stored in human memory. When a respondent is thus presented with a word or picture (the prime) this can activate an evaluative (positive or negative) attitude in memory. In other words, the priming task measures whether exposure to a prime facilitates the response to negative target words or, alternatively, positive target words" (Hornstra, Denessen, Bakker, Van den Bergh & Voeten, 2010). It means that when a person has a negative attitude towards a prime, the following expositions to that prime will respond with negative connotations (Hornstra, Denessen, Bakker, Van den Bergh & Voeten, 2010).

characteristics. For the teacher-dependent measure of student achievement students chosen for this study were asked to write a short story. Since it is impossible to objectively evaluate this kind of composition, the marks given by teachers will reflect their prejudice for students with dyslexia and finally, tests with standardized scores were used to analyse teacher-independent measure of academic achievement.

Thank to this study it has been possible to notice that teachers prefer not to express explicitly their attitude toward dyslexia and students with this disorder because they know it would be socially undesirable. This statement can explain the discrepancy between explicit and implicit attitudes data. In fact, the former show that teachers have positive attitudes, while the latter showed negative attitudes (Hornstra, Denessen, Bakker, Van den Bergh & Voeten, 2010).

6.3 Research concerning dyslexia and emotions

Not many research have been done regarding the connection between dyslexia and emotions even if it is thank to the emotional intelligence that it is possible to deal with people and with the surrounding environment. In other words, it is fundamental to live. In more detail, the expression “emotional intelligence” can be defined as “the ability to perceive emotions, to assist thought, to understand emotions and emotional knowledge, to reflectively regulate emotions, to promote emotional and intellectual growth” (Mayer, & Salovey, 1997; Giri, 2014). “Emotional intelligence can be applied to express the quality of relations, understanding people’s emotions, sympathizing with others and being able to exploit a favourable mood. In fact this intelligence includes identifying one’s own feelings as well as others’ and applying it to make wise decisions in the daily life” (Narimani, Sadeghi, Homeily & Siahpoosh, 2009).

Regarding people with dyslexia, research showed that not only do they seem to have different emotional intelligence than people without learning difficulty but they also have socio-emotional problems such as, low levels of self-conception and self-management, anxiety and they avoid doing particular tasks because they do not tolerate their failure which is due to their disorder. They have poor self-esteem and are confused in social situations. The fact that they have learning problems and so academic difficulties make them become depressed, distressed and angry and all this usually causes relational problems (Narimani, Sadeghi, Homeily, & Siahpoosh, 2009).

The presence of a connection between emotional intelligence and behaviour disorders was demonstrated in 2007 thank to research done by Narimani, Sadeghi, Homeily and Siahpoosh with the help of two questionnaires (the "Behaviour problem questionnaire rater B", whose aim is to underline different aspects of children: with no problems, with emotional disorders, with discriminability deficit and with behavioural disorders, and the "Emotional intelligence questionnaire") distributed to 60 Iranian students from learning disabilities centres and 80 students of the 3rd class of a middle school in Iran. Results of this study, whose aim was to make a comparison between emotional intelligence and behavioural disorders in both people with and without dyslexia, showed that there is a connection between these two factors. To be more specific, there is an adverse relation between emotional intelligence and behavioural disorders. It means that, in cases with high levels of emotional intelligence there will be low levels of behavioural problems and the same is for the opposite situations (Narimani, Sadeghi, Homeily & Siahpoosh, 2009).

From this study, it is also clear that people with learning disabilities are more anxious than the ones without any kind of disabilities and this fact is due to their level of emotional intelligence which appears to be lower in anxious people (Narimani, Sadeghi, Homeily & Siahpoosh, 2009).

Samuel Torrey Orton was one of the first who studied emotional aspects of dyslexia. He discovered that children with dyslexia have no problems until they go to school. In fact, from that moment they will be taught written language and their disorder will be an obstacle for learning. As the years passed their frustration will grow because they cannot cope as well as their peers with reading ability (Ryan, 2006). Often frustration in people with dyslexia is due to the fact that they are not able to meet their parents and teachers expectations and they are not able to reach their objectives (Ryan, 2006).

Their problems concerning social relationships are due to a poor self-image which leads, as a consequence, to a less acceptation by their peers, they usually can be clumsy and a lot of people with dyslexia have also difficulty in understanding social stimuli (for example, they do not "respect" the right interpersonal distance). In addition to it, dyslexia can hit also the functioning of oral language and it can be shown through spending a lot of time to answer a question with the right words, stutter etc. and all of this put them in a disadvantaged position in comparison to their peers (Ryan, 2006).

The most frequent emotional symptom felt by people with dyslexia is anxiety and it is due to the fact that they are scared, frustrated and confused at school. They tend to anticipate their failure and new situations can be real sources of anxiety. People who live in this way, have the tendency to avoid everything that scares them and this attitude is sometimes seen as laziness by parents and teachers (Ryan, 2006).

Ryan (2006) underlined also that all the frustration that students feel at school causes anger which is usually directed to their mothers because of their trust in them. This behaviour make parents, who try to help their children, more and more frustrated and confused. This kind of situation can be better solved by children's peers than by their parents, above all during adolescence.

Regarding self-image, as said before, people with dyslexia tend to be anxious and frustrated. According to Erikson[5] when students start school they have to cope with both a positive self-image and inferiority feelings. It means that if they are successful at school they will develop positive feelings and as a consequence they think they will be able to do whatever they want in their life. On the contrary, if they are frustrated and not successful at school they believe to be inferior to the others (Ryan, 2006). In addition to it, it has been demonstrated that when students obtain good marks at school they believe it is due to their efforts and when they fail they try harder. If students with dyslexia are taken into consideration, the situation is not so simple, in fact, they tend to attribute their success to luck and their failure to their inability (Ryan, 2006).
Unfortunately, people with dyslexia and, in general, with learning disabilities are more likely to suffer from depression and this is thought to be due to their poor self-esteem and the fact that they fear to express their anger so it is internalized (Ryan, 2006). They usually show different symptoms from depressed adults. For example, children can become more active and behave in a negative way to hide their pain but both adults and children have a negative self-image, see in a negative way what is around them and believe their life to be full of failures (Ryan, 2006).

6.3.1 Emotions of parents and teachers

Dyslexia is not just a problem of people who suffer from it but it has effects also on their family. For example, it can increase sibling rivalry because children with dyslexia are envied by their brothers because the former receive more

[5] *Lo sviluppo dell'identità personale Erikson* https://elementidipsicologia. wordpress.com/2013/12/18/lo-sviluppo-dellidentita-personale-erikson/, date of consultation 12/98/17

attention than the latter. On the contrary, children with dyslexia do not like all this attention and this can cause negative reaction towards their brothers without dyslexia (Ryan, 2006).

It can happen that parents who have had scholastic problems themselves relive their negative experience (and so their failure and frustration) through their children's experience, or they can deny the existence of their disorder (Ryan, 2006).

Another research was done by Fernández-Alcántara, Correa-Delgado, Muñoz, Salvatierra, Fuentes-Hélices & Laynez-Rubio the current year in order to clarify how parents of children with dyslexia live this situation. For this study 28 Spanish parents (17 mothers and 11 fathers) participated. They were parents of 20 children with learning disabilities.

They reported to feel like "bad parents" because they did not know how to help their children so they feel different sensations such as helplessness (Fernández-Alcántara, Correa-Delgado, Muñoz, Salvatierra, Fuentes-Hélices & Laynez-Rubio, 2017).

Some parents realize that their children have academic problems but they have difficulty in accepting that these problems are due to a learning disability which cannot be treated with hard work and willpower. As a consequence, this kind of parents refuse their children the use of compensatory tools and dispensatory measures because they want their children to be treated as their classmates nevertheless all parents are proud of their children because they make a lot of effort to overcome their difficulties. Finally, parents notice their children with dyslexia to be ashamed, discouraged and to have low levels of self-esteem due also to the fact that they make comparisons between themselves and their classmates with no academic difficulties (Fernández-Alcántara, Correa-Delgado, Muñoz, Salvatierra, Fuentes-Hélices & Laynez-Rubio, 2017).

Research showed that teachers and parents of children with dyslexia should encourage them by: paying attention to their feelings (anxiety, anger and depression), appreciating the effort and not just the results and helping them planning realistic objectives on the basis of their abilities. In addition to it for students it is really important to discover their strong points also by tutoring their classmates without dyslexia. For example, they can help them for scientific subjects and they, in turn, can read for them (Ryan, 2006).

Finally, as said in chapter III[6] Terwogt, Rieffe, Miers, Jellesma and Tolland did research in 2006 about the effects that emotions cause on the body and its link with self-esteem. In other words, they explained why negative emotions (connected with negative thoughts and feelings) provoke more somatic reactions than positive ones. In order to do their research they asked to 189 Dutch girls and 263 Dutch boys (all aged between 8 and 13 years old) to fill in six questionnaires (Terwogt, Rieffe, Miers, Jellesma & Tolland, 2006).

[6] See paragraph 3.3 Research on the relation between emotions and self-esteem p. 32

VII. METHOD

7.1 Subjects

The sample of students that participated to the present study is composed by 20 Italian adolescents (aged between 11 and 12 years old) all attending the 1st and the 2nd years of a middle school in Veneto.

In more detail, 9 (6 males and 3 females) of them are attending the 1st year, while the remaining 11 (1 male and 10 females) are attending the 2nd year of the same school. Having said that, it is possible to notice that the majority of students are females. In fact, in this study only 7 males participated in comparison to 13 females.

They all are diagnosed with dyslexia. In detail, 12 students have been diagnosed when they were 11 years old, 7 when they were 10 years old and one student when they have 9 years old. In addition to it, the use of some compensatory tools and dispensatory measures have been provided for them.

7.2 Questionnaires

In order to investigate if the use of compensatory tools and dispensatory measures, at both school and home, influences the self-esteem of students with dyslexia who use them and if it is in a positive or negative way, it has been used quantitative data. In fact, students were asked to anonymously complete two different kinds of questionnaires which will be described in detail in the following paragraphs.

