

The Effects of a Short Online English Course on a Dyslexic Learner's Reading Skills

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Abstract

The following study titled *The Effects of a Short Online English Course on a Dyslexic Learner's Reading Skills* is a qualitative research that intends to understand what the effect on the first language reading skills of a dyslexic learner is after being exposed to English learning. Along these lines, this research project is a case study that included one participant whose characteristics were being a non-bilingual dyslexic person. This study utilized four instruments to collect data: a diagnostic test, which determined the participant's cognitive condition required for the study; a reading comprehension test, implemented before and after the English course to analyze the effects of bilingual instruction on the participant's first language reading ability; a journal, used to make reports after every intervention in order to revise the performance of the participant throughout the process; and an interview, in which the participant's guardian expressed her perception towards the process. The data collection was analyzed under the grounded theory.

It was found that aspects with which the participant struggled the most such as accuracy in pronunciation, reading speed, and confidence were impacted in a favorable manner. Furthermore, reading features that did not represent significant drawbacks for the participant such as comprehension were reinforced during the process. Also, elements such as storytelling, re-reading, L1 and L2 integration, considering the learner's need when planning the lessons, and the use of illustrations were helpful to achieve the participant's reading improvements. Out of the aforementioned elements, it is evident that bilingual education should find a better focus for people with learning disabilities.

Key words: dyslexia, bilingualism, fluency, accuracy, reading speed, reading skills, learning disabilities, English learning, cognitive condition.

Resumen

El siguiente estudio, titulado *The Effects of a Short Online English Course on a Dyslexic Learner's Reading Skills*, es una investigación cualitativa que pretende entender qué efecto hay en las habilidades de lectura en la primera lengua de un estudiante disléxico después de exponerle al aprendizaje de inglés. De esta manera, este proyecto de investigación es un caso de estudio que involucró a un participante disléxico no bilingüe. Para la recolección de información se emplearon cuatro instrumentos: un examen diagnóstico, que determinó la condición cognitiva del sujeto; un examen de comprensión de lectura, implementado antes y después del curso para analizar los efectos del bilingüismo en estas habilidades; un diario de campo, donde se reportó el desempeño del individuo durante el proceso; y una entrevista, en la que la acudiente del participante expresó su percepción hacia el proceso. Los datos se recolectaron con base en la Teoría Fundamentada.

Al culminar, se evidenció que dificultades tales como exactitud al pronunciar, rapidez al leer y falta de confianza, tuvieron un impacto favorable. Asimismo, la comprensión lectora, que no representaba un reto significativo para el participante, se reforzó durante el curso. De igual manera, la narración, releer, integrar ambas lenguas, considerar las necesidades del estudiante al planear y usar ilustraciones, fueron elementos útiles para lograr la mejora en la lectura. Además de los aspectos previamente mencionados, es evidente que la educación bilingüe debería encontrar un mejor enfoque para las personas con discapacidades de aprendizaje.

Palabras clave: dislexia, bilingüismo, fluidez, exactitud, rapidez de lectura, habilidades de lectura, discapacidades de aprendizaje, aprendizaje de inglés, condición cognitiva.

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María Fernanda Castaño Morales

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Introduction

When it comes to learning a second language, many advantages can be highlighted. Within the ones that relate to cognitive matters, it is found that bilingual instruction can benefit people with conditions that represent challenges for their language abilities such as dyslexia. Literature on this topic emphasizes the positive effects that exposure to a second language can have on dyslexia symptoms in terms of improving their reading performance. Nonetheless, it was encountered that in the Colombian context there is lack of research on this subject, which increased the motivation towards conducting this study.

The research project was decided to be a case study conducted in a virtual setting, involving a nine year old dyslexic learner from Antioquia. The researchers played the role of both observers and language teachers, making the individual involved know what was going to be taught and the intensity the lessons were going to take place per week. In addition, data was collected through a journal, an interview, and the implementation of reading tests; these elements were analyzed under the grounded theory.

After analyzing data, it was found that the participant's reading issues were not related to comprehension but to fluency. Challenges related to consonants and vowel recognition, phonemes articulation, and syllables' order were observed. Over time, as lessons were being implemented, it was noted that the learner developed strategies to cope with these difficulties such as re-reading phrases or sentences and correcting himself when a mistake was made. Furthermore, it was found that even though the pupil's comprehension both in English and Spanish was favorable, it was more general than specific, demonstrating a deeper understanding when the input and interactions were supported by mimics, vocabulary in context, and time to reflect on what was heard, read, or discussed. Finally, aspects such as confidence, lack of

concentration, and memory issues were evidenced, highlighting the importance of providing spaces for relaxation, words of encouragement, and short memory tasks during the lessons.

The main purpose of this study was to analyze the type of effect that learning a second language can have on dyslexic people's first language reading skills, so further research can be done in order to provide insights about aspects that may be missing as well as to propose new ideas in regard to teaching a second language to a dyslexic population in a beneficial way. Furthermore, it was also intended to raise awareness on the way that Colombia's bilingual policies are being implemented to support people with learning disabilities since it is a topic that needs more attention. In order to answer the research questions, research done on this field in different contexts was revised, making it possible to make relations with the theory read and understand how bilingualism can be a positive factor for these people when their specific needs are considered for their learning process.

Statement of the Problem

Considering the assumption of reading as the main difficulty presented on dyslexic people, Parrila, Rauno and Protopapas, and Athanassios (2017) stated that “in most cases, the posited deficit is meant to account for impairments in learning to read rather than for dysfunction in the cognitive mechanism of mature reading” (p.4), which means that even when reading represents challenges for people with this cognitive condition, it is something that can be improved.

Considering this possibility, could the challenges presented when a dyslexic person is reading be enhanced with the instruction of a second language? Undoubtedly, it is necessary to understand dyslexic brain functions along with their deficiencies when reading in order to properly understand the condition and develop helpful learning strategies for solving the complication. Thus, it will also allow analyzing if there is any kind of benefit concerning this condition when learning a second language.

There are popular notions that dyslexic learners should not study a foreign language since it can affect their cognitive functions. Nevertheless, IDA (2010) indicates that learning a second language in an opportune learning setting makes it possible for many students with special needs to benefit their brain condition. Considering this aspect, the World Health Organization (2013) estimates that there are 1 billion people who suffer from a disability - which represent approximately 15% of the world's population - who face multiple obstacles to access an educational process with equal conditions as other groups of children with appropriate economic, social, physical or physiological settings. This population is more likely to stop their schooling process prematurely due to the poor conditions provided by the institutions. Along these lines, the Universal Declaration of Human Rights defines education as a Fundamental Right, of which all persons are subject without distinction of ethnicities, political ideologies, social status or any

other. That is, it is the obligation of the states to promote the necessary conditions to make it accessible for everyone.

In the Colombian context, according to *Ministerio de Salud* (2018), it is estimated that between 15% and 30% of the population present learning difficulties, mostly dyslexia. Taking into consideration this worrying quantity, the article 47 of the law 115 of 1994 expresses that the state will support and promote the integration into the educational system of people who are in a situation of disability through programs and experiences aimed at adequate educational attention as well as a suitable training for teachers. This law, which was consecrated more than 20 years ago, states that teachers will receive appropriate training to support the educational processes of people with some type of limitations either physical, sensorial, intellectual, or emotional.

Besides, in 2013, the law 1618 emphasizes educational inclusion in Colombia, stating that people with any cognitive disability have the right to be part of the conventional education system. Hence, in 2016 and 2017, Colombia's congress decrees in Article 4 of the laws 138 and 024 that people with dyslexia, attention deficit hyperactivity disorder and other cognitive conditions should be included into the educational system without any exception. This means that *Ministerio de Salud* and *Ministerio de Educación* should perform an integral policy that aims at completely satisfying the right to education for people with learning difficulties. On the other hand, considering that bilingualism can have any kind of impact on dyslexia, this research project also explores policies about bilingualism in Colombia. Thus, in Colombia there are many laws that aim at developing English as a second language; for instance, the article 20 of the law 115 of 1994, determines on its second objective for basic education that the educational system should correctly develop communicative abilities of reading, comprehension, writing, speaking

and fluency in a foreign language, which means that the educational system should be focused on promoting and expanding bilingualism.

Additionally, the British National Health Service (2018) states that dyslexia is a learning difficulty that involves problems related to reading, writing, and spelling. Thus, the problem is not merely cognitive but phonetic (which is related to the problem to decodify written codes), so it can be solved at a certain level with the help of language input through constant learning.

Genesee (2015) stated the following in terms of including dyslexic people in bilingual education:

Students being educated in a second language who are struggling readers can benefit from the same kinds of support that are used to help struggling monolingual students. At the same time, it is important to provide support that incorporates adaptations that are suitable for students who are still learning the language and who may be from a different cultural group; for example, provide lots of scaffolding, support vocabulary development, and use culturally familiar and appropriate materials at an appropriate linguistic level (para.19).

That is to say; if correct strategies are applied to guide and motivate dyslexic learners during their learning process, without making them feel that they are being clinically analyzed, it can be possible to have any kind of improvement on their condition.

Worldwide, some studies have been conducted, specifically in China and Wales, which have demonstrated that when dyslexic people are exposed to bilingual instruction, their cognitive condition can present positive changes to some degree. These studies also highlight that dyslexic individuals can perform in an efficient way the same cognitive demanding activities as non-dyslexic people although the first group may present little but not significant deficits. The study implemented by Ho and Fong (2005) determined that dyslexia conditions can be overcome at certain points with the support of bilingualism by using appropriate strategies during the process.

On the other hand, the study developed by Lallier et al. (2018) stated that bilingual early instruction can reduce manifestations of cognitive conditions such as dyslexia due to the relationship that is made between transparent and opaque languages owing to the support that the simplest language provides for improving aspects cognitively challenging; likewise, it would be better if this bilingual instruction is provided at early stages of life. Nevertheless, providing those settings is far away from the Colombian educational context, as stated by Cimermanova (2015), it is still challenging the fact that even when there are many ideas of educational inclusion and what teachers are expected to do, the government does not provide enough resources and a systematic training that allows teachers to identify specific learning needs, to work with dyslexic students, and to accommodate their teaching techniques and strategies to be used.

In consequence, considering that dyslexia is a condition which merely represents a reading deficit, and that people with any kind of peculiarities have the right to access quality education, it would be reasonable if aspects such as reading difficulties could be treated through second language learning on the grounds that it has been proven that it does work at least in few percentages of the dyslexic population. Unfortunately, it is evidenced that, in most cases, in Colombia, the inclusion of people with cognitive disabilities in education is limited to accepting them in schools and treating them as *equals* with no serious guarantees. Nonetheless, the inclusion policies should ensure that these people learn according to their cognition and have well prepared teachers aware of knowing how to cope with the conditions of different types of pupils.

