



**T.C.
AKDENİZ UNIVERSITY
THE INSTITUTE OF EDUCATIONAL SCIENCES
FOREIGN LANGUAGE TEACHING DEPARTMENT**

**MA
THESIS**

**A CRITICAL REVIEW OF DYSLEXIA IN FOREIGN
LANGUAGE TEACHING: A GUIDE FOR ELT
CLASSROOMS IN TURKEY**

Esra DÖNÜŞ

**ENGLISH LANGUAGE TEACHING
MASTER'S PROGRAM**

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Supervisor: Prof. Dr. Binnur GENÇ İLTER

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DOĞRULUK BEYANI

Yüksek lisans tezim olarak sunduğum bu çalışmayı bilimsel, ahlak ve geleneklere aykırı düşecek bir yol ve yardıma başvurmaksızın yazdığımı, yararlandığım eserlerin kaynakçalardan gösterilenlerden oluştuğunu ve bu eserleri her kullanışımında alıntı yaparak yararlandığımı belirtir; bunu onurumla doğrularım. Enstitü tarafından belli bir zamana bağlı olmaksızın, tezimle ilgili yaptığım bu beyana aykırı bir durumun saptanması durumunda, ortaya çıkacak tüm ahlaki ve hukuki sonuçlara katlanacağımı bildiririm.

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EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

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YÜKSEK LİSANS TEZİNİN ADI:

A Critical Review of Dyslexia in Foreign Language Teaching: A Guide for ELT Classrooms in Turkey

ONAY: Bu tez, Enstitü Yönetim Kurulunca belirlenen yukarıdaki jüri üyeleri tarafından uygun görülmüş ve Enstitü Yönetim Kurulunun tarihli ve sayılı kararıyla kabul edilmiştir.

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ABSTRACT

A CRITICAL REVIEW OF DYSLEXIA IN FOREIGN LANGUAGE TEACHING: A GUIDE FOR ELT CLASSROOMS IN TURKEY

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Dyslexia has some characteristics which create difficulties associated with the written and auditory forms of language processing in the brains of individuals. The patterns of dyslexic learners during a language acquiring process are mostly different from non-dyslexic ones. Dyslexic individuals suffer from the literacy abilities not only in their mother tongues but also in their foreign language learning. Therefore, this mysterious cognitive difference needs explanations with evidence-based knowledge and must be relieved with the appropriate educational accommodations for dyslexic learners. In this regard, the characteristics and effects of this difference should be first understood by educators and then effective solutions should be found and put into action in the classrooms. International studies present a range of theories and practices especially for the relationship between learning a foreign language and dyslexia. However, this relationship has remained to be an unfamiliar research area in Turkey so far and studies generally focus on mainstream and special education of Turkish students. These studies mostly present the views and previous linguistic involvements of students who learned to read and write in their mother tongue. When it comes to foreign language education, there is no comprehensive study including an intervention to accommodate the language learning process of Turkish dyslexic students. In this case, the difficulties of these students are not well known and appropriate teaching methods cannot be provided. Therefore, reaching the needed roadmap is possible by examining the researches that have been carried out in the international literature. Thus, presenting an overall inspection on dyslexia and language learning context by searching the current studies to establish a deep understanding is aimed in this study. In this respect, this thesis conducted a critical review of related literature to unburden the students and teachers who suffer from the negative consequences of this diversity in a language classroom. A total of eighteen studies were identified and thematically coded. It has been found that studies mostly focus on the vocabulary and reading skills

utilising Multisensory Structured Language (MSL) and Phonics Instruction activities to help the language acquisition process of dyslexic learners. However, these studies are found to be rare. Avenues of further research are proposed for the national EFL context.

Keywords: *Dyslexia, Foreign Language Teaching, ELT, Education, Critical Review, ELT in Turkey.*