7.2.1 First questionnaire: “Cosa penso di me”

The first questionnaire “Cosa penso di me” is the Italian adaptation of the “Five Scale Test of Self-Esteem for Children” of Pope, McHale and Craighead.
Among all questionnaires about self-esteem this one has been chosen because it has been designed for people from 9 to 14 years old and it is composed by very clear and grammatically simple statements regarding daily experiences of a typical adolescent. In this way every student have answered to the questionnaire on the basis of their real experience because they could identify with the situations proposed by the statements. In addition to it, in order to complete it, students were asked to give their complete or partially agreement or their disagreement to the items by putting a cross in the box of the desired answer. They were asked to put just one cross for each item by choosing between the following answers: “it is true”, “sometimes” and “it is false”. The fact that the choice was between three answers and not more and the fact that they were very precise and short and not, for example a scale of numbers from 0 to 5 in which 0 corresponds to “never” and 5 to “always”, was another aspect in favour of the choice of this questionnaire because it is necessary to bear in mind that they were destined for people with dyslexia so, in order to obtain realistic data both statements and their answers have to be precise and not too long.
Another reason which led to the choice of this questionnaire is that it is composed by a total of 50 items all belonging to 4 different aspects of self-esteem to which were dedicated 40 items, 10 for each category:

- The **academic domain** which analyse how they see themselves as students. In other words, if they are satisfy with the way they live their scholastic life;
- The **bodily domain** verifies if they feel good with their body and weight or if they want their body aspect to be different from the actual one;

- The **familial domain** is about their relationship with their family: if they feel they are important and considered as much as the other members;
- The **interpersonal domain** wants to investigate their relationships with their peers, their ability to make new friends and their feelings about their situation.

Finally, the last 10 items have been added as a scale of control, which aim is to verify the subjects' tendency to describe a better self-representation.
As said before, every item belongs to a specific category even if in the questionnaire they are not divided by domain but they are presented randomly (to oblige the subjects to read very carefully every statement before answering).
This division in different domains gives the opportunity to analyse self-esteem in all of its aspects because, for example, it can happen that a person has a good self-esteem in the familial domain and not in the academic one and thank to this questionnaire it is possible to differentiate them. In other words, it allows to make a more precise analysis instead of a summary one.

7.2.2 Second questionnaire: "Questionario sull'uso degli strumenti compensativi"

The second questionnaire, called "Questionario sull'uso degli strumenti compensativi", that has been proposed to students has been created for the present study. Its aim is to investigate what their attitude is towards the use of compensatory tools and dispensatory measures. In detail, thank to this questionnaire it has been possible to understand their thoughts and feelings about their use of these tools and measures. In addition to it, it wants to analyse also what they believe that their classmates, parents and teachers think about them using these tools and measures.

The present questionnaire is composed by two parts. The former consists in some questions asked in order to know what kinds of compensatory tools and dispensatory measures are used by students and for how long they are using them. Furthermore, they were asked also if there are other students in their class to have similar difficulties as theirs. In order to complete this part, students were asked to put a cross in a box next to the name of the compensatory tools and dispensatory measures they use and to answer two open questions.

The latter consists in 26 items divided in four groups:

- the first one is the **interpersonal domain** (composed by 7 items) is about the reactions of classmates when students with dyslexia use these tools and measures;
- the second one, the **personal domain**, (composed by 7 items) wants to investigate how students feel when they use these tools (for example if they are happy or frustrated);
- the third one: the **familial domain** (composed by 6 items) is about their parents' attitude towards they using these tools and measures;
- the last one, the **teachers' domain**, (composed by 6 items) is regarding their teachers' thoughts about their use of compensatory tools and measures.

In order to complete this last part, students had to express their total or partial agreement or their disagreement regarding the statements proposed by putting a cross in one of the correspondent box next to them. Options are "it is true", "sometimes" and "it is false".

As it can be noticed, this second questionnaire has the same structure as the first one. In fact, during its creation it has been decided to use the same number and type of answers in order to facilitate its compilation and the comparison between data of the two questionnaires. What is different between the two questionnaires is that this one have the items divided according to their category (in other words, they were not exposed randomly as it happened in the first one). This

decision has been take in order to help students be concentrated to what they were reading and to complete the questionnaire without being confused by the continuing changes of subjects (students in question, classmates, parents and teachers) seen that sentences that have been used are very similar from a domain to the others. In particular items concerning the interpersonal and personal domains are similar to each other, and the same is for the familiar and teachers' domains.

Furthermore, it is possible to recognise the fact that all these statements have been formulated in order to reflect different kinds of emotions. In detail, each item has been formulated in order to reflect one specific emotion so to have clear data regarding how students feel about their situation.

The similarity among different domains and emotions related to the items can be noticed by the following tables.

Figures 8 and 9 Division of the statements of different domains of the second questionnaire into different kinds of emotions.

EMOTIONS	INTERPERSONAL DOMAIN	PERSONAL DOMAIN
Envy	I miei compagni mi **invidiano** perché uso gli strumenti compensativi.	**Invidio** i miei compagni perché loro **NON** usano gli strumenti compensativi.
Sense of guilt	Quando uso gli strumenti compensativi durante le verifiche i miei compagni pensano **stia imbrogliando**.	Mi sembra di **imbrogliare** ad usare gli strumenti compensativi.
Empathy	I miei compagni sono **contenti** che usi gli strumenti compensativi.	Sono **contento** di usare gli strumenti compensativi.

Shame	I miei compagni mi fanno sentire **diverso** quando uso gli strumenti compensativi.	Mi sento a **disagio** quando uso gli strumenti compensativi.
Pride	Quando prendo un bel voto i miei compagni pensano che me lo sia **meritato**.	Quando prendo un bel voto penso di **meritarmelo**.
Offense	I miei compagni mi **prendono in giro** quando uso gli strumenti compensativi.	Mi sento **ridicolo** a usare gli strumenti compensativi.
Usefulness	I miei compagni **capiscono** che questi strumenti compensativi mi servono.	Usando gli strumenti compensativi **studio meglio**.

EMOTIONS	FAMILIAL DOMAIN	TEACHERS' DOMAIN
Sense of guilt	I miei genitori pensano che usare strumenti compensative sia una forma di **pigrizia**.	I miei insegnanti pensano che usare strumenti compensativi sia una forma di **pigrizia**.
Empathy	I miei genitori sono **contenti** che usi gli strumenti compensativi.	I miei insegnanti sono **contenti** che usi gli strumenti compensativi.
Shame	I miei genitori sono **imbarazzati** che io usi strumenti compensativi.	I miei insegnanti sono **infastiditi** quando uso gli strumenti compensativi.

Pride	I miei genitori sono **fieri** di me quando prendo un bel voto.	Quando prendo un bel voto i miei insegnanti pensano che me lo sia **meritato**.
Active usefulness	I miei genitori **mi spronano** ad usare gli strumenti compensativi.	I miei insegnanti **mi incoraggiano** ad usare gli strumenti compensativi.
Passive usefulness	I miei genitori capiscono che gli strumenti compensativi **mi aiutano**.	I miei insegnanti **ritengono utile** che usi gli strumenti compensativi.

It is important to remember that primary emotions[1] (disgust, anger, fear, happiness, and sadness) are the basic ones to which every state of mind is related (Lindquist, Wager, Kober, Bliss-Moreau & Barrett, 2012).

Secondary emotions of this questionnaire are positive and negative emotions.

Envy, sense of guilt, shame and offense are all negative emotions which means that if students who completed the questionnaire have chosen the answers whose evaluation underlines the fact that they feel these kinds of emotions, they resulted to have low levels of self-esteem.

On the contrary, emotions such as empathy, pride and usefulness (both active and passive) are considered to be positive emotions because they are linked to high levels of self-esteem (Terwogt, Rieffe, Miers, Jellesma & Tolland, 2006). As a consequence, if students have obtained high scores in these statements related to positive emotions, they demonstrated to have a good self-esteem.

It is of interest to notice also that there are emotions connected to the assessment of the self, in this case: shame, pride and sense of guilt and there are some which

[1] See chapter III. EMOTIONS p. 29

are connected to other people, such as envy, empathy and offense in the present case (Le emozioni e la loro funzione[2]).

Even negative emotions have their own usefulness in fact, they are fundamental for the Security System which protects people from dangerous situations for both the body and the brain (Ferrari, 2010).

With the expression "usefulness of emotions" people refer to what make people evaluate stimuli. In detail, if people like or not a stimulus, if it can be useful or damaging and if they are able to face it or if it is better to escape (Emozioni cosa sono e a cosa servono[3]). In the present questionnaire there are both active and passive usefulness which refers respectively to the usefulness of compensatory tools and dispensatory measures endured by others (parents and teachers) or experienced directly by students.

7.3 Procedure

After having explained (with a letter) the purpose of the present project to the students' parents, they gave their permission to ask their children to complete these two questionnaires in order to obtain the necessary data to analyse.

The questionnaires were given to students during a specialized after-school activity for students with dyslexia attending the middle school in question. Some of them completed them alone during the after-school while 3 of them preferred to have them read during the after-school.

In order to make them complete the questionnaires in the most sincere way, and so avoiding them to answer randomly, it has been decided to give them the

[2] *Le emozioni e la loro funzione* http://www.puntogestalt.it/site/editoriali/16-alberto-dea/21-le-emozioni-e-la-loro-funzione.html, date of consultation 14/09/17

[3] *Emozioni cosa sono e a cosa servono* http://www.cure-naturali.it/energia-corpo-altro/2111/emozioni-cosa-sono-servono/1663/a, date of consultation 14/09/17

questionnaires in two different days, so that students (above all the ones who preferred to complete them by their own) would not get tired for the compilation with the risk to choose answers randomly among the ones proposed. In addition to it, it is of interest to notice that both questionnaires have been written in capital letters in order to facilitate reading and the fact that words indicating negation ("non") have been highlighted in bold facilitate also the comprehension of the various statements. Moreover, it has been decided to apply for both questionnaires a background of alternative colours in order to help them identify the statement they are reading and so be concentrated to one sentence at a time without confusing them.

After having collected all the completed questionnaires, different points have been assigned (0, 1 and 2) for each item of both questionnaires as it can be noticed in the following tables.

The assignment of the numbers was not casual in fact, statements whose answers "it is true" or "it is false" lead to a good level of self-esteem were evaluated with the number 2, on the contrary if these answers mean low levels of self-esteem they were evaluated with 0 while the answer "sometimes" was always evaluated with 1 because when students had chosen it they did not take a strong position.

Figure 20 Italian adaptation of the questionnaire "Five Scale Test of Self-Esteem for Children" of Pope, McHale and Craighead with the attribution of points for each item.