All this information confirmed the fact that it has been complex to find studies and information focused only on educating dyslexic people in Colombia, showing that even when there are policies of inclusion and people's educational rights, this is something that is still far

away from the Colombian reality. Despite the existence of several policies and proposals for bilingualism and inclusive education, it seems that teachers are not well prepared to guide classes when encountering learners who suffer from a learning disability since there is lack of knowledge about the different learning methodologies that can be used with these people. That being the case, when it comes to the bilingual education field, there is also a considerable absence of specialized training on instructing disabled people which ensures an effective and opportune development process in all the skills, in this case, dyslexic people reading skills.

The objective of this study is to analyze what type of effect second language learning would have over a dyslexic non-bilingual learners' first language reading skills. For this, this research intends to implement an online English course in which a dyslexic person will be exposed to different language features and content in order to develop at some degree all language skills in a second language. The significance of this topic relies on making connections between two aspects that have been treated in an isolated way in Colombia despite the importance that it should have in a 21st century society bearing in mind all the policies that claim for inclusion.

Finally, trying to find a relation between bilingualism and inclusive education in terms of coping with dyslexic learners in a classroom, can change the traditional perspective towards bilingual education. In such a way, this may lead to contribute to great problems or necessities in the Colombian context such as the fostering of innovative strategies in second language teaching to involve all learners' capacities, and the implementation of the inclusive and bilingual policies that already exist but that are not even completely enforced. Thus, the contribution of this research project will be providing a different perspective from the medical viewpoint about treating dyslexia with academic input such as carefully designed English courses since, as established by Nieto (1998), this condition can be originated by the methodology used in the

learning process; then, it surges the inquiry about dyslexia treatment from one of the settings in which it is originated, understanding this conception as classroom and methodologies.

Research Questions

General question:

What is the effect of a short online English course on a dyslexic person's first language reading skills?

Specific questions:

1. How does L2 teaching impact a dyslexic person's L1 reading accuracy?
2. How does L2 teaching impact a dyslexic person's L1 reading speed?
3. How does L1 support influence L2 reading comprehension of a dyslexic person?
4. What type of strategies can be developed to enhance reading comprehension abilities?
5. What factors contribute to the confidence improvement of learners with reading difficulties?
6. What type of aspects should be considered when designing a class for students with different learning conditions?

Research objectives

General objective:

To understand the effect that a short online English course can have on a dyslexic person's first language reading skills.

Specific objectives:

- 1.** To analyze the impact that L2 teaching has over the L1 reading accuracy of a dyslexic learner.
- 2.** To analyze the impact that L2 teaching has over the L1 reading speed of a dyslexic learner.
- 3.** To determine the influence that L1 support has on the L2 reading comprehension of a dyslexic person.
- 4.** To identify the strategies that a dyslexic person can develop in order to enhance their reading comprehension abilities.
- 5.** To determine the factors that can contribute to improve a dyslexic learner's confidence.
- 6.** To determine the aspects that should be considered when planning classes for students with different learning conditions.

Conceptual Framework

The research study is located within the context of bilingualism to have an effect over dyslexic second language learners either beneficial or not, specifically in terms of reading skills since it is the one that represents more difficulties in dyslexic people. Considering this context, the purpose of this chapter is to provide a proper methodology according to the study concern that is intended to be developed; this, using a set of basic but essential concepts that will be mentioned and defined hereunder. The conceptual framework section involves four main constructs concerning Dyslexia, Bilingualism, Reading Skills, and Synchronous Online Learning, and it also provides opportune information regarding each of their most relevant concepts that will be applicable to guide the research study objective; these concepts will consider definitions given by the World Neurology Federation (1968), Condemarin and Blomquist (1970), Nieto (1998), Artigas (2000), Wide (2010), Franson (2011), and Küçükoğlu (2013), who contributed to their corresponding study and theorization.

Dyslexia

Widely known as a cognitive and verbal disorder, dyslexia is an interesting study subject concerning second language learning and teaching in terms of giving a further perspective about what may happen in a dyslexic brain when being exposed to bilingual instruction. When people address second language learning, the first thing that comes to light is the assimilation between the target language written words' identification and the capacity of reading them, and the latter, according to Mejía et al. (2015), seems to be one of the most common dyslexic people's drawbacks. Bearing this in mind, can learning a second language impact at some degree dyslexic learners' language performance? In this section, dyslexia will be decomposed into its most important aspects (definition, causes, types, and treatments), which will give a brief conception

and understanding of the term from the perspectives of different sources such as the World Neurology Federation (1968), Condemarín and Blomquist (1970), Nieto (1998), Artigas (2000), Myklebust and Johnson (1962), Shaywitz (1998) and Swank (1999), García (2010), Lozano (1994), Jimenez (1997), and Angerri (2001); this in order to understand it in a further way.

Definition of Dyslexia

Considering the importance of this condition, it is paramount to know how it is defined from different perspectives. In 1917 and 1970, the term dyslexia was used for the first time by the ophthalmology and neurology fields, and currently, it is also used by the neuropsychology and psych pedagogy. Nevertheless, the first attempt of giving a definition to the term dyslexia was made by the World Neurology Federation in 1968, who defined it as a disorder that is manifested on the difficulty to learn to read despite having received a conventional and sociocultural instruction. Along these lines, it can be observed that having developed linguistic and communicative competences at school and from the own environment does not ensure the absence of cognitive peculiarities.

Regarding the conception of dyslexia as a cognitive difficulty, Condemarín and Blomquist (1970) defined it as a set of symptoms resulting from a brain dysfunction that is inherited, which severely affects the capacity of learning to read. Considering the perception of the previous authors, there are genes that can affect brain functions in terms of reading capacities, but those may not be necessarily present since birth but through the passage of time. If we contemplate the previous information, it can be said that dyslexia could appear in any stage of life.

Different from providing dyslexia with a non-biological or merely difficulty-related perspective, Reid (2002) stated dyslexia as a processing difference characterized by affecting cognitive areas such as memory, speed of processing, time management, among others; furthermore, it may affect outcomes of assessment and learning. In this way, it can be deduced

that even though a dyslexic person may have a different learning pace or certain difficulties, it does not mean that the condition is not an aspect that cannot be modified to some extent in order to improve the outcomes over time.

Following the perception of the World Neurology Federation (1968) which highlighted dyslexia as a disorder that is manifested, and even further making a relation to learning itself, the British Dyslexia Association (2009) defined it as a learning difficulty that affects the skills that have to do with fluent word reading and spelling, involving deficiencies in phonological awareness, verbal memory, and verbal processing speed. That is, although phonological features may be highly involved when it comes to having learning difficulties in terms of reading, it is an aspect that can affect other areas of this specific field as in the case of reading comprehension, which may be related to the verbal memory previously mentioned.

Causes of Dyslexia Condition

Before analyzing the effects that learning a second language can cause on dyslexic learners, it is important to bear in mind what the background of these types of learners is since it is not enough by having the definition of the condition. As a way to identify it, it could be said that dyslexia, as other cognitive disabilities, can be originated by multiple factors generated not only in the environment in which the person surrounds him/herself, but also by a genetic factor that can be related to his/her ancestry.

In regard to this conception, there is a series of authors who exposed their perceptions concerning the causes of dyslexia. Nieto (1998) states that dyslexia can be originated in the learning process by the methodology used in the classroom. In this way, dyslexia is conceived as a contextual result that can affect not only one but also many individuals at the same time, reflecting on the fact that the learning environment and the methodology implemented can affect or benefit the learning process. This may happen since the teacher's commitment for motivating

students to improve important aspects (as the reading skills) is crucial for determining the students' success in a language course and the way in which their brain processes can be influenced.

Different from a methodological perspective, which holds the responsibility on the teacher, Artigas (2000) points out that these learning problems may be originated by perception difficulties, such as visual deficiencies on the basic elements of this condition. Thus, it can be added that in contrast to some definitions given to dyslexia, which categorize it into failures of cognitive processes, dyslexia is a physical condition that can be overcome with treatment.

Types of Dyslexia

It is crucial to establish the distinction between the dyslexia that has been acquired and the one that comes in hereditary ways in order to better know the appropriate procedures to be applied to have any effect on the condition with second language learning and teaching strategies. According to Myklebust and Johnson (1962), dyslexia can be divided into two categories: the auditive and the visual. The first one involves the difficulty to discriminate sounds, recognize words, commands, and stories while the second one, more related to reading skills, is characterized by the incapacity to follow and retain visual sequences such as letter or word changes. Thus, considering that both categories are related in terms of word recognition, it can be determined that being dyslexic represents struggling with decoding and interpretative patterns that are represented in the difficulty to read.

In spite of the fact that many theorists have found that dyslexia has to be classified in different aspects, Shaywitz (1998) and Swank (1999) highlighted that dyslexia is unique despite the several difficulties that dyslexic people have, and the only thing that has attribution is the phonological failure as the principal basis. Considering this perception of the phonological

aspect as the major cause of dyslexia condition, it can be said that one of the reasons why it is difficult for dyslexic second language learners to read is sound articulation.

In a similar perception of dyslexia as something evolutive, Garcia (2010) classified it in three categories: Audio Phonological, Visual Spatial, and the last one including both characteristics. In the first case, individuals cannot articulate well the sounds, name objects, and read aloud; in the second case, individuals are not able to recognize familiar objects, decodify visual information in order to read it, and have an appropriate handwriting. Hence, the three categories mentioned above are characterized by representing a difficulty to read considering different factors such as articulating and decoding words. These categories represent that reading is the most convincing aspect when talking about the obstacles that dyslexic people go through when having this condition.

Alternatives to Treat Dyslexia

In order to effectively manage the ways in which dyslexia can be enhanced at certain levels, Lozano (1994) proposes an intervention model based on cognitive neuropsychology. This model consists of the phonological knowledge (repeating phrases orally, dividing sentences into the words that compound them in order to join them again, and building words from given syllables), relation between grapheme and phoneme (asking the person to write the sound they hear or read the words aloud), and word recognition (matching words with their illustrations and pointing out words). Undoubtedly, this model proposes alternative ways of treating the reading difficulty that is presented on dyslexic learners with different activities that can be implemented in the educational field; thus, reading skills in dyslexic learners can be improved by implementing various strategies during the reading practice and development exercises.