ÖZET

YABANCI DİL ÖĞRETİMİNDE DİSLEKSİ ÜZERİNE SİSTEMATİK BİR DERLEME: TÜRKİYE’DE İNGİLİZ DİLİ ÖĞRETİMİ SINIFLARI İÇİN KILAVUZ

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Disleksi, bireylerin beyinlerinde dil becerilerini edinme sürecini zorlaştıran nörolojik bir farklılıktır. Disleksi üzerine çalışmalar yapan ulusal ve uluslararası kuruluşların sunduğu tablolarda bu güçlüğü yaşayan öğrenci sayısının oldukça fazla olduğu görülmektedir. “Özel Öğrenme Güçlüğü” olarak da sınıflandırılan bu farklılığın yarattığı en büyük zorluk okuma ve yazma becerilerinde görülmektedir. Ana dilde yaşanan öğrenme problemlerinin yanı sıra yabancı dilde de öğrenme deneyimi bu farklılığa sahip bireyler için oldukça ciddi bir problem oluşturmaktadır. Bu sebeple, dil öğrenme ve öğretme sürecinde bu güçlüğün giderilmesi için kapsamlı çalışmalara ihtiyaç duyulmaktadır. Ancak, Türkiye’de disleksinin eğitim ve öğretim üzerine etkilerine dair yapılan akademik çalışmalar temel ve özel eğitim alanlarındaki araştırmalar ile sınırlı kalmıştır. Bu araştırmalar daha çok ana dilde okumayı ve yazmayı öğrenen öğrenciler ile ailelerin ve öğretmenlerin görüş ve deneyimleri üzerine odaklanmaktadır. Yabancı dil eğitimi söz konusu olunca, disleksi ve güçlük oluşturduğu dil sistemleri hakkında teorik bilgilerin yer aldığı ya da uygulamaya yönelik kapsamlı bir çalışma bulunmamaktadır. Bu durumda, disleksinin tanımı, sebepleri, teşhisi ve etkileri iyi bilinmemektedir. Ayrıca dil öğrenmekte zorluk yaşayan öğrencileri anlayabilmek ve onlara çözüm üretebilmek mümkün olmamaktadır. Bu yüzden, ihtiyaç duyulan yol haritasına ulaşmak uluslararası alanyazında kapsamlı bir şekilde uzun yıllardır yapılan araştırmaları incelemek ile mümkündür. Disleksi ve yabancı dil öğretimine dair ortaya konmuş olan teorik bilgiler, bu yönde sunulmuş olan etkili yaklaşımlar, öğretim yöntemleri, öğrenme stratejileri, sınıf-içi ve sınıf dışı dil becerisi etkinlikleri, ölçme ve değerlendirme yöntemleri ve ders materyalleri gibi uygulamalara yönelik sonuçların ve önerilerin Türkiye’de yeni akademik çalışmalara ışık tutacağına inanılmaktadır. Bu araştırmanın amacı disleksi ve yabancı dil öğretimi ilişkisi üzerine 2011-2021 yılları arasındaki uluslararası düzeyde yayınlanmış olan dokümanların içerik analizi yöntemiyle sistematik bir incelemesini yapmaktır. Bununla

birlikte, bu derleme ile birlikte ortaya çıkan  ğretim uygulamalarının sonu larını ve arařtırmacıların  nerilerini, T rkiye’de bu y nde eēitim veren kurumlara ve İngilizce  ğretmenlerine rehber bir kaynak olarak sunmaktır.

Anahtar Kelimeler: *Disleksi, Yabancı Dil  ğretimi, İngiliz Dili  ğretimi, Sistemati  Analiz, T rkiye’de Yabancı Dil  ğretimi.*



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CHAPTER I

INTRODUCTION

1.1. Background of the Study

Reading and writing are the most rudimentary skills that provide the necessary information and communication in every field of life. According to Milne (2005), these skills can be activated in the brains, thanks to complex neural routes associated with special language processing centres. Therefore, the attainment of these skills can be accomplished with the combination of various senses such as visual, auditory, kinaesthetic and physical stimuli. However, due to the differences in cognitive, biological, environmental and behavioural factors that will be explained in this thesis, literacy skills can become challenging for some individuals and cause serious difficulties in both personal and professional development throughout their lives. For this reason, it is very important to correctly define the problems and to fully understand the effects of these problems in a timely manner. For this purpose, sufficient knowledge about dyslexia and its definitions are aimed to be analysed, engaging this research in an existing context of literature. Moreover, language systems that establish dyslexia and foreign language relationship and educational solutions emerging from the analysis of relevant studies will be discussed. In summary, information on the problem, the purposes, importance, limitations, assumptions of this study and currently unexplored avenues of international research on the basis of relevant literature will be presented in a systematic way.