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
1. **NON** SONO CONTENTO DEI MIEI RISULTATI SCOLASTICI.	0	1	2
2. MI MUOVO IN MODO IMPACCIATO.	0	1	2
3. ALL'INTERNO DELLA MIA FAMIGLIA SONO UNA PERSONA CHE CONTA.	2	1	0

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
4. HO PAURA DI **NON** PIACERE AI MIEI COMPAGNI.	0	1	2
5. FACCIO SEMPRE UN PO' DI COMPITI ANCHE IL SABATO E LA DOMENICA.	2	1	0
6. IN QUALCHE MATERIA SONO ABBASTANZA BRAVO.	2	1	0
7. MI PIACE IL MIO ASPETTO FISICO.	2	1	0
8. QUANDO SONO CON LA MIA FAMIGLIA MI SENTO SODDISFATTO DI ME.	2	1	0
9. I MIEI COMPAGNI MI FANNO SENTIRE COME SE **NON** FOSSI ABBASTANZA BRAVO.	0	1	2
10. QUALCHE VOLTA MI CAPITA DI DIRE UNA BUGIA.	0	1	2
11. QUANDO IL MIO INSEGNANTE SPIEGA VORREI RIUSCIRE A CAPIRE DI PIÙ.	0	1	2
12. VORREI ESSERE PIÙ ALTO DI COME SONO.	0	1	2
13. HO DESIDERATO SCAPPARE DI CASA.	0	1	2
14. I MIEI AMICI ASCOLTANO LE MIE IDEE.	2	1	0
15. ACCETTO DI PERDERE AL GIOCO.	2	1	0
16. SONO ORGOGLIOSO DEI MIEI VOTI SCOLASTICI.	2	1	0
17. HO UN VISO SIMPATICO.	2	1	0

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
18. Il mio comportamento rende infelici i miei genitori.	0	1	2
19. Sono soddisfatto di me quando sono con i miei amici.	2	1	0
20. Se mi arrabbiassi con un amico potrei rispondergli male.	0	1	2
21. Sono troppo lento nel finire i compiti di scuola.	0	1	2
22. Vorrei che il mio peso fosse diverso.	0	1	2
23. Sono un buon figlio.	2	1	0
24. Vorrei sentirmi più a mio agio quando sono in compagnia di altre persone.	0	1	2
25. Metto in ordine la mia stanza anche senza che me lo ricordino.	2	1	0
26. Quando sono a scuola sono soddisfatto di me.	2	1	0
27. I miei occhi sono belli.	2	1	0
28. I miei genitori hanno buone ragioni per essere orgogliosi di me.	2	1	0
29. Vorrei essere più bravo nel farmi degli amici.	0	1	2
30. Pur di vincere a un gioco posso anche **non** rispettare le regole.	0	1	2
31. Vado male in molte materie.	0	1	2

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
32. **NON** SONO CONTENTO DEL MIO ASPETTO FISICO.	0	1	2
33. LA MIA È UNA BELLA FAMIGLIA.	2	1	0
34. VORREI PIACERE DI PIÙ AI MIEI AMICI.	0	1	2
35. QUANDO È ORA DI TORNARE A CASA **NON** RITARDO MAI, SONO SEMPRE PUNTUALE.	2	1	0
36. PENSO CHE LE MIE PAGELLE SCOLASTICHE SIANO ABBASTANZA BUONE.	2	1	0
37. SONO BRAVO NEGLI SPORT.	2	1	0
38. LA MIA FAMIGLIA **NON** È CONTENTA DI ME.	0	1	2
39. PER ME È FACILE FARE NUOVE AMICIZIE.	2	1	0
40. MI ARRABBIO QUANDO I MIEI GENITORI **NON** MI LASCIANO FARE QUELLO CHE VOGLIO.	0	1	2
41. VORREI ESSERE PIÙ BRAVO A SCUOLA.	0	1	2
42. VORREI AVERE L'ASPETTO FISICO DI QUALCUN ALTRO.	0	1	2
43. CREDO CHE I MIEI GENITORI SAREBBERO FELICI SE IO FOSSI MOLTO DIVERSO DA COME SONO.	0	1	2
44. HO ABBASTANZA AMICI.	2	1	0
45. MI LAVO SEMPRE I DENTI DOPO AVER MANGIATO.	2	1	0

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
46. SONO ABBASTANZA BRAVO NEI COMPITI IN CLASSE.	2	1	0
47. SONO CONTENTO DEL MIO CORPO.	2	1	0
48. MI PIACE COME MI COMPORTO QUANDO SONO IN FAMIGLIA.	2	1	0
49. SONO UN BUON AMICO/A.	2	1	0
50. PREFERIREI VENISSE INCOLPATO UN ALTRO AL POSTO MIO.	0	1	2

Figure 11 Questionnaire about the use of compensatory tools and dispensatory measures with the attribution of points for each item.

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
1. I MIEI COMPAGNI MI INVIDIANO PERCHÉ USO GLI STRUMENTI COMPENSATIVI.	2	1	0
2. QUANDO USO GLI STRUMENTI COMPENSATIVI DURANTE LE VERIFICHE I MIEI COMPAGNI PENSANO STIA IMBROGLIANDO.	0	1	2
3. I MIEI COMPAGNI SONO CONTENTI CHE USI GLI STRUMENTI COMPENSATIVI.	2	1	0
4. I MIEI COMPAGNI MI FANNO SENTIRE DIVERSO QUANDO USO GLI STRUMENTI COMPENSATIVI.	0	1	2
5. QUANDO PRENDO UN BEL VOTO I MIEI COMPAGNI PENSANO CHE ME LO SIA MERITATO.	2	1	0
6. I MIEI COMPAGNI MI PRENDONO IN GIRO QUANDO USO GLI STRUMENTI COMPENSATIVI.	0	1	2

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
7. I MIEI COMPAGNI CAPISCONO CHE QUESTI STRUMENTI COMPENSATIVI MI SERVONO.	2	1	0

8. INVIDIO I MIEI COMPAGNI PERCHÉ LORO **NON** USANO GLI STRUMENTI COMPENSATIVI.	0	1	2
9. MI SEMBRA DI IMBROGLIARE AD USARE GLI STRUMENTI COMPENSATIVI.	0	1	2
10. SONO CONTENTO DI USARE GLI STRUMENTI COMPENSATIVI.	2	1	0
11. MI SENTO A DISAGIO QUANDO USO GLI STRUMENTI COMPENSATIVI.	0	1	2
12. QUANDO PRENDO UN BEL VOTO PENSO DI MERITARMELO.	2	1	0
13. MI SENTO RIDICOLO A USARE GLI STRUMENTI COMPENSATIVI.	0	1	2
14. USANDO GLI STRUMENTI COMPENSATIVI STUDIO MEGLIO.	2	1	0

15. I MIEI GENITORI PENSANO CHE USARE STRUMENTI COMPENSATIVI SIA UNA FORMA DI PIGRIZIA.	0	1	2
16. I MIEI GENITORI SONO CONTENTI CHE USI GLI STRUMENTI COMPENSATIVI.	2	1	0
17. I MIEI GENITORI SONO IMBARAZZATI CHE IO USI STRUMENTI COMPENSATIVI.	0	1	2
18. I MIEI GENITORI SONO FIERI DI ME QUANDO PRENDO UN BEL VOTO.	2	1	0

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
19. I MIEI GENITORI MI SPRONANO AD USARE GLI STRUMENTI COMPENSATIVI.	2	1	0
20. I MIEI GENITORI CAPISCONO CHE GLI STRUMENTI COMPENSATIVI MI AIUTANO.	2	1	0

21. I MIEI INSEGNANTI PENSANO CHE USARE STRUMENTI COMPENSATIVI SIA UNA FORMA DI PIGRIZIA.	0	1	2
22. I MIEI INSEGNANTI SONO CONTENTI CHE USI GLI STRUMENTI COMPENSATIVI.	2	1	0
23. I MIEI INSEGNANTI SONO INFASTIDITI QUANDO USO GLI STRUMENTI COMPENSATIVI.	0	1	2
24. QUANDO PRENDO UN BEL VOTO I MIEI INSEGNANTI PENSANO CHE ME LO SIA MERITATO.	2	1	0
25. I MIEI INSEGNANTI MI INCORAGGIANO AD USARE GLI STRUMENTI COMPENSATIVI.	2	1	0
26. I MIEI INSEGNANTI RITENGONO UTILE CHE USI GLI STRUMENTI COMPENSATIVI.	2	1	0

Successively, points obtained in the various domains from the answers to the questionnaires were counted. In fact, to reach the objective of the present study, it not important the total score, but the partial one of each domain.

Regarding the first questionnaire, the Italian adaptation of the one of Pope, McHale and Craighead, points corresponding to the items of the scale of control were first counted because it gives indication about the truthfulness of the answers given by students. In the present case, for example, only questionnaires

with less than 12 points were taken into consideration. In fact, it has been discovered that if students obtained more than 14 points in the scale of control, it means that they had the tendency to represent a better self-image and, as a consequence, they cannot be considered for the study. Moreover, if students obtained a score between 12 and 14, the questionnaire is considered to be of doubted validity.

After having been sure about which questionnaires to include in the study, the points of each domain were counted in order to understand if students have good or bad levels of self-esteem. The present questionnaire was provided with indications to use to interpret data. In detail, if score was below 13 it means that the student in question has a lack of self-esteem in that domain. Scores calculated for every student for each domain were then elaborated into percentages so to make comparisons between results of the two groups in which scores were previously divided: the group of boys and the one of girls in order to see if levels of self-esteem are different according to the gender. This procedure was adopted for the analysis of all the first questionnaires proposed to students.

Regarding the second questionnaires, they too were divided into two groups: the ones of students attending the 1st year and the ones attending the 2nd year of the same middle school. After that, percentages concerning the sections of the questionnaire related to adolescents (students and their classmates) were compared to the sections concerning adults (students' parents and teachers) with the aim to discover if the age factor influence the attitude towards the use of compensatory tools and dispensatory measures.

In addition to it, it was made a comparison between data concerning the academic domain collected from the first questionnaire and data collected thank to the second one which is all about the scholastic life of students who use compensatory tools and dispensatory measures.

Finally, they were calculated also percentages related to the different kinds of tools and measures, in order to notice which ones are used the most and the amount of time during which they use them. Moreover, also the presence of other students with similar problems in their same class is taken into consideration in order to analyse if staying in a class with other people or being the only one who have difficulties influence their attitude towards the tools and measures that they have been provided.

7.4 Data analysis

7.4.1 First questionnaire

As said before, data collected from the questionnaire "Cosa penso di me" were divided into two groups: males and females.
The group of **males** (composed by 7 boys) reported the following results divided into domains:

- **Academic domain**. The totality of the group (86%), except for one member (14%), reported scores below the threshold level (13 points) which correspond to a lack of self-esteem in the present domain. The average of their results was of 6 points in a total of 20 points, so even very far from the half of the total score. The one that resulted having self-esteem scored 13 points, which are the points characterizing the threshold level itself. This means that the student in question has no such great levels of self-esteem in this domain because they are at the limit between self-esteem and not;

- **Bodily domain**. 57% of students resulted to have low self-esteem in this domain with an average of 8/20 points. The minimum score was 8/20 points. The remaining 43% obtained a positive score, indicating that they have no self-esteem problems concerning their bodily appearance. The count of the points of two of them resulted to be the threshold level (13/20 points) while just one of the student scored the maximum 20/20 points;

- **Familial domain**. Regarding this aspect everybody (100%) resulted to have high levels of self-esteem. The minimum score that have been obtained corresponds to the threshold level (13 points) while the maximum points was of 20/20 points (the total), by scoring in this way an average of 17/20 points;

- **Interpersonal domain**. 86% of students resulted to be above the threshold level with an average of 18/20 points and the remaining 14% totalized 12/20 points so little below the threshold level.

The following graphic will summarize the results concerning the group of males collected thank to the first questionnaire. It helps to notice that boys have more self-esteem in the interpersonal and familiar domains (with little difference) than in the bodily, and above all, academic domains.

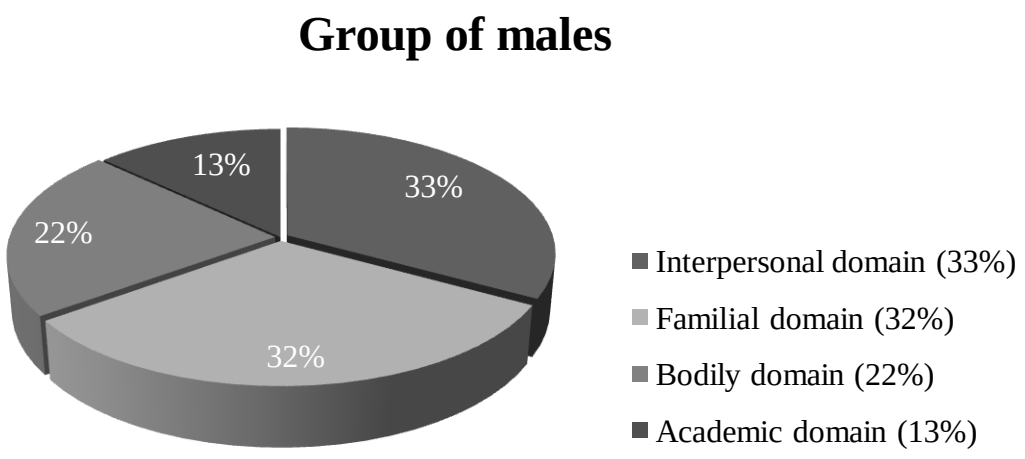

Figure 12 Summary graphic regarding data of the questionnaire "Cosa penso di me" related to the group composed by males.

While the group of **females** (composed by 13 girls) obtained the following results:

- **Academic domain**. Almost the totality of the students (92%) obtained results which underlined a lack in this aspect of self-esteem with an average of 10/20 points and just 8% resulted to have self-esteem with a score of 14/20 so a little above the threshold level (13 points);

- **Bodily domain**. 85% of the girls who completed the questionnaire resulted to be below the level of self-esteem with an average of 8/20 points. It is of interest to notice also that the minimum score was counted to be 5/20 points. While just the remaining 15% showed to have self-esteem in this aspect. In detail, one of them scored 16/20 points but the others' points corresponded to the threshold level (13 points);

- **Familial domain**. The majority of students (62%) reported to have good self-esteem in this particular domain with an average of 15/20 points while the

remaining 38% resulted to have low self-esteem with an average of 5/20 points. Moreover, it is important to underline also that the minimum score was 5/20 while the maximum one was 18/20 points;

- **Interpersonal domain**. Regarding the present domain, on one hand, the majority of girls (54%) resulted to have a good level of self-esteem obtaining an average of 15/20 points. In detail, 5 of them obtain a score 13/20 points and so they obtained points corresponding the threshold level while just 1 of them scored 19/20 points and another 1 scored the maximum score 20/20. On the other hand, the remaining 46% have low levels of self-esteem in this domain totalizing an average of 12/20 points so, little below the threshold level.

Thank to the following graphic it is possible to summarize all the data that have been collected with the first questionnaire concerning, in this case, the group composed by females.

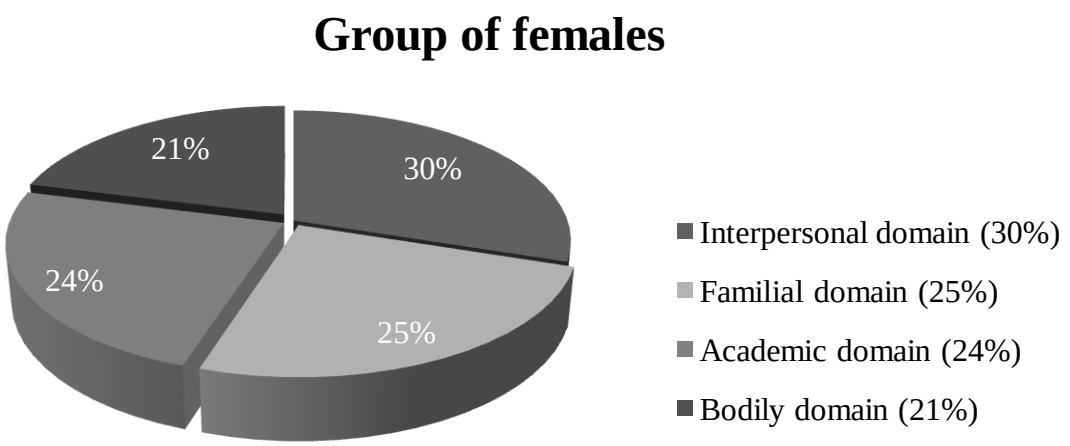

Figure 13 Summary graphic regarding data of the questionnaire “Cosa penso di me” related to the group composed by females.

7.4.2 Second questionnaire

Regarding the "Questionario sull'uso degli strumenti compensativi" students have reached the scores which will be presented divided in the four domains and in the two groups of the students attending the 1st year and the ones attending the 2nd year.

At this point it has to be done a clarification: for the present questionnaire, it was not decided to divide data according to students' gender because, thank to the first one, it had been already verified that gender was not a relevant factor for the purpose of this study so it became important to take into consideration other factors, such as the belonging to different academic years and the types and amount of time of tools and measures that they have been using.

The first group is composed by 9 students (6 males and 3 females) all attending the **1st year** at the middle school in question and they have totalized the following results divided into different domains:

- **Interpersonal domain**. Concerning the present domain students obtained an average 10/14 points whose minimum score was 7/14 and the maximum one was 12/14. It means that all students totalized scores above the half of the total score;

- **Personal domain**. According to the scores, 5 students obtained scores above the half of total points, while the other 4 ones obtained scores below the half of total points by totalizing an average of 8/14 points. In detail, the minimum score was registered to be 3/14, while the maximum score was 14/14 (the total);

- **Familial domain**. All scores of this domain resulted to be above the half of the totality of points (14) in fact, the minimum score was calculated to be 6/12 points while the maximum one was 12/12 points (the total) by counting an average of 9/12 points;

- **Teachers' domain**. Also this domain has obtained scores above the half of the totality of points with an average of 10/12 points. In this case the minimum score resulted to be 8/12 while the maximum one was 12/12 (the total).

The following graphics represent the summary of the data collected regarding students attending the 1st year of the middle school in question. First of all, a graphic will make a comparison between data concerning interpersonal and personal domains while the second one will have the same purpose but regarding familial and teachers' domains in order to compare data referring to people with the same range of age.

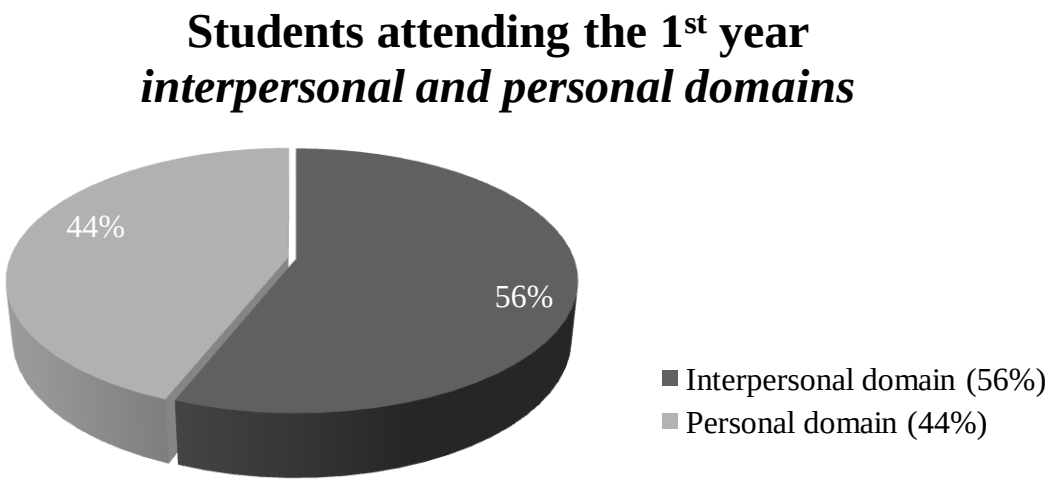

Figure 14 Summary graphic regarding data of the "Questionario sull'uso degli strumenti compensativi" related to the group composed by students attending the 1st year of the middle school.

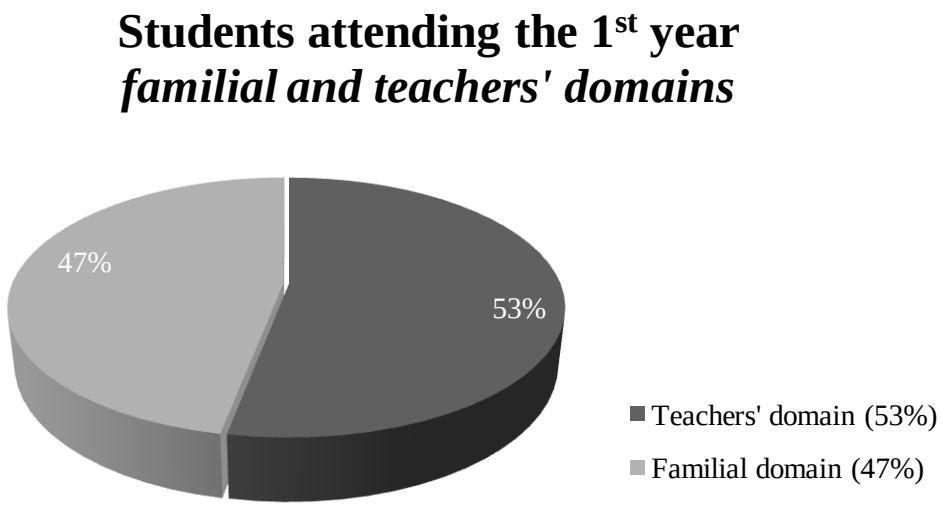

Figure 15 Summary graphic regarding data of the "Questionario sull'uso degli strumenti compensativi" related to the group composed by students attending the 1st year of the middle school.

While the second group is composed by 11 students (1 male and 10 females) all attending the **2nd year** at the middle school in question and they obtained the following scores divided into domains:

- **Interpersonal domain**. Regarding this domain students' results have an average of 8/14 points with 4/14 as minimum score and 12/14 as maximum score;

- **Personal domain**. Concerning students' attitude towards their use of compensatory tools and dispensatory measures, results showed that 6/14 is their minimum score while 12/14 is their maximum score, obtaining in this way an average of 8/14 points;

- **Familial domain**. About this domain, students obtained an average of 9/12 points with 5/12 as the minimum score and 12/12 as the maximum one, corresponding to the total;

- **Teachers' domain**. In this last domain, all students obtained scores above the half of the totality of points with an average of 8/12 points, resulted so high because of the fact that the minimum score resulted to be 7/12 points and the maximum one 11/12 points.

The following graphics will represent the summary of the results related to students attending the 2nd year of the middle school.

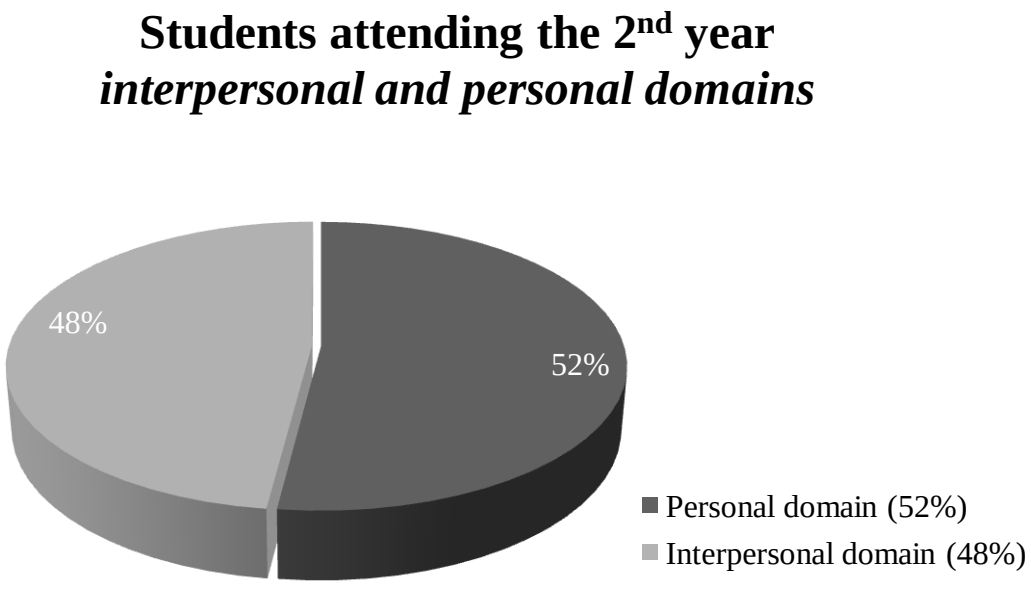

Figure 16 Summary graphic regarding data of the "Questionario sull'uso degli strumenti compensativi" related to the group composed by students attending the 2nd year of the middle school.

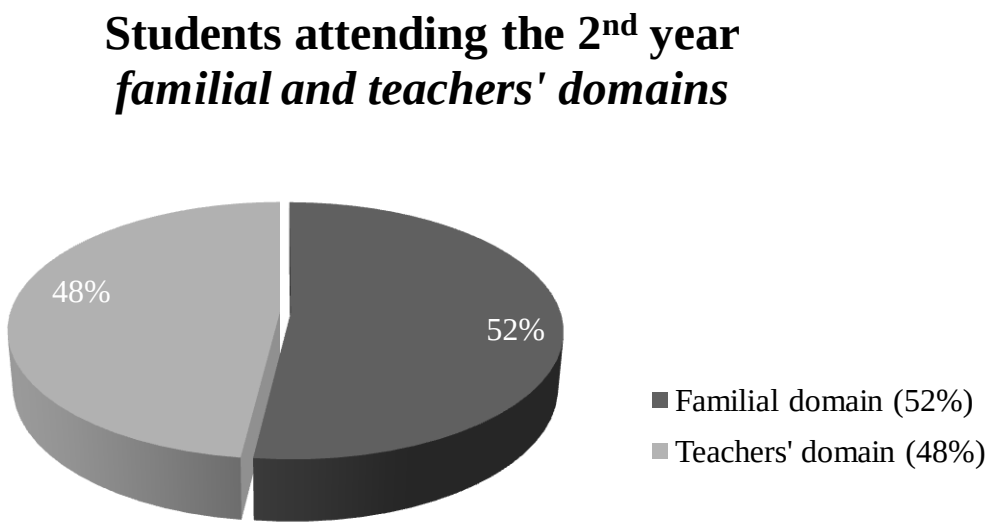

Figure 17 Summary graphic regarding data of the "Questionario sull'uso degli strumenti compensativi" related to the group composed by students attending the 2nd year of the middle school.

Moreover this questionnaire provides, as said before, also information regarding what **types of compensatory tools and dispensatory measures** are used by the students who completed the questionnaire. Results showed that:

- The totality of students (100%) reported to normally use **maps**, **calculators** and **tables** at school and to study at home;

- Just 25% of students use **lists** already prepared to do compositions;

- 30% of students use **speech synthesis software**;

- Only 10% of students use **facilitated books**;

- As regards tests, 75% of students are given **extra time** to complete them, while 80% are given tests with **less exercises;**

- Oral tests are **planned** for 60% of students and 55% of students have the possibility to do **privately oral tests** with just the teachers;

- Half of the students (50%) are **exonerated from reading aloud** in class while 5% are exonerated form the study of a **second foreign language**;

- Finally, 10% of students have **more communication** with their teachers and another 10% of them are allowed to leave their class with a **special needs teacher**.

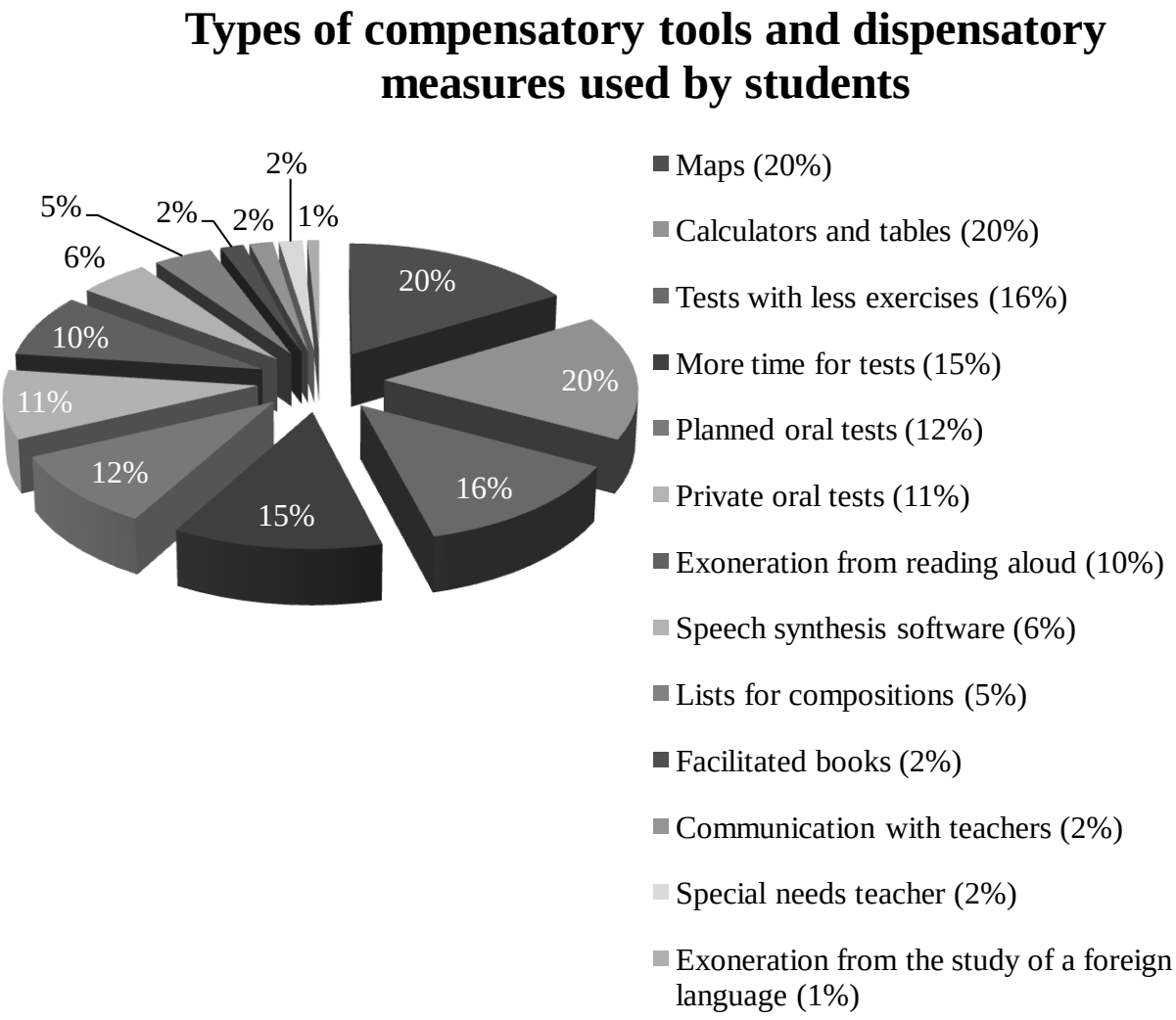

Figure 18 Summary graphic regarding data about the use of different compensatory tools and dispensatory measures by students.

In addition to it, this questionnaire was organised in the way to provide information also regarding the amount of **time** during which the tools and measures, previously reported, have been used in order to understand if the factor "time" influence their attitude towards them. In detail:

- 7 students have been using these tools and measures for **2 years**. More precisely, 2 of them have been using them during the middle school, while the remaining 5 from the last year of primary school to the first one of the middle school;

- 6 students have been using them for almost **4 months**;

- 1 students has been using them for **4 years** (from the 4th year of the primary school to the 2nd year of the middle school);

- 5 students have been used these tools and measures for **3 years**. In detail, from the last year of the primary school to the 2nd one of the middle school);

- Finally, just 1 student has been using them for **1 year**.

When it comes to analyse these data, it has been decided to divide them into two groups. The former is composed by the 6 students who have been using them for four months and the latter is composed by 14 students who have been using them from one to four years. It is of interest to notice also that members of the first group are not the only ones in their classes to have such difficulties and the same is for the second group, except for one student who appear to be the only one in their class to have learning difficulties. In order to understand, as said before, if the duration of their use of these tools and measures affects in some

way students' self-esteem and attitude towards them (whose aim is to help people with dyslexia compensate their difficulties) it has been decided to compare results obtained in the academic domain of the questionnaire "Cosa penso di me" and the ones obtained from the "Questionario sull'uso degli strumenti compensativi" which will be graphically presented as follows after having reported their data.

- **First group**. This group is composed by 6 students all attending the 1st year of the middle school and they all use these tools and measures, as said before, for 4 months. It is important to understand that almost the totality of them (83%) resulted to have lack of self-esteem in the academic domain by reaching even 4/20 as minimum score, while just the remaining 17% has self-esteem in this aspect even if it is fundamental to underline that score was counted to be 13/20 which corresponds to the threshold level by obtaining in this way an average of 6/20 points. In addition to it, data collected from the second questionnaire will be presented by the following graphic.

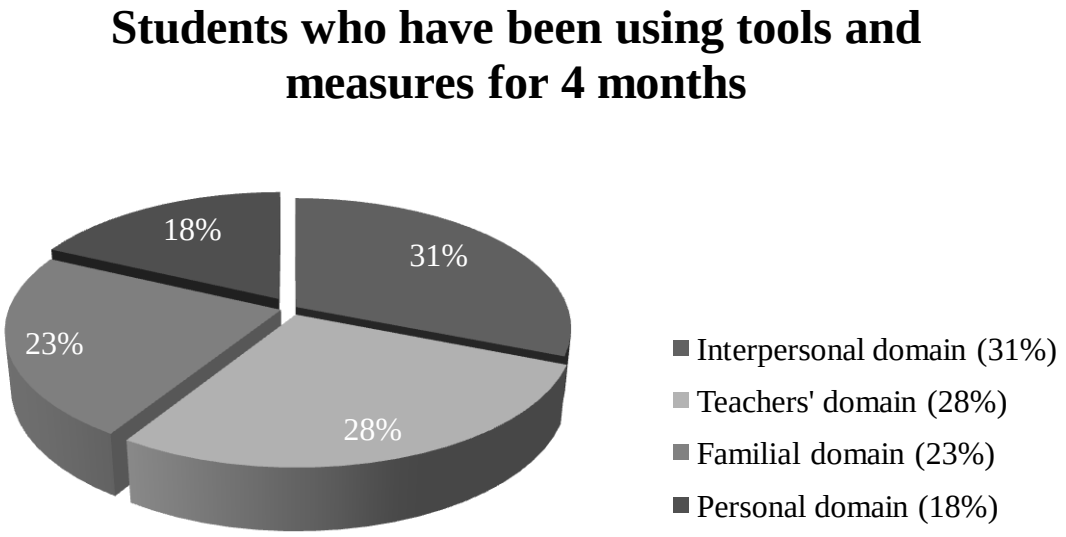

Figure 19 Summary graphic regarding data of the "Questionario sull'uso degli strumenti compensativi".

- **Second group**. The members of this group are 14 students (11 of them attending the 2nd year of the middle school and 3 of them attending the 1st year of the same school) who have been using tools and measures from 1 to 4 years. Data collected with the questionnaire "Cosa penso di me" revealed that only one of these students has self-esteem regarding the academic aspect with a score of 14/20 points. It is important to remember also that the threshold level corresponds to 13/20 points so this student resulted to be little above the level which characterises people with self-esteem. As a consequence, the remaining 93% of students resulted to have a lack in this domain by recording 8/20 as the minimum score even if, with 14/20 as the maximum score the average of the points resulted to be 10/20. These data can be integrated with the ones collected with the second questionnaire which will be reported in the following graphic.

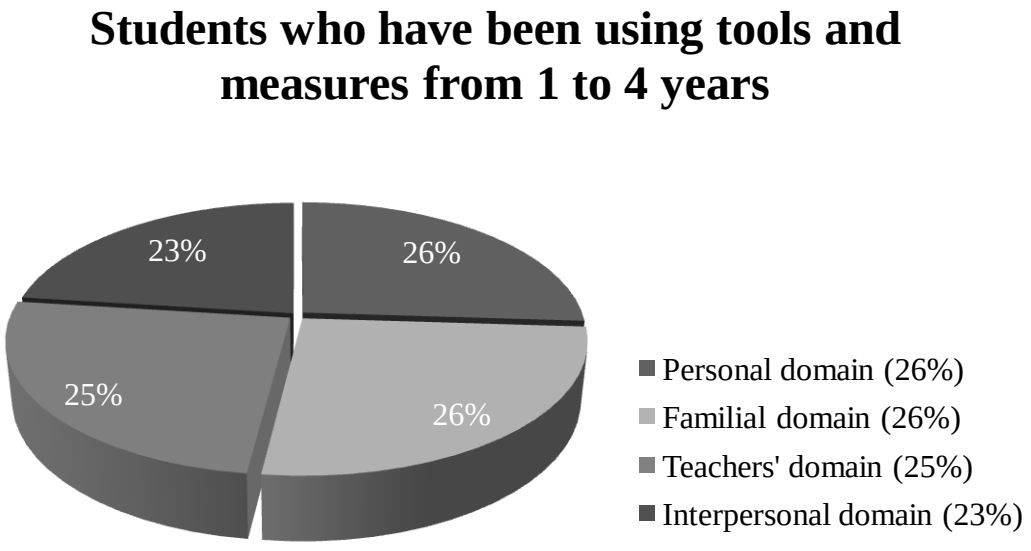

Figure 20 Summary graphic regarding data of the "Questionario sull'uso degli strumenti compensativi".

7.4.3 The case of Elizabeth[4]

A student, who will be called with the name of Elizabeth, has arisen some considerations because of her characteristics.

She is a female attending the 1st year of the middle school in question and, on the contrary of the other students who were asked to complete the questionnaires, she is the only one who reported to be alone in her class to have learning difficulties. As compensatory tools and dispensatory measures, she has been using maps, calculator and tables, tests with less exercises, facilitated books and planned oral tests for two years. Results of her questionnaires, divided into domains, are the following:

- She presented a lack of self-esteem in the **academic domain** by totalizing 11/20 points, a little below the threshold level (13/20 points). In detail, from the "Questionario sull'uso degli strumenti compensativi" all scores resulted to be far above half of the total points. In fact, she obtained 10/14 points in the interpersonal domain, the maximum score in both the personal (14/14 points) and the familial (12/12 points) domains. Finally, she scored 11/12 points in the teachers' domain;

- As regards **bodily domain**. She resulted to have no self-esteem in this domain, totalizing 5/20 points;

- She scored 14/20 points in the **familial domain** which identifies she has self-esteem in this aspect;

[4] Student's name is purely casual and does not correspond to reality.

- She obtained almost the totality of points (19/20) in the **interpersonal domain**.

7.5 Discussion of the results

Results of this study showed that both males and females have low levels of self-esteem in the academic domain even if females seem to have better levels and it is demonstrated with the fact that the average of the females' results is higher (10/20 points) in comparison to the one of males' (6/20 points) and, as it can be noticed, they are nearer the threshold level. In addition to it, the girl who resulted to have self-esteem in this domain totalized 14 points while the boys have as maximum score 13/20 corresponding to the threshold level. Moreover, females obtained as minimum score 9/20 while males obtained 4/20 so the former reached higher score than the latter as it can be noticed thank to the following table.

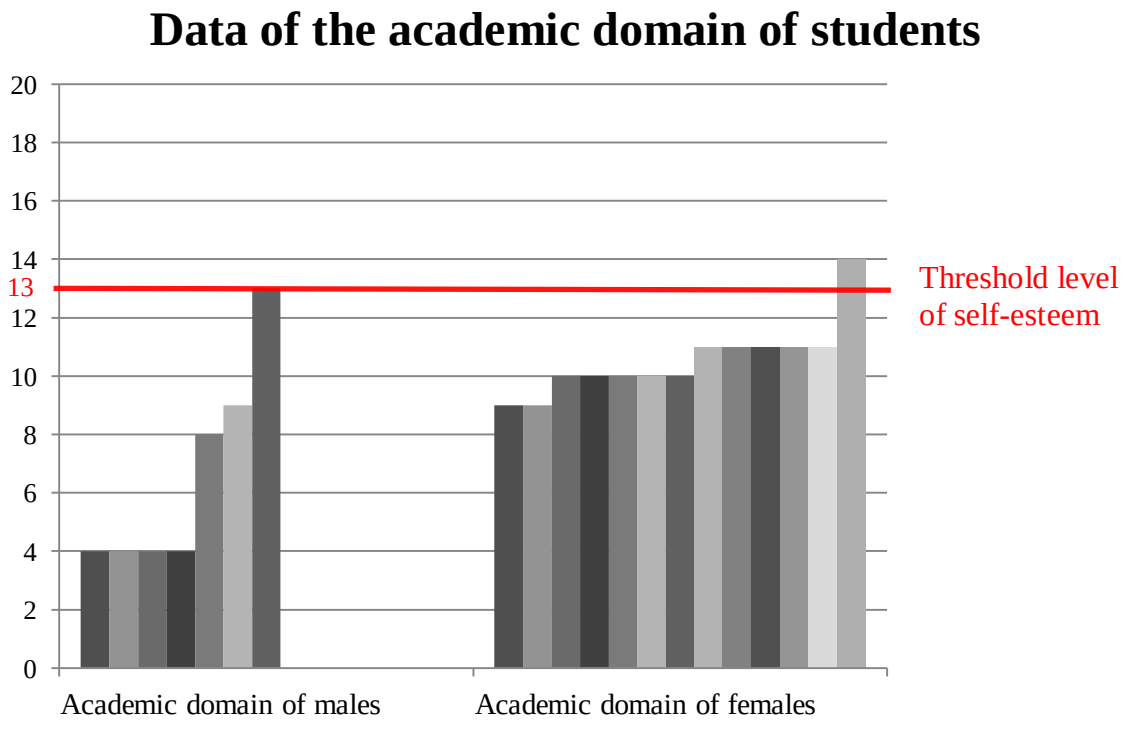

Figure 21 Table regarding data in the academic domain which have been collected thank to the first questionnaire.

As a consequence, it can be said that generally every student with dyslexia (without distinction of gender) has low levels of self-esteem in the academic domain and just two students demonstrated to have self-esteem even if they do not totalize very high scores.

As it has been already noticed by Petter also in the present study the majority of both males and females have low results in the bodily domain too but in this case the first ones obtained better results than females (Petter, 1999). Despite the fact that both groups resulted to have 8/20 as average of the points, the minimum score of males is 8/20 and the one of females is lower (5/20 points). Moreover, among the three males who have self-esteem in this domain, two of them totalized scores corresponding to the threshold level while the other one obtained the total (20/20). On the other hand, regarding the group of females the two who resulted to have self-esteem scored similar points as the boys. It can be said that generally boys feel more confident with their body than girls and that among these last ones there is a great discrepancy which can be demonstrated by the fact that a girl reached 5/20 points while another one reached 16/20 points.

Regarding the familial domain, the entire group composed by males resulted to have self-esteem in both questionnaire (in fact, the minimum score corresponds to the threshold level) and the same has resulted for the majority of females too, except for five of them who did not reach the threshold level. In this case, the second questionnaire showed that they totalized 5/12 points in the section concerning this domain. As a consequence, it can be concluded that the less parents are sympathetic with their children using tools and measures to compensate their difficulty, the less they have self-esteem in this domain.

Concerning the last domain of the first questionnaire, the interpersonal one, the majority of both males and females have good level of self-esteem. In the group of males just one boy resulted not to have self-esteem but he totalized a score little below the threshold level. The average of their points is higher than the one

of females and in the second questionnaire it is 10/14 points (so far from half of the total points).

As regards girls, the ones with no self-esteem obtained an average of 12/20 points so little below the threshold level. In the second questionnaire, the interpersonal domain resulted to be lower than the one of boys. At the end it can be said that females have less confidence than males in making relationships with their peers.

To summarize, both groups showed to have similar results, so it can be said that gender do not affect in a dominant way their self-esteem.

With interest to the division of the students by the academic years they are attending, the "Questionario sull'uso degli strumenti compensativi" showed that classmates of students attending the 1st year have no problems if they use compensatory tools and dispensatory measures but the same cannot be said for students attending the 2nd year who obtained lower scores in this section of the questionnaire.

Regarding the personal domain the ones of the 1st year are divided into two groups. The first one obtained results below and the other one above the half of the totality of points with a great discrepancy of 14/14 points as maximum score and 3/14 points as minimum score but it is relevant to say that they all use these tools and measures for little time and some of them are sometimes helped also by a special needs teacher. Parents do not seem to be the cause of their frustration in using these tools and measures at both school and home because they obtained good results in both questionnaires regarding the familial sections and the same can be stated regarding teachers, because they all obtained scores above the half of the totality of points. This seems to mean that students of the 1st year have problems just with the use of these tools and measures but it can be understandable if the facts that they have just changed school and classmates and that they have been using them for little months are taken into consideration.

Regarding students attending the 2nd year, as said before, four students obtained points below the half of the totality of points in the interpersonal domain and the same results have been totalized in the personal domain. Concerning the familial domain the majority of them have overcome the half of the totality of the points and the remaining are little below the half and they are the same to have obtained low results in the same aspect in the first questionnaire too and this underlined the fact that the lack of understanding of parents about their children's difficulties and about the help that these tools and measures can give to them affect their self-esteem.

If a comparison between the people with the same range of age is made, it can be noticed that students, attending the 1st year, perceive their classmates to be more understanding and to have a more positive attitude than themselves regarding their use of tools and measures, while this discrepancy is not so strong if parents and teachers' attitudes are considered, even if teachers seem to have a better attitude than parents. This can be explained with the fact that the majority of students belonging to this group are using tools and measures at both school and home for almost four months so, maybe, it is possible that parents are not already used to or are little informed about their children's situation, on the contrary teachers who may have studied dyslexia and who have maybe already taught to students with this disorder seem to accept more easily the fact that some of their students have learning difficulties and that to compensate them they need specialized tools and measures.

Regarding data about students attending the 2nd year there is no such discrepancy between personal and interpersonal domain. In detail, students with dyslexia seem to accept their situation more than their classmates. This result is due to the fact that they are all using tools and measures for at least one year so they see that, in this way they can obtain better marks and they do not feel

disadvantaged in comparison to the rest of their classmates. On the other hand, students who do not use them feel like they are cheated.

The fact that they have been using them for more than one year can explain the results of the familial and teachers' domains. The former resulted to have a positive attitude and more acceptance than the latter but there is no such a big discrepancy.

To summarize, the factor "time" resulted to be very important. When students start using tools and measures they do not have a positive attitude towards them but when they notice that they are really useful to compensate their disorder they accept them and the same happens to their parents. Their classmates seem to accept this situation at first because they do not see them as a way to cheat but in the long term they appear less sympathetic with their peers while teachers because of their studies or their job (or both) are reported to have always a positive attitude towards their students' use of compensatory tools and dispensatory measures.

Finally, a different case from the others is the one of Elizabeth. She is the only one in her class to have learning difficulties. She resulted to have a lack of self-esteem in the academic domain but it is not due to the use of the tools and measures she has been provided with because she obtained good results related to her attitude and the one of her classmates towards her situation. To explain these results it can be said that she has been using them for 2 years so she has seen that they really help her and because she reported to use maps, calculator and tables at school while at home she uses also facilitated books (to study above all History, Geography and Italian). Moreover, she has been provided with facilitated tests and planned oral tests. In this case teachers give to every student the same test and they just write a "no" near the exercises from which she is exonerated and regarding oral tests teachers communicate to her the date of the oral tests when the bell rings to indicate the end of the lesson, so when

there is confusion in class and Elizabeth's classmates do not mind about their conversation. Moreover, teachers give her the opportunity to be evaluated with an additional mark if she will be prepared for the oral tests in few days.

It can be concluded that it is preferable to propose students with learning difficulties tools which do not attract their classmates' attention, as the ones used by Elizabeth or to use them (for example facilitated books) just at home and not at school where everyone can see them. In this way, they can go unobserved and their use do not "disturb" their classmates.

7.6 Limitations of the study

It is important to bear in mind that the present study have some limitations, such as: the fact that data cannot be perfectly generalized because a lot of personal factors are involved (for example the relationship with the members of the family, their classmates and so on); the small number of students who participated to the study by completing the questionnaires and the fact that they attend different classes of the 1st and the 2nd year; the fact that they all attend the same middle school which can adopt a different attitude towards students with dyslexia in comparison to the others and, finally, students have been using the compensatory tools and dispensatory measures, presented before, for different amount of time.

7.7 Implications

Despite all the limitations reported in the previous paragraph, the present study gives hints for further research in this theme. In fact, it would be useful to repeat this study with a bigger sample of students attending different schools in order

to have a larger overview of the situation. As a consequence, it will be possible to collect data which can be generalized for all students with dyslexia.

The purpose of this study is to create interest in the way in which self-esteem of students with dyslexia can be affected by the use of compensatory tools and dispensatory measures in order to improve these tools and measure so to make them help students compensate their disorder without affecting in a negative way their self-esteem.

CONCLUSIONS

The trait of originality, which is also the purpose of the present study, is the fact that it helps to better understand in what way the use of compensatory tools and dispensatory measures affects the self-esteem (in particular the one referred to the academic domain) of students with dyslexia thank to the use of two questionnaires ("Cosa penso di me", the Italian adaptation of the "Five Scale Test of Self-Esteem for Children" of Pope, McHale and Craighead and the "Questionario sull'uso degli strumenti compensativi").

The fact that there has not been previous research about this theme is proved by the "Questionario sull'uso degli strumenti compensativi" which has been created specifically for this study due to the absence of a one designed to this purpose. Thank to this questionnaire not only has it been possible to understand students' attitude towards the use of these tools and measures, but also their perception about their classmates, parents and teachers' attitudes about their situation.

The importance of these tools and measures has never been questioned, but it has been highlighted the fact that they are not sufficient if used without having a real competence in their use as it has been proved by the case of the campus of San Marino.

But more importantly, the results of the present study showed that compensatory tools and dispensatory measures do affect students' self-esteem. In detail, it has been discovered that there is a factor which is particularly relevant in the connection between these tools and measures and self-esteem: time. It is therefore possible to state that gender is not a significant factor to affect people's self-esteem in this domain because both the group of males and females have obtained similar results.

As regards the time of their use, data showed that people who have been using these tools and measures for a short time (4 months) seem not to accept them very easily in comparison to students who have been using them for at least one year. These results can be explained with the fact that when students start using them, they need time to get used to this new situation and way to deal with their learning difficulties.

In addition to it, this study allowed also to notice that adolescents are more unstable than adults (in this case their parents and teachers) because these last ones are reported to have a positive attitude towards these tools and measures. In fact, they seem to better accept and understand the situation and the fact that these tools and measures really can compensate their children's difficulties and, not less important, help them live with more serenity their academic life; while adolescents seem to be more understanding when their classmates start using them but, over time they adopt a less positive attitude because they feel cheated.

It has been decided to investigate also their classmates' opinions because, above all during adolescence, peers' thoughts and attitude are fundamental to determine the idea that students (and in particular the ones with dyslexia) have about themselves.

As a consequence, it becomes fundamental to sensitise the schools about this theme by making them more aware about the consequences caused by the use of these tools and measures.

It should be borne in mind that despite the fact that this study has some limitations such as the small number of students who completed the questionnaires, the lack of a generalization of data (because of the presence of personal factors), students' belonging to different classes of different academic years and the different amount of time of utilization of these tools and measures, it gives hints for further research in order to improve compensatory tools and

dispensatory measures so to try not to influence students' self-esteem in a negative way.

It has to be said that the present study too has pointed out some ideas about possible solutions to improve the situation and this is represented with the experience of one of the students, the one that has been called Elizabeth. She reported to have no problems with the use of these tools and measures because the ones she uses do not attract the attention of her classmates. Some of them, such as facilitated books (which are very visible in class), are used only at home and not at school where everyone can see them. In this way, she actually uses tools and measures but their classmates do not feel cheated because they are considered as small expedients to which they do not pay so much attention. As consequence, they do not tease her and so do not affect in a negative way her self-esteem.

To conclude, thank to this project it has been possible to realise that three factors are particularly relevant in the influence of compensatory tools and dispensatory measures in the self-esteem of students with dyslexia. They are: time, information and the visibility of the tools. In fact, it has been noticed that the more the students use these expedients, the more they accept them because they realise their usefulness and they do not feel disadvantaged in comparison to their classmates anymore. A similar statement can be said also for parents: when they are informed on the topic they tend to give a greater support to their children so not to make them feel very different from their peers who have not learning difficulties. Finally, when their use in class is not so visible their classmates do not feel cheated nor disadvantaged and they do not have reasons to tease students who use them.

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APPENDICES

First questionnaire:

COSA PENSO DI ME

Queste domande sono utili per capire come tu ti senti e cosa pensi di certe situazioni che ti riguardano da vicino.

Non ci sono risposte giuste o sbagliate; ognuno può pensarla diversamente. È importante che tu risponda indicando quello che pensi veramente, e non quello che credi piacerebbe agli altri.

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
1. **NON** SONO CONTENTO DEI MIEI RISULTATI SCOLASTICI.	☐	☐	☐
2. MI MUOVO IN MODO IMPACCIATO.	☐	☐	☐
3. ALL'INTERNO DELLA MIA FAMIGLIA SONO UNA PERSONA CHE CONTA.	☐	☐	☐
4. HO PAURA DI **NON** PIACERE AI MIEI COMPAGNI.	☐	☐	☐
5. FACCIO SEMPRE UN PO' DI COMPITI ANCHE IL SABATO E LA DOMENICA.	☐	☐	☐
6. IN QUALCHE MATERIA SONO ABBASTANZA BRAVO.	☐	☐	☐
7. MI PIACE IL MIO ASPETTO FISICO.	☐	☐	☐
8. QUANDO SONO CON LA MIA FAMIGLIA MI SENTO SODDISFATTO DI ME.	☐	☐	☐
9. I MIEI COMPAGNI MI FANNO SENTIRE COME SE **NON** FOSSI ABBASTANZA BRAVO.	☐	☐	☐
10. QUALCHE VOLTA MI CAPITA DI DIRE UNA BUGIA.	☐	☐	☐

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
11. Quando il mio insegnante spiega vorrei riuscire a capire di più.	☐	☐	☐
12. Vorrei essere più alto di come sono.	☐	☐	☐
13. Ho desiderato scappare di casa.	☐	☐	☐
14. I miei amici ascoltano le mie idee.	☐	☐	☐
15. Accetto di perdere al gioco.	☐	☐	☐
16. Sono orgoglioso dei miei voti scolastici.	☐	☐	☐
17. Ho un viso simpatico.	☐	☐	☐
18. Il mio comportamento rende infelici i miei genitori.	☐	☐	☐
19. Sono soddisfatto di me quando sono con i miei amici.	☐	☐	☐
20. Se mi arrabbiassi con un amico potrei rispondergli male.	☐	☐	☐
21. Sono troppo lento nel finire i compiti di scuola.	☐	☐	☐
22. Vorrei che il mio peso fosse diverso.	☐	☐	☐
23. Sono un buon figlio.	☐	☐	☐
24. Vorrei sentirmi più a mio agio quando sono in compagnia di altre persone.	☐	☐	☐
25. Metto in ordine la mia stanza anche senza che me lo ricordino.	☐	☐	☐
26. Quando sono a scuola sono soddisfatto di me.	☐	☐	☐
27. I miei occhi sono belli.	☐	☐	☐
28. I miei genitori hanno buone ragioni per essere orgogliosi di me.	☐	☐	☐

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
29. VORREI ESSERE PIÙ BRAVO NEL FARMI DEGLI AMICI.	☐	☐	☐
30. PUR DI VINCERE A UN GIOCO POSSO ANCHE **NON** RISPETTARE LE REGOLE.	☐	☐	☐
31. VADO MALE IN MOLTE MATERIE.	☐	☐	☐
32. **NON** SONO CONTENTO DEL MIO ASPETTO FISICO.	☐	☐	☐
33. LA MIA È UNA BELLA FAMIGLIA.	☐	☐	☐
34. VORREI PIACERE DI PIÙ AI MIEI AMICI.	☐	☐	☐
35. QUANDO È ORA DI TORNARE A CASA **NON** RITARDO MAI, SONO SEMPRE PUNTUALE.	☐	☐	☐
36. PENSO CHE LE MIE PAGELLE SCOLASTICHE SIANO ABBASTANZA BUONE.	☐	☐	☐
37. SONO BRAVO NEGLI SPORT.	☐	☐	☐
38. LA MIA FAMIGLIA **NON** È CONTENTA DI ME.	☐	☐	☐
39. PER ME È FACILE FARE NUOVE AMICIZIE.	☐	☐	☐
40. MI ARRABBIO QUANDO I MIEI GENITORI **NON** MI LASCIANO FARE QUELLO CHE VOGLIO.	☐	☐	☐
41. VORREI ESSERE PIÙ BRAVO A SCUOLA.	☐	☐	☐
42. VORREI AVERE L'ASPETTO FISICO DI QUALCUN ALTRO.	☐	☐	☐
43. CREDO CHE I MIEI GENITORI SAREBBERO FELICI SE IO FOSSI MOLTO DIVERSO DA COME SONO.	☐	☐	☐
44. HO ABBASTANZA AMICI.	☐	☐	☐
45. MI LAVO SEMPRE I DENTI DOPO AVER MANGIATO.	☐	☐	☐
46. SONO ABBASTANZA BRAVO NEI COMPITI IN CLASSE.	☐	☐	☐
47. SONO CONTENTO DEL MIO CORPO.	☐	☐	☐
48. MI PIACE COME MI COMPORTO QUANDO SONO IN FAMIGLIA.	☐	☐	☐
49. SONO UN BUON AMICO/A.	☐	☐	☐
50. PREFERIREI VENISSE INCOLPATO UN ALTRO AL POSTO MIO.	☐	☐	☐

Second questionnaire:

QUESTIONARIO SULL'USO DEGLI STRUMENTI COMPENSATIVI

Gentile studente,

il seguente questionario ti viene sottoposto da una studentessa del corso di laurea magistrale Scienze del Linguaggio, dipartimento di Studi Linguistici e Culturali Comparati, presso l'Università Ca' Foscari di Venezia, al fine di svolgere una tesi di ricerca in merito a come l'uso degli strumenti compensativi e le misure dispensative influenzino l'autostima dello studente con dislessia frequentante una scuola secondaria di primo grado.

Ti viene chiesto di dedicare pochi minuti del tuo tempo alla compilazione in forma anonima del questionario, che sarà di fondamentale importanza per la realizzazione della presente ricerca.

Il questionario è composto da due parti. Nella prima ti viene chiesto quali sono gli strumenti compensativi che usi e se nella tua classe ci sono altri studenti che manifestano le tue stesse difficoltà. Nella seconda parte il questionario prevede 3 risposte ("è vero", "qualche volta" e "è falso") per ciascuna delle 26 domande da scegliere ponendo una crocetta sul quadrattino relativo alla risposta che ritieni opportuna.

Ricorda che non ci sono risposte giuste o sbagliate per cui è importante che il questionario sia compilato con serenità e sincerità.

Ti ringrazio per la collaborazione.

Vera Sonda

- QUALI DI QUESTE FACILITAZIONI TI SONO STATE ASSEGNATE?

  - ☐ SCHEMI
  - ☐ CALCOLATRICE E TABELLE
  - ☐ SCALETTE GIÀ PRONTE PER I TEMI
  - ☐ SOFTWARE PER LA SINTESI VOCALE
  - ☐ LIBRI SEMPLIFICATI
  - ☐ PIÙ TEMPO PER LE VERIFICHE E VERIFICHE FACILITATE
  - ☐ INTERROGAZIONI PROGRAMMATE, POSSIBILITÀ DI RIMANDARLE E DI FARLE PRIVATAMENTE (SOLO CON L'INSEGNANTE)
  - ☐ ESONERO DALLA LETTURA AD ALTA VOCE
  - ☐ ESONERO DALLO STUDIO DI UNA SECONDA LINGUA STRANIERA
  - ☐ PIÙ COMUNICAZIONE CON GLI INSEGNANTI
  - ☐ ALTRO_____

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- DA QUANTO TEMPO NE FAI USO?

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- NELLA TUA CLASSE CI SONO COMPAGNI CON DIFFICOLTÀ SIMILI ALLE TUE?

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DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
1. I MIEI COMPAGNI MI INVIDIANO PERCHÉ USO GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
2. QUANDO USO GLI STRUMENTI COMPENSATIVI DURANTE LE VERIFICHE I MIEI COMPAGNI PENSANO STIA IMBROGLIANDO.	☐	☐	☐
3. I MIEI COMPAGNI SONO CONTENTI CHE USI GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
4. I MIEI COMPAGNI MI FANNO SENTIRE DIVERSO QUANDO USO GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
5. QUANDO PRENDO UN BEL VOTO I MIEI COMPAGNI PENSANO CHE ME LO SIA MERITATO.	☐	☐	☐
6. I MIEI COMPAGNI MI PRENDONO IN GIRO QUANDO USO GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
7. I MIEI COMPAGNI CAPISCONO CHE QUESTI STRUMENTI COMPENSATIVI MI SERVONO.	☐	☐	☐

8. INVIDIO I MIEI COMPAGNI PERCHÉ LORO **NON** USANO GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
9. MI SEMBRA DI IMBROGLIARE AD USARE GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
10. SONO CONTENTO DI USARE GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
11. MI SENTO A DISAGIO QUANDO USO GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
12. QUANDO PRENDO UN BEL VOTO PENSO DI MERITARMELO.	☐	☐	☐
13. MI SENTO RIDICOLO A USARE GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
14. USANDO GLI STRUMENTI COMPENSATIVI STUDIO MEGLIO.	☐	☐	☐

DOMANDA	È VERO	QUALCHE VOLTA	È FALSO
15. I MIEI GENITORI PENSANO CHE USARE STRUMENTI COMPENSATIVI SIA UNA FORMA DI PIGRIZIA.	☐	☐	☐
16. I MIEI GENITORI SONO CONTENTI CHE USI GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
17. I MIEI GENITORI SONO IMBARAZZATI CHE IO USI STRUMENTI COMPENSATIVI.	☐	☐	☐
18. I MIEI GENITORI SONO FIERI DI ME QUANDO PRENDO UN BEL VOTO.	☐	☐	☐
19. I MIEI GENITORI MI SPRONANO AD USARE GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
20. I MIEI GENITORI CAPISCONO CHE GLI STRUMENTI COMPENSATIVI MI AIUTANO.	☐	☐	☐

21. I MIEI INSEGNANTI PENSANO CHE USARE STRUMENTI COMPENSATIVI SIA UNA FORMA DI PIGRIZIA.	☐	☐	☐
22. I MIEI INSEGNANTI SONO CONTENTI CHE USI GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
23. I MIEI INSEGNANTI SONO INFASTIDITI QUANDO USO GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
24. QUANDO PRENDO UN BEL VOTO I MIEI INSEGNANTI PENSANO CHE ME LO SIA MERITATO.	☐	☐	☐
25. I MIEI INSEGNANTI MI INCORAGGIANO AD USARE GLI STRUMENTI COMPENSATIVI.	☐	☐	☐
26. I MIEI INSEGNANTI RITENGONO UTILE CHE USI GLI STRUMENTI COMPENSATIVI.	☐	☐	☐