By considering Lozano's theory based on cognition strategies, Jimenez (1997) focuses on an aspect similar to one of the proposed by the author previously mentioned, which is the phonemic

awareness as an effective way to improve reading skills of children between the ages of five and eight. This treatment provides better results if it is accompanied by visual resources as a support to raise this phonemic aim. In this way, individuals will be able to produce the sound gradually in their reading development while improving the capacity to relate sounds to their symbols.

Considering the aforementioned, there is a similar conception given by Jimenez's phonemic intervention alternative, Angerri (2001) proposes a re-education process in which the initial focus is the alphabet through memory strategies such as written and oral exercises and, also, body movements. Then, the individual can move on to phrases and develop semantic skills, sentences, and so on. This can become an appropriate strategy since it places the phonemic competence as the essential to perform a process from the most basic to the most complex and which can help improve reading skills.

All the concepts have one element in common, it seems that dyslexic people have a cognitive disability that involves problems with phonological aspects which means that they struggle finding a relation between the written code (visual) and their decoding (reading). In consideration of the previous information, it can be thought that reading is the most convincing aspect to be considered when talking about the relation that can be found between dyslexia and bilingualism, and to be contemplated in this research project. This makes us consider that reading can be the most relevant skill to process language features and to be improved by people with dyslexia. This study will be focused on considering the brain processes when both presenting cognitive disabilities and studying a second language in order to understand how these two processes can be integrated, and in that way, analyze if bilingualism can be either beneficial or not for solving the cognitive problems that are commonly presented in a dyslexic person.

Dyslexia in the ELT Classroom

When talking about providing second language classes to dyslexic learners, it is necessary to know that some aspects must be considered in order to appropriately design the way in which the contents will be implemented; that is, it is paramount to bear in mind that dyslexic learners may learn in a different way, for the classes should ensure not to affect more the condition and be catching enough to keep the learner interested throughout the process.

Bearing in mind what the importance of carefully designing lessons for dyslexic learners is, Malanek (2016) stipulated that some signs must be detected to help these learners rather than giving them more time to complete tasks (e.g., difficulty to write information from the board, reversing sequence of letters, skipping lines in a text, etc.); also, some tips are offered in order to ease both the learning and teaching process such as providing handouts, breaking down words into chunks, using colors to highlight keywords, asking what the main points of a paragraph are after reading it, etc. This means that a two-hour class does not exactly have to follow the same stages in the case of dyslexic learners compared to students who do not present any learning difficulty. That is, three simple stages can take too long because of the activities each of them has to be divided into.

Concerning the way in which the motivational factor has a great influence in every learning process, especially when it comes to handling situations with learners who have different learning features, Hudson (2016) and Owen (2016) stated that a teacher must be supportive and 'positive by making dyslexic learners know they understand they have difficulties but acknowledging their intelligence as well. Students need to be aware of their condition, but they also need to be encouraged by the person in charge of their learning process in order not to frustrate themselves and making more possible to achieve any enhancement regarding the aspects with which they struggle.

The fact that coping with dyslexia in the ELT is not an easy task to complete does not mean that an effective and suitable process cannot be managed. Hird (2015) highlighted that even though dyslexia is a complex issue and requires a carefully managed approach, there are some ways to help dyslexic students in the ELT classroom such as minimizing the processing load when doing exercises and activities, giving short and concise instructions, avoiding exercises that involve going backwards and forwards, having double spacing between lines, etc. It can be said that apart from giving catching classes, some guidelines must be considered since they can determine what the success of teaching a dyslexic learner can be. Although they may seem simple aspects, they can highly affect the learning process of people with this condition if they are not properly implemented or avoided.

Bilingualism

There is a belief that being bilingual brings manifold benefits to the brain, and there are some studies that sustain that bilingualism could function as a resource to have a certain impact on cognitive disabilities since, in agreement with Bialystok and Shapero (2005), it can provide better mental flexibility. Thus, in order to understand bilingualism advantages and positive effects, it will be defined regarding all the aspects that involve its meaning from different authors' perspectives such as Weinrich (1953), Bialystok, Craik, Klein and Viswanathan (2004), Wide (2010), Franson (2011), Schweizer, Ware, Fischer, Fergus, and Bialystok (2011), and Küçükoğlu (2013), and the advantages that it provides to people who present learning difficulties due to brain processes' dysfunctions.

Definition of Bilingualism

As bilingualism has been a multi-faceted phenomenon over the years, it is open to a diversity of definitions that could sustain positive or negative connotations. Weinrich (1953), offers a short definition about bilingualism that is alternately using two languages. Along these lines, it

could be said that a person that is being exposed to a second language and uses the second language in different levels of proficiency can be considered bilingual.

In order to consider the factors that contribute to second language learning, it is important to determine that bilingualism is a versatile term that is not merely limited to a person's capability either to understand and use a second language, but it also incorporates social elements:

Discussions about individual bilingualism use the individual person as a reference point and usually focus on characteristics such as the age of acquisition, level of attainment, language dominance, and ability. Often, these characteristics are largely removed from their broader social context and do not consider the terminology community. Societal bilingualism, on the other hand, refers to the way multiple terminologies are used in and by a community. One example of societal bilingualism is the availability of newspapers and other print media in more than one language. (Wide, 2010, p. 1)

Considering the perception of bilingualism as something social, but bearing in mind its performance degrees as well, Franson (2011) defined bilingualism as an ambiguous aspect that encompasses a range of proficiencies that can go from basic to advanced levels, and, depending on the level of proficiency the individual has, he/she will be able to perform either in a basic or native-like way in both languages while encompassing different contexts and individuals (individual bilingualism) as well as an entire society (social bilingualism). In that sense, as bilingual people can be divided into different ranges, proficiency levels, backgrounds, and drawbacks, it can be said that exposing a person to bilingual learning and reaching him/her to a specific proficiency level in which he/she can be able to interact and understand a second language in different dimension will allow to name him/her as bilingual.

As there are bases that support the different ways in which bilingualism is perceived, it could be defined as the phenomenon of understanding and using one or more skills of two languages (at different ranges of proficiency). Implying that, even if a person does not have full control of the second language, if he/she is able to understand and interact with the language, he/she could be considered bilingual. Moreover, bilingualism is not only an individual but a shared process in which second language learners interact with others in a variety of contexts with specific purposes depending on the abilities that they already have or that are in an improvement process.

Advantages of Being Bilingual

Undoubtedly, learning a second language can bring benefits in terms of globalization, but apart from those advantages related to social and economic domains, there is a line of authors that talk about the advantages that bilingualism brings to the brain, and that establish how bilingualism can help to avoid mental illness, brain ageing, and attention issues.

Consequently, succeeding the theory of bilingualism as a positive factor that contributes to cognitive aspects, Bialystok et al. (2004) shed a light on that since they estimate that being bilingual confers several advantages not only in terms of social and economic aspects, but also in executive functions that provide benefits to cognitive problems/disabilities. Thus, Bialystok et al (2004) ensure that the above mentioned is possible since learning a second language can effectively help reduce the risk of suffering dementia and Alzheimer diseases as well as to allow to have better problem solving and attention skills. That is, it is demonstrated that an individual's cognitive processes in terms of learning difficulties can benefit from learning a second language, making it possible to solve mental concerns.

Following the line of cognitive benefits, Schweizer et al. (2011) establish bilingualism as a factor that may decrease the cognitive declines owing to two reasons: first, as bilingual people are constantly switching between both languages, it allows them to enhance brain networks and

prepare to compensate aging issues; secondly, speaking two languages increases blood circulation, and allows to keep nerve connections to have a constant mental workout on the brain. Considering dyslexia as a cognitive disability, all the theory collected above shed a light on this study since it can guide the big concern of bilingualism as a benefit for the brain processes and especially for the brain cognitive dysfunctions, in this case, dyslexia.

Language Reading Skills

Reading is not a simple concept that can be defined as a simple ability. As it has been mentioned before, reading represents the meaning of interactions between the reader, the context and the text, and multiple aspects such as decoding letters and words that can generate frustration and struggles in certain groups of people. That is why it is important to divide this element into different categories that allow us to understand its matters, concerns, and advantages in order to determine the better way to carry out the reading process, especially with people that face it with difficulties.

Definition of Language Reading Skills

It is believed that being bilingual implies the development of one or more second language skills such as writing, listening, speaking or reading when interacting with the language. In this section, the focus will be on reading skills on the grounds that it is an important aspect that helps people to process language features, and it is the one that causes more troubles in dyslexic people. Greenall and Swan (1986) stated that reading skills need to be effectively developed in order to be able to read and to understand accurately and efficiently as much as we need to achieve a purpose. In the educational field, principally when it comes to second language learning, reading is one of the most important and challenging areas due to all the cognitive processes that it involves such as recognizing the written code and decoding it into specific ideas

or information; that is why improving this skill will be beneficial for increasing the cognitive and learning processes.

Following the importance of this skill in the educational field regarding cognition and learning, Bhardwaj (2004) stated that it is imperative for teachers to determine and improve their students' reading comprehension to help them reach a much higher level on the learning process by acquiring vocabulary. Besides, students must contribute to their own learning process and recognize which techniques and strategies are beneficial for enhancing their reading skills. Undoubtedly, the reading skill takes an important place in the cognitive and learning process, and it is crucial for being successful and progressing in the first and second language acquisition.

From a more personal-growth perspective, Küçükoğlu (2013) stated the reading relevance and defined it as a lifelong skill that is necessary to use in different scenarios and aspects of life. Reading skills are not only limited to academic matters, but they are resources for performing successfully either in a personal (social, family relationships...) or work field.

All the elements mentioned above present reading as an important skill for being developed not only in the first language but also in the second one since it is a skill that can determine success in many aspects of life (academic and professional), and which involves several cognitive processes such as working memory, phonological processing, and semantic processing.

Reading Skills in L1 and L2

Considering that reading is an important skill related to language and dyslexia, it is important to contemplate if the reading ability in the first language (L1) is linked to the reading ability in the second language (L2). Nation (2008) suggests that L1 readers confront multiple difficulties when learning to read in a second language since the language proficiency, the first language reading ability, the second language reading ability, and other aspects such as the linguistic processing and the sociocultural differences can have an unfavorable influence in the process.

However, according to Cook (1992) L1 and L2 should not be treated in an isolated way since most of the learners of a second language tend to make connections between L1 and L2 to process second language concerns. Thus, second language users keep activating their first language in order to measure the development of the second one, and teachers should be aware of that. Hence, Cook (1992) determined that L1 and L2 knowledge are completely associated, and in terms of the relation between reading comprehension in L1 and L2, he established that the effects that L1 can have in L2 are presented in multiple areas such as word recognition or definitions since contents in the first language can be determined by the L2. In this way, reading skills in L1 can serve as a support for developing reading strategies in L2 and vice versa, that is why the abilities of each language cannot be considered apart from the other, but as resources.