1.2. Statement of the Problem

The classroom is an exceptional place where a wide diversity of characteristics and learning needs of students form a unique world. To support academic success in this place, fruitfulness and respect should be allied by teachers because each of the students joining a classroom brings diversity and richness with them. Different learning abilities, personalities, IQ levels and also physical and psychological problems concur at all levels. This mysterious environment can only be supported by healthy, peaceful and respectful educational methods. Therefore, teachers should be apprised of their students' needs and they should know how to

react against each difference in an appropriate way. In this regard, learning differences of individuals and educational inclusion practices for them have attracted the attention of researchers and gained popularity for a few decades in the academic world. The reasons and symptoms of these differences that impede the normal learning process have been investigated and discussed among academicians. For the last few decades, one of the most common and important learning difference - dyslexia - has also been examined through experimental researches. These studies are scarce and dyslexia is generally presented in theoretical frames in the Turkish literature. The lack of experimental studies on the relationship between dyslexia and FLL of Turkish students leads teachers to international studies carried out all around the world. It is also believed by the researcher that there can be useful implementations examined in the international literature and they can serve as practical classroom methods for dyslexic learners in EFL classrooms in Turkey.

1.3. Purpose of the Study

Dyslexia is a neurological difference in individuals' brains that makes the attainment of language learning difficult. In the studies presented by national and international organizations, it is seen that the number of students experiencing this difficulty in educational settings is quite high (Kormos, 2016). The biggest difficulty created by this difference is observed in the attainment of literacy skills, namely reading and writing (Stanovich, 1986; Reid, 2009). In addition to the learning problems experienced in the mother tongue, it also poses serious threats to the foreign language learning experiences of these learners (Schneider, E. and Crombie, 2003; Kormos, 2009; Nijakowska, 2010). To facilitate this difficulty, academic studies regarding the phenomenon of dyslexia in FLL environments is being investigated in the literature. However, relevant studies in Turkey have been limited up to date (Özkardeş, 2013). Studies on dyslexia by national academicians mostly focus on the views and experiences of students having difficulty to read and write in their first language (Özkardeş, 2012; Balcı, 2017). The second common search area examined is the mainstream education challenges of these students (Balcı, 2017).

On the other hand, comprehensive studies concerning the negative effects of dyslexia on EFL learners in Turkey from theoretical or practical perspectives only exist in one national study (Coşkun & Mitrani, 2020). In this case, the definitions, causes, diagnosis and effects of dyslexia are not well known, and consequently, it is not possible to fully understand the

specific problems of students who have the symptoms of dyslexia in language learning settings. Therefore, it is crucial to design the required roadmap by examining the researches that have been done for many years in the international literature to find the effective and adaptable solutions for these learners. In this respect, this study aims to search for current educational designs, approaches, teaching methods, learning strategies, assessment and evaluation systems and course materials that have been acknowledged in the literature for dyslexic students and present a critical review on these systems in terms of their applicability to the Turkish EFL classrooms. To facilitate this process, this research will systematically document and analyse the published sources regarding the educational interventions on dyslexia and foreign language teaching and thematically present the analysis of findings with recommendations. Considering the problem of the study stated above, the following research questions are aimed to be answered:

1. Are there any relevant and applicable studies in the international literature that produce implementable methods and practices to teach English as a foreign language to dyslexic language learners in Turkey?
 - 1.1. What dyslexia-friendly teaching approaches and strategies in EFL classrooms in the studies are proved to be beneficial to the improvement of language acquisitions of dyslexic language learners in different skills?
 - 1.2. What EFL classroom activities in the studies are found to be effective to improve phonological skills of dyslexic learners?
 - 1.3. What types of EFL classroom activities in the studies are found to be effective to enhance the vocabulary knowledge of language learners with dyslexia?
 - 1.4. What types of EFL classroom activities in the studies are found to be effective to enhance the grammar skills of language learners with dyslexia?
 - 1.5. What types of EFL classroom activities are found to be effective in the studies to enhance the four main language skills (reading, writing, listening and speaking) of language learners with dyslexia?
 - 1.6. Are there any applicable programs or strategies to determine the training needs of EFL teachers in teaching dyslexic students in the studies?

Through a deep and systematic investigation method, this study will present the available and practical actions against dyslexia to establish an inclusive language educational

setting and provide useful teaching methods to Turkish EFL environments in order that students with the symptoms of dyslexia can obtain high level of language learning abilities.

1.4. The Significance of the Study

In the current global environment, oral and verbal communication in English has been a crucial qualification for individuals. It is required for every aspect of life from daily activities to professional relations. Turkey has been striving for establishing better educational policies and solutions regarding foreign language learning because low level attainment of language skills among students is quite high even if lots of years on language learning are spent. Many reasons regarding this failure have been investigated and published in the literature. However, there is a lack of academic focus on dyslexia and its negative effects on language learners. Given the proportions of dyslexic learners in Turkey, it can be understood that this learning difference is one of the most important reasons why students in Turkish EFL classroom may be experiencing failure. However, the phenomenon of dyslexia is very complex and easy solutions for this are not common. It seems to hinder the language acquisitions of learners with the symptoms of this language difficulty (Kormos, 2016). So as to diminish the problems regarding the reading and writing abilities of these language learners, their talents should be supported with the help of a wisely planned, monitored and continuous teaching (Nicolson et al., 2001). The nature of dyslexia and its negative effects on language learning should therefore be understood well and current theories and implementable solutions for educators should also be investigated. In this regard, the studies conducted educational experiments on language learners with the signs of dyslexia are essential sources to construct appropriate teaching methods and lesson practices in EFL classrooms. Thus, a critical review on the educational practices with a deep analysis of the existing sources can be invaluable to add possible compensatory strategies into the educational system.

This study also gains importance considering the nonexistence of studies conducted in Turkey on teacher training programs for the inclusion of dyslexic learners in EFL classrooms. Therefore, the findings may also propel both novice and experienced teachers to enhance their language teaching capabilities and elevate their students' participation with accurate strategies and materials. It also allows policy makers and academicians to consider the changes on current teacher training curricula at every level of national schools.

Based on the outcomes of this study, required adaptations in the curriculum could be made in a way that students' language skills can be supported. Educational administrators may have the incentive to involve supplementary strategies and practices in the English curriculum for all levels and arrange trainings for language teachers. In this way, the teachers in a language classroom could be motivated and they can be provided with additional methods to adopt their teaching experiences and follow the latest developments for language learners with dyslexia.

1.5. Hypotheses of the Study

The first hypothesis of this thesis is that the international literature which is analysed and documented through a systematic review method includes comprehensive knowledge on the phenomenon of dyslexia and its effects on foreign language teaching, contributing guidance and awareness to EFL teachers, academicians, educational policy makers and specialists. The second hypothesis is that the sources undergone a systematic and critical review process in this thesis are reliable, qualified, valid and without subjectivity, allowing future references of unexplored fields. Finally, it is hypothesized that the studies investigated in this thesis will provide substantial sources on appropriate and effective teaching methods and lesson practices for dyslexic learners in Turkish EFL classrooms.

1.6. Limitations

The most important limitation confronted in this critical review study was the lack of teaching environments and learners to test the methods and practices obtained from the included studies. The availability of classrooms is believed to produce more reliable conclusions regarding the relationships between Turkish learners with dyslexia and the practices gathered from the literature. Although all of these practices were analysed deeply and judged by the reviewer whether they are implementable for Turkish education system, one possible source of bias on the analysis of this review might be originated from the comparison and contrast of the educational practices because of the unavailability of real teaching environments.

Another source of limitation is that the main components and principles of language teaching process were taken as a basis of comparison and contrast to assess the publications, but the opinions and experiences of the researcher were also benefited to reach a conclusion

with a critical perspective. This may lead to subjectivity issues in this study; therefore, as many educational scenarios as possible were attempted to be involved in the discussion and recommendation section to provide objective results on a larger scope.

Thirdly, publications that were found until July, 2021 generated the results in the present study. However, there may be new released publications after this period and they may bring some changes or additional information to the results. When it is desired to benefit from the interventions or methods from this review, up-to-date researches after the due date of this study should also be analysed and compared.

Another limitation was the language barrier during the data collection. Only the publications written in English and Turkish were analysed as they are within the knowledge of the researcher. As a result, a large number of appropriate studies might not be traced because of the language restrictions, which possibly resulted in a bias on the selection of studies. These publications would have created a serious concern if they had been translated because the reliability of translations would be impossible to be assessed so these studies were eliminated from the data pool.

The final source of limitation is the grey literature – the sources that are published informally or non-commercially, or remains unpublished. The reason for the inclusion of grey literature in the review was that there might be some relevant researches that the academic platforms did not contain. It is of great importance that all relevant materials in the literature to be included because this will reduce the bias on publications and enable to increase possible solutions to be added in the review.

After a search of grey literature in online websites and courses regarding the focus of the review, many forms of publications such as unpublished reports, dissertations and theses, blog posts, interviews were found. These forms of literature were submitted to the same inclusion and exclusion criteria procedure as scholarly publications which underwent an official publishing and review process. However, the grey literature has issues with the credibility of the publications; in other words, it may produce bias on the reliability of materials involved. As a result, this review is aimed to be mostly based on scholarly published material in order to reach certain result and avoid publication bias.

CHAPTER II

LITERATURE REVIEW

2.1. Introduction

Dyslexia embraces a variety of language and literacy issues. It is a complicated learning difference because the diagnostic symptoms and definitions of dyslexia have been presented from many different perspectives and only a few of these definitions have been officially accredited (Swanson, 1991; Falzon, 2020; Nijakowska, 2010). Therefore, systematic educational methods which support the language learning process of dyslexic learners are still being developed in the light of recent academic studies. Another conflict is that dyslexia reveals itself at different levels of severity for each individual. This leads to heterogeneity of students in a classroom and most of the language teachers are not sufficiently trained to implement effective approaches or techniques for their students (European Commission, 2005; Kormos & Nijakowska, 2017; Nyikes, 2019).

It is a fact that foreign language learners with dyslexia cannot be supported within the traditional language classroom (Kormos, 2017). The main reason is that dyslexic students struggle in the area of accurate and automatic word decoding and recognition (Snowling, 2020). In this regard, their needs to acquire a foreign language should be accommodated with positive and motivating learning practices. They also require differentiations in the language learning settings and inclusive teaching methods provided by qualified teachers (Kormos & Nijakowska, 2017). Therefore, theoretical knowledge regarding the literacy issues should be presented to understand dyslexia without misconceptions. Furthermore, the relationship between dyslexia and foreign language acquisition should be deeply examined to provide useful didactic classroom practices in view of experimental data.

2.2. The Literacy Development and Dyslexia

Literacy means the competency to read and write well or possessing the skills to analyse numerical data or a set of skills to find, retrieve, investigate, and use information (Reid, 2009). The PISA study also defined literacy as understanding the written texts and using the relevant information by reflecting on them so that one's goals are achieved and one's knowledge and potential are developed to participate in society' (OECD, 2000, p. 20). It is palpable from these definitions that an individual having low level of literacy or

experiencing problems during its development can be regarded as a person without basic learning skills.

Literacy skills ought to be acquired from early childhood if individuals are to become a part of community because effective communication in a literate society can be achieved through these skills (Reid, 2009). Literacy also supports the conservation of cultural practices and the social bonds where society is placed on daily life activities through its use (Reid, 2009). In addition to functional purposes, reading and writing bring a great achievement in individuals' educational life. Adults with literacy proficiencies at higher levels are privileged because the benefits such as higher incomes, better job prospects and better health care services are more accessible for them (Fawcett, 2003).

According to the report that UNESCO presented, students with specific learning difficulties (SpLDs) have less chance of reaching these opportunities because they cannot complete their education. Hence, dyslexia which is the most common learning difficulty poses a great challenge for individuals at different levels (Snowling, 2020). They have to pay more effort to succeed what other people normally do with an expected level of difficulty and feel exhaustion to accomplish their talents (Niklas et al., 2016).

The insufficient literacy acquisition occurs not only in dyslexic people's mother tongues but also in their foreign language (Nijakowska, 2010). It is a fact that processing skills of these learners are slowly and inadequately gained no matter what language they learn. One reason for these problems is that different writing systems and orthographic features create different brain structures (Snowling, 2001). As a result, the scope and severity of literacy acquisition may be experienced at different levels for each individual (Crombie, 2004).

The two pioneering theories that investigate the development of literacy skills of struggling readers are cognitive information processing models and constructivist theories (Kormos, 2016). Both of them offer a framework to help us understand the underpinnings of decoding systems and the issues on fluency. While cognitive information processing models provide a step by step guideline for readers, constructivist theories are oriented to build a top-down skillsets to improve their literacy skills. In cognitive information processing models, identifying letters and words is the initial stage and processing to understand the overall meaning is the next step (Milne, 2005). On the other hand, literacy is acquired through building new knowledge upon the prior knowledge when constructivist theories are put into practice. As dyslexia causes multifaceted difficulties for students, both cognitive and

constructivist theories can be regarded as effective approaches to develop literacy not only in L1 but also in L2 (Nijakowska, 2010).

2.3. The Phenomenon of Dyslexia

Learning to read and write is easily experienced by some individuals whereas it causes serious problems for some others. The underlying reasons of poor reading and writing skills can be diverse in each individual, but there are common causes and symptoms for those who suffer from dyslexia (Kormos, 2016). Although many theories exist, the prominent cause of dyslexia has been proved to be the genetic and neurological differences leading to a number of various sensory perceptions which makes learning to read, spell, and write a difficulty for learners (Guardiola, 2001). There are five main hypotheses explaining the cognitive reasons of dyslexia:

- a. **The Phonological Deficit Hypothesis** is the most renowned theory regarding the cognitive roots of dyslexia (Stanovich, 1986). It assumes that dyslexia is caused by impaired phonological awareness in which students fail processing the syllabic and phonemic knowledge and have the difficulty in reading non-words easily (Snowling, 2001). In order to comprehend this theory, the terms used to define this deficit should be clarified. The first one is ‘phonological awareness’ (phonemic awareness in a broader term). It means the skills and knowledge that are associated with the capability of recognizing, reflecting on or manipulating the separate sounds (phonemes) in words. The second one is ‘alphabetic principle/phonics’ which encapsulates written letters that are linked to spoken sounds (phonemes) in a systematic way. The knowledge of phonics can be applied to decoding and reading purposes. Children (aged six or seven) start to attain the ability of recognizing the sound and letter relationships at this period (Daloiso, 2017). In other words, their phonemic awareness is activated and they begin to read unknown phrases or words. The final term is ‘morphological awareness’. It is the understanding of meaningful elements of words (affixes, derivatives and so on) (Vellutino et al., 2004; Nijakowska, 2010). Although this hypothesis has a strong acceptance, it has been also proved that phonological difficulties are not

necessarily accounted for dyslexia as the studies showed that there are more causes to reach sufficient explanations (Snowling et.al., 2020).

- b. The Automatization Deficit Hypothesis** has aroused interest among the researchers as it claims that the deficit of making some linguistic procedures automatic is the leading sources of unsuccessful learning for dyslexic people (Nicolson & Fawcett, 2008). These individuals control themselves very frequently and pay a lot more effort than their peer in order to avoid their limitations in automaticity so they feel exhausted and distracted during the language activities (Nicolson & Fawcett, 2008).
- c. Double-Deficit Hypothesis** is a different version of the Phonological Deficit Hypothesis and claims that speed deficits also play a role in developmental dyslexia (Vukovic, & Siegel, 2006). According to this theory, there are two distinct signs of low reading skills in dyslexics namely, the phonological deficit and naming speed difficulty (RAN - Rapid Automatized Naming). When these two difficulties occur at the same time, dyslexic people should start to receive training on the fluency of letter and word recognition along with the phonics support.
- d. The Magnocellular Deficit Hypothesis** claims that dyslexia is linked to the shortage of proper functions of the visual and the auditory systems (Stein & Walsh, 1997). The magnocellular pathway is responsible for controlling the brain so that it can produce the visual and auditory signals. Visual Magnocellular Hypothesis explains that visual stress, the exposure to the shapes in text, is interrupted so reduced sensitivity in the magnocellular system causes dyslexia (Stein & Walsh, 1997).
- e. The Cerebellar Deficit Hypothesis** suggests that there is a defect in the cerebellum which results in disturbances and malfunctions in controlling the muscular movements. (Nijakowska, 2010; Nicolson & Fawcett, 2008). The CDH has similar characteristics with the Automatization Deficit Hypothesis. It proposes that dyslexic people have problems in activating new learning skills and at least one type of motor skills and memory deficits is seen in each dyslexic (Nicolson & Fawcett, 2008).

Although the reasons of dyslexia have been explained in the light of the hypothesis above, the last three of them do not have enough empirical support (Kormos & Smith, 2012).

Therefore, the principles of the Phonological Deficit Hypothesis explain the core reasons of dyslexia.

In addition to the cognitive causes of dyslexia, environmental factors are also claimed to be an important reason (Hulme & Snowling, 2009). The researchers claim that individuals without adequate support for their development in a home suffer from the severity of reading difficulties associated with dyslexia. Another environmental cause of dyslexia is claimed to be the reduced employability. The family might be affected adversely and they might lose the social and economic status which might increase the reading problems of children at-risk (Hulme & Snowling, 2009).

Dyslexia results in complications related to specific language skills, particularly reading and writing (Kormos, 2016). It becomes apparent in children at the start of their education. Also, the language skills such as spelling, understanding the sound system of languages, memorizing words and visualizing can be the common problems experienced by individuals with dyslexia (Crombie, 2004). Other complications are compiled from the sources and listed as below (Reid, 2009; Nijakowska, 2010; Kormos, 2016):

- confusion with before and after, left vs. right
- difficulty with motor skills and organization
- problems with handwriting, memorizing people, places and names of objects,
- dealing with speed
- getting tired more quickly than a non-dyslexic person
- show inconsistency in performance and concentration,
- great trouble with taking notes because cannot listen and write in tandem,
- learning foreign languages

It is acceptable to experience these problems above at some periods of people's lives and this situation might be easily overcome within time, but dyslexia does not have temporary disadvantages for people. It refers to a lifelong language-based learning disability (Nijakowska, 2010). Being a dyslexic usually has significant effects not only on the first languages of people but also on their additional languages; thus, the essential help and support should be continuous (Kormos, 2016).

The phenomenon of dyslexia has many misconceptions and myths (DyslexiaHelp, 2020). First of all, dyslexia does not refer to an illness; it is a chronic condition with a biological and constitutional origin. Secondly, dyslexia cannot be cured; however, symptoms can show variations within time (IDA, 2016). The dyslexic learners' low level abilities can be

advanced if systematic and adequate trainings are provided (Nijakowska, 2010). The third controversial issue is the existence of genetic inheritance (Nijakowska, 2010). Hulme and Snowling (2016) stated that dyslexic parents share their genetic traits with their children. However, some studies claim that this is not the case (Lefly & Pennington, 1996). Besides, it is proposed that genetic factors are related to the environment (Lefly & Pennington, 1996). If parents (dyslexic or not) live in an environment where it is less likely for them to find financial or cultural opportunities to read, their children may have more severe symptoms (Hulme and Snowling, 2016)

Furthermore, dyslexia and intelligence are not connected (IDA, 2016). Dyslexic individuals do not suffer from lack of aptitude or ambition in their language learning process. It has been observed that dyslexia is prevalent at all socio-cultural backgrounds and academic levels. They are talented or even exceptionally competent in some areas such as art, math, music, physics, and sports (Crombie, 2004). Furthermore, it is believed that dyslexia can be identified only by psychologists by using special tests. However, educators can also identify it with an early, organized and explicit intervention (DyslexiaHelp, 2020).

The presence of dyslexia is very high. According to studies, dyslexics range from 3.1% to 17.5% across languages (Hagen, 2020). According to the International Dyslexia Association (IDA), one in every ten students suffers from slight or severe difficulties. It is predicted that 15-20% of the world's population has been disadvantaged (IDA, 2016). Nevertheless, it should be noted that several different factors determine the frequency of dyslexia and the rate of this difficulty might be higher.

2.4. The Definitions of Dyslexia

When the related literature is reviewed, it is seen that dyslexia can be defined with the help of interdisciplinary fields such as cognitive psychology, neuroscience and biology. As a consequence, there are a range of definitions of the term dyslexia. Firstly, it should be stated that acquired dyslexia and developmental dyslexia are two distinct terms (Nijakowska, 2010). Acquired dyslexia is the consequence of an accident that causes head trauma or a disease, causing the normal functions in the brain to be impaired. After when a person learns reading, this type of dyslexia can show itself (Kormos & Smith, 2012, Nijakowska, 2010). Instead, developmental dyslexia (the main area of interest in this thesis) is defined as a learning

disability that has particular cognitive characteristics and principally interrupts reading and spelling attainments (Snowling, 2008; Reid, 2009).

Many researchers define developmental dyslexia from their own study focus; however, language teachers should set a framework of definition in order to identify their students' behaviours and help them in an effective way while teaching a foreign language in the light of other disciplines (Washburn et. al, 2011). Therefore, definitions on an international agreement are very important. The prominent institutions to support dyslexia-friendly environments define this difference as follows:

1. **American Psychiatric Association (APA):** The association does not use the common term 'dyslexia'; instