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Psycholinguistics Perspective on Dyslexia

The case of the First Year Middle School Students

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Before the jury

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Dedication

This dissertation is dedicated to those children struggling from learning disabilities. Their daily persistence and courage are a lesson for us. And I am particularly thankful to all teachers and professionals who devote their lives, work and an enough attention to the children with learning disabilities, far away from discrimination, and whose understanding, awareness and sensitivity to assist these pupils by doing their best in making a difference in disabled student's life.

Abstract

 The aim of this paper is to approach dyslexia in terms of psycholinguistics and analyze the learning disabilities of dyslexic students in a language class. Dyslexic children have problems in recognizing phonemes in reading and due to that they are unable to understand what they read or write. Thus, the study aims at investigating the impact of multisensory applications in teaching English as a foreign language (EFL) to first year middle school student who might be at risk of being dyslexic, and what effect it causes in the student's performance regarding the three skills; reading writing and spelling. This study employed a descriptive qualitative method since it emphasized on describing the phenomena of dyslexia. The study took a quasi-experimental action in order to investigate the influence of multisensory techniques in dyslexic's intervention. By using an observation in order to identify the children at risk of dyslexia, hence, a pre- and post test were designed including an intervention program for one hour and half per session for a sample of 16 first year middle school students. And it further seeks to explore teacher's awareness of the learning disability of dyslexia. Moreover, the findings were presented in narrative or textual description. However, number was also used to support the analysis of the data. Some steps in analyzing the data were: identifying the raw data, classifying, analyzing and interpreting the data based on its contexts, reporting the findings, and drawing the conclusion. The results showed evidence supporting language deficits such as dyslexia in the children tested. Moreover the findings revealed that multisensory techniques have great impact on dyslexic's intervention. These results suggest that children with reading and writing difficulties have lower language skills than that of typically developing children.

Key terms: Dyslexia, EFL classroom, Intervention program, Learning disabilities, Multisensory approach to language teaching, Psycholinguistics.

List of Abbreviations

ADHD: Attention Deficits Hyperactivity Disorder

EFL: English as a Foreign Language

FL: Foreign Language

LD: Learning Disability

LCDH: Linguistic Coding Deficits Hypothesis

L2: Second Language

UK: United Kingdom

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General Introduction

Overview

Dyslexia which includes difficulties in the acquisition of reading in particular, spelling and writing, is the most common of the learning disabilities (Beaton, 2004). Dyslexia is neurological in origin which is a linguistic problem not a visual one and it is resulted from a brain dysfunction. However, there are two types of dyslexia acquired and developmental dyslexia, the former is a cause of damage to the brain, while the later is biological in origin which is a different functioning of the brain i.e. the child born with this disabilities. Moreover, dyslexia affects 10 percent of the child population as educationalist agreed i.e. one or two children are expected to be struggling from dyslexia in every class and in any school. (Lawrence, 2009).

Dyslexia is a literacy and language skills disability that is characterized by impairments in phonological and orthographic processing as core symptoms. Which includes difficulties in: reading written papers, acquiring that a word is made up of letters and that those letters have a particular sound and shape, memorizing a word for instance, name of a persons, places or objects and phone numbers…etc, the acquisition of new vocabulary, recognizing familiar words, producing or recognizing rhyming words, decoding single word, sound discrimination, isolation sounds and expressing thoughts and ideas on written form. In addition to deficiencies in: distinguishing between left and right, attentional demands, interpreting people's non verbal cues and they tend to avoid reading aloud. (Riddick, 2010). Thus, many researchers has attempts to find a special treatment for dyslexic pupils, and Dr, Orton, Anne Gillingham and Bessie Stillman (1936) were the first to suggests the multisensory approach to teaching pupils with learning disability; multisensory approach includes engaging all students senses (kinesthetic, tactile, visual and auditory) simultaneously during the learning process (Lawrence, 2007).

Objectives

The objective of the research study is to obtain a based empirical comprehension of the psycholinguistic characteristics of dyslexia, for the sake of making Middle School teachers aware of dyslexia a specific learning disability, and what intervention is available to appropriately meet and address the unique needs of a learner with an eligibility criterion, but unfortunately struggles from a particular disability.

Statement of the Problem

All students want to achieve a specific goal in their lives, and dyslexia students can't even learn equally as their peers. The majority of the English teachers from the four Middle School namely: Chahid Mohamed Ben Lemkotem, Taibi El Jamai, 17 Octobre 1961 and El Moudjahid Saker Mohamed, do not know about the concept of dyslexia and its characteristics, thus it causes a serious problem. Since a student being dyslexic without getting a special instruction will unfortunately destroy his/her future career. Thus, the study was conducted in order to clearly define the psycholinguistic symptoms of dyslexia, and to identify the psycholinguistic consideration that should be made for dyslexics' intervention.

Research Questions

1. What are the psycholinguistic symptoms and characteristics of dyslexia?
2. Why English as a Foreign Language is challenging for dyslexic pupils?
3. What are the suggested solutions to address dyslexia?

Hypotheses

The following hypotheses attempt to answer the research questions:

1. Dyslexia is characterized by impairment in phonological and orthographic processing (letter/sound recognition, decoding, segmenting, blending and manipulating sounds in words…etc), and it is first identified by the difficulties in reading acquisition.
2. Students struggling from dyslexia tend to face difficulties in learning EFL, because it is a language with a deep orthography.
3. Training dyslexics in phonological awareness will enhance dyslexic pupil's performance in the English language.
4. Multisensory techniques play a major role in dyslexic's intervention, and it is recommended to reinforce and repeat each skill that is taught to help dyslexics overcome their difficulties.

Method

A descriptive analytical method was adapted for this study, as it is the convenient one, because it aims at describing the phenomena of dyslexia. A further true-experimental action was adapted in order to investigate the effectiveness of implementing multisensory approach for teaching dyslexics. Three valuable tools were used in conducting data of the study which are: observation check-list,

tests, and questionnaire. The number of participants are 16 Middle School English students and 13 Middle School English teachers from Hay El Nacer distric of Ouergla; the sample of students are for the true-experimental action, in which to investigate the effectiveness and efficiency of multisensory implementation for dyslexics' intervention, and the sample of the teachers are for the questionnaire that seeks to investigate teachers' knowledge, attitude and beliefs about dyslexia and multisensory approach to teaching dyslexics. However, descriptive qualitative and quantitative methods were used for data analysis.

Significance of the Study

Hopefully that the study will make disabled students whom they face difficulties in phonological and orthographic processing, be aware of the learning disability dyslexia, and that there exist an intervention for this disability, which will be as a great assistance for them and their teachers and parents to help them overcome their difficulties in learning English as a foreign language. The study describes a significance contribution in exposing to the teacher as well as the learner the knowledge of the learning disability dyslexia and its symptoms. And what psycholinguistic consideration should be taken for dyslexics' intervention, thus, introducing the multisensory techniques for the remediation of such disability, and its effectiveness and efficiency.

Limitations of the Study

Throughout my investigation I was confronted by some barriers that affected my research validity in the sense that three teachers of the Third Middle School did not turn back the questionnaire, so from 16 teachers I got only 13 questionnaires answered. In addition to, I needed one week for my experiment, but unfortunately the school headmaster could manage only five days for my study. Also I designed an interview for some parents of dyslexic pupils for collecting their views and perception concerning our topic, but unfortunately because of some constraints the parents could not come to school to conduct the interview with them.

Structure of the Study

This study is composed of two chapters. The first chapter will discuss the theoretical framework including the definition of dyslexia, its origins and types, dyslexia in EFL and the implementation of multisensory teaching techniques for dyslexics' intervention. The second chapter consists of two sections; one presents the methodology adopted for data collection and analysis, and the second elicits the findings and elaborates a discussion and analysis of the results.

Definition of Key Terms

Dyslexia: is a neurological disorder that affects literacy and language skills, which is characterized by the disabilities in reading, spelling and writing. Typically these disabilities are caused from a deficit in the phonological and orthographic component of the language, in addition to impairment in working memory, short term memory, expressing thoughts, and distinguishing left from right…etc. However, individuals with dyslexia differ from one to another in their symptoms, and it is known that dyslexia does not affect completely intelligence and creativity. (Reid, 2011).

EFL Classroom: a term used when English is used by non-native speakers and when it is not considered as a second language to them, but an additional language. Learners of English as a foreign language are all from the same culture; in addition to they do not have many chances in using English outside the classroom. (Hamada, 2017).

Intervention program: it is an explicit, planning and systematic treatment service for individuals who have language impairment, and need special remediation to overcome their difficulties. Intervention program is used to assist pupils in their learning process. However, many researchers from various perspectives recommended the planning of an intervention program for (disabled students); in which it target their special needs and wants. (Mather & Wendling, n.d).

Learning Disabilities: Wong, Graham, Hoskyn and Berman (2008) define the learning disability as a group of disorders that are heterogeneous, which includes problems in acquiring, reading, writing, listening, speaking arithmetic and reasoning. Learning disabilities are genetic and due to a dysfunction in the nervous system.

Multisensory Approach to Language Teaching: is an essential aspect for dyslexics' instruction used by teachers. And an effective method that involves the implementation of the four pathways simultaneously which are: visual, auditory, tactile and kinesthetic, in order for enhancing student's performance in connecting language to words. Multisensory techniques which stimulate learning by engaging all student senses simultaneously has been supported by dyslexia literature as the most effective instrument for dyslexics intervention. (Pavey, 2007).

Psycholinguistics: is the study of how language is processed in the brain, in which people do acquire, understand and produce the language. According to Garnham (2014) psycholinguistics is a scientific discipline, which aims at studying the mental mechanisms that allow people to implement the language. And that it is a coherent theory. (Garnham, 2014, p. 1).

Chapter one: Literature Review

Pupils' Learning Disabilities and Reading Development

Introduction

The description of many different of learning issues are under the umbrella term of 'learning disabilities' (LD) which was initially suggested by Kirk (1963) as cited in Mahakud (2013), who illustrated that the disorder that affect the development of language; all means for social interaction, reading, speech and related communicational skills is referred to LD. However, Selikowitz (2012) defines the specific learning difficulty as follow: ' an unexpected and unexplained condition, occurring in a child of average or above average intelligence, characterized by a significant delay in one or more areas of learning'' (Selikowitz, 2012, p.04).

A specific learning difficulty is a continuous problem, and it is composed of two areas of learning as Selikowitz (2012) suggested. The first area is concerned with the basic academic skills; the comprehension and expression of spelling, reading, writing, mathematics, and language, which are the foundation of learning. The second area consists of skills such as, management, perseverance, social competences, impulse control, and movement coordination, which are less easy to measure. Kirk, (1963) as cited in Mahakud (2013) claimed that the symptoms of children's performance appear from the central processing mechanisms dysfunction. Some people with learning disorder have particularly reading disorder, which is commonly attributed to the term dyslexia. Before going into the concept of dyslexia, it is important to discus reading skill. Hence reading is considered as a diversity of different activities and it is a complicated behavior that command for a range of cognitive skills ,Freud wrote in his monograph on aphasia that:

> The process of learning to read is very complicated indeed...Everybody knows from self observation that there are several kinds of reading some of which proceed without understanding. When I read proofs with the intention of paying special attention to the letters and other symbols, the meaning of what I am reading escapes me to such a degree that I require a second perusal for the purpose of correcting the style. If, on the other hand, I read a novel, which holds my interest, in overlook all misprints and it may happen that I retain nothing of the names of persons figuring in the book except for some meaningless feature, or perhaps the recollection that they were long or short, and that they contained an

unusual letter such as x or z .Again, when I have to recite… I am in danger of caring too little about the meaning, and as soon as fatigue sets in am reading in such a way that the listener can still understand, but I myself no longer know what I have been reading.

(Freud, 1953, pp. 75-76 cited in Beaton, 2004, p. 02).

Freud (1953) explained that the reading skill is a complex process, in which people might read without comprehending what they have been reading, and this is due to two reasons as Freud suggested. On one hand, during the reading process, people tends to be carefully noticing the letters and symbols, in which it lead them to lose concentration on the meaning of what they have been reading. On the other hand, feeling tired of reading may also negatively affects the comprehension.

1.1 The Concept of Dyslexia

Neuropsychological studies on dyslexia claimed that dyslexics are not careless, lazy and stupid. Many dyslexics have average intelligence, and above average intelligence, which means they are not negatively affected by intelligence and artistic creativity, and a good example of an accomplished and brilliant people were struggling from dyslexia are: the wall street investor Charles Schwab, poet William Butler Yeats, the writer Jhon Irving, and General George Patton. (Goldish, 1998). And many luminaries like: Leonardo da Vinci, Hans Christian Andersen, Thomas Edison, Albert Einstein, and more recently the actors Anthony Hopkins and Tom Cruise. (Roger Fischer, 2003).

Dyslexics do differently process reading from the others, in which they cannot break words down into their phonemes. For instance, the word ''Cut'' is composed of three phonemes which are: ''kuh'', ''uuh'' and ''tuh''. (Goldish, 1998). Haberlandt, (1997) as cited in Shohov (2002) claimed that when dyslexics' process words whether spoken or written they face deficits in phonological decoding. And this shows that they tend to take longer time in retrieving a letter or a word of a linguistic entity name, encounter problems in discriminating phonemes similarity, unable to adequately pronounce non-words, unable to blend, segment, and manipulate sounds in words, and they are unable to efficiency name things shown in pictures such as digits and objects. In the same vein Olofson & Niedersie (1999) as cited in Shohov (2002) claimed that most dyslexics are sharing phonological decoding deficits.

However, dyslexics tends to have confusion in: letters that have similar sounds for instance spelling 'every' as 'efry', pronouncing certain multisyllabic words, such as: saying 'puh-si-fic' when they mean 'specific', in words that have similar sounds 'that book really memorized me' when they really meant 'mesmerized'. In addition to spelling words just the way they sounds not the way they look for instance: spelling 'they' as 'thay', in semantics, such as, reading 'dinner' as 'food', even though they may have a good vocabulary.(Mather & Wendling (n.d).

Hence, 'Can there be a single definition of dyslexia?'(Miles, 1995, 37 cited in Lodej, 2016, p. 21). A question that remains to be unanswered, as a consequence of dyslexia research that includes various disciplines, in which it developed apparently in isolation. However, Lodej (2016) proposed how the definition of the concept of dyslexia expanded over time as follows: Firstly the World Federation of Neurology (1968), in Pumfrey and reason (1992) observed that dyslexia is characterized by deficits in cognitive abilities that are constitutional in origin, in which it makes it difficult for the acquisition of reading, regardless of adequate instruction, socio-cultural opportunity and average or above average intelligence.

Secondly, the British Dyslexia Association (1989), in Pumfrey and reason (1992) defined dyslexia as a specific learning difficulty which is constitutional in origin is related to; problems in acquiring and implementing written language such as: musical notation, numerical and alphabetic, difficulties in one or more of spelling, writing reading, and it may also have an influence on oral language.

Thirdly, Dyslexia Association in 2007 describes dyslexia as impairments in; phonological processing, processing speed, working memory, rapid naming, and automatic development of skills which are not related to cognitive abilities. Dyslexia is a literacy and language skills disability, in which this condition occurs first at birth and remains constant. But it may become in less severe form by designing a special intervention with applying technology information and counseling service.

Fourthly, Schmorrow and Fidopiastis (2011) claimed that there is an acceptable definition for dyslexia that was suggested by {16} (The international Dyslexia Association, 2002), which claim that dyslexia is a deficit in phonological component of the language, due to that dyslexics tend to face difficulties in decoding and recognizing words, in addition it may includes reading difficulties and comprehension; which do negatively influence the development of background knowledge and vocabulary, and this is despite adequate instruction and cognitive abilities. (Schmorrow & Fidopiastis, 2011)

Fifthly, Miles (1995) concluded the discussion on the various definition of dyslexia in which he states that:

> In principle there could be differences in the behavior of dyslexics in different educational environments, for example perhaps as regards overactive behavior and distractibility, and certainly the term specific learning difficulties would not have the same associations in the USA. Yet there is no need to consult with experts in other countries [as the Orton Dyslexia Association and the British Dyslexia Association attempted]. No one country has exclusive rights to interpretation of the term!

> (Lodej, 2016, p. 21-24)

Researchers did not come up with an agreement on a stabilized definition for the concept dyslexia. There are three reasons for the incongruities of definition of dyslexia. The first reason is attributed to the various symptoms that dyslexia has, and that it differs from one dyslexic to another, in which it causes a misapprehension to the concept of dyslexia of trying to put one label for the diversity of dyslexia symptoms, because dyslexia cannot be regarded as a single entity.

The second reason for the lack of consensus definition lies upon devising a single definition that would be appropriate to label both dyslexic adults and children. Dyslexics adult are different from dyslexic children, because dyslexia in adults is usually more complex than in children and this is the reason why dyslexia should be diagnosed earlier.

The third reason is that many researchers from various theoretical perspectives have tended to label their definition on either descriptive or casual factors. (Lawrence, 2007). No acceptable definition exists, in spite the fact that many professional organization have attempted to promote a definition of dyslexia. (Tonnessen, 1997, cited in Mathher & Wendling, (n.d).

1.2 The Emergence of the Term Dyslexia

Adolph Kussmaul, a German physician, developed the term 'word blindness' in 1877 referring to his patients who tended to reverse words, as a cause of visual problems. Later on Rudolf Berlin, an ophthalmologist coined the term dyslexia in 1887 instead of 'word blindness', describing an adult patient with several learning impairment (reading, writing…), with no apparent of visual problems. (Beaton, 2004). In 1896 a report in the British medical journal was published by Morgan,

a British physician and the first to describe childhood dyslexia, the report covered '' Congenital word-blindness'' as a reading-specific learning disorder, in his description Morgan wrote:

> Percy F._a well-grown lad, aged 14_is the eldest son of intelligent parents… He has always been a bright and intelligent boy, quick at games, and in no way inferior to others of his age. His greatest difficulty has been_ and is now_ his inability to learn to read. This inability is so remarkable, and so pronounced, that I have no doubt it is due to some congenital defect…the greatest efforts have been made to teach him to read, but, in spite of this laborious and persistent training, he can only with difficulty spell out words of one syllable… The schoolmaster who has taught him for some years says that he would be the smartest lad in the school if the instruction were entirely oral… His father informs me that the greatest difficulty was found in teaching the boy his letters, and they thought he never would learn them.

> (Morgan, 1896, p. 1378 cited in Beaton, 2004, p.03).

He concluded that the causes of reading disabilities are congenital and are due to a defect on the development of the brain's left angular gyrus. In addition to Herman (1959) as cited in Beaton (2004) the Danish neurologist emphasized on that:'' congenital word-blindness does not involve only difficulties in reading and writing, but is a more widespread disturbance of function relating also to other symbols, e.g. numbers and musical notes, and is thus a general asymbolia''.(p.08). However, according to Herman the diagnosis of dyslexia is not limited on a single symptom that is consistently present and that disabilities of reading, writing and spelling are fundamental. This observation revealed, in a composition of the Bango dyslexia text (Miles, 1952, cited in Beaton, 2004), which concentrated on assessing a variety of tasks performance, in which they were not concerned with reading, for instance difficulties with identifying left and right, difficulties in recalling a series of digits in reverse order, or in reciting the alphabet or months of the year. (Beaton, 2004).

In early 1900s, in Medical journals a set of articles discussed identical cases of congenital word blindness published by a British ophthalmologist, James Hinshelwood concerning children with difficulty to learn to read who suffers no brain damage. (History of Dyslexia Research, n.d). Hinshelwood claimed that the initial source of disabilities was referred to visual memory for words and letters, and a further description of the symptoms involving difficulty with reading comprehension spelling and letter reversals. In the same vein Orton (1923) as cited in The History

of Dyslexia (n.d) a neuropsychiatrist invented the term strephosymbolia, in order to refer to the difficulties in learning to read with undamaged brain. He used specific reading disability more than strephosymbolia in describing individuals with dyslexia. Along the same vein Orton observation shows that dyslexia reading deficits are not from visual deficits.

A hypothesis emerged in 1970s stating that children face deficits in phonological processing, or difficulty to recognize that a spoken word is formed by separate phonemes. Consequently, individuals face difficulties to associate these sounds with the visual letters that form up written words. However, studies showed that phonological awareness is a key success for children with reading difficulties. (The history of dyslexia (n.d).

The idea of congenital word blindness or dyslexia did not quickly perceived by educationalist in UK (report by single Morgan and subsequent papers by (among others) Thomas, 1905, Fisher, 1905, Stephenson, 1907 and Hinshelwood, 1895, 1896, 1898, 1917, cited in Beaton, 2004). Gooddly and Reinhold (1961) observed in more than half a century later that: ''Cases of reading and writing difficulties are well known to neurologists and psychiatrists, but they are regarded as very uncommon in Great Britain. In Denmark, however, the condition is considered to be quite common'' (Gooddly & Reinhold, 1961, p. 231, cited in Beaton, 2004, p. 04)

The UK did not accept the view of a specific reading disability as a consequence of the conflicting and discouraging terms implemented to refer to the condition. For instance Fildes (1921) viewed the term 'congenital word blindness' as confusing and Ingram (1963) pointed out that:

> Naturally, psychologists are reluctant to diagnose children with difficulties in auditory discrimination or in synthesis of the spoken word, (which are more important causes of reading retardation than viso-spatial) difficulties, as being 'word blind'

> (Ingram, 1963, p. 200, cited in Beaton, 2004, p. 04).

However, for many people the concept of dyslexia still ambiguous. (Beaton, 2004). Moreover, a common observation shows that reading difficulties is related to gender differences, a much number of studies claimed that less girls than boys have learning disabilities, in addition to the frequently findings of the widespread presence of difficulties in reading in boys from twice to eight times compared to girls (U.S. General Accounting Office, 1981, Shaywits & Shaywitz, 1988; Wong, 1998, cited in Shohov 2002), speculatively remains the reason of differences in gender. Although, Shohov (2002) claimed that the reason may be biological i.e. girls seems to be less vulnerable than

boys, or culturally determined i.e. parents tend to be less tolerant when disrupting behavior of girls comparing to boys.

On one hand, at the beginning, neurologists reported that individuals who suffers from stork, damaged brain, or disease are consequently lost reading ability and they described this as Acquired dyslexia, on the other hand, at the end of the 19th century neurologists observed that normal child may struggle in learning to read and this condition is called Developmental dyslexia. (Rickheit & Strohner, 2008).

1.3 Developmental and Acquired Dyslexia

There are two broad categories of dyslexia: acquired and developmental dyslexia. Developmental dyslexia is different from acquired dyslexia and a clearly description was provided by Ewald Jackson and Coltheart (2001) as cited in Esgate et al., (2006) they stated that developmental dyslexia is biological , is concerned with those who have never been able to achieve a normal reading skill, whereas, acquired dyslexia is a reading disorder that is resulting from an injury of the brain; it might be due to generative disorder, brain infection, or stroke, and it is concerned with those who have already achieved a normal level of reading skill, and later on loses this ability.

Marshall and Newcombe (1973) as cited in Hayes (2000) proposed two types of acquired dyslexia, surface and deep dyslexia: the first attempts to describe the symptoms of difficulties in reading those irregular words with unusual spelling, and confusing words that sound the same for instance 'saw' and 'sore'. They also tend to spell things how they sound, such as 'lurn' for learn'. Surface dyslexic faces difficulties on the form of the words rather on comprehension. The later was described by Shallice and Warringto (1980) as cited in Hayes (2000) they stated that those who are suffering from deep dyslexia encounter difficulties in the comprehension, in which it is easy to read adjectives and nouns, while difficult to read function words and verbs, this is related somehow to how much it is easy to form a mental image of nouns and difficult to imagine the word 'and'. Deep dyslexia often related to problems in reading a nonsense word, while it is easy for surface dyslexics.

The 'congenital word blindness' or the developmental dyslexia and the acquired varieties of reading disorder were compared by Hinshelwood (1917) as cited in Beaton (2004) in which he stated that: '' an adequate knowledge of the former condition is an essential preliminary to the proper understanding of the latter ''. (p. 40). However, Drew (1956) commented in a father and sons report of 'congenital word blindness 'that: it is impossible to avoid comparison of the findings

in these patients with hereditary dyslexia and other patients who have dyslexia as a result of acquired cerebral lesions'' (Beaton, 2004, p.455). However, in 1963 Ingram observed that: ''the clinical syndromes found in the developing child do not conform accurately to those of the adult with brain injury'' (Beaton, 2004, P. 200). In contrast with Critchley (1970) who pointed out that: ''the acquired dyslexic shares with the developmental dyslexic a certain lack of facility in the full appreciation of verbal symbols; but there the likeness rests, and the analogy should not be presses further'' (Critchely 1970, p.105 cited in Beaton, 2004, p.04).

Most dyslexic children have developmental type, the causes of this type are genetic and it runs in families. However, there are mixtures of elements that display dyslexia as not 100 percent inherited; some of them are inherited while others are not. For instance, it does not mean that a child will definitely have dyslexia, if his/her parent has it. And a child may have dyslexia even though his/her both parents are fluent readers. (Hultquist, 2006)

1.4 Distinguishing Dyslexics from Poor Readers

Not all types of reading problems are considered to be dyslexia. Wong (1996) as cited in Mahakud (2013) stated that most children under learning disabled categories are first identified through their difficulties in learning to read. It is debatable issue concerning the question of whether dyslexia differs from poor reading.

Olofson & Niedevsoe (1999) as cited in Shohov (2002) claimed that poor readers also have deficits in phonological processing as dyslexics, but maybe in a minimum way, and they differ from dyslexics, in which they have several of cognitive deficits. However, Some authors believe that there exist differences between poor readers and dyslexics, while others do not agree on the existence of such differences, and they declared that they are very subtle or are not present. Such as Siegel (2003) who claimed that '' …there is no difference between dyslexia and a reading disability; they are exactly the same'' (Reynolds, Miller & Weiner, 2003, p. 472). In the same vein Shohov (1992) finds no significantly differences among reading, spelling, phonological processing or in short memory. Thus she concluded that it appears to be non-meaningful in distinguishing dyslexics from poor readers. By contrast with, Ackerman and Dykma (1993) as cited in Shohov (2002), suggested that dyslexics differs from poor readers in cognitive profiles in which they stated that poor readers tend to perform tasks such as running memory span or speed of continuous naming and phonological sensitivity as normal readers do, meanwhile the findings reveal that dyslexics have the worst execution ever comparing with normal group performance of such tasks. Along the same vein, Badian (1996) as cited in Shohov (2002) also noticed significant impairment

executions in dyslexics in comparison with poor readers in reading tasks, and accounted for serial naming-speed orthography and phonological tasks deficits. She attempted to validate the concept of dyslexia by claiming that dyslexic children of an age 6-7 years old performance on reading tasks are similar to poor reader performance. Nevertheless, Badian supported the concept of poor reading as a lag in the development of the phonological skills at the age of 8-10 years old and the concept of dyslexia as a phonological deficit.

Poor reading have many types of cognitive problems referred to reading processes as tests exploring cognitive deficiencies have observed (Perfetti, 1985, cited in Shohov 2002). Shohov (2002) concluded the findings of the comparison between poor reader's deficiencies and good reader in which he states that:

> Poor readers are less sensitive to orthographic structure, take longer time to name words, they are not effective in using speech codes for processing linguistic stimuli, they are deficient on tasks of phonemic awareness, they are more reliant on context, they do not use the syntactic structure with same efficiency, they are not good when using working memory, they do not have a good recall of text and have shorten memory spans, etc. (p.77)

Haberlandt (1997) as cited in Shohov (2002) assured in concluding the dyslexia difficulties and importantly the facts founded in dyslexic children, stating that, in addition to the diversities of dyslexia, there are many theoretical models that seeks for accounting of these subtypes. Theorists have assigned to phonological processing, visual processing, cognitive resources and limitation in general language understanding in dyslexia specific deficiencies.

1.5 Dyslexia in Foreign or Second Language Learning

The most serious problems of dyslexics in second language (L2) learning is the association of reduced phonological short-term memory capacity, slow and inaccurate word recognition skills and difficulties with phonemes awareness. In Norway, Halland and Kassa (2005) as cited in Kormos and Smith (2012) a study was conducted showing that the language of dyslexic learners group can be considered as heterogeneous, and their different cognitive ability profiles need to be carefully regarded in assessment practices and instructional programmers. This was dependent upon a prepared tests for dyslexic children, and the results showed that those who performed worse only in tests of second language grammar, spelling and reading words were those with good auditory processing skills, while children with poor abilities of speech perception performed worse in L2

speaking, listening, grammar, vocabulary and reading sentences, which means they failed in all the components of the test.

However, it is argued that Attention Deficits Hyperactivity Disorder (ADHD), have a little impact on successfully acquire a second language, thus children who are diagnosed with ADHD can have a significant influence on their linguistic input and their comprehension. And most students with ADHD fail in academic performance and do not receive college and university education. (Sparks et al, 2005, cited in Peer &Reid, 2000).

Sparks and Ganschow (1989) as cited in Peer and Reid (2000) suggested the ''linguistic coding deficits hypothesis'' (LCDH) as a term to explain language difficulties faced by dyslexics foreign language learners. It is argued that poor foreign language learners share disability in the three types of linguistic coding which are: syntactic is the comprehension and application of the language system concepts; structure, grammar, phonological is to distinguish between the letter sounds relationship and to identify the relation between sound and symbol, and semantic is the comprehension of meaning. LCDH author's hypothesized that:

> FL learning is built upon native language skills; that is, an individual's skill in the native language components phonological, syntactic, and semantic serves as the foundation for successful FL learning … and that both native and FL learning depended on basic language skill, for example, phonological processing deficits, are likely to have a negative effect on both language systems. (Sparks, 1995, cited in Lodej, 2016, p. 73).

LCDH, emphasized on the view that skills in a native language build up foreign language learning, and that native language competencies, syntactic, semantic, phonological and orthographic are foundational for learning and aptitude in foreign language. Hence, the extents to which learners can achieve foreign language proficiency depend upon the strength and weaknesses of the native language codes. However, native and foreign language learning together rely on the fundamental mechanisms, furthermore difficulties encounter in one language skill are likely to negatively influence both foreign and native language systems. The majority of poor foreign language learners are more likely to experience difficulties with phonological and orthographic rules system of L2. (Peer & Reid, 2000).

Another factor that may affect dyslexic Foreign Language learners is Anxiety. Dyslexic learners tend to feel badly about themselves, as a result of their disabilities in achieving a normal learning as

their peers, they feel that they are not normal and this will put them at risk of losing their motivation (Kormos and Csizer, 2010, cited in Burns & Richards, 2018), and that's when anxiety sets in. Experiencing foreign language anxiety may stop dyslexic learners from taking further risks in achieving the learning process. They will consequently have low self-esteem. However, Riddicket et al., (1999) as cited in Kormos and Kontra (2008) found that individuals who suffer from disabilities in learning are more anxious compared to those with no apparent disabilities in learning. However, in a study of anxiety in dyslexic foreign language learners, Kormos and Kontra (2008) wrote:

> 1. Student with developmental dyslexia symptoms have a tendency to suffer from higher levels of anxiety at all stages of language processing in comparison to their unimpaired peers.

> 2. Their anxiety at the input and processing stages follows the same general path as the anxiety development observed in students without symptoms of developmental dyslexia it decreases significantly after the first year, remaining stable until the end of a three year secondary school.

> 3. Anxiety at the output stage of students with dyslexia symptoms remains permanently high throughout secondary school education due to processing problems at the preceding stages, and performance deficiencies connected with the affective consequences of developmental dyslexia.(Kormos & Kontra ,2008, p. 103)

Dyslexia is not a homogeneous phenomenon that is why dyslexic students are different in their symptoms. And there is an irregularity of a wide range of the difficulties encountered and the symptoms founded that differ from one dyslexic student to another.

1.6 Dyslexia and English as a Foreign Language

The process of acquiring new vocabulary is complex that command for the visual and auditory forms in the recognition of a word, being aware of its semantic properties and the knowledge of its morphosyntactic and integrating the word into the mental lexicon (Jiang, 2004; Oxford & Scarcella, 1994, cited in kormos & kontra 2008), thus, it is a challenging process even for language learners with no apparent of any symptoms of learning disabilities, (kormos and kontra 2008). However, students may have difficulty with reading English not because it is a foreign language to them, but because they are dyslexic. Thus, vocabulary for dyslexic language learners is one of the most

problematic areas (Kormos & Kontra, this volume; Shneider & Crombie, 2003, cited in kormos &kontra 2008), due to their phonological processing problems, while learners with no symptoms of disabilities find it easier to acquire vocabulary with no conscious effort (Schneider & Crombie, 2003 cited in kormos & Kontra, 2008).

In a case study, Ormos (2004) as cited in Kormos and Kontra (2008) claimed that learning vocabulary is considered as a challenge even for successfully dyslexic learners of English, because English is a language with deep orthography, and also because alphabet in English has twenty six letters that represent forty four phonemes, following Selikowitz (1993) proposition that during the reading process, there are five hundred and seventy seven grapheme to phoneme, that we should recognize. (Selikowitz, 1993, cited in Kormos & Kontra, 2008). However, learning English alphabet is considered as the most complex compared to other languages, and phonological difficulties will seriously cause a delay when learning to read. (Snowling, 2013, cited in Peer & Reid, 2016). In the same vein Nijakowska (2001) as cited in Kormos and Kontra (2008) described dyslexic learners who experienced severe difficulties in the acquisition of English vocabulary are due to the non-transparent nature of the English language.

As authors suggested that English language is the most difficult to learn for dyslexic learners, because of the incongruities in the orthographic related to the phonemes, and due to its non transparent nature, which means that the same sound can be spelt in different ways and a letter can stand for different sounds, that make it difficult for dyslexic learners to read and write English words, However learning the main grapheme phonemes relationship is not enough, while it requires finding new ways to decode other words with less transparent nature. However in transparent languages there may be more problems with encoding than decoding and less error in reading than in writing.(Kormos & Kontra ,2008).

Dyslexic issues should always link to self esteem, since it has a negative effect on the problems they face (Humphrey, 2003, cited in pixel, 2014). And it is related to the language input and how much time they take to maintain second language skills. (Oxford & sheari, 1994, cited in Pixel, 2014), and this referred to the spelling, writing and reading that the English language evokes. (Turner & Pughe, 2003, cited in Pixel, 2014). However, the behavior, method of instruction and attitude of the teacher towards dyslexic learners plays an important role in motivating dyslexics and for the effort they are willing to invest in learning the language.

1.8 Intervention of the Learning Disability Dyslexia

Many people are involved in the detection and identification of dyslexia. Miles and Miles (1990) as cited in Philomena Ott (1997) wrote: 'at least in the straightforward cases [however] it is now clear that the presence of dyslexia will be obvious to anyone with the appropriate experience, whatever their ''paper'' qualifications'.(p. 20). And parents are usually the best source on alerting for the early symptoms of dyslexia.

Dyslexia is no longer a medical concerns, but an educational one as Miles and Miles (1990) as cited in Philomena Ott (1997) claimed that: ' there is in our view, a good case for saying that it is a medical matter in origin and an educational matter its treatment''. (p.14). Furthermore in 1925, Dr Orton a neurologist suggested a recommendation of procedures in teaching those children with specific learning disabilities. Later on he published the first method in teaching language for those children with reading difficulties with the educationalists Anne Gillingham and Bessie Stillman (1936), in which they created the multisensory approach for dyslexic intervention. (Lawrence, 2007). Multisensory approach basic tents were defined by June Orton (1976) as follow:

> 1. ''It is a direct instruction approach to study of synthetic phonics presenting the sounds of the phonograms orally as separate units and the teaching the process of blending them into syllables and words.
>
> 2. It is an integrated, multisensory approach. Each unit and sequence is established through hearing, speaking, seeing, and writing. Auditory, visual, and kinesthetic patterns reinforce each other, a feature that also provides for individual needs among the students.
>
> 3. It is a systematic, step-by-step approach, proceeding from the simpler to more complex in orderly progression in an upward spiral of language development.''
> (June Orton, 1976, p.11 cited in Christo, Davis & Brock, 2009, p. 102)

The technique of multisensory teaching is a slow process that demands for a practice and a great patience. Multisensory techniques includes assisting dyslexic students in learning to link the written letter to a sound, and connecting that sound and the form of the written letter with their feeling in writing that letter. The Orton Dyslexia Society claimed that '' when taught by a multisensory approach, learners have the advantage of learning alphabetic patterns and words by utilizing three pathways''. (Donnelly, 2000, p. 22). However, Multisensory teaching involves: phonological awareness (the ability to comprehend how sounds form up words), sound-symbol awareness (the

comprehension of how a sound is related to a symbol; one letter or combination of letters), syllable instruction (understanding the division of words into syllables), morphology (understanding prefixes, suffixes, roots that joined form up a word), syntax (the grammatical structure of words that build up a meaningful sentence) , and semantics (how to construct meaning). Hence, implementing all senses will decrease the possibility of failure. Furthermore, for a successful learning each skill that is taught should be repeatedly reinforced, ''review and practice'', ''practice and review'' and ''review and practice'' until you notice an improvement in the child,. (Donnelly, 2000, p. 22).

Parents and the environment play a major role in the treatment of pupils with specific learning difficulties. Parents are the best child's advocate. However it is an important part in dyslexics intervention to make parents aware of their child's disability, studies proved that parents awareness of dyslexia will decrease their feelings of frustration, stress and denial when their child perform worse than expected. (Ozonoff, Dawson, & Mc Partland, 2002, cited in Dyslexia children: The Need for Parent's Awareness, 2018). In contrary, if parents are unaware of their dyslexic child will unfortunately cause them anxiety and will lose confidence on their child academic performance and future life. As a consequence of these behaviors children will be emotionally influenced. Hence, it is of vital importance to enlighten parents of the conditions of their child in order to take further consideration regarding appropriate and special treatment.

Moreover, parent's treatments should include: a great patience while helping children in reading tasks and other activities, because they tend to require much longer time as well as assistance, keeping on supporting and encouraging them without giving up on them and implement visual storytelling, because they are crucial to improve their attention spans and studying abilities (Yazid & yin, 2015 cited in Dyslexia children: the need for parent's awareness, 2018).

Conclusion

Obviously from the review of literature dyslexia or specific learning disability is neurological in origin and it is not due to an injury to the brain, and it is first identified from the difficulties in reading in particular, in which it includes impairment in phonological component of the language and orthographic processing. However, so many accomplished people were struggling from dyslexia, and this explains that dyslexia is not affected by intelligence and creativity; a dyslexic child may have average or above average intelligence.

Dyslexic pupils tend to perceive knowledge in a very structured and specified way, thus learning English is big challenge for them, as a consequence of its deep orthographic, in which

it causes them difficulties to read and write English words. However, various researchers from different perspectives agreed on training dyslexics in phonological awareness with the implementation of multisensory techniques (visual, auditory, tactile and kinesthetic), will eventually decrease their difficulties in learning process and increase scholastic achievement. (Lawrence, 2007). More importantly, if pupils with dyslexia went undiagnosed, will unfortunately encounter more serious social problems in their lives despite learning difficulties, thus, it is crucial for an early diagnosis of those children

Chapter two: Methodology, Results and Discussion

Introduction

The primary objective of this study is to explore the awareness of Middle School English teachers in district of Hey El Nacer Ouergla about dyslexia, specifically, it sought to study teacher's knowledge, beliefs and attitude towards dyslexia and it further aims at investigating the influence of multisensory approach on dyslexics' intervention. This chapter includes two sections; the first section will explain the methodology that was used for data collection and analysis in order to achieve the above highlighted aims. The second section will reveal the findings of the true-experimental action and the teacher's questionnaire. However, descriptive qualitative and quantitative methods were used for the analysis of data collected.

2.1 Research Methodology

2.1.1 Research Design

A descriptive qualitative research design was adapted for this study, in order to investigate the influence and the effectiveness of multisensory (Auditory, visual, tactile and kinesthetic) teaching approach, in the remediation of children who are struggling to learn English language as a result of their specific reading disability. Since multisensory technique is used as a means for dyslexics' intervention. Thus, the method that was adapted is a true-experimental research design, and it included an observational check-list, a pre test, intervention sessions and a post test. Furthermore, a questionnaire was distributed to Middle School English teachers, in order to explore ideas and insights into dyslexia. And the data collected is both qualitative and quantitative. On one hand, the quantitative data seeks to measure teachers' level of knowledge about a specific reading disability known as dyslexia and the multisensory teaching. On the other hand qualitative data elicit an insight understanding of participant's perception towards the learning disability; dyslexia and the implementation of multisensory techniques in the classroom for the intervention program of children with dyslexia.

2.1.2 Population

a. Students

The experimental group were First Year Middle School Students and they were selected only from one school, because it was the nearest school in the town area, the aim was to investigate the influence and the effectiveness of multisensory teaching approach in dyslexics' intervention.

b. Teachers

Teachers from all grades participated in this study, and they varied from new English teachers who just entered the profession and to teachers with experiences. The research was conducted in the three Middle Schools in the district. The aim was to explore teacher's knowledge and attitude toward dyslexia and their implementation of multisensory techniques in the classroom for dyslexics' intervention.

2.1.3 Research Sample and Sampling Procedure

A simple of random sampling strategy was adapted in the selection of the participating teachers; the research study included a sample of 13 English teachers that were pleasured to answer the questionnaire, the participant teachers were from the four Middle School of Hey El Nacer district of Ouergla. The teachers' gender was 11 female and only 2 male, and they are aged from 23 years old to 47 years old. Furthermore, a simple of random sampling was also implemented in the selection of the school for the application of the true-experimental action research project. The school was chosen, because it is the nearest school to my home, and in order to save time and energy. Thus, all First Year English Students were selected to participate in this study, in order to identify those children who are at risk of being dyslexic. The exact sample of the students before the selection were 190 children, they were 92 boys and only 98 girls. Therefore, an observation check list was handed over to the teacher, in order to identify those children who might be at risk of dyslexia, by identifying the deficiencies they face in English language learning. The purpose of selecting the teacher for the observational part, lays upon the experience and the knowledge she have of her students, the teacher will be capable in identifying the children at risk of dyslexia from those who don't have any signs of dyslexia. Furthermore, the teacher selected 16 children from 190 whom are considered to be at risk of dyslexia, they were 14 male and 2 female.

2.1.4 Research Instruments

a. Teacher's Observation of Students at Risk of Dyslexia

The aim of the observation check list is to identify and detect those students who might be at risk of dyslexia, depending on their disabilities, and in order to get involved in the intervention program. According to Reid (2011) the identification and detection of dyslexics students lays upon identifying their deficiencies in phonological processing, in orthographic processing and in observing their behavior, by using an observational checklist or heading .Hence, the observation contained three parts of deficiencies. The first part included the deficiencies in phonological processing and it contained 11 difficulties, the second part included the deficiencies in orthographic processing and it contained 9 difficulties, and the final part is concerned with other signs (behavioral part) and it contained 5 difficulties. The teacher is asked to tick in the column yes, no or rarely whenever she finds that this child face difficulties in this particular area.

b. Pre test

As long as the results from the teacher's observation check list showed that the selected children tend to have phonological deficits more than orthographic deficits. And many researchers agreed on that the treatment of dyslexia includes training dyslexics in phonological awareness, a further informal test with an informal assessment paper was prepared to clearly identify their weaknesses in phonological processing for the intervention phase. According to Reid (2011) an informal test and an informal assessment are highly needed in the identification of children at risk of dyslexia. The objective of the pre test is to identify which level the dyslexics' students are in, and what they exactly need. The test is informal and untimed due to their tendency to require much longer time to do a simple task. The pre test included three parts; students were tested in spelling, reading and writing 26 alphabet names and sounds, and the uppercase and lowercase letters in the first part as Kelly and Phillips (n.d) suggested, and in the second part the students were tested in spelling and writing short vowel words, then the final part was about reading; phoneme blending, phoneme segmenting, manipulating sounds in words and reading CVC words fast.

c. Post test

The goal of the post test is to evaluate the improvement and the achievement that the disabled students have made during the intervention program. And to measure to what extent do the implementation of multisensory techniques helps in the treatment of students with specific learning

disorder. The post test followed the same format of the pre test, but obviously the content was not the same.

d. Intervention Phase

According to kelly & phillips (2016) dyslexics assessment and intervention should starts from the first year at school, and the intervention should concentrate on phonological processing as it is the main issue for dyslexics and the key for success in language learning, by using multisensory approach to language teaching. Hulme and snowling, 2013 as cited in Kelly and Philips (2016) argued that ''…three cognitive functions essential to learning to read. These are letter-sound knowledge, phonemic awareness and rapid autonomised naming skills'' (''Phonological skills, literacy and dyslexia,''para.2). Furthermore, Kelly & Phillips claimed that the term phonology is referred to the knowledge of the sounds in the spoken language. The ability to segment, blend and manipulate sounds in words. However, my intervention phase included: pre test, remedial sessions and post test.

The school headmaster provided me with a time table in which the experimental group is available for the remedial sessions. I asked the headmaster to give me one week for my experiment, but unfortunately she could manage only five days according to the group schedule, because the students were having tests at that period of time. The experimental group had five sessions in which, the first session were for the pre test and it took two hours, the second, third and fourth session were for the intervention and it took one hour and a half per session, and finally the fifth session were for the post test and it took two hours. The reason why the pre and post test had two hours is that dyslexics have a tendency to require much longer time to solve a task. Thereafter, the intervention took place after the student's performance in the pre test, because according to the results the intervention was prepared.

I started my first session of the three remedial sessions by relieving student's feelings of stress and anxiety, through clarifying to the students the reason behind teaching them for other four sessions, by telling them that their English teacher told me that they have a capacity of learning English, but they don't want to learn and am going to help them in learning it. Thereafter, the lesson begins, the experimental group was taught the 26 alphabet uppercase and lowercase and their names and sounds. The intervention was by explaining to the students why letters have names and sounds through illustrating it with animals. For instance the word 'cat' is a name of an animal and 'meow' is the sounds that this animal makes. However, teaching alphabets names and sounds using the multisensory approach was by introducing to the student a flashcards alphabet, then saying its name

and sound, and the student are asked to repeat after me three times and trace the uppercase and lowercase letter one time on the table. The students can see the letter (visual), can hear the letter name and sound (auditory), can feel the letter form when tracing it on the table (tactile) and the kinesthetic action was done through explaining to the student how their muscles move when they spell the letters; the movement of the mouth, lips, tongue and teeth. (Dr Susan, 2013).

Subsequently, and in order to make the students bypass the reversal of letters such as /b/ and /d/, I associated the letter formation to the natural human hand (thumbs up sign). Hence, with the left hand thumbs up gesture I traced the letter /b/ in a continuous motion by my right hand over the left hand b shape during the same time I described how the letter formation is outlined, after that I draw the letter b and d on each students paper and I let them compare their hand with the letter shape. And I explained that the letter b comes the second in the alphabets sequence, thus they should start with their left hand to recognize it. However, in the last 30 minutes, students were given some activities, or in another word games using multisensory techniques (visual, auditory, tactile and kinesthetic), that helps them to store information in different parts of the brain, thus when retrieving process one part of the brain will remember if the other forget.

In the second session a review of the alphabet names and sounds and of the differences between the letter /b/ and /d was done at the beginning of the session, in order to reinforce learning. The students were taught that the letters may have a brother; one is noisy while the other is quiet. The sounds difference of /b/and /p/, /f/ and /v/, /k/ and /q/, /s/ and /z/ were explained as follow: the students were asked to put their hand on their neck and pronounce the sound /p/ and /b/, then, I explained that the /p/ sound does not make any movement or vibration in their neck when they say it, while the /b/ sound does. And the /p/ sounds has more puff of the air than the /b/ sound. And this means that the sound /p/ is quiet while the sounds /b/ is noisy. Furthermore, the same technique was applied for the rest of the sounds. (AmblesideOcala, 2013).After that the students were taught the short vowel sounds, and how to blend one consonant. I applied the same technique of the first session. I pronounce the first and second letter sound in isolation and they are asked to repeat after me in the same way. For instance pronouncing the sound /b/ and /a/, and then pull the sounds together to make the sound /ba/, while writing it one time on a paper, tracing it on the air, or tracing it on the table. Students were asked to do some tasks in the last 30 minutes with the implementation of multisensory techniques.

In the last session a review of: the alphabets names and sounds, the differences between the letter /b/ and /d/,the sounds difference of /b/and /p/, /f/ and /v/, /k/ and /q/, /s/ and /z/, short vowel sounds,

and how to blend one consonant was done at the beginning of the session. After that the students were asked to read five alphabets and blend it with all vowels for instance: ba, bo, be and bu. After that the students were taught three letter blends, by saying each letter in isolation than form up the whole word, for instance: b+a+d = bad by pronouncing each letter sound in isolation o form up the word. Thereafter, the students practiced some multisensory activities in the last 30 minutes of the session.

e. Teacher's Questionnaire

The objective of the questionnaire is to explore teacher's knowledge, beliefs, and attitude towards dyslexia and their implementation of multisensory techniques in teaching learners with specific learning disability. The questionnaire consisted of 21 questions; six of them were closed ended question with nine multiple choice answers (quantitative data), and six open ended question (qualitative data). The questionnaire was divided into three sections; features and attitudes about dyslexia, learning disability of dyslexia and multisensory implementation.

2.2 Results, Analysis and Discussion

2.2.1 Pre-post Test Assessment Results

a. Pre-test Assessment Results

Table 1 The 26 alphabets name and sound reading, spelling and writing pre-test assessment

Students' reading test percentage		
Achieved	Not achieved	In progress
18.75%	56.25%	25%

The main purpose of this test is to indicate the specific area of English language learning difficulties in students at risk of dyslexia. A descriptive qualitative and quantitative method was adapted for the analysis of the test results. However, the results showed that none of the experimental group knows about the 26 alphabet sounds, and they have a minor knowledge on the 26 alphabet names.

Table 2 The spelling and writing pre-test assessment of the 26 alphabets

Students' spelling test percentage			Students' writing test percentage		
Achieved	Not achieved	In progress	Achieved	Not achieved	In progress
37.50%	56.25%	6.25%	37.50%	56.25%	6.25%

The student's performance in writing skill is always dependent upon the spelling skill i.e. if the student is able to spell the letter they can remember its shape (how the letter is written). However, the obtained results shows that; the majority of students could not spell and write the 26 alphabets.

Table 3 Spelling (Sp) and writing (Wr) short vowel words pre-test assessment.

Students' spelling and writing test percentage									
/a/		/e/		/i/		/o/		/ u/	
Sp	Wr	Sp	Wr	Sp	Wr	Sp	Wr	Sp	Wr
31.25%	31.25%	12.50%	12.50%	18.75. %	18.75%	25%	25%	6.25%	6.25%

The students' performance shows that they don't know how to spell or write the sounds /e/, /i/ or /u/, while only a few of them could spell and write the sound /a/ and /o/.

Table 4 Reading pre-test assessment

Task required	Students' reading test percentage		
	Achieved%	Not achieved%	In progress%
Phoneme blending	31.25%	50%	18.75
Phoneme segmentation	18.75%	56.25%	25%
Manipulating sounds in words	43.75%	37.50%	18.75%
Rapid reading	25%	62.50%	12.50%

The students achievement in the reading pre-test are: phoneme blending (31.25%), segmentation (18.75%), manipulating sounds in words (43.75%), while in rapid reading (25%). Furthermore, the

experimental group cannot recognize or differentiate between the sounds; /f/ and /v/, /p/ and /b/, /k/ and /q/, /s/ and /z/, and the reversal the letters b and d.

b. Post test Assessment Results

The objective of the post test is to measure the achievement that the experimental group has made during the intervention program, thus the results showed that there is a noteworthy achievement in the students' performance.

Table 5 The 26 alphabets name and sound reading, spelling and writing posttest assessment

Students' reading test percentage		
Achieved	Not achieved	In progress
93.75%	0%	18.75

All of the experimental group (93.75%) could pass the alphabet reading test, only 1 of them still have a insignificant confusion between the letters /q/,/k/,/v/,/f/, /s/ and /z/ sound.

Table 6 Spelling and writing pre-test assessment of the 26 alphabets

Students' spelling test percentage			Students' writing test percentage		
Achieved	Not achieved	In progress	Achieved	Not achieved	In progress
75%	0%	25%	75%	0%	25%%

Concerning the performance of the experimental group in the spelling and writing test the majority of the experimental group (75%) could pass the test of alphabet name and sound spelling and writing test and the rest of them are in progress.

Table 7 Spelling (Sp) and writing (Wr) short vowel words post test assessment

Students' spelling and writing test percentage									
/a/		/e/		/i/		/o/		/ u/	
Sp	Wr	Sp	Wr	Sp	Wr	Sp	Wr	Sp	Wr
62.50 %	62.50 %	43.75 %	43.75 %	37.50 %	37.50 %	56.25 %	56.25 %	25%	25%

The experimental group has made a significant achievement in short vowel words spelling and writing test; (62.50%) could spell and write the sound /a/, (43.75%) the /e/ sound, (37.50%) the /i/ sound, (56.25%) the /o/ sound, while only four of them (25%) could spell and write the vowel sound /u/.

Table 8 Reading post test assessment

Task required	Students' reading test percentage		
	Achieved%	Not achieved%	In progress%
Phoneme blending	56.25%	18.75%	25%
Phoneme segmentation	43.75%	12.50	43.75%
Manipulating sounds in words	62.50	25%	12.50%
Rapid reading	37.50%	31.25%	31.25%

The student's performance shows that most of them have made a remarkable improvement in the tasks of phoneme blending (56.25%), phoneme segmentation (43.75%), manipulating sounds in words (62.50%), and rapid reading only (37.50%).

c. Comparison between the pre- post test Results

The experimental group have made a remarkable improvement in their posttest (Reading, spelling and writing), and the following figures will illustrate the comparison of the experimental group performance in reading, spelling and writing.
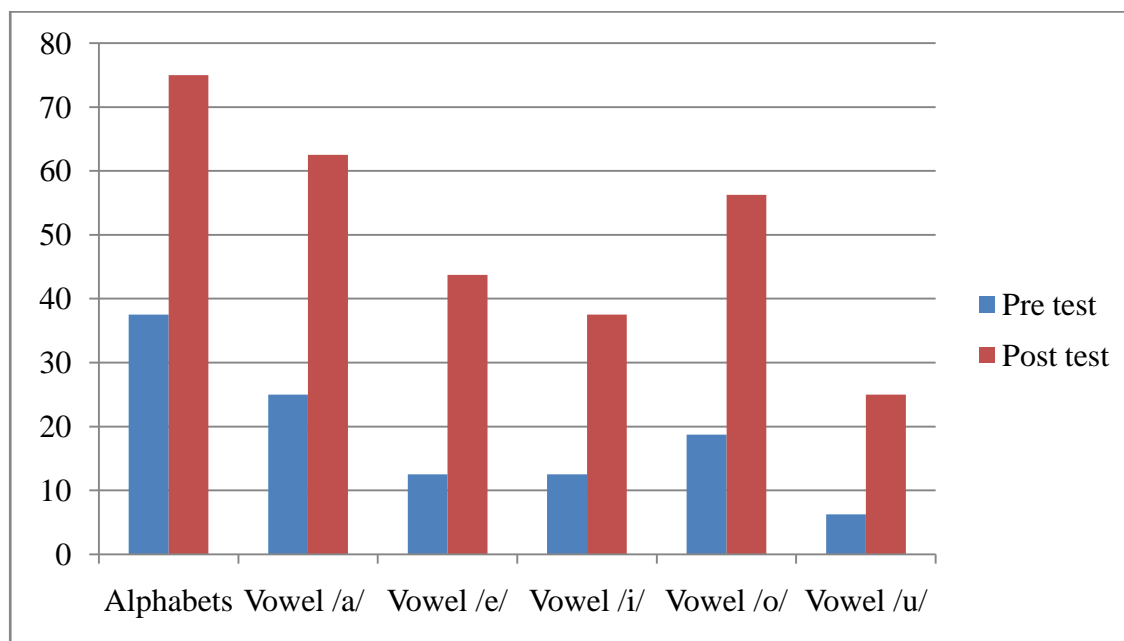
 Figure 1   The results of the spelling and writing skills in the pre-post test

The figure 1 shows the experimental group pre-posttest performance in the spelling and writing skills.

d. Analysis of the Spelling and Writing pre-post test Results

As a general trend, the majority of the students have made a major accomplishment in the spelling and writing skills post test performance comparing to the pre test. However, the students still face difficulty in the /u/ sound, but their results in the posttest were better than the pre-test results. The students could remember the letter shape if they could recognize its spelling, thus the students got the same performance results in the spelling and writing test rather than having a different results. And the analysis runs as follow: in the short vowel spelling and writing pre-posttest (62.50%) of the students could spell and write the sound /a/, by contrast with the pre-test only (31.25%). And (43.75%) could spell and write the sound /e/ while only (12.50%) of them achieved it in the pre-test. In addition 37.50% were able to write and spell the /i/ sound comparing to the pre-test only (18.75%). And (56.25%) were able to write and spell the /o/ sound comparing to the pre-test only (25%), while the /u/ sound was still difficult for them only 4 (25%) could write and spell it comparing to the pre-test only 1 (6.25%) of them.
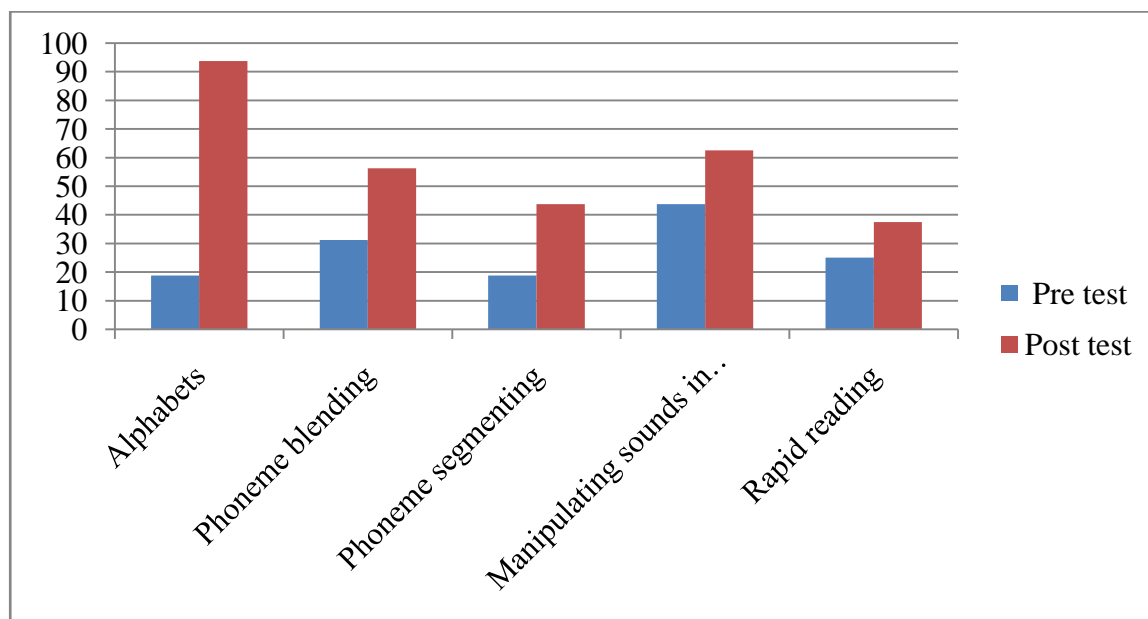
Figure 2 The results of the reading skill in the pre-post test

The figure 2 shows the students at risk of dyslexia pre-post test performance in the reading skill.

e. Analysis of the Reading Skill pre-post test Results

Generally, the entire student's level have increased in the post test, but increased does not mean that all the students have 100% achieved the reading skill, but it means that each student have made a noticeable improvement in particular area. However, all the student (93.75) could pass the alphabet reading test only one student (6.25) still have difficulties in reading alphabets, by contrast with the pre-test (18.75%) achieved it.

Furthermore, (56.25%) of the students improved in phoneme blending comparing to the pre-test only (31.25%), while in phoneme segmentation only (43.75%) of the students their level increased comparing to their pretest performance (18.75%). Moreover, (62.50%) of the students have made a significant accomplishment in manipulating sounds in words, in contrast with the pre-test (43.75%) achieved it, and only (37.50%) of them who could pass the test of rapid reading, by contrast with the pre –test only (25%).

To a large extent the entire experimental group has made a great and significance achievement in posttest reading, spelling and writing skills, by means of the multisensory intervention, the experimental group could at least improve their skill in a particular area during the three days of intervention

2.2 Results of Teacher's Observation Check-list

According to the teacher knowledge and experience with the students, she selected 16 children from 190 students who are at risk of dyslexia. (See table 1). After that, the teacher starts on indicating each target student's difficulties on the observation check list.

According to the teacher observation the student have deficiencies in phonological processing more than orthographic processing. (See figure 1, 2, and 3)

Table 9 Gender and age of students at risk of dyslexia

Number of student at risk of dyslexia	Female	Age	Male	Age
16	3	12-11	13	12-11
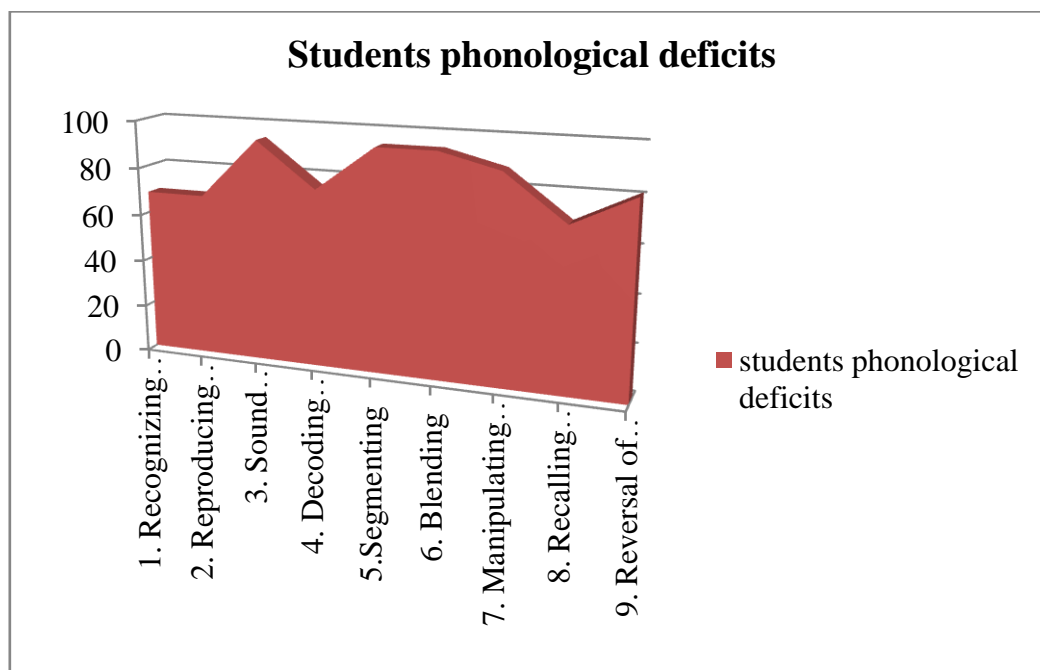
Figure 3 The percentage of the phonological deficits faced by children at risk of dyslexia

Figure 3 indicates the deficiencies of the students in phonological processing when learning English as a foreign language.

Almost all the students at risk of dyslexia have deficiencies in phonological processing; (68.75%) recognizing or producing rhyming words, (68.75%) difficulty noticing sound repletion or alliteration, (93.75%) sound discrimination, (75%) decoding single word, (93.75%) segmenting, (93.75%) blending, (87.50%) manipulating sounds in words, (93.75%) recalling names or sounds of letters, (81.25%) reversal of letters and figures, (75%) pairing sounds with letters and (87.50%) decode letter sounds.
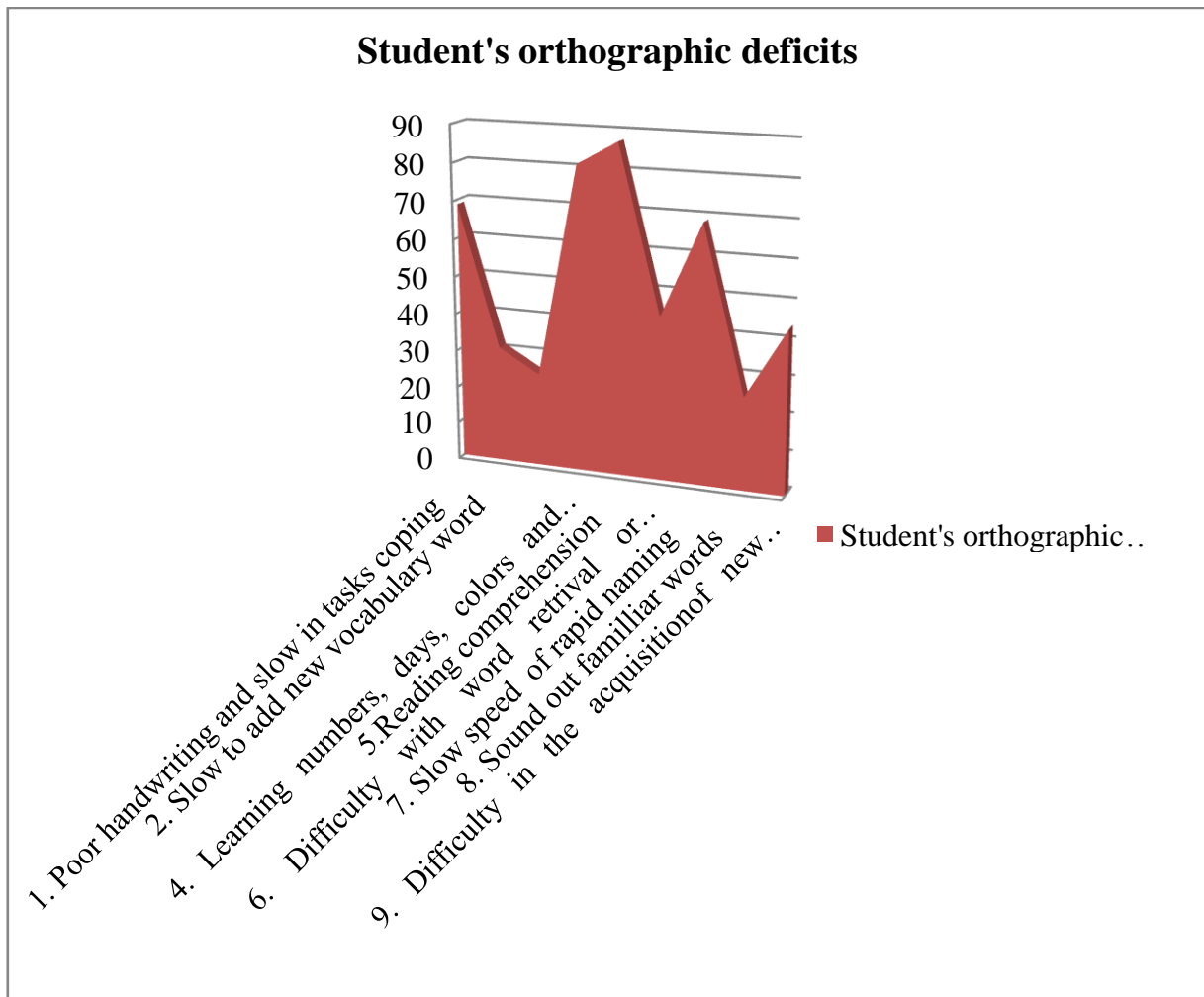
Figure 4 The percentage of the orthographic deficits faced by children at risk of dyslexia

Figure 4 indicates the student's deficiencies in orthographic processing in learning English Language.

As the graph shows the student deficiencies in orthographic processing is less vulnerable. However, the student deficiencies in orthographic processing are: (68.75%) poor handwriting and slow in tasks coping, (31.25%) slow to add new vocabulary; (25%) tend to relies on context to recognize a word, (81.25%) learning numbers, days, colors, and how to write his/her name, (87.56%) reading comprehension, (43.75%) difficulty with word retrieval or memorization,

(68.75%) slow speed of rapid naming, (25%) sounding familiar words and (43.75%) difficulty in acquisition of new vocabulary.
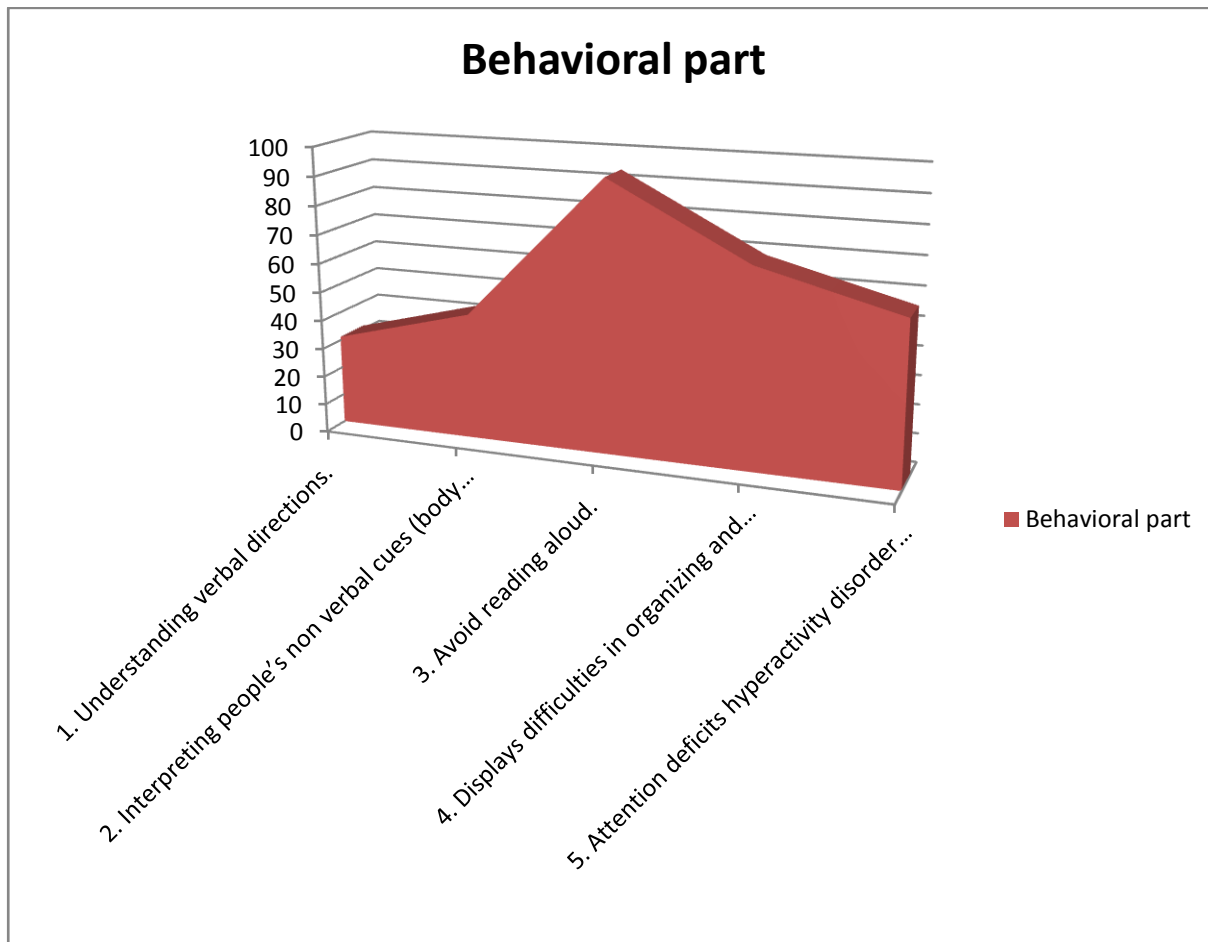
Figure 5 The percentage of the behavioral signs of children at risk of dyslexia

Figure 5 indicates the information of the student behavior in class.

As an overall, (93.75%) of the student avoid reading aloud in class, (68.75%) of them displays difficulties in organizing and management of time and materials and (56.25) of the student have attention deficits hyperactivity disorder (losing concentration, easily distracted….. etc). While (43.75%) have difficulty interpreting people's non verbal cues and (31.25%) of them have difficulty in understanding verbal directions. Generally speaking, the students have deficiencies in phonological and orthographic processing and some abnormal behavior that put them at risk of being dyslexics.

2.3 Analysis of the Teacher's Questionnaire

My questionnaire consisted of three sections. The first section is concerned with features and attitudes about dyslexia, and the second section is about learning disability of dyslexia. While the

third section tackles the multisensory implementation. A descriptive qualitative and quantitative method is used in the questionnaire analysis.

a. Quantitative Analysis

Section one: Features and attitudes about dyslexia

Table 10 Teachers' responses percentage on the first section

Questions	Agree	Strongly agree	Neutral	Disagree	Strongly disagree
Question 01. Reading difficulties are generally due to pupil's laziness or de-motivation	53.85%	/	15.38%	30.77%	/
Question 02. Occasional reversals of letters and words reveal that pupils see the world backwards	38.46%	/	30.77%	/	30.77%
Question 03. Dyslexics are not affected by intelligence and creativity, they may have average or above average intelligence.	53.85%	15.38%	/	30.77%	/
Question 04. Learners who encounter difficulties in the comprehension of non- literal language (jokes, idioms, humor, puns) are naïve and unaffected.	23.08%	/	/	38.46%	38.46%
Question 05. Dyslexia can be caused by a literacy poor home environment.	61.54%	15.38%	/	7.69%	15.38%
Question 06. Children with dyslexia need more explicit and systematic reading instruction than their peers.	23.08%	7.69%	30.77%	38.46%	/

For the first question (53.85%) of the teachers agree on that the cause of the student's reading difficulties is due to his/her laziness or de-motivation, while only (30.77%) of them disagree and (15.38%) of them are neutral. On the second question (38.46%) of the teachers believe on that

students who reverse letters see the world backwards, while 30.77% of them disagree on this statement and (30.77%) of them strongly disagree. On the third question (30.77%) of the teachers disagree on that dyslexia is not affected by intelligence or creativity, by contrast (53.85%) of them agree and (15.38%) of them strongly agree. For the fourth question (38.46%) of the teachers disagree on that the problem in understanding non literal language reveal that the student is naïve and unaffected and (38.46%) strongly disagree, in contrast with (23.08%) of them agreed on this. On the fifth question the majority of the teachers (61.54%) agreed on that dyslexia can be caused by a literacy poor home environment and (15.38%) of them strongly agree, while (7.69%) of them disagree and (15.38%) of them strongly disagree. On the sixth question (23.08%) of the teacher agreed on that children with dyslexia need more explicit and systematic reading instruction than their peers and (7.69%) of them strongly agree, while (38.46%) disagree and (30.77%) are neutral.

Section two: Learning disability of dyslexia

Part one: please circle on option for each statement.

Question one: Dyslexics are first identified from the difficulties in…

Table 11 Teachers' responses on the identification of dyslexia

Multiple choice answers	Percentage
a) **Comprehension**	30.77%
b) **Distinguishing left and right**	/
c) **Reading**	69.23%

This question is about the first symptoms of dyslexia. The obtained results indicate that (69.23%) of the teachers believed that the first symptoms of dyslexia is reading difficulties, while (30.77%) of them thinks that difficulties in comprehension.

Question two: A specific learning disability or developmental dyslexia is a deficit in:

Table 12 Teachers' responses on dyslexia deficits

Multiple choice answers	Percentage
a) **Auditory processing.**	61.54%
b) **Visual processing**	15.38%
c) **Phonological and orthography processing.**	23.08%

This question is about the dyslexia deficits. The results showed that (23.08%) of the teachers believed on that dyslexia is a deficit in phonological and orthographic processing, while (15.38%) of them thinks that is a deficit in visual processing and (61.54%) of them thinks that is a deficit in auditory processing.

Question three: Developmental dyslexia or specific learning difficulty is resulted from:

Table 13 Teachers' responses on the cause of dyslexia

Multiple choice answers	Percentage
a) Brain injury	23.08%
b) Stroke	15.38%
c) Brain infection.	46.15%
d) Brain dysfunction.	15.38%

This question is about the cause of dyslexia. The findings reveal that only (15.38%) of the teachers believe on that dyslexia is a cause of the brain dysfunction and (15.38%) of them thinks that is a result from stroke, while (46.15%) of them thinks that it is a result from brain infection and (23.08%) of them thinks that is caused from brain injury.

Question four: Dyslexia is considered as:

Table 14 Teachers' responses on the homogeneity of dyslexia

Multiple choice answers	Percentage
a) A homogeneous phenomenon.	30.77%
b) A heterogeneous phenomenon.	15.38%
c) No idea	53.85%

This question is about the homogeneity of dyslexia. The obtained results indicate that (53.85%) of the teachers do not have any idea of whether dyslexia in homogeneous or heterogeneous, while (30.77%) of the answer yes it is homogeneous phenomenon and (15.38%) of them answer no it is not.

Question five: Developmental dyslexia...

Table 15 Teachers' responses on the heredity of dyslexia

Multiple choice answers	Percentage
a) **Can be 100% inherited. (A dyslexic parent will eventually have a dyslexic child).**	38.46%
b) **Can be 50% inherited. (A dyslexic parent may or may not have a dyslexic child).**	15.38%
c) **I don't know**	46.15%

The teachers were questioned on whether dyslexia is inherited or not. According to the results (15.38%) of the teachers answered it can be 50% inherited, while (38.46%) of them answered it can be 100% inherited and (46.15%) of the teachers do not know whether it is 50% or 100% inherited.

Question six: Anxiety in a pupil who suffer from dyslexia is caused from:

Table 16 Teachers' responses on the cause of dyslexia anxiety

Multiple choice answers	Percentage
a) **Parents' attitude toward their dyslexic child.**	15.38%
b) **Anxiety is one symptom of dyslexia.**	84.62%
c) **His/her failure and his/her learning disabilities.**	/

This question is about the cause of dyslexia anxiety. According to the findings (84.62%) of the teachers think that anxiety is one symptom of dyslexia; while only (15.38%) of them answered that it is caused from their parent's attitude toward them.

Question seven: Dyslexic children face difficulty learning these skills:

Table 17 Teachers' responses on the language skills difficulty of dyslexia

Multiple choice answers	Percentage
a) **Reading and listening.**	30.77%
b) **Listening and writing.**	/
c) **Reading, writing and spelling.**	69.23%

This question is about the language skills difficulty of dyslexia. The results obtained shows that (69.23%) of the teachers believe on that the language skills difficulty of dyslexia are reading, writing and spelling, while only (30.77%) of them thinks that reading and listening are the language skills difficulty of dyslexia.

Section three: Multisensory implementation

Part one: Please circle one option for each statement.

Question one: Which from the following are types of multi-modality strategies that are used in multisensory teaching?

Table 18 Teachers' responses on the multi-modality strategies of multisensory teaching

Multiple choice answers	Percentage
a) **Auditory, visual, tactile and kinesthetic.**	15.38%
b) **Tactile, movement, clapping.**	/
c) **Auditory, writing, movement.**	/
d) **Listening, kinesthetic, writing and tactile.**	84.62%

This question is about the multi-modality strategies of multisensory teaching. The finding shows that the majority of the teacher (84.62%) thinks that listening, kinesthetic, writing and tactile are the multi-modality strategies that are used in multisensory teaching, while only (15.38%) of them answered that auditory, visual, tactile and kinesthetic are the multi-modality strategies of multisensory teaching.

Question two: Multisensory teaching techniques and strategies stimulate learning by…

Table 19 Teachers' responses on the multisensory stimulation of learning

Multiple choice answers	Percentage
a) **Engaging all learner senses together in the session.**	100%
b) **Engaging some of the student senses per session.**	/
c) **Engaging only one sense per session.**	/

This question is about the multisensory stimulation of learning. The results show that all teachers know that multisensory techniques stimulate learning by engaging all learners' senses together in the session.

b. Discussion of the Qualitative Analysis of Teachers' Responses

Firstly, the majority of teachers do not know about what dyslexia is and they have a misconception of dyslexia, but they agreed on that noisy student and those who don't make much effort in learning are considered as lazy learners and not dyslexics. In addition to, teachers agreed on motivating and encouraging learning for those students who feel dumb and stupid. Secondly, all the teachers know that multisensory is engaging student senses but unfortunately the majority of them do not apply its techniques. However, some of the teachers know about the meaning of kinesthetic and tactile learning, while few of them do not know about it. Moreover, the majority of the teachers agreed on that social media are the best way to communicate parents.

Generally speaking, the majority of teachers lack knowledge on the specific learning disability dyslexia, and multisensory techniques on teaching students who struggle with dyslexia. But they know what the word multisensory means, while they do not know it as a method of teaching; its techniques, strategies and that its efficiency and effectiveness in helping disabled learners.

Conclusion

On the whole the results of the current study provide a strong evidence of the effectiveness of multisensory techniques in dyslexic's intervention, and how it stimulates learning English as a foreign language by engaging all student senses at once in the session. The findings of this study reveal that multisensory strategies help struggling learners to break their barriers between their wants and their disabilities. Furthermore, this study reveal that middle school teachers know about dyslexia but they lack the identification of such disorder and they have a knowledge on what multisensory means but unfortunately none of them apply any of its techniques in which it causes a problem for those children future career.

Recommendations

Throughout this research study I learned an excessive amount of lessons, which allowed me to recommend some suggestion for application to English teachers and parents. And the recommendation run as follows:

Recommendations for teachers

1. Teachers are concerned with those children who feel afraid of learning and those who cannot make any significant achievement in their tests, because they might be suffering from dyslexia; thus we recommend that the teachers should adapt and accommodate their teaching accordingly.

2. Teachers need to know that dyslexia does not affect intelligence or creativity.

3. An adequate knowledge on the various learning disabilities is sufficient for teachers to take responsibility in the identification and management of dyslexic learners.

4. Teacher's awareness of dyslexia symptoms and signs play a major role in the identification of dyslexic's students for more explicit and systematic instruction.

5. Teachers need to be able to differentiate between dyslexics and lazy students.

6. The awareness of multisensory techniques, strategies and its efficiency and effectiveness in teaching disabled learners, will enable the teacher to take further consideration of a particular child with dyslexia symptoms.

7. It is also recommended for teachers not to use any kind of punishment with dyslexic children and they are required not to ask them to read aloud in class

8. On the whole, teacher's need to know how to psychologically treat pupil's with dyslexia, as they are too sensitive.

9. We add that a school psychologist is essential and recommended for every school, in order to identify a dyslexic child.

Recommendations for parents

1. Parents need to learn about the learning disabilities and dyslexia disorder from trusted websites and specialized centers.

2. Parents need to keep on checking their child performance and assisting them, although they are not dyslexics.

3. They are also expected to read short stories to them at night or in any empty time, and ask them to re-read both quietly and loudly

General Conclusion

Dyslexic learners are struggling in their learning process, because of their deficiency in the phonological component of the language. They are enabling for efficiently naming letters of a word, recognizing phonemes, from up words, retrieving a letter or a word, rapid reading…etc. Generally speaking, dyslexia is a literacy and language skills disability that is characterized by impairment in phonological and orthographic processing as core symptoms. English as a foreign language is considered a challenging for dyslexics language learners, because of its deep orthographic and its phoneme representation, as it is known that dyslexics have phonological and orthographic deficits especially in reading sessions. However, if dyslexic pupils continue failing to overcome their difficulties, they lose confidence in themselves. Specific learning disability, dyslexia complicates learning and particularly reading, but it does not affect only the educational side of the learner, but emotional attitudes as well. Thus, dyslexia should be diagnosed earlier for more special, explicit and systematic learning instruction.

The present research study attempts to examine the psycholinguistics perspective on teaching children struggling in learning English as a foreign language, which are at risk of being dyslexics. Furthermore, it attempts to investigate teacher's knowledge, beliefs and attitude towards dyslexia and their use of multisensory approach in teaching disabled learners. The study highlights the emergence of the term dyslexia, and the various definitions of the concept of dyslexia. Moreover, the study presents the two types of dyslexia; acquired dyslexia which is resulted from a brain damage and developmental dyslexia.

The findings of the present study are obtained from, the targeted Middle School participants; First Year students and teachers from all grades, with the use of an observation check-list, a pre-posttest and a questionnaire for teachers.

As a conclusion, multisensory teaching instruction helped children at risk of being dyslexics to remedy to their reading weaknesses, and it encouraged them to take further risk in learning as they understood that they have a chance in learning English. Furthermore, the majority of the Middle School teachers know that dyslexia is first identified from the difficulties in reading but they lack knowledge about its symptoms and causes.

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Teacher's Observation Check-list

We're conducting research on specific learning disability known as dyslexia. We'd love to hear from you about your students difficulties. This will help us make improvements to the existing tool and prioritize new features. We really appreciate your input, and your responses are completely anonymous.

Date:

Teacher's name: …………………………… Student's name: ……………..

Level: ...……………………………………………School: ……………………

Please **TICK (✓)** to indicate the degree of your concern regarding your student's obstacles.

The student difficulties	Yes	Rarely	Often	No
1. Recognizing or reproducing rhyming words.				
2. Difficulty noticing sound repetition or alliteration				
3. Sound discrimination.				
4. Decoding single word				
5. Segmenting (pull the sounds apart)				
6. Blending (put the sounds together)				
7. Manipulating sounds in words				
8. Recalling names of letters or sounds of letters				
9. Reversal of letters and figures				
10. Pairing sounds with letters				

11. Decoding letter sound				
Orthographic awareness				
1. Poor handwriting and slow in tasks coping.				
2. Slow to add new vocabulary words.				
3. Tend to relies on context to recognize a word.				
4. Learning numbers, days of the week, colors, , and how to spell and write his or her name.				
5. Reading comprehension.				
6. Difficulty with word retrieval or memorization				
7. Slow speed of rapid naming.				
8. Sound out familiar words				
9. Difficulty in acquisition of new vocabulary				
Others				
1. Understanding verbal directions.				
2. Interpreting people's non verbal cues (body language).				
3. Avoid reading aloud.				
4. Displays difficulties in organizing and management of time and materials.				
5. Attention deficits hyperactivity disorder (losingconcentration, easily distracted… etc).				

Informal pre-test for students at risk for dyslexia

The test is untimed procedure.

Section one: Reading, spelling and writing.

Read all 26 alphabet names and sounds.

Spell all 26 alphabets, then write their uppercase and lowercase.

Section two: Spelling and writing.

Read the words for the students and ask them to spell word then write it on the paper.

1. **Short vowels:**

Short vowel /a/	Short vowel /e/	Short vowel /i/	Short vowel /o/	Short vowel /u/
Ant	Bed	Lip	Dog	Cut
Bad	Pen	Kid	Odd	Sun
Dad	Red	Win	Mom	But
Cat	Leg	Sit	God	Gum

Section three: Reading

A. **Phoneme blending:**
   What word do these sounds make?
1. /D/ /O/ /G/
2. /C/ /A/ /T/
3. /W/ /E/ /B/
4. /N/ /A/ /P/
5. /B/ /E/ /T/
6. /K/ /I/ /D/
7. /D/ /I/ /D/
8. /C/ /A/ /P/

9. /J/ /O/ /B/

10. /F/ /O/ /G/

B. Phoneme segmentation:

What sounds do you hear in the following words?

1. Jet

2. Rob

3. Gap

4. Map

5. But

6. Bag

7. Bit

8. Mom

9. Rum

10. Big

11. Sit

C. Manipulate sounds in words

What will you have if you changed:

1. /C/ in CAT to /B/?

2. /C/ in CAT to /F/?

3. /B/ in BOY to /T/?

4. /R/ in RAT to /C/?

5. /H/ in HOT to /N/?

D. Read CVC words fast:

Vowels	Student (A)	Student (B)	Student (C)	Student (D)
Short vowel /a/ /e/ /i/ /o/ /u/	Rat	Cap	Red	Rat
	Cap	Rat	Rat	Cap
	Red	Leg	Leg	Red
	Leg	Red	Cap	Leg
	Bit	Dig	Bit	Bit
	Dig	Bit	Got	Dig
	Got	Rot	Dig	Got
	Rot	Got	Cut	Rot

	Cut Gum	Gum Cut	Gum Rot	Cut Gum

Informal post-test for students at risk for dyslexia

The test is untimed procedure.

Section one: Reading, spelling and writing.

Read all 26 alphabet names and sounds.

Spell all 26 alphabets, then write their uppercase and lowercase.

Section two: Spelling and writing.

Read the words for the students and ask them to spell word then write it on the paper.

Short vowel /a/	Short vowel /e/	Short vowel /i/	Short vowel /o/	Short vowel /u/
H**a**t	N**e**t	H**i**m	L**o**g	C**u**b
B**a**t	T**e**d	H**i**t	L**o**t	C**u**t
C**a**b	Y**e**t	R**i**p	N**o**t	G**u**m
T**a**d	L**e**t	B**i**t	G**o**t	B**u**s

Section three: Reading

    E. **Phoneme blending:**

    What word do these sounds make?

/V/ /A/ /T/	/H/ /E/ /N/	/Z/ /I/ /P/	/T/ /O/ /P/	/G/ /U/ /N/
/M/ /A/ /T/	/P/ /E/ /T/	/K/ /I/ /N/	/T/ /O/ /M/	/M/ /U/ /G/
/H/ /A/ /S/	/P/ /E/ /G/	/T/ /I/ /N/	/B/ /O/ /P/	/J/ /U/ /T/
/F/ /A/ /T/	/L/ /E/ /D/	/D/ /I/ /G/	/C/ /O/ /P/	/B/ /U/ /M/

F. Phoneme segmentation:

   What sounds do you hear in the following words?

Mat	Fed	Lid	Fox	Hug
Rat	Men	Six	Jog	Hut
Sad	Yes	Fit	Dot	Sun
Van	Wet	Lip	Pop	Bun

G. Manipulate sounds in words:

   What will you have if you changed…?

6. /P/ in MAP to /T/?

7. /S/ in SUN to /B/?

8. /T/ in PET to /P/?

9. /K/ in KIT to /H/?

10. /P/ in MOP to /M/?

11. /P/ in PIG to /W/?

12. /S/ in YES to /T/?

13. /B/ in BOX to /F/?

14. /G/ in HUG to /T/?

15. /N/ in NAP to /T/?

H. Read CVC words fast:

Short vowel /a/ /e/ /i/ /o/ /u/	Tax	Wax	Zap	Van
	Sap	Gas	Yap	Fan
	Fed	Bet	Men	Vet
	Leg	Ten	Web	Yet
	Wig	Dip	Mix	Six
	Zip	Fix	Big	Tip
	Box	Pot	Fox	Pox
	Dot	Not	Cot	Rod
	Rub	Cup	Pup	Cud
	Gum	Bus	Sum	Rut

Appendix D: Test assessment results

Test Assessment Results

Part one: Reading, spelling and writing assessment

Read all alphabets names and sounds.

Student at risk of dyslexia	Reading test		
	Achieved	**Not achieved**	**In progress**
a)			
b)			
c)			
d)			
e)			
f)			
g)			
h)			
i)			
j)			
k)			
l)			
m)			
n)			
o)			
p)			

Spell all 26 alphabets, then write all uppercase and lowercase letters.

Student at risk of dyslexia	spelling test			Writing test		
	Achieved	Not achieved	In progress	Achieved	Not achieved	In progress
a)						
b)						
c)						
d)						
e)						
f)						
g)						
h)						
i)						
j)						
k)						
l)						
m)						
n)						
o)						
p)						

Part two: Spelling and writing short vowel words assessment.

Spell (Sp) and write (Wr) the words bellow:

Achieved (A), Not achieved (N) and in progress (In).

Student At risk of dyslexia	Spelling and writing test									
	/a/		/i/		/e/		/o/		/u/	
	Sp	Wr	Sp	Wr	Sp	Wr	Sp	Wr	Sp	Wr

a)													
b)													
c)													
d)													
e)													
f)													
g)													
h)													
i)													
j)													
k)													
l)													
m)													
n)													
o)													
p)													

Part three:

Reading Assessment

Segment phoneme (ph-segment), blend phoneme (ph-blend), manipulate sounds in words (man-s-w), and read rapidly (r-r) the following words

Achieved (A), Not achieved (N), and in progress (in).

Student at risk of dyslexia	Task required			
	Ph-blend	**Ph- segment**	**Man-s-w**	**R-r**
a)				
b)				
c)				

d)				
e)				
f)				
g)				
h)				
i)				
j)				
k)				
l)				
m)				
n)				
o)				
p)				

Questionnaire

General Information				
		Date		
Teacher's name		**Age**		**Gender**	

As part of my master research thesis at Kasdi Merbah University of Ouargla, I have designed this questionnaire which aims at investigating teacher's knowledge and attitude towards students suffering from dyslexia, and what intervention is required to be implemented in the classroom. I will appreciate if you answer the following questions, and your responses are completely anonymous. If you have any other suggestions and recommendations, please feel free to mention them in the space provided at the end of this questionnaire.

Section one: features and attitudes about dyslexia

TICK (√) your degree of agreement with each statement.

Q01. Reading difficulties are generally due to pupils' laziness or de-motivation.

Agree	Strongly agree	Neutral	Disagree	Strongly disagree

Q02. Occasional reversals of letters and words reveal that pupils see the world backwards

Agree	Strongly agree	Neutral	Disagree	Strongly disagree

Q03. Dyslexicsare not affected by intelligence and creativity, they may have average or above average intelligence.

Agree	Strongly agree	Neutral	Disagree	Strongly disagree

Q04. Learners who encounter difficulties in the comprehension of non- literal language (jokes, idioms, humor, puns) are naïve and unaffected.

Agree	Strongly agree	Neutral	Disagree	Strongly disagree

Q05.Dyslexia can be caused by a literacy poor home environment.

Agree	Strongly agree	Neutral		Disagree	Strongly disagree

Q06. Children with dyslexia need more explicit and systematic reading instruction than their peers.

Agree	Strongly agree	Neutral		Disagree	Strongly disagree

Section two: learning disability of dyslexia

01). Please circle one option for each statement.

Q01. Dyslexics are first identified from the difficulties in:

- a) Comprehension.
- b) Distinguishing left and right.
- c) Reading.

Q02. A specific learning disability or developmental dyslexia is a deficit in:

- a) Auditory processing.
- b) Visual processing.
- c) Phonological and orthography processing.

Q03. Developmental dyslexia or specific learning difficulty is resulted from:

- a) Brain injury.
- b) Stroke.
- c) Brain infection.
- d) Brain dysfunction.

Q04. Dyslexia is considered as:

- a) A homogeneous phenomenon.
- b) Non- homogeneous phenomena.
- c) No idea.

Q05. Developmental dyslexia...

- a) Can be 100% inherited. (A dyslexic parent will eventually have a dyslexic child).
- b) Can be50% inherited. (A dyslexic parent may or may not have a dyslexic child).

c) I don't know.

Q06. Anxiety in a pupil who suffer from dyslexia is caused from:

a) Parents' attitude toward their dyslexic child.
b) Anxiety is one symptom of dyslexia.
c) His/Her failure and his/her learning disabilities.

Q07. Dyslexic children face difficulty learning these skills:

a) Reading and listening.
b) Listening and writing.
c) Reading, writing and spelling.

02). Answer briefly the following questions.

Q01. How can you define dyslexia?

…………………………………………………………………………………………………

Q02. How can you identify a student struggling from learning disability from lazy one?

…………………………………………………………………………………………………

Q03. What will you do if your student feels dumb or stupid?

…………………………………………………………………………………………………

Section three: Multisensory implementation

01). Please circle one option for each statement.

Q01. Which from the following are types of multi-modality strategies that are used in multisensory teaching?

a) Auditory, visual, tactile and kinesthetic.
b) Tactile, movement, clapping.
c) Auditory, writing, movement.
d) Listening, kinesthetic, writing and tactile.

Q02. Multisensory teaching techniques and strategies stimulate learning by…

a) Engaging all learner senses together in the session.
b) Engaging some of the student senses per session.

c) Engaging only one sense per session.

02). Answer briefly the following questions.

Q01. What do you know about Multisensory techniques in teaching dyslexics and do you apply its techniques? .If yes. How?

……………………………………………………………………………………………………

………………………………………………………………………………………

Q02. In your view what does kinesthetic and tactile learning mean?

……………………………………………………………………………………………

Q03. How do you communicate with parents and involve them in the support process?

………………………………………………………………………………………..

Any comment or feedback ……………………………………………………… …

Thank you for your participation

Appendix F: Teachers' responses

Section two: Learning disability of dyslexia

Part two: answer briefly the following questions:

Question one: How can you define dyslexia?

The teachers' answers are expressed as follows,

1ˢᵗ teacher

It is characterized by trouble with reading despite normal intelligence.

2ⁿᵈ teacher

Dyslexia is a vision problem.

3ʳᵈ teacher

A term that involve difficulty in learning to read or interpret words, letters and other symbols, but is not affected by intelligence.

4ᵗʰ teacher

It is an abnormal difficulty in reading and spelling.

5ᵗʰ teacher

Dyslexia is caused from literacy poor home environment.

6ᵗʰ teacher

I don't know what dyslexia is. But I think it is a physical problem.

7ᵗʰ teacher

Dyslexia is the inability of reading.

8ᵗʰ teacher

Linguist expert and speech thereby expert.

9ᵗʰ teacher

No answer

10ᵗʰ teacher

It is a student laziness of learning the language.

11ᵗʰ teacher

It is a reading disorder.

12ᵗʰ teacher

It is a mental illness which causes a confusion of letters.

13ᵗʰ teacher

Students with dyslexia encounter difficulties in auditory processing.

Question two: How can you identify a student struggling from learning disability from lazy one?

The teachers' answers are expressed as follows,

1ˢᵗ teacher

I identify the student by observing his/her interest in learning.

2ⁿᵈ teacher

No answer

3ʳᵈ teacher

I will identify the straggling one during the reading process, because the struggling one will eventually start crying if you force him to read in contrast with the lazy one.

4ᵗʰ teacher

No answer

5ᵗʰ teacher

By rewarding him or her positively or negatively.

6ᵗʰ teacher

There is no difference between lazy and struggling children.

7ᵗʰ teacher

No answer

8th teacher

I will identify the straggling student by seeing the student making his/her best in learning without achievement.

9th teacher

When the students are asked to do some activities lazy one will not do their activities while struggling one will not stop trying.

10th teacher

I thing that both are the same.

11th teacher

Lazy one are always noisy, but struggling one are rarely do make noise.

12th teacher

By rewarding them positively and negatively, and it differs from one to another.

13th teacher

It is dependent upon the degree of their achievement.

Question three: What will you do if your student feels dumb or stupid?

The teachers' answers are expressed as follows,

1st teacher

I will contact his/or parent.

2nd teacher

I will help him or her as much as i can.

3rd teacher

I will try to motivate him/her with different ways, and according to his/her needs.

4th teacher

This situation needs psychologist assistance.

5th teacher

I will ask for their parent's aid, and I will do my best to help him also.

6th teacher

I will not force him or her to learn.

7th teacher

I will try to motivate him.

8th teacher

The student needs to visit a psychologist.

9th teacher

Encourage them by group work or pairs work.

10th teacher

I will ask the student why he or she feels stupid or dumb, because i may find a way to change their view.

11th teacher

If the student feels stupid or dumb, it means that he/she have low self confidence. And they need motivation.

12th teacher

Involve the student in group working.

13th teacher

I will try as harder as I can to make the student believe in him or herself, by support and motivation.

Section three: multisensory implementation

Part two: Answer briefly the following question

Question one: What do you know about Multisensory techniques in teaching dyslexics and do you apply its techniques? .If yes. How?

The teachers' answers are expressed as follows,

1st teacher

It is a way of teaching that engages more than one sense at a time ''sight, hearing, movemet…

2nd teacher

No answer

3rd teacher

Multisensory technique is by using materials such as, videos, or audios, in order to engage all student senses. No, I don't.

4th teacher

No, I don't. By interacting, interpreting, and producing, and using real life situations.

5th teacher

Through using materials.

6th teacher

No answer

7th teacher

The teacher should work and engage all the learner senses together. No, I don't.

8th teacher

I don't have any idea.

9th teacher

Is engaging all students' senses and I don't use its techniques.

10th teacher

Multisensory techniques are: auditory, visual, tactile and kinesthetic.

11th teacher

I do apply its technique, by playing games with my students.

12th teacher

I don't, but I think that multisensory techniques are to allow children to move to feel free

13th teacher

Involving all the senses of the students, and it helps for not being distracted during the lesson.

Question two: In your view what does kinesthetic and tactile learning mean?

The teachers' answers are expressed as follows,

1st teacher

It is a learning style in which learning takes place by the student's carrying out physical activities, rather than listening or watching demonstration.

2nd teacher

A learning style, in which people learn through touching, feeling, and moving.

3rd teacher

Allowing the student to touch and feel the objects.

4th teacher

A leaning process that needs communication.

5th teacher

By using authentic materials.

6th teacher

Involving learners through practice.

7th teacher

Making the session practical and more motivating for the student.

8th teacher

I don't know.

9th teacher

It means movement and touch.

10th teacher

Kinesthetic is the movement and tactile is the touch.

11th teacher

They are two processes of multisensory teaching techniques.

12th teacher

In my view tactile and kinesthetic are techniques in which to allow the student to move and touch thing for instance: tables, chairs…etc.

13th teacher

Are two types of multi-modality strategies that are used in multisensory teaching.

Question three: How do you communicate with parents and involve them in the support process?

The teachers' answers are expressed as follows,

1st teacher

Ask parent to support homework, and to use social media to contact me.

2nd teacher

By phone number or facebook.

3rd teacher

Making them aware of their child situation, in order to add extra support at home.

4th teacher

Through meeting and cooperation.

5th teacher

Ask them to practice reading at home.

6th teacher

We communicate parent through facebook, in order to help their child.

7th teacher

Contacting the through parent's meeting day.

8th teacher

No answer

9th teacher

If I notice any bad behavior of the student, I invite his/her parent to the school.

10th teacher

Parents are not involved in the support process.

11th teacher

If the students have low grades, I ask for his/her mother for making her aware of her child weaknesses.

12th teacher

Social media now allow us to communicate with parents easily.

13th teacher

If the student is a struggling learner I will try to provide handouts or sites for his parent, so that to reinforce learning at home

Any comment or feedback

The teachers' feedbacks are expressed as follows

1st teacher

Learners have learning styles, and it's up to the teacher to deal with it.

2nd teacher

There exist differences between learner's difficulties in learning a language.

3rd teacher

I think that helping dyslexics is the role of both parents and teachers.

الملخص

تهدف هذه الدراسة إلى التعامل مع عسر القراءة من زاوية اللسانيات النفسية وتركز على تحليل صعوبات التعلم

للطلاب الذين يعانون من عسر القراءة داخل القسم. يعاني الأطفال الذين لديهم عسر القراءة من مشاكل في

التعرف على الأصوات أثناء القراءة بسبب أنهم غير قادرين على فهم ما يقرؤون أو يكتبون. وبالتالي ، فإن

الهدف الرئيس لهذه الدراسة هو فهم تأثير التطبيقات متعددة الحواس في تدريس اللغة الإنجليزية كلغة

أجنبية (EFL) لطلاب السنة الأولى من المرحلة المتوسطة و الذين قد يكونون عرضة لخطر الإصابة بعسر

القراءة ، ومحاولة فهم تأثير ذلك في أداء الطالب فيما يتعلق بالمهارات الثلاث . قراءة و كتابة وإملاء.

استخدمت هذه الدراسة المنهج الوصفي النوعي لأنها تشدد على وصف ظاهرة عسر القراءة. و قد اعتمدت

الدراسة المنهج الشبه تجريبي لدراسة تأثير التقنيات المتعددة الحواس في التدخل القبلي في عُسر القراءة.

باستخدام الملاحظة من أجل تحديد الأطفال المعرضين لخطر عسر القراءة، وبالتالي ، تم تصميم اختبار قبلي

من طلاب المدارس 16و آخر بعدي بما في ذلك برنامج التدخل لمدة ساعة ونصف في الجلسة لعينة من

المتوسطة في السنة الأولى. ويسعى البحث كذلك إلى استكشاف وعي المعلم بصعوبة التعلم من عسر القراءة.

وعلاوة على ذلك ، فقد تمّ تقديم النتائج في شكل وصفي. بالإضافة إلى ذلك، فقد اعتمدنا على تحليل النتائج

رقميا أيضًا لدعم تحليل البيانات. و قد اتبعنا بعض الخطوات في تحليل البيانات هي: تحديد البيانات الأولية

وتصنيفها وتحليلها وتفسيرها بناءَ على سياقاتها، ثم استخلاص النتائج. وأظهرت النتائج أدلة تدعم معاناة بعض

الأطفال الذين تم اختبارهم من العجز اللغوي في مثل عسر القراءة. و علاوة على ذلك، فقد كشفت النتائج أن التقنيات متعددة الحواس لها تأثير كبير على التدخل المبكر في كشف عسر القراءة. و تشير هذه النتائج أخيرا إلى أن الأطفال الذين يعانون من صعوبات في القراءة والكتابة لديهم مهارات لغوية أقل من تلك التي لدى الأطفال العاديين.

المصطلحات الأساسية: عسر القراءة، فصل اللغة الإنجليزية كلغة أجنبية، برنامج التدخل، صعوبات التعلم، المنهج متعدد الحواس لتعليم اللغة، اللسانيات النفسية.