When it comes to transferring strategies from one language to another Block (1986) suggested that most of the advanced competences developed in L1 reading skill, can be transferred to the L2 reading skill, thus, it can be said that designing good reading strategies for second language learners will allow them to transfer those strategies acquired in one of the languages into the strategies for understanding the other one. Considering the aforementioned, providing a satisfactory instruction of the reading skill will allow to have a good development of the ability.

Strategies to Improve Reading Comprehension Skills

Considering the aspects that are associated with the reading skill and its importance, it is crucial to contemplate the strategies that help to properly develop this ability; but before exposing them, it is important to understand the difference between skill and strategy since people use to relate both terms and use one as a complement or support for the other. Hence, Afflerbach et al. (2008) highlighted the distinction between them and established that “skills were rooted in behavioral descriptions of learning through practice, whereas strategies were rooted in constructive, self-controlled theories of information processing” (p. 366). Taking into

account the previous definition, skill can be considered as the process itself that learners experience in order to develop the ability while strategy is defined as the practice or use of certain approaches that the learners can adapt to monitor their performance and to improve their ability.

Undoubtedly, strategies are better developed when teachers provide good outcomes, as stated by Casper et al. (1998) reading is manifested in different stages, and teachers should know them in order to implement strategies that not only correspond to each level, but that engage students. Learning to read is a complex process that requires teachers to know its theories and elements to be able to guide a successful procedure. In this way, according to Casper et al. (1998) teachers must be aware of the theory that reading comprehension involves in order to provide an appropriate instruction with the right approaches. Thus, they propose four strategies as the basis to have successful reading comprehension: Preparational, Organizational, Elaboration, and Monitoring, which consist of contextualizing, classifying, and identifying important information, making connections between the text and the context, and understanding the outcomes. In that sense, understanding the reading process, its stages and strategies can dispose students to a better development and performance when facing different reading texts.

It has been demonstrated that implementing good reading strategies can have a positive impact on EFL students and determine the success of a second language class. Song (1998) conducted a study in which the benefits of providing reading training strategies to second language learners were presented. This study was relevant since it revealed how less abled readers might benefit more from the training strategies than the proficiency ones; a fact that shed a light on the purpose of this research project since dyslexic people are characterized for being less proficient readers.

In this order of ideas, evolving reading strategies need a backdrop in order to be developed, Dole et al. (1991) suggested that it is important for students to understand what comprehension is, so they can construct awareness of the outcomes proposed by the teacher and the useful strategies for interpreting not only the different academic texts, but the process. Consequently, if teachers and students are attentive to all those matters, it will be possible for learners to have an outstanding reading process.

Strategies to Improve Reading Fluency

Fluency is an important component of the reading skill that can play a decisive role when it comes to the development of certain language aspects. Undoubtedly, this aspect, which is considered by Grabe (2010) as the ability to read without making apparent mental efforts and in an accurate and fluent way, can have a noticeable impact on other reading aspects such as comprehension, vocabulary knowledge and phonemic awareness. Thus, at the moment of working on this competence, the previous mentioned aspects should be taken into account.

Any other way, Ford (2012) supports the previous information by stating that when the students are constantly exposed to reading practice they can improve not only their reading accuracy and prosody, but also their vocabulary acquisition, and consequently, their reading speed, comprehension and oral language. In that sense, throughout time, there have been established and expanded multiple reading fluency strategies that aim at improving students' reading skills, in such a way, the strategies to be employed in this research project will be mentioned and described as follows:

Repeated Reading. This is a reading technique that was promoted by Samuels (1979) in order to support students that have reading difficulties in their first language; as stated by Cohen (2011) the technique consists on providing students with scaffolding strategies, and allowing them to re-read the reading inputs multiple times, so they can improve their reading speed, accuracy and comprehension. We consider that this strategy can have a positive impact on the reading ability of the population concerned for this research project since its purpose is to help students with learning difficulties such as dyslexia with improving different aspects of reading such as fluency and comprehension. Along these lines, Cox (2014) states that this strategy can benefit both students with normal learning processes, and students with learning difficulties.

Reader's Theatre. According to Hudson, Lane, & Pullen (2005) Reader's Theatre is a strategy that is based on storytelling reading aloud, and it is useful with populations of different ages, but especially children since they enjoy the fact of being exposed to fun reading inputs. As stated by Cohen (2011), the main purpose of this technique is to increase "reading self-confidence by practicing multiple readings of a text, thereby improving comprehension, fluency, and accuracy" (p.23) which means that this strategy fosters intonation and other reading aspects that contribute to the students' reading comprehension and fluency.

Model Fluent Reading: Read aloud. This is a strategy based on expanding students' topics and vocabulary repertoire since its focus is on providing the teachers' reading model so the students can get ideas of how to give intention, tone and expression to the texts, according to Terblanche (2002). In that sense, reading aloud activities such as storytelling, in which the students can get engaged and motivated to learn new lexical and content material, can benefit students regarding reading performance since they can get multiple reading strategies that help them understand how they can let the text get meaning through the expression of their voices.

Synchronous Online Learning

As it has been evidenced throughout time, the learning field has involved many facets from being provided with different theories in order to demonstrate which the most effective one to changing and adapting itself depending on the situations is. The world is constantly facing different problematics or peculiarities, for education and learning itself have had to become more flexible and keep going no matter how tough the circumstances can be, even more when it comes to making connections between the educational field and technological aids. Online education has grown over time, and making more possible for almost all of the people to learn despite the places they live in; nonetheless, it is crucial to clarify that at this point the focus will be on the synchronous online learning element, a subcategory of what the entire concept of online education involves.

Definition of Synchronous Online Learning

As previously mentioned, synchronous online learning can be totally different from the general existing idea about online learning and education. “Synchronous learning means that the instructor and the students in the course engage with the course content and each other at the same time, but from different locations” (University of Waterloo, n.d.). In this case, it is not necessary to have face to face interaction for students to attend classes, for the distance is not an obstacle due to the facilities that the internet and multimedia resources can offer.

Considering that although this type of learning does not involve being in the same place, it still allows learners to have normal and meaningful interactions as indicated by Lawless (2020), synchronous online learning enables students to ask questions and receive answers instantaneously plus learners can interact with each other. Thus, it can be said that virtuality can

become very similar to on-site learning settings in terms of exchanging information and being part of a learning community in an accessible and even more comfortable way.

Inclusion in Synchronous Online Learning

When it comes to inclusive education, it is challenging to provide an appropriate learning environment which accomplishes all of the students' needs, and it can become a greater challenge when interacting through virtual settings. In agreement with the Columbia Center for Teaching and Learning "instructors can draw on principles of inclusive teaching to help students feel a sense of belonging, ensure they can access course materials, and support them in achieving learning goals." (2020, para 1.). This means that even though there is not a specific way of including learners in virtual environments, teachers have to rely on their recursiveness, empathy and creativity in order not to deny any student their right to be part of the process plus it has to make sure the process is being suitable to learners.

From a more student-centered perspective, Jungles (2020) proposed that a good alternative to promote and offer inclusive environments while teaching online involves asking students about their needs, providing transcripts and captions of audio and video, and offering students resources that keep them motivated. In that way, students will feel they do matter in the process while easing the teacher's workload in terms of giving further ideas about how the classes can be managed in an almost successful way, or at least in a way that students may not feel overwhelmed and are able to access the contents or resources offered by the teacher.

Considering the contributions given by different theorists about the Dyslexia and Bilingualism fields, defining and classifying each concept into important subcategories was crucial to connect and understand the correlation of both terms. This research project relies on the theories that support bilingualism as a beneficial factor for cognitive processes such as Schweizer et al. (2011) and Bialystok et al. (2004), and the point of view of dyslexia as a cognitive disability whose

considerable dysfunctions are in terms of reading (visual dyslexia) taken from the contributions given by theoreticians such as Myklebust and Johnson (1962), Condemarin and Blomquist (1970), and Garcia (2010).

In a few words, dyslexia is considered a cognitive disability whose principal characteristic is the difficulty to read and identify written codes while bilingualism is seen as an ability that provides advantages to the cognitive processes, and in turn, to benefit cognitive disabilities. Understanding both concepts and their relationship is the basis to guide this research project since it contributes to help respond to our crucial question: What is the effect of a short online English course on a dyslexic person's first language reading skills?

Literature Review

Throughout the years, Bilingualism has become an important global element regarding professional, social, and commercial success. Nonetheless, In the field of education, it has been proven that bilingualism has gone beyond only giving professional opportunities since it has helped people improve cognitive disabilities such as dyslexia. This review will present some studies that show how bilingualism may serve as a meaningful influence over dyslexic people's first language processing regarding to what extent their language performance changes. The first study was conducted by Ho and Fong (2005) which is *Do Chinese Dyslexic Children Have Difficulties Learning English as a Second Language?*; and the second study belongs to Lallier et al. (2018), related to: *Learning to Read Bilingually Modulates the Manifestations of Dyslexia in Adults*.

The first study examined whether Chinese dyslexic children and children without any cognitive disability had difficulties in learning English as a second language. Ho and Fong (2005) analyzed Chinese children's performance when being exposed to scripts and to different tests. This study was carried out based on four research questions which were: (a) whether Chinese dyslexic children have difficulties learning English as a second language?, (b) how do phonological skills contribute to children's reading problems?, (c) whether the severity of reading difficulties in Chinese relates to the severity of reading difficulties in English among bilingual children?, (d) are these cases of dissociation of reading difficulties in Chinese and English among bilingual dyslexic children? To collect data, the researchers implemented ten tasks including a nonverbal intelligence test, an English picture vocabulary test, two English reading tasks, four tasks on English phonological skills, an English verbal memory task, and an English rapid naming task.

The participants were a group of 50 Hong Kong Chinese primary school children. Twenty-five of them (21 boys and four girls) who had dyslexia conditions and 25 children (18 boys and seven girls) who did not present any learning disorder. The methodology used was through nine steps: (First) Raven's Standard Progressive Matrices, (Second) Peabody Picture Vocabulary Test, (Third) English Word Reading, (Fourth) English Reading Comprehension, (Fifth) Onset Detection and Rhyme Detection, (Sixth) Initial Phoneme Deletion, (Seventh) Invented Spelling, (Eighth) Digit Repetition, (Ninth) Rapid Picture Naming.

The findings of this research highlighted that even though the group of dyslexic people had a lower performance in the tests than the other group, the phoneme deletion performance in both groups was the same. This result showed that Chinese dyslexic children did not get the same scores in contrast to the non-dyslexic children who had the same age in terms of English vocabulary, reading, phonological awareness, and memory. Nevertheless, the results suggested that among all the 25 dyslexic children, there was an 8 year old boy who had a significant performance in English word reading and some elements of phonological awareness although he was weak in some skills of his first language such as phonological memory, rapid naming, and orthographic skills. This can demonstrate a peculiar case of dissociation between reading difficulties in Chinese and English.

It can be also said that even though Chinese dyslexic children presented weaknesses in phonemic awareness and phonological processing, their phonological difficulties in Chinese are not associated with their reading problems in this language, but their phonemic awareness in English associated with their reading performance in the target language. In this way, it can be deduced that one of the reasons why it is challenging for Chinese dyslexic children to learn English is owing to their phonological difficulties in the first language. Finally, though the

concomitance rate between reading difficulties in Chinese and English is high, not all children with reading difficulties in the first language also encountered difficulties in the second one as in the case of the 8 year old dyslexic boy.

The previous study can be connected to the second study implemented by Lallier et al. (2018) since both articles involve reading skills improvement and bilingual exposure relationship. The research called *Learning to Read Bilingually Modulates the Manifestations of Dyslexia in Adults*, focused on analyzing the influence of bilingualism on the long-term manifestations of dyslexia. Lallier et al. (2018) examined the performance of people who grew up learning two different languages at the same time in order to understand to what extent Welsh (transparent language) can help reduce dyslexia symptoms in an opaque language such as English. This study was developed under a main hypothesis: If a person learns a transparent language (whose phonemes always have the same sound) along with an opaque one (whose grapheme-phoneme relationship can vary), then the first language will benefit the decoding or reading acquisition of the second one; in other words, the easiest language would help the most complex. To collect data, the researchers implemented two important tests such as the Dyslexia Adult Screening Test and the Vocabulary subtests of the Wechsler Adult Intelligence Scale which involved aspects related to dyslexia diagnosis, word spelling, and phonological awareness.

The research participants were 60 people between the ages of 18 and 40, divided into four groups: 15 skilled monolingual English readers, 15 skilled Welsh–English bilingual readers, 15 dyslexic monolingual English readers, and 15 dyslexic Welsh–English bilingual readers. The methodology used for this study was through a categorization of tests and subtests in which the main aspects were labeled as the following: dyslexia screening in English, task battery, control

tasks, general literacy level in English, item reading and spelling lists in English, and cognitive abilities.

The results showed that bilingual dyslexic readers presented milder reading deficits in their performance concerning speed and accuracy than their monolingual peers, highlighting that the transparent language as in this case Welsh, helps the opaque one (English) reduce some dyslexia features even though both groups had a similar general literacy level in English. Furthermore, bilingual dyslexic participants showed advantages on spelling tasks since spelling involves a more sequential process in which the auditory and the motor systems are highly connected.

In order to solve the doubt about the effects of bilingualism on dyslexic people regarding possible improvements in their condition, according to the research presented above, are essential to have part of the evidence needed about the benefits that some dyslexic people can have in the area of language when being taught in a bilingual context, and they also provide further reasons why it is difficult to learn a second language whether being dyslexic or not. Studies conducted by Ho and Fong (2005), and Lallier et al. (2018), show how bilingualism can be beneficial for reducing language disorder aspects due to the cognitive processing that it involves, and how both dyslexic and non-dyslexic people can perform in a similar way when facing situations related to language literacy in spite of their differences. Thus, it makes us consider if dyslexia conditions concerning reading skills can be overcome at certain points with the support of bilingualism and by using appropriate strategies during the process. While the first study presents bilingualism as a solution for dealing with dyslexia, the second one highlights the usefulness of being bilingual when it comes to treating cognitive conditions at adulthood. Nonetheless, the studies were missing a focus on a relevant aspect that we consider meaningful when talking about language learning such as developing a specific task for communicative

competence. Thus, including interaction patterns that include all the examined aspects could make more meaningful and perhaps more effective the improvements of learners instead of having isolated each of them.

It was noted how in the search for studies dealing with dyslexia and learning disabilities in language teaching in Latin America, we did not find any. Thus, making it necessary to explore this in our region.

Methodology

This chapter intends to provide the reader with relevant information regarding how the study was executed including its main characteristics by supporting it with theorists who have made contributions in this field. Hence, aspects such as the type of study, the research context, and the participants' description are developed in this section. Moreover, the researchers' roles, the methods used to collect data in the study are elements to be covered as well. Finally, some crucial ethical considerations for the research and the way in which they were contemplated to develop each stage of the study are detailed.

Type of Study

This research can be regarded as a case study which according to Merriam (2009), it is defined as the depth analysis and comprehension of different belted aspects such as entities, people or processes. In this instance, exposing a dyslexic and non- bilingual person to different tests and to a synchronous online English course places our project as a case study. This case study seeks to identify the deficits presented in L1 in the participant's reading skill, and then determine if there is an impact on his reading abilities when being exposed to English learning. Soon after, Thomas (2011) enriched the previous interpretation of case study by describing it as the study and analysis of different concerns such as people or projects through the implementation of one or various methods; that definition clearly describes the main concerns and conditions that our project involves as it intends to analyze behavioral patterns and determine if there is any difference in a dyslexic person's cognitive condition after implementing a bilingual teaching method.

Considering that this research was developed through a case study, it is paramount to establish a specific category to which it was applied. The type of case study of this project is instrumental since, as stated by Stake (2005), the instrumental case study focus is merely on providing

insights into a particular inquiry issue by facilitating its understanding. This study's aim expects to get a result which shows to what extent bilingualism has influence over a dyslexic person's cognition regarding his/her reading skills when receiving second language input and education.

Type of Research

Considering the purpose of this project and its elements, this research project classifies as a qualitative research study due to the fact that it has features of the qualitative methodological paradigm. According to Hancock et al. (2009), this type of research aims to expose the behaviors and perceptions of a person. Our research made use of qualitative tests for both collecting information about the cognitive condition of the participant and comparing the participant's reading fluency performance in L1 before and after being exposed to an online English course. Thus, the results obtained made known the participants' performance in reading tests before and after learning a second language, and it allowed us to determine if there is any kind of impact on a person with dyslexia when learning English as a second language.

Context

The following section aims to provide the most important information concerning the context in which the study took place in order to give the reader a broader contextualization. Due to the current situation that the world is facing with covid-19, this research project took place in a virtual setting. In the same way, the participant selection process was developed through social media and online meetings. On the other hand, in order to make reliable the information to be provided during the implementation, we selected a dyslexic diagnosed participant since one of the main purposes is to work with genuine facts, that is why it is paramount to have professional support.

Setting

This section focuses on describing the characteristics that involve the participant's context in this case study. The participant is a nine year old child who belongs to a medium socioeconomic status in Colombia. According to his guardian, he studies at a private institution located in Antioquia, and he is currently a third-grade student. At school, he takes English classes, but it has been observed that these English classes are not oriented in an inclusive way or consider the participant's condition, an aspect clearly evidenced in the fact that the child does not have the same learning pace as his classmates in terms of English knowledge, performance, and even motivation. Considering all the characteristics regarding the person to be involved in this process, this research project was implemented in the afternoons with a schedule of two sessions a week (45 minutes each one); furthermore, this process was supported by all of the participant's family members, especially his sister, who provided the researchers with valuable information concerning his likes and dislikes, this in order to design appropriately inclusive and dynamic English classes for him.

Participants

This section aims to describe important characteristics concerning the participant to be involved in this case study in terms of academic knowledge background, personal profile, and how and why he was selected.

This research is thought to help see the effect of bilingualism over dyslexic second language learners, and a population with specific characteristics is required. The participant selected was required to provide a diagnostic test in which his cognitive condition is evidenced. Considering this, according to Patton (2015), purposeful sampling is one of the foundations of qualitative research since its focus is on selecting strategically cases which by their nature will help develop the research inquiry. That is to say, this study involves a purposeful sampling since the

participants' selection is based on specific characteristics such as being a dyslexic non-bilingual person, a crucial requirement to analyze cognitive and learning behaviors before and after being exposed to a bilingual context.

The population of the present study involves just one participant, the reason why only one person is selected is due to the fact that, in agreement with Yin (2009), some specific criteria for sample size are not very relevant since the research emphasis should be on getting a variety of information according to the study concern. From that perspective, implementing a case study with one person allowed a greater focus on the designed activities and tests to be conducted throughout the process. That being said, the participant was a dyslexic nine year old boy who had not developed an English level. Along these lines, as determined in the participant's Neuropsychological and Cognitive Behavioral Evaluation Report, he met all of the requirements for developing this research project since he presented some learning difficulties that made him struggle with different academic settings, specifically reading concerns. Also, he was diagnosed with dyslexia and ADHD (Attention Deficit /Hyperactivity Disorder) when he was seven years old in October 2018.

Researcher's Role

At this point, the roles that were performed during the study are explored. This study is composed of manifold elements, and it is important to mention that these roles are divided into two categories in order to keep the project development organized: the main and co-researchers' roles.

The main researcher role was performed by our project director due to the fact that this role implied being totally immersed in the activities to be executed, ensuring their stream and documenting the understanding of the phenomenon of study (Firestone, 1987; Herriot and Firestone, 1983; Howe, 1985; Jacob, 1988; Smith, 1984). Considering this conception, he was in

charge of guiding us to select the best options to route the project by proposing the most pertinent instruments to collect data, contributing to their analysis, and providing the most appropriate concepts and meaningful feedback.

In our case, we acted as co-researchers since, as stated by Marks et al. (2018), this role required a continuous labor in the study involving unpredictable and deep writing sessions. That is to say, our role consisted of collecting data through journal reports, performing the designed activities for the implementation, and being in charge of the drafting process.

Taking into consideration the categorization of these roles, every aspect of the project was carefully measured according to the specific labor that each researcher was expected to fulfill; in addition to it, this was a joint work in which communication was a crucial factor when sharing, proposing, and agreeing on the different alternatives to be included or omitted in the study. Thus, it was necessary that every member of the research team fulfilled the expectations required to have a proper development of the project, allowing the research to show a valid process and redi-witted results.

Data Collection Methods

In this section, the data collection process is specifically detailed as well as the instruments used for executing this area of the study. The main objective of this research is to understand the effect of Bilingual instruction over cognitive disabilities such as dyslexia with respect to the performance of reading comprehension skills in the first language. It was crucial to select instruments that would help analyze the participant's cognitive conditions before the implementation and possible changes that could be evidenced during the process. Hence, a diagnostic test, reading tests, interviews and a journal were thought to collect information about the characteristics previously mentioned.

Diagnostic Test

In this research project, it is indispensable to determine if the participant meets all the requirements for being part of the implementation, for one of the main requirements to be part of the study is to be diagnosed. For this, a diagnosis was needed to verify if the participant indeed was a dyslexic person in order not to provide unreliable information ([see in appendix 1](#)). According to Glasser (2008), diagnostic testing and its collected data can serve both for predicting the current state of a disease or a therapy response and determining how it influences aspects such as clinical decisions, test acceptability and risks. Based on this, it is paramount to clarify that the aim of this case study is not to make a clinical intervention but an educational one through English teaching for a short period of time.

Reading Test

Since one of the objectives of the research relates to analyzing what happens after exposing a dyslexic person to second language learning in all the skills (since there is not information about the skill that contributes to this effect), a reading test in L1 was required to get the concluding information which answered the study's question. Fernandes (2015) states that it is important to establish the aspects to be evaluated in a reading test as well as to identify the test taker level since it allows to have a more appropriate development. This type of test was implemented twice, before and after the exposure to a second language. First of all, the test was implemented before the intervention in order to assess the participant's performance regarding weaknesses and strengths in reading; on the other hand, a second test was developed after the intervention in order to analyze if something different was evidenced in the ability.

Thus, implementing these types of tests would compare the participant's reading performance before and after the implementation of this research, demonstrating if bilingualism can be taken as something beneficial or not for this cognitive condition. In this way, the participant was

exposed to a reading test designed by the Instituto Colombiano para la Evaluación de la Educación (ICFES), which contains short readings and multiple choice questions ([see in appendix 2](#)).

Journal

This research project utilized a diary which played the role of a journal ([see in appendix 3](#)); thus, in order to register the process of the English classes implemented, and as Brock et al. (1992, cited by Merriam 1998) state, to improve and reflect about the teaching and learning methods used. The researchers planned a set of lessons in which the participant was in contact with all the English language skills. The researchers included material for all the skills in a balanced way but making more emphasis on the reading skills. At the end of each intervention, the researchers took notes concerning the progress, difficulties and advantages presented during the class. As stated by Merriam (1998), a journal can serve as a reflective resource that will allow to determine the success or shortcomings of the interventions; this instrument was very useful at the moment of reflecting about the implementation and planning the following sections.

Interviews

The guardian of the participant selected plays an important role in this research project since her perceptions regarding behaviors, attitudes and learning experiences can influence the project's final perceptions. That is why it is relevant to interpret the data related to those aspects. Thus, at the end of the process, the researchers utilized a semi-structured interview to collect this information, in which the participant's guardian expressed her personal thoughts and opinions regarding the process ([see in appendix 4](#)). Semi-structured interviews are defined by Merriam (1998) as a set of balanced open-ended and closed-ended questions. Thus, it is easier to encompass questions that throw responses in terms of the interviewer's thoughts. This interview required an accurate design that implied the development of suitable questions. As stated by

William (2015) semi-structured interviews require rigorous designing of different steps, which represent a demanding job. Hence, if it is conducted in an appropriate way it will provide relevant information and insights. Since we are interested in the empathy factor in order to have better understanding about the participant in terms of process, performance and condition, interviews play an essential role in the research project.

Instructional Design

Design Purpose

The English classes intended to be implemented have two main focuses: first, to improve the reading skills in Spanish while developing the English ones; secondly, to provide inclusive English classes to the participant considering his learning features.

Concerning that the first and second language can support each other alternatively, considering what Block (1986) exposed, it is established that the strategies that a learner had learnt in the first language can be transferred into the strategies for understanding and developing the reading skill of the second language. This means that even though the student may present difficulties for reading in both languages, the strategies transfer can be an aspect to take advantage of due to the cognitive processes it may involve; that is, it can be possible that the need for improving what is being learnt in L2, and that the participant can reuse his L1 strategies, can cause a positive effect on his L1 reading performance. Furthermore, considering that bilingual students often have the intellect and motivation to take on complex school assignments (Barac and Bialystok, 2011), fostering second language learning could help the individual handle in a better way some situations related to his difficulty in the L1.

On the other hand, when it comes to designing a series of English lessons for a student with a different way and pace of learning, IDA (2010) indicates, many students can benefit their brain processes by learning a second language in an opportune learning setting. It is important to consider that the learning outcomes are not the only aspects to be considered but also the way in which the participant is perceiving the process, and to what extent it can be beneficial for him. That is why the focus should not only be on the contents to be taught or the evaluation methods to be used, but also on the strategies to approach the participant in order to make his learning process enjoyable and cognitively helpful.

Additionally, the assessment of this course is not expected to be focused on evaluating the participant's performance when being exposed to tasks or activities, but on measuring his progress in an implicit way. In that sense, formative assessment is the most suitable method for the purpose of guiding the participant's learning processes, improving his learning outcomes, and determining the reading ability's progress since, as stated by Chappuis and Chappuis (2008), this way of assessing students allows to take the most appropriate actions in order to promote further learning.

Considering what the main focuses are, for the design of these English classes, the standards for third grade of Guía 22 and the suggested curriculum (module 3) for third grade were considered regarding all the skills but focusing on the reading one:

Estándares de lectura guía 22 El reto:

- *Identifico palabras relacionadas entre sí sobre temas que me son familiares. 1, 2*
- *Reconozco palabras y frases cortas en inglés en libros, objetos, juguetes, propagandas y lugares de mi escuela. 3*
- *Relaciono ilustraciones con oraciones simples. 1*
- *Reconozco y sigo instrucciones sencillas, si están ilustradas. 1, 2*
- *Puedo predecir una historia a partir del título, las ilustraciones y las palabras clave. 1, 2*
- *Sigo la secuencia de una historia sencilla. 1, 2*
- *Utilizo diagramas para organizar la información de cuentos cortos leídos en clase. 1, 2*
- *Disfruto la lectura como una actividad de esparcimiento que me ayuda a descubrir el mundo.*

Suggested English Curriculum:**Module 3- Environment and Society: I take care of my city**

Goal. Identify and express the effects of their actions on their local environment (neighborhood, district, city, town) using simple phrases in English.

Implementation

In order to execute the virtual English classes in a successful way, different materials and resources were considered such as videos, flash cards, music, toys, plants and pets to immerse the participant in the exploration of a second language with the support of his reality, and things that he enjoys the most. Also, as proposed by Lozano (1994), an intervention model based on cognitive neuropsychology was of significant importance. This model consists of the phonological knowledge (repeating phrases orally, dividing sentences into the words that compound them in order to join them again, and building words from given syllables), relation between grapheme and phoneme (asking the person to form a new word with the previous one by changing one letter of it, and to spell a word from left to right), and word recognition (matching words with their illustrations, and pointing out words). This in order to find a balance between the theoretical aspects and its corresponding practice with the help of dynamic activities that make sure that both the participant's learning process is suitable, and the data collection is being developed.

Moreover, these materials were appropriately adapted to the participant's needs and context since, according to Maley (2011), there will never be a perfect fit between the materials, the teacher, and the learners. This means that it is crucial to analyze in the first place what the situation of the learner is before guiding a lesson with certain input; also, it is essential to know what the preferences of the participant are in order to design a suitable and effective set of classes. In the same sense, aspects such as the participant's love towards music, animals, and

environment were considered when making decisions on the thematic units to be related to language topics, and the activities to be implemented as well. On the other hand, the lessons were adapted to the participant's learning style and family context, for each class did not take more than 45 minutes in order not to overload him and make him lose interest in second language learning.

While implementing these English classes, three different instruments to collect data were considered such as interviews, diagnostic tests, and reading tests. These instruments were analyzed in order to elaborate final insights about the topic. Thus, the methodology to be applied was the Grounded Theory which, according to Charmaz (2006), is a methodology which enables researchers to establish theoretical analyses both at the beginning and at the end of a project by generating concepts which contribute to the research's main inquiries. In this sense, it can be said that all the research process was concerned to analyze each piece of information and make connections with the explored theory both in dyslexia and bilingualism fields in order to determine the kind of effect produced by exposing a non-bilingual dyslexic person to English language lessons.

The English classes that were implemented for this research project were intended to promote the reading ability by considering the reading strategies proposed by the British Council (2006). They proposed a reading instruction model based on three steps: before reading, during reading, and after reading.

• ***Before Reading***

According to The British Council (2006), this stage is crucial since it is the stage in which teachers can gain the students' attention and make them have expectations about the texts they are going to interact with during the session. The idea of this stage is to prepare the students for the class topic by catching their attention, interacting with them, and evoking their prior

knowledge. Thus, during this stage, scanning, skimming, and predicting can be developed. Hence, expanding what students already know about a topic can benefit their reading process since there may be better contextualization. Thus, considering the virtual context, material such as videos, interactive online games, songs and interchangeable questions were useful for supporting this stage and enhancing the student's motivation.

• *During Reading*

In this stage, students are assumed to start working on the reading class's topic by integrating all the information they got from the previous stage. As those reading inputs were presented in a virtual setting, it was possible to take advantage of audiovisual and interactive reading resources that could increase the student's motivation regarding the activities. In order to develop this stage, Vaezi (2001) proposed different strategies such as making predictions, reading aloud, re-reading, pausing, paraphrasing, monitoring, etc. This means that by having interacted with learners about their previous insights on aspects related to the topic to be introduced, and arousing their curiosity through interesting and catching strategies, the new topic introduction might not generate confusion. In this way, learners would not feel frustrated about how difficult the new concepts or tasks with which they are about to interact can be by making the process less complicated and manageable in case some difficulties get to appear.

• *After Reading*

Barnett, cited by The British Council, stated that "post-reading exercises first check students' comprehension and then lead students to a deeper analysis of the text". The purpose of this stage is to motivate the students to put all the content and learnt information into practice by making use of different strategies such as discussing the text, summarizing, making questions, answering questions, etc. That is, it is important to include activities in which learners are able to express their own interpretations about the input in order to analyze to what extent their reading

comprehension can be evidenced. Furthermore, this may optimize students' interest in keeping developing the reading habit while gaining confidence when being exposed to tasks related to their knowledge about a reading passage that they have been studying, making possible an improvement on the aspects they may struggle with.

It can be concluded that with the implementation of a variety of activities, which integrate the use of skills and content without being bored, students can be stimulated in terms of confidence for putting into practice what they have learnt. Activities that involve interactions play an important role in engaging students in a class. Thus, by incorporating these strategies, students can get a deeper understanding of the texts and become fluent readers and users of the language.

Planning and Use of Materials

Considering the student's profile and the most appropriate methodologies and strategies for implementing virtual classes, lessons focused on working and improving the reading ability were designed. Thus, these lessons included different reading activities in English and Spanish that were supposed to assess various reading aspects such as comprehension, semantics association, and vocabulary. Also, the contents and reading inputs to be implemented during the classes were thought to be of the student's interest. ([see in appendix 5](#))

Furthermore, activities and materials as the following were considered for implementing future lessons:

Figures 1 and 2

Classroom reader for the implementation of the session

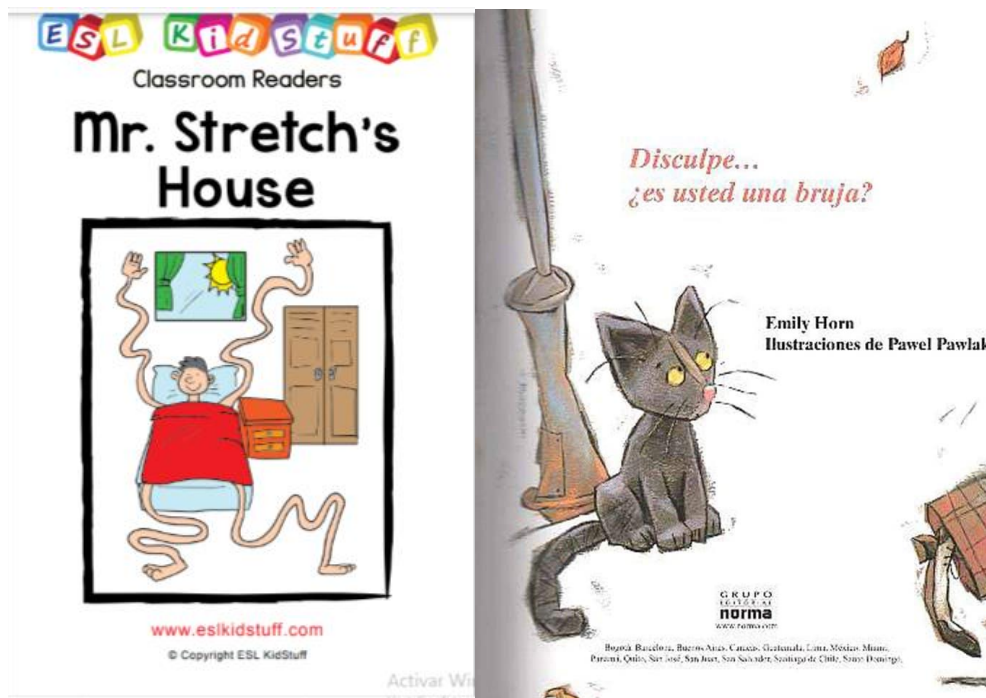


Figure 3

Audiovisual storytelling for the implementation of the session



Figure 4

Animated song for introducing specific vocabulary during the session



Figure 5

Flashcards with simple vocabulary in English for introducing new vocabulary during the session

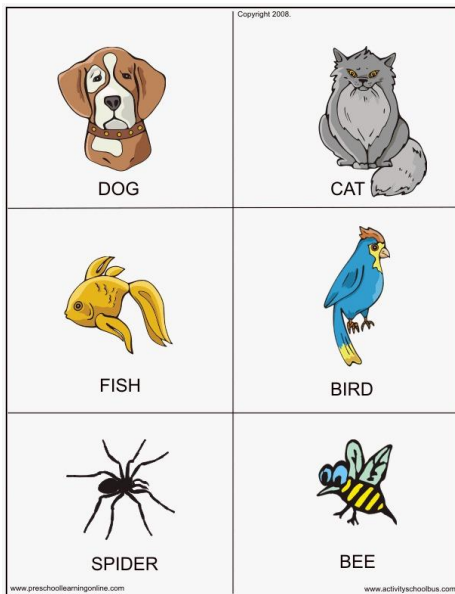








Figure 6

Word Scramble for practicing spelling and vocabulary during the session.

Name: _____

Body Worksheets
Body Word Scramble

Look at each body part picture and unscramble the letters and write the name of the body part on the line provided.

	nahd _____		are _____
	yee _____		otof _____
	soen _____		uthom _____

Consent forms and ethical considerations

Bearing in mind that the study implicates teaching English to a dyslexic non- bilingual student and analyzing his behaviors regarding this learning condition in his first and second language throughout the implementation, it is fundamental to follow certain ethical considerations when working with this individual and implementing both the tests, the English course features to which he would be exposed, and the data analysis. For that, the 10-item checklist proposed by Patton (2002) was considered: (1) explaining the purpose of the inquiry and methods to be used; (2) promises and reciprocity; (3) risk assessment; (4) confidentiality; (5) informed consent; (6) data access and ownership; (7) interviewer mental health; (8) advice; (9) data collection; (10) ethical vs. legal.

As previously mentioned, the selection of the participant was made through a post shared on social media in which people were informed about the purpose of the project. Then, the guardian

of the selected participant was informed about the project's procedure and objective as well as the role that the participant would have. Thus, the guardian was informed that the participant would have to perform tests to analyze his reading abilities in his first and second language before and after the implementation of the course. Finally, the participant's guardian explained that the participant had to be in continuous learning due to his condition even if he is on vacation, for the English classes would not represent an involuntary load.

In this case, the researchers presented a consent form in which the participant's guardian was informed about the right to keep anonymous, the confidentiality of the results and information provided, and the freedom to quit the project if desired ([see in appendix 6](#)). Also, she was informed about the project characteristics, the aim of collecting the information, and the purpose of the research.

Findings and Discussion

In this segment, three main finding categories will be presented and described. These findings are related to the participant's reading fluency performance when being exposed to reading aloud both in English and Spanish, the comprehension from readings and diversity of English and Spanish input, and the behaviors and perceptions manifested during the process, which were analyzed from the collected data.

Reading Fluency

In this section, some findings regarding the implementation sessions related to the participant's reading fluency will be presented. Along these lines, aspects such as the participant's challenges when reading aloud, self- developed strategies for improving fluency, and changes noticed in the participant's performance will be thoroughly described and discussed.

Accuracy

JRF001

“In the readings, some patterns such as the confusion of some Spanish phonemes (/f/ - /x/, /f/ - /j/, /r/ - /t/, /f/ - /x/, /d/ - /k/, /d/ - /b/, /b/ - /d/, /p/ - /t/, /d/ - /t/, /n/ - /t/, /l/ - /n/) and the syllables order (encima- enmaci, me-em, mi-im, alcanzarnos-alacazar, lo-ol) were evidenced. “

This piece of data registered that the participant mixed some phonemes with others at the moment of articulating them. Additionally, he used to change the syllables and letter order of the words. These aspects were reflected in his reading aloud fluency as well as in the multiple attempts to read the texts, for he autonomously recognized an incorrect pronunciation and tried correcting it himself. It could be evidenced that this challenge with consonants was persistent among all of the reading activities proposed; nevertheless, the fact that he articulated phonemes in an unexpected fashion, as previously mentioned, still made him struggle with each text.

JRF011

“During the reading it was possible to identify that the participant confused some vowels and consonants. /e/ - /i/, /b/ - /d/, /q/ - /d/, and /a/ - /e/”

As the journal observations show, the participant had not only problems with consonant differentiation, but with vowel differentiation as well. In the same way as with consonants, some vowels represented challenges to him, and at the moment of producing them, there was not a correlation with what was written and what was produced. However, as time passed, we could notice a subtle improvement in the production of expected phonemes, as can be evidenced in the next piece of data.

JRF020

“Although the participant continued confusing some phonemes such as /a/ - /e/, /d/- /t/, /x/- /f/, /n/ - /l/ with this activity, it was possible to notice more fluency when reading. Hence, we could identify that he did not confuse the syllables order as much as he did before. In this reading, it was evidenced just one syllable order mistake: sin- mis”

It was noted that the student's performance with text reading was improving in terms of articulation as time was passing. Undoubtedly, he continued struggling with some consonants and vowel recognition, but it was not as frequent as at the beginning of the course since, at this point, minor errors were detected as well as some of them were corrected by the participant when he was aware of them; this allowed him to develop a more accurate articulation. Bearing in mind what Lalliert et al. (2018) proposed in regard to learning transparent languages to reduce dyslexia symptoms in opaque ones by benefiting their decoding and reading, it can be said that what was evidenced during this process was the inverse: exposing the participant to an opaque language helped him improve the articulation of expected phonemes in his first language, which is a transparent one.

In the next piece of evidence, another articulation matter is addressed.

JRF022

“In this reading activity, the participant had a challenge for producing syllables that begin with two consonants (pla, tra, cra, cla, etc...) example: planeta.”

Based on this stage of the journal report, the participant presented some issues in regard to the pronunciation of syllables that begin with two consonants and diphthongs’ recognition when reading aloud. At the moment of trying to pronounce words with the characteristics previously mentioned, the participant used to change some of the vowel and consonant sounds, having him double check (on his own) several times he was pronouncing correctly. Nevertheless, even though it took him long to finally have the appropriate phoneme production, his autonomous attempts to correct himself evidenced a progress since he barely asked for help to complete the task.

Reading Speed

At this point, some reading strategies that the participant both developed and improved for interacting with the reading input were noted, making him more fluent at the moment of reading:

JRF002

“...he used to re-read phrases or sentences that were difficult for him to read in order to produce them in a fluent way.”

What has been drawn from collected data is that the participant, throughout time, had developed different strategies that supported him with fluency. For example, at times, the participant was aware of his reading mistakes: he was able to find the right way to correct a mispronunciation and articulate the word properly. What is interesting here, is that strategies that seemed to be focused on developing reading comprehension, such as re-reading, were indeed helping him to develop fluency alongside understanding of the text. This piece of data can be

connected to what IDA (2010) indicated concerning second language learning in opportune settings for learners with special needs to benefit their brain condition. Since the participant was involved in a context where no pressure was placed on the way he developed the tasks proposed both in English and Spanish, he became able to solve his reading challenges on his own by making use of his strategies.

JRF003

“He has a better reading performance when reading texts with illustrations. He is more fluent.”

An aspect that caught our attention was the fact that when reading activities were complemented with visual resources, the participant was able to read faster. In addition, the participant was more likely to make fewer mistakes. This finding is aligned to what Eide and Eide (2011) discussed regarding the dyslexic learners’ facility to learn if general or abstract definitions are supported by scene-based examples or depictions.

JRF024

“Reads quickly short statements in English; he inhibits himself less when reading them in spite of being unsure about the pronunciation”

Throughout the term, it was evidenced how the reading speed of the participant improved. We were able to determine the progression in reading speed through the data presented in the next table:

Table 1

Reading speed progression

Date	Time	# words	# Words Per Minute
12/06/2020	1st text: 25 min 2nd text: 14:62 min 3rd text: 5:30 min 4th text: 6:00 min	1st text: 140 2nd text: 148 3rd text: 36 4th text: 64	1st text: 5.6 2nd text: 10.1 3rd text: 6.7 4th text: 10.6
02/02/2021	10:00 min	86	8.6
02/18/2021	8:00 min	67	8.4
03/09/2021	4:01 min	66	16
03/30/2021	1st text: 9:50 min 2nd text: 10.2 min 3rd text: 2:52 min 4th text: 3:51 min	1st text: 140 2nd text: 148 3rd text: 36 4th text: 64	1st text: 14.7 2nd text: 14.7 3rd text: 14.2 4th text: 18.2

Comprehension

In this section, aspects related to the participant's reading comprehension performance will be presented and discussed.

Using L1

Throughout the process, in which L1 was used as a tool, the participant had to perform tasks intended to analyze how his reading comprehension ability was at the beginning, during, and at the end of the implementation as stated in the purpose of this project. Considering this, the participant demonstrated a consistent understanding, a capacity to summarize or retell aspects previously read, and understand the English input provided to him. The support to these findings were taken from the Researcher's Journal as follows:

JRCOM024

"In regard to the text's comprehension, the participant performed very well; he expressed with his own words what the text was about and related the content of the text to his own personal routine."

This piece of evidence shows that the participant was able to understand the readings planned for the classes, and this aspect was reflected in his making appropriate syntheses and summaries of the texts, and, at the same time, to have answers regarding his perceptions and understanding of the texts. Therefore, considering the participant's exposure to a bilingual context, this piece of data can be aligned to what Bialystock and Shapero (2015) stated regarding bilingualism providing better mental flexibility and benefiting cognitive conditions and what Cook (1992) suggests: exposing learners to L1 and L2, for connections between the 2 languages are made.

JRCOM015

"Shows understanding about statements and short questions in English, making use of L1 as a tool, by answering with words such as "yes, okay, no, etc"."

When reading in English, it was necessary to provide him with support such as making guiding questions or giving him clues in Spanish without directly translating either the input or the interactions in English. This finding relates to what Schweizer et al. (2011) highlighted concerning the benefits of bilingualism in terms of allowing nerve connections to have a constant mental workout on the brain. Thus, by experiencing the same process in both languages, the participant had the opportunity to expand his ability to analyze and share opinions on different topics.

Comprehension strategies

Different from the positive aspects evidenced in regard to the participant's comprehension performance when reading, being exposed to audiovisual resources, and being part of interactions in both languages, the participant made noticeable some useful strategies. These were own-developed elements he utilized when finding challenges in any of the aspects in which he was involved at the moment in addition to the ones implemented by the researchers to make his learning process more suitable. These strategies helped the process make significant progress in terms of being able to comprehend complex reading passages, answer questions in English, and make word predictions in order to provide context to what he was reading. The support to these findings were taken from the Researcher's Journal as follows:

JRCOM005

“It is evident that he likes to take his time to comprehend what he is reading before receiving any stimulus that can help him”

During the class observations, it was possible to identify that one of the participant's strategies developed to comprehend the reading input was taking his time to think about it before giving any response to the questions made or sharing his opinion. Thus, taking his time to think, opposed to answering right away, let him express understanding of the input after reading it.

JRCOM022

“It is important to highlight that the participant assumes word meaning as a strategy to know what word it is; in other words, he tries to predict the word’s meaning by taking into account the context of an unknown word”

It was clearly evident how from the teachers’ point of view, the participant did not let himself be limited to comprehend a text due to aspects such as unknown vocabulary, but he developed an ability to infer its meaning or he simply asked about it, and because of that he was capable to express general understanding of the concept from the input.

Participant’s behaviors

In this section, data related to the participant’s behaviors during the process will be detailed and discussed based on the journal’s observations.

Confidence-related behaviors

During the implementation, the participant made evident not only learning-based behaviors but also personal attitudes which influenced the process’ development. Thus, it could be observed that the participant preferred turning the camera off when lacking confidence at the moment of performing a reading task, stayed silent when being hesitant about the pronunciation of words, was willing to be part of the conversations despite of his shyness, and appeared to be more motivated to keep reading after interacting with the first reading and questions. The support to these findings were taken from the Researcher’s Journal as follows:

JRP015

“He stays quiet when he is not sure about the pronunciation of a word.”

JRP003

“He turned the camera off when he felt he was struggling too much with the text”

JRP010

“At the beginning he looked a little shy; however, he responds to all of the questions he is asked.”

The participant seemed to struggle with his confidence whenever he had to produce language, his inhibition decreased, and it was evident that his attitude changed. The researchers were explicit in making sure the participant would understand that mistakes do not matter and could be improved; this resulted in the participant appearing to feel willing to keep reading and performing the tasks proposed. This piece of data is connected to what Arain (2018) mentioned about pupils learning in a caring, supportive, and inclusive space; these conditions lead the language user to feel much more motivated to learn.

Cognition-related behaviors

Apart from the reading and fluency strategies that were mentioned in previous sections as evidence taken during the process, some other cognitive-related behaviors could be observed. These behaviors did not closely relate to the reading skill itself but to the participant's perception and learning strategies and needs, and, although they were not mainly taken into account when designing the lessons, they did have an impact on their implementation. That being said, aspects such as memory difficulties, lack of concentration, and rejection to be helped were noticed.

JRP008

“It is difficult for him to memorize”

It could be evidenced that although it was easy for the participant to make syntheses and remember things from something previously read, it was challenging for him to remember some of the components that he was taught in English such as words, short phrases or expressions. This was easily fixed by reviewing the content elements that had been taught previously.

JRP018

“Lack of concentration was evident.”

It was evident that when portions of the classes were not very dynamic or did not include total physical response activities, the participant tended to deconcentrate or make movements with his arms. This finding relates to what Margolis (1990) stated regarding relaxation as a way to improve pupils' concentration, achievement, attendance, behavior and general health and well-being. This made us realize the importance of giving time in class for relaxing in order not to overwhelm the students and help them have a better performance by allowing their minds to let go of stress, which was what happened with the participant.

Recommendations

Conducting this research project made us realize about the lack of focus on this topic in the Colombian context, making the seeking of information a complex process. However, this study contributes in the EFL and inclusive education fields and, at the same time, it serves as support for further studies. For possible future implementations based on this study and in order to manage a more effective process, we recommend the following:

Firstly, develop the case study with a larger population since this can allow to collect a variety of data and obtain different results that can be subject of comparison and deeper analysis.

Secondly, implement the English course for a longer period of time due to the fact that it can lead to seeing how the aspects evidenced during this process can vary over time as well as to evidence new aspects that could have been missed in this implementation.

Finally, design an English course that can be handled in person since it might allow to observe in a closer way the participants' attitudes and be aware of aspects that cannot be found through the virtual settings. Furthermore, the strategies and methodology to be used can be better developed in face to face interactions and could probably benefit more the subjects involved due to the advantages that social interaction brings.

Limitations

There were a series of elements which modified the path that the study was intended to follow. For instance, at the beginning, the study was planned to be implemented in person, but it was challenging to find a diagnosed participant who lived in the same city; therefore, as it was necessary to have a diagnosed dyslexic person in the study in order to make it reliable, people from other cities were considered, and the English course became virtual. This was a process that took longer than expected due to the difficulty to find the appropriate participant, delaying the times predestined for completing each of the study's stages.

Furthermore, by having in mind that the participant lived in a different city, and some of his relatives were in charge of his caregiving, the communication was challenging sometimes since some of them used to forget when the lessons were going to be implemented or to inform us when the participant was not able to attend them owing to things happening at the moment. On the other hand, the virtuality got to be troublesome on some occasions due to connectivity problems either from the participant or the researchers, making the lessons exceed the planning time or not flow as suitable as expected. These aspects made us agree with the participant's custodians on different days or schedules to give the classes, slowing the collection data process, and, consequently, their analysis.

Conclusions

After finishing this study, we can conclude that instructing a short English course might have a positive effect on the L1 reading ability of a dyslexic student in terms of reading fluency, comprehension, and behavior. In the next paragraphs, these conclusions will be presented.

Accuracy in pronunciation was improved. This was achieved using strategies such as re reading, using illustrations, the use of L1, storytelling, and the decreasing of negative feelings towards mistakes. By the end of the course, the relationship which the participant made between graphemes and phonemes was much more accurate than it was at the beginning of the course.

The reading speed was increased in a progressive manner. This aspect was enhanced by exposing the participant to reading input both in English and Spanish, providing a variety of content familiar to him, and alternating the length of the texts. Once the course ended, the participant was able to read more words per minute than in the initial stage.

Using L1 as a tool to support reading comprehension expanded the participant's capacity to understand and summarize. This was possible since the L1 was never isolated from the L2; thus, guiding questions or clues in Spanish were useful for the participant to analyze the content presented in English and share his opinions. By the end of the process, the participant was able to provide more specific ideas from the input than the general ones he used to express at the beginning of the course.

The development of reading strategies made it possible to improve reading comprehension abilities. It was noticed that staying silent to think about information previously read and assuming words' meaning based on context helped him have better synthesis, analysis, and retelling skills at the end of the course.

During the course, the participant's shyness when facing reading input diminished. Thus, creating a suitable rapport played a crucial role throughout the learning process since

encouraging him to improve his mistakes as well as acknowledging his progress reduced his inhibitions. At the end of the implementation, his reading skill's enhancement could be achieved through a meaningful process.

Cognitive aspects identified during some classes such as memory difficulties and lack of concentration were partially reinforced. This was possible since they were considered at the moment of planning the English lessons; hence, implementing total physical response activities and providing time for reviewing within classes were useful strategies to engage the participant and avoid distractions.

Appendices

Here you will find a link where you can access to a folder that contains the diagnostic test of the participant, the reading test implemented before and after the course, the journal where the reports were made, the interview made to the participant's guardian, the lesson plans designed for the course's implementation, and the consent form signed to confirm that everything was clear and authorized before beginning the process.

<https://drive.google.com/drive/folders/13zPBkBPbOz3Zc2D31MB61p5AoUkR6nMt?usp=sharing>

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