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Dyslexia and Dysgraphia as Second - Language Learning Disabilities

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Abstrct:

Dyslexia is a specific neurobiological learning disorder that causes reading deficiency. Students with dyslexia face different difficulties in reading, writing, and concentration. These deficiencies are differed from one to another. According to Saudi Ministry of Education statistics, the number of dyslexic students increased which makes it a common syndrome in Saudi schools. The literature reviews in this study showed various causes behind dyslexia syndrome. Some researchers connected dyslexia with linguistic and phonological awareness as a main cause of dyslexia while others referred it to a genetic disorder. The major feature of this framework is to highlight the main causes of dyslexia as a linguistic awareness issue. This qualitative research case study is derived by the phonological theory which is primarily associated dyslexia with the linguistic awareness problems. However, three types of dyslexia are discussed and differentiated. The study listed the most common characteristics of dyslexic students in order to enable teachers to understand them. The research shows how dyslexia syndrome affects English as a second language learning acquisition in Saudi Arabia primary girls' schools, starting from grades 4 to 6, at Qatif in the Eastern Province. The findings clarify the rules of linguistic awareness in dyslexia syndrome. However, it provides some suggested methodologies and techniques to help dyslexic learners to acquire reading and writing skills in English as a second language acquisition.

In addition to, further studies are suggested to make learning second language as an optional subject for dyslexic students as one way to help them focus more on acquiring one language instead of struggling on both first and second languages.

Keywords: Dyslexia, Dysgraphia, phonological awareness, Morphological Awareness

Introduction:

Dyslexia is a specific learning disorder that causes reading deficiency. The previous researches showed various causes behind dyslexia. Some researchers showed the connection between dyslexia and linguistic awareness as a main cause while others referred it to a genetic disorder. The major feature of this framework is to highlight the main causes of dyslexia as a linguistic awareness issue. This qualitative research case study is derived by the phonological theory which is primarily associated dyslexia with the linguistic awareness problems. The research shows how dyslexia syndrome affects English as a second language learning acquisition in Saudi Arabia primary girls' schools, starting from grades 4 to 6, at Qatif in the Eastern Province. The findings clarify the rules of linguistic awareness in dyslexia syndrome. However, it provides some suggested methodologies and techniques to help dyslexic learners to acquire reading and writing skills in English as a second language acquisition.

The number of dyslexic students in the Kingdom of Saudi Arabia has risen rapidly in the last few years.

Saudi Ministry of Education statistics in the academic year 2018-2019 declared that the number of learning-disabled students in the kingdom reached 76000 male and female students. According to the Saudi Ministry of Education, dyslexia and dysgraphia are considered the most common learning disabilities in Saudi schools (Al Salman, 2019).

Bogdanowicz and Bogdanowicz defined dyslexia as a neurodevelopmental disorder that affects students' ability to learn. It is connected with the phonological and morphological development in the brain, which refers to the ability to blend sounds, syllables, and structures of words together (Bogdanowicz and Bogdanowicz, 2016, p. 1).

Dyslexia is described as brain difficulties with linguistic word processing, characterized by poor spelling and weak decoding abilities. These difficulties appear in phonological elements. Scheider and Crombie (2003, pp. ix-x) noted the term dyslexia originated from Greek, and it is a combination of two words. The first word dys means 'difficulty with' and the second word lexis means 'words'. The description is related to reading, spelling, and/or writing.

Becker, Vasconcelos, Oliveira, Caroline, Santos, Bizarro, De Almeida, De Salles, and Carvalho (2017, p. 2) found that dyslexia has lifelong consequences, children start suffering from dyslexia at an early age, and it continues throughout adolescence. This neurodevelopmental disorder becomes clear when children started learning how to read and write. In 1877, a German medical Professor, Adolph Kussmaul,

gave a clear reference to the term ‘word blindness’ which is now called dyslexia by referring it to the brain's inability to read or spell (Kirby, 2019, p. 8).

However, Kirby (2018, p. 1) stated that the earliest discovery of dyslexia was by Rudolf Berlin who noticed that one of his patients faced difficulty on reading the printed words. There
was not any problem with the patients’ sight. Berlin speculated the reading problem more than Kussmaul had suggested; that reading difficulty must be caused by physical changes in the brain not just the word blindness issue. Berlin called that difficulty *Wortblindheit* (word-blindness).

According to Scruggs and Mastropieri (2003, p. 2), the first clear case study of dyslexia was presented in the nineteenth century by three German physicians named Broadbent, Kussmaul, and Morgan; they described a case of a ten -year- old boy who faced many difficulties in reading. His IQ score represented his intelligence but his reading, writing skills as well as his arithmetic skills were slow when compared with his peers. Scruggs and Mastropieri (2002, p. 12) examined a case of a boy in grade three; he was presenting serious reading disabilities, his rate of reading expressed as a word rate for per minute was only six words. His vocabulary test result and listening comprehension were moderate while his reading test result was lower than the standard. These two boys represented dyslexic learners, who although they have good intelligence and talent, usually struggle with reading, writing, spelling, and arithmetic. Andreev et al. (2009) found out in their research that some of the dyslexic students can read but they cannot understand the text; others can read the letters but cannot blend them together to form words.

Moreover, some of the dyslexic students are unable to read the clock or to put sentences into the correct sequence (Andreev, Terzieva, and Katzarova, 2009, pp. 1-2).

Based on the increasing numbers of dyslexic students is Saudi Arabia's schools, teachers need to understand what does this learning syndrome mean. The purpose of this qualitative research emerged to focus on dyslexic students in EFL classes. It seeks to understand how dyslexia syndrome affects English as a second language learning acquisition in Saudi Arabia primary girls' schools, starting from grades 4 to 6, at Qatif in the Eastern Province. The study sought an explanation of dyslexia in EFL classes, to recommend some pedagogic methods which could be used in order to support dyslexic students to obtain Basic English language reading and writing skills.

Research Questions and hypotheses

How can dyslexia deficiency affect English in second language acquisition? What is the connection between dyslexia and dysgraphia? What are the appropriate techniques and methodologies that may help dyslexic children learners to obtain foreign language reading and writing skills?

Literature review

A review of the literature defined the term dyslexia as a learning disability. The International Dyslexia Association gave a clear definition of this syndrome as a neurological disorder that shows deficiencies in learners' reading, writing, and arithmetic skills ("Dyslexia at glance", 1949). The recent literature review used the term dyslexia to describe reading, spelling, and other language deficits.

In 1877, a German medical Professor, Adolph Kussmaul, gave a clear background to the term dyslexia (Kirby 2019, p. 2). In the nineteenth century, Scruggs and Mastropieri (2013) discussed the issues in the identification of learning disabilities and they presented a clear explanation for their dyslexic patients referring to Kussmaul's concept of dyslexia 'word-blindness'. However, Bogdanowicz and Bogdanowicz (2016, p. 1) related dyslexia to inherited syndromes, which is connected with any of the five language linguistic subsystems linguistic awareness.

The major feature of this framework is to highlight the main causes of dyslexia, which is discussed by Carrion-Castillo, Franke, and Fisher (2013), as a linguistic awareness issue. This qualitative research case study is derived by the phonological theory which is primarily associated dyslexia with the linguistic awareness problems Ramus, Rosen, Dakin, Day, Castellote, White, and Frith (2003). In addition, the literature hypothesized Chung and Lam (2020) discussion to cognitive-linguistic skills underlying word reading and spelling difficulties in Chinses as first language, and English as a second language.

A considerable literature by Tainturier, Roberts, and Leeke (2011) focused on the differences between transparent and opaque languages' orthographies in the complexity of acquiring languages relationship between dyslexia, and the phonological system as the main cause of dyslexia syndrome. Obiakor and Utlely (2005) defined learning disabilities terminologies like dyslexia and dysgraphia. Much of the research classified dyslexia into three types, Gaddes and Edgell (1994) stated the three types of dyslexia are deep, phonological, and surface dyslexia.

Based on the phonological theory, Osman and Uda (2014, pp. 1-2) referred the three types of dyslexia to the phonological awareness which is the ability to decode sounds and letters while Fracasso, Bangs, and Binder (2016) associated phonological awareness with segmentation. However, Lesaux, Lipka, and Siegel (2006) defined syntactic awareness skills as a critical aspect in reading acquisition in a second language.

A number of studies have examined the linguistic deficits and foreign language learning such as Downey, Snyder, and Hill (2000), and they found a connection between first language deficits and second language acquisition which leads us to discuss (Otanjac , 2016; Miles, 2000; Schneider & Crombie, 2003) researches about the strong relationship between the weaknesses in first language productive and receptive skills, and the second language skills acquisition.

Furthermore, Chen and Chang (2004), characterized the common characteristics for individuals with learning disorders. Dohla and Heim (2016) in studies showed the correlation between dysgraphia and dyslexia in the phonological processing system which makes them mostly occur with each other.

Overall, the literature review seeks to suggest some instructional activities that may help dyslexic/dysgraphic students in EFL classes (Mazzotti & Mustian, 2013, p. 35). Others researchers such as (Bogdanowicz and Bogdanowicz, 2016; Mazzotti and Mustian, 2013) suggested how to support and motivate dyslexic students who are learning English as a second language. Andreev, Terzieva, and Katzarova (2009) pointed out an approach to develop an e-learning environment for dyslexic pupils' acquisition of reading competence. Osman and Uda (2014)

suggested a translator website which may help dyslexic children to learn the letters and their sounds easily.

Together, these studies highlighted suggested techniques to help dyslexic students acquiring English second language skills.

Methodology

This case study research gathered information to understand dyslexia and dysgraphia as second-language learning deficits. This basic qualitative research seeks to extend knowledge by exploring the factors that induce dyslexia. I found dyslexia phenomena were studied from different philosophical perspectives like grounded, visual, and phonological theory, but mostly influenced by phonological theory (Goswami, 2002, p. 10)

The first part of the research provided an explanation of the term dyslexia, its causes, and symptoms. The qualitative method provided an opportunity to read more than forty articles related to dyslexia in both first and second language acquisition. The research focused on dyslexic students' phonological awareness problem in English as a second language, and it took advantage of other studies in dyslexia with different second languages. So, the data was collected from a comprehensive understanding of linguistic awareness which plays a crucial role in dyslexia.

The discussion of the three types of dyslexia led to the connection between dyslexia and dysgraphia the handwriting inability (Martinsa, Bastosb, Cecatoc, Araujod, Magroe, and Alaminose, 2012).

The outcome of this study is to suggest some techniques and methodologies which may improve dyslexic students spelling and writing skills in acquiring English as a second language.

Discussion

Dyslexia causes and symptoms.

Dyslexia is a term used to describe individuals who have trouble reading disabilities despite their normal intelligence. Researchers have not yet found the main causes of dyslexia. (Carrion-Castillo, Franke, and Fisher, 2013, p. 18) pointed out that, the relationship between dyslexia and genetics is not clear. Casanova, et al. (2001) noted learning disorder is not related to one brain factor, but many anatomical factors that cause low linguistic input (Casanova, Araque, Giedd, and Rumsey, 2004; Leonard, 2001). Ansari, (n.d.) presented that the geneticists did not find a specific gene that causes dyslexia, but they found many genes which overlap together to have an impact on brain development and language processing issue (Ansari, n.d.). Eden indicated reading is a complicated process. The same brain mechanism is used to know how to read (Eden, n.d.). Burns (2016) described how different brain areas are responsible for reading. She noted the temporal lobe is responsible for phonological awareness and coding sounds. While the frontal lobe controls the syntax, speech production, reading fluency, and comprehension. The third area is, the angular and supramarginal gyrus which is called the reading integrator. It links brain different parts to produce reading process (Burns, 2016). Eden postulated the inactivation in one of those brain areas or in all of them, make learner struggle readers which is called dyslexia (Eden, n.d.).

Although there is a lack of research studies about dyslexia's anatomical structure, there have been many neuroimaging studies examining the structure of the brain in dyslexic people. Kibby, Pavawalla, Fancher, Naillon, and Hynd (2009, pp. 1-2) related dyslexia to short term memory in cerebral brain hemisphere represented on poor semantic, syntax, and phonological awareness.

Taken together, these studies support the notion that dyslexia caused by weakness in the brain's ability to transfer the seen images, or the heard sound into comprehend form as stated in Osman and Uda, 2014, p. 2.

Using the phonological approach Bogdanowicz (2016, p. 2) hypothesized that the major problem for dyslexic students is mastering reading and spelling, especially with the English language which is orthographically non-transparent. Moreover, Tainturier et al. required transparent languages such as Turkish and Greek each grapheme is matched with a phoneme. In contrast, in opaque languages like English, the connections between graphemes (letters, digraphs, and trigraphs) and phonemes are variable which makes reading in English more difficult than reading transparency languages (Tainturier, Roberts, and Leeke, 2011, p. 3).

Developmental dyslexia through the lens of phonological theory.

The study of dyslexia has been associated with different theories like grounded theory, phonological theory, orientation theory, visual theory, and cerebellar theory. Because of analyzing the term phonology was a controversial topic for literature philosophers, this research will discuss dyslexia according to cognitive analysis to the linguistic phonological theory deficit as a primary, or secondary component for dyslexia. According to Roberts, Carr, and Docherty (2000, pp. 1-11) the conceptual foundation of the phonological theory was

associated with two inferences, knowledge and linguistic. Roberts et al. assumed that phonological theory is a major part of the linguistic theory which hypothesized that phonology by its nature is a term expressed by phenomena that happened inside the human brain. The combination of phonological theory elements contemplated the cognitive, physical, and psychological language processes.

Gussenhoven and Jacobs presented phonology as the representative of cognitive categories in an internal language as a linguistic expression such as vowel, vocabulary, morpheme, word, phrase, and sentence. It is a mere syntax which is basically about arranging words to form meaningful sentences (Gussenhoven and Jacobs, 2013, pp. 9-12).

Looking at dyslexia from phonological theory lens, we found Ramus, et al. hypothesized that the phonological theory analyzed dyslexia as a problem occurred on the storage of the alphabetic sounds including grapheme and phoneme (Ramus, Rosen, Dakin, Day, Castellote, White, and Frith, 2003, pp. 2-22). Ramus, et al. presented the phonological theory to assist the idea that, weak reading, and weak spelling come from the weakness of the individual’s cognitive awareness to phonology.

Phonological theory drew a wide connection between cognitive approach and dyslexic students' poor phonological processing. Goswami (2002, p. 10) supported that connection and considered the phonological representation as the major reason for dyslexia in all languages. He believed that all languages prepare their children to read by teaching them how to understand syllable, onset, and rhyme to code the alphabet’s sounds in order to form words and sentences and all these are phonological components.

The most obvious finding from the analysis emphasized that dyslexia is linguistic destruction related to phoneme recognition. Helland and Kaasa (2005, p. 3) associated dyslexia in second language acquisition with the individual's deficit in his/her first language. Heim, et al. examined the manipulation of dyslexia, and the cognitive theory. Their result showed a comprehensive account between cognitive theory, and the phonological awareness of their dyslexic students either as a primary or secondary reason in dyslexia (Heim, Tschiers, Amunts, Wilms, Vossel, Willmes, Grabowska, and Huber, 2008, pp. 2-9).

According to Cholewa, Mantey, Heber, and Hollweg (2008, pp. 4-5), dyslexia implicated difficulties in segmentation which means the phonological process of words, the segmenting and blending of words. When dyslexics students start learning to read, they struggle with letters and sounds. Later on, even if they can read, their reading either slow or they have a short memory to recall what they have read. Although some researchers argued towards the main role of phonological theory in dyslexia, it became the most well-developed and supported of all dyslexia theories.

Conceptual understanding of dyslexia and dysgraphia

As the literature review showed, learning disabilities or disorders is a general term which is related to varied features of disorders illustrated by difficulties in learning acquisition of basic skills such as listening, speaking, reading, writing, and arithmetic (Mazzotti & Mustian, 2013, pp. 3-6). The learning Disabilities Association of America used some scientific terminologies to differentiate between learning disabilities.

They stated some of the learning disabilities terminologies are "agraphia, dysgraphia, alexia, dyslexia, dyscalculia, ADHD, aphasia, and dysphasia" (Learning Disabilities Association of America, n.d.).

According to Miceli and Capasso (2006, p. 3), these learning disabilities terms are associating the word dyslexia with reading mechanism and phonological disorder. While dysgraphia was linked with the inability to translate the phonological input into a written form, which means the inability to spell or involves other semantic mechanisms. Moreover, the term dyscalculia is connected with arithmetic, which means a mathematical disorder.

Berninger et al. highlighted dysgraphia and defined it as a Greek rooted word which is related to handwriting or the processing of words. Based on the literature dyslexia and dysgraphia are both combined with syntax problems, and they share similar characteristics (Berninger, Richards, and Abbott 2015, pp. 3-4). In this coming part of the study, we will focus on the linguistic awareness skills, and how dyslexia syndrome is connected with each awareness.

Linguistic awareness skills

Human beings use different linguistic awareness to be engaged, and developed in literacy skills. Linguistic awareness or metalinguistic awareness refers to the learner's ability to reflect on, and make a connection between written and spoken language, for example, decoding sentences and editing text. There are four basic linguistic awareness: phonologic, morphologic, syntactic, and Orthographic awareness. Altmann, Lombardino, and Puranik (2007, p. 2) reported that the most common deficiency in dyslexia is related to linguistic awareness like phonological awareness and word decoding.

According to Mazzotti and Mustian (2013, p. 35), students with learning disorders have many cognitive problems like organizing, processing, solving academic problems; they show normal IQ but different reading and writing problems, and low language awareness. Many researchers found out a relation between the three phonological processing which is concerned the language awareness difficulties, reading, and writing disorders (Döhla and Heim, 2016, p. 3).

Phonological Awareness

Phonological awareness refers to the ability to decode sounds and letters. According to Osman and Uda (2014, p. 2), the term Phonemes means the basic sound of the letters, for example, the letter /b/ in the word bag is a phoneme. However, Fracasso, Bangs, and Binder (2016, pp. 1-2) associated phonological awareness with segmentation, which means the ability to blend sounds together. Breaking words into sounds, and rejoining the letters and sounds to form words. Fracasso et al. (2016) considered different phonological difficulties in blending sounds like a reading disability. Additionally, poor phonological awareness in reading and comprehension affects other aspects in that the learner has a limited visual orthographic image which enables learners to spell or to write the word correctly.

Morphological Awareness

Morphological awareness is another linguistic component that refers to written language abilities. Fracasso et al. (2016, p. 2) noted that morphological awareness is related to the morphemic structure of the words, root, suffixes, prefixes, tenses, and meaning. Knowing the morphology help readers especially second language new readers to break up confusing words and long one either to understand them better, or to build other words by adding the morphemes suffixes or prefixes. According to Szigetv´ari, in the phonological analysis, "the Phonological boundaries consisted of different types of boundaries. They are the syllable boundary, the verbal prefix boundary, the morpheme (or formative) boundary, the word boundary, and the phonological phrase boundary" (Szigetv´ari, 2013, pp. 2-3).

However, Bowers, et al. indicated that morphemic boundaries as the main element in pronunciation of letters sequences, for example, "ea" is pronounced as one phoneme in reading because it occurs in one morpheme but as two phonemes in react because the two letters are in different morphemes. Bowers et al. persisted the importance of explicit teaching of morphology to improve dyslexia struggle readers (Bowers, Kirby, and Deacon, 2010, p. 2).

Syntactic awareness

Syntactic awareness is the third linguistic awareness that refers to the ability to understand the structure and grammatical rules of sentences. According to Lesaux, Lipka, and Siegel (2006, pp. 2-3), syntactic awareness skills are critical aspects in reading acquisition in a second language. The complexity of text syntax has a great impact on reading, grammar, and writing as well.

Ravid and Schiff (2012, p. 2) showed that students with reading difficulties present less morphological linguistic awareness as a result of that poor spelling and writing skill performance.

This also accords with the current studies that indicated because of the limitation of dyslexic learners reading phonological awareness, they face difficulty in acquiring grammar rules like past tense which means they lack syntactic awareness. Consequently, lacking morphological awareness, leads to the weakness of writing skill.

Overall, learning how to read, and how to spell depends on the great knowledge of linguistic awareness the learner has. These findings elaborated on the strong tie between dyslexia the reading syndrome and dysgraphia the writing deficits.

Types of dyslexia

Scientists drew dyslexia different types from the brain left-hemisphere which is responsible for reading process. A few scientists draw six types of dyslexia, while most of them countered the three most common types of dyslexia. In 2010, a study from Tel Aviv University in Israel indicated three types of dyslexia by a deficit; they are deep, phonological, and surface dyslexia ("Types of Dyslexia", 2010).

The phonological deficit means the difficulty in decoding sounds letters with sounds ("Types of Dyslexia", 2010). The second type according to Gaddes and Edgell is deep dyslexia. Deep dyslexia is a complicated symptom relating to semantic errors. An individual with deep dyslexia can read the word out of the context, but not within the text (Gaddes and Edgell, 1994, pp. 49-51).

However, the third type is surface dyslexia, which is also called visual dyslexia. It is the difficulty with the word and its spelling. Surface dyslexia is described as the inability to read irregular words. These words' spellings do not correspond with their sounds such as the words yacht, island, have, and borough. Singh emphasized children with this type have difficulty to read the irregular words which do not follow specific spelling rules (Singh, 2015).

Most of the dyslexic learners have both the phonological and surface dyslexia. They can read concrete nouns which refer to physical objects like dog, cat, and orange rather than abstract nouns which refer to idea or concept such as freedom, sadness and touched (Eden, n.d.).

Dyslexia, Dysgraphia and second language acquisition.

Diagnosing learning disorders is an important issue to understand where, and why the students struggled. Although learning disabilities occur at an early age, they may not be diagnosed easily until the educational tasks become more difficult and complicated (Chung and Patel, 2015, p. 2). Otanjac found that basic learning disabilities can be diagnosed from early ages at school in the first language, and the same disabilities emerged in second language acquisition even if the second language was not acquired at an early age. He pointed out that weaknesses in the first language's productive and receptive skills, attention disorder, and short memory span all were manifest in the second language as well (Otanjac, 2016, p. 3).

There is a strong relationship between first language skills and second language skills; studies indicated that writing failure factors are connected with reading skill failure factors. There was not any difference on those factors scales either in first or second language proved by Goswami (2002, p. 49); he persisted that dyslexic students have a phonological weakness in all languages at the syllabic level to acquire language literacy.

However, Chen & Chang noted, students with first language disabilities show poor spelling, poor comprehension, poor reading, and poor decoding; have the same phonological, morphological, and syntactic problems in English as a second language or any second language (Chen & Chang, 2004, p. 7).

Supporting that phonological weakness, Tops et al. postulated that students with dyslexia syndrome have more difficulty to maintain orthographic representations; they have more phonological and morphological deficiencies comparing with students without dyslexia in their both first and second language (Tops, Callens, Bijn, and Brysbaert, 2014, pp. 3-4).

Tops et al. (2014) found in their case study that dyslexic students' spelling weakness referred to their short memory span because spelling needs to be memorized.

Characteristics of students with learning disabilities

The overall studies showed common characteristics for dyslexic learners. Otanjac (2016, pp. 463-464) framed students with learning disorders characteristics. In common they have short memory span but good intelligence,

less attention, poor results in their test or assignments, and are more anxious. According to Chen and Chang (2004, p. 6), students with learning disabilities face more difficulty in acquiring a second language as well as higher anxiety and more frustration, because of their weak outcomes on the language skills. In addition, they need more time to do tasks than their colleagues. Ndombo et al. found that most dyslexic students have a higher level of anxiety especially when they write (Ndombo, Ojo and Osunmakinde, 2013, p. 176).

Most of them have weak spelling, short term memory for sequences and information, trouble following oral constructions, and poor sentence structures. Besides the shared similarities, disabled learners can differ in their ability to be responsible, in their behavioral attitudes, and in their expressed social tone (Davis, n.d.).

The connection between dysgraphia and dyslexia

According to the International Dyslexia Association, dyslexia means weak awareness in reading, word processing, and spelling while the term dysgraphia refers to the deficiency in writing ability and orthography (“Dyslexia”, 2002). It makes it hard for a child to do writing tasks with clear handwriting and correct spelling.

Dysgraphia may occur with dyslexia, or with a spoken disability, or it may stand by itself. Learners with dysgraphia may show spelling deficiency, poor spacing, and handwriting. On the other hand, they may have both poor writing and poor reading (Yarotska, 2019).

Different studies showed that dysgraphia and dyslexia have a strong relationship, and sharing symptoms especially in phonological processing which makes them mostly occur with each other (Dohla and Heim, 2016, p. 10). Martinsa et al. in their studies stated that dysgraphia is strongly associated with dyslexia, and it is very common to find these both learning disorders in an individual, so teachers should work to improve both deficiencies. Martinasa' sample study of the sixth-grade dyslexic students, showed dysgraphic writing that contained unreadable handwriting, poor letter decoding, and dysorthographic writing beside poor letters coding (Martinsa, Bastosb, Cecatoc, Araujod, Magroe, and Alaminose, 2012, pp. 2-4).

Dyslexia / Dysgraphia in English as a second-language in Saudi girls' schools.

English as a second language is taught in Saudi Arabia from the fourth grade in both boys' and girls' schools as a compulsory subject. In this research, I focus on dyslexic students' cases at Eastern Providence girls' schools in Qatif starting from grades 4 to 6. Students' skills in oral and written English are evaluated by exams and grades.

Based on Helland and Kaasa studies, people who are born with a phonological weakness have poor reading and writing as well. Helland and Kaasa examined dyslexic students who have English as a second language; their tests results elaborated the relationship between the deficit on the phonological process, and cognitive learning skills which causes dyslexia such as reading an unknown word, limited memory,

And misspelled words are all integrated with basic cognitive function, and show appropriate relation between dyslexia and the basic cognitive weakness (Helland and Kaasa, 2005, pp. 42-56).

As mentioned previously, students with learning disorders struggle in both first and second languages. So, dyslexia and dysgraphia will appear with the same students who are suffering from them in their Arabic language as a first language. Sotiropoulos and Hanley (2017, p. 1) investigated the occurrence of reading and writing disorders together in German individuals who have English as a bilingual language, and they found those same dyslexic students who faced difficulty on reading, faced difficulties on writing and spelling especially the irregular words, for example, the word pint, differentiating between sounds or blending them together.

According to Mazzotti and Mustian (2013, p. 11), dyslexic/dysgraphic students struggle with all writing tasks including handwriting, spelling, punctuation, capitalization, and composition. These difficulties will be more complicated with higher grades and a more advanced curriculum.

What if learning English as a second language is an optional school subject for Saudi dyslexic students?

As the literature reviewed showed, dyslexic students are struggling in English as a second language, or mostly any other second language. The current study addressed the idea of making learning a second language optional for dyslexic students. Crombie (2000, p. 1) hypothesized although the benefits of teaching second languages at schools have a huge impact on fostering students' abilities to

gain language, improving their cognitive skills, and open their minds to different cultures, it has a negative effect on dyslexic students.

Dyslexic students will face the same reading and writing deficiencies that they have in their first language. Crombie discussed the idea of withdrawing dyslexic students from the second modern language because if they cannot achieve the acceptance level, they will feel unmotivated and depressed. Their failure may affect their learning process in their first language as well, and lower their self-esteem (Ganschow and Sparks, 2000, pp. 9-10). Mortimore et al. (2014) emphasized acquiring first and second language is parallel with dyslexic learners. They almost face same difficulties especially if English is learned as a second language not a bilingual language. Mortimore et al. assumed dyslexic students who are struggling in acquiring a second language even with intensive learning should be taken into consideration. Their failure should be turned into a solution to keep their first language cognitive learning effective (Mortimore, Hansen, Hutchings, Northcote, Fernando, Horobin, Saunders, and Everatt, 2014, pp. 16-18).

Crombie persisted in the importance of using effective methods to teach a foreign language curriculum. Kelly (2012) indicated most of the dyslexic students have trouble learning the second language because they are facing the same reading and writing deficits as their first language deficits. She insisted on the idea that it is too hard to make learning second languages compulsory for dyslexic students. Kelly points out struggling in both first and second languages is a stressful and depressing situation for dyslexic students.

A further suggestion is required, which may help Saudi primary school dyslexic students from grades 4 to 6. Making learning the second language, which is English, an optional subject. Consequently, schools and parents may focus more to help their dyslexic learners to get improved in their first language, rather than struggling in both.

Techniques and methodologies may help dyslexic/dysgraphic students in EFL classes.

One of the solutions was suggested in the previous part. If it is possible to recommend to the Ministry of Education learning and teaching system, making learning the second language for dyslexic students an optional subject. On the other hand, English teachers must be aware of how to modify and diversify their activities in order to match all their students' needs. Mazzotti and Mustian (2013, p. 12) addressed that it is important for an English teacher to understand her dyslexic students reading and writing obstacles. One of the best methods to teach dyslexic students is the instructional method.

Crombie (2000, pp. 6-8) suggested giving dyslexic students additional time to learn and practice more at class. Teaching them intensive explicit phonemic as an important linguistic awareness. Practicing more sounds. Menbet (2018) insisted on multisensory learning techniques. Composing video, posters, painting, and other helpful elements to support teaching the English language to dyslexic learners.

However, Menbet suggested the chunk method to be used in teaching reading and writing skills.

In the chunk method, the information will be cut into small pieces, which may help dyslexic learners to focus more and develop gradually. For example, instead of giving the dyslexic students a complete composition, they can complete the missing words in the sentences to form a comprehensible paragraph (Menbet, 2018, pp. 5-10).

To develop an effective improvement on dyslexic learners learning process, teaching in a small group is a need. Dyslexic students need to focus more, and they need more time to do the tasks comparing with their peers (Martinelli, n.d.).

Osman and Uda suggested integrating technology to help dyslexic learners to read and write by using the internet, apps, and websites. Using the open dyslexic's website which is designed to help dyslexic students type upper- and lower-case letters, showed a great profit on their dyslexic sample study learners. It was supported by audio aids to help them read, pronounce sounds, and spell words correctly Osman and Uda (2014, pp. 2-5).

Another suggestion to help dyslexic learners acquiring the language hypothesized by Andreev, et al. They suggested developing e-learning computerized environment to help dyslexic learners in reading. Their suggestion is based on the phenomenological approach. It seeks for intensive teaching of phonemes and phonology (Andreev, Terzieva, and Katzarova, 2009, pp. 2-4).

Furthermore, Chen and Chang noted more than teaching methodologies, teachers need to take care of their dyslexic students' feelings and emotions. They pointed out students who face first language difficulties, have a high risk of second language anxiety.

Language anxiety depresses, and frustrates dyslexic learners. Consequently, teachers need to take language anxiety into consideration to help disabled learners cope their obstacles' Chen and Chang (2004, p. 7).

According to (Martinelli, n.d.), dyslexic learners need to trust on themselves. Finding out their strength to fight the negative thought towards their weakness. Increasing dyslexic students' self-esteem and influenced them by applying flexible approaches and methodologies has a great impact on motivating dyslexic learners and creating secure learning environment (Nasen, 2015, pp. 12-13).

Conclusion

The main purpose of this study was to understand dyslexia syndrome in second language acquisition. The focal point of the study is finding out different language histories to state the correlation between first language deficit and second language acquisition. The study literature displayed factors to show the interrelation between dyslexia and dysgraphia which makes them mostly occur with each other.

Therefore, multiple analyses revealed the influence of phonological theory on understanding dyslexia causes. The phonological theory provided clarification of the essential question of this study about the correlation between dyslexia and second language acquisition.

It showed how the dyslexic learners' inactivation brain part developed reading and writing skills with the inability to code letters with sounds either to read or to write them with correct spelling.

Dyslexia categorized by three subtypes according to the phonological weakness. Deep dyslexia, surface, and phonological dyslexia. Dyslexia and dysgraphia mostly caused by different genetic overlapping. Individual with learning disability mostly have both deficit dyslexia and dysgraphia.

The result of the study provided some suggested techniques and methodologies which may help dyslexic primary school students to acquire English as a second language reading and writing skills.

Finally, learning disorders like dyslexia and dysgraphia are lifelong neurological problem. There is not a medication for learning disabilities. The study framework hypothesized an important role of dyslexic students' teachers. The early discover of dyslexia or dysgraphia may help to design specific teaching and learning techniques according to the learners' needs. However, teachers need to know more than varying their techniques, they need to contemplate second language learning anxiety to motivate their dyslexic students.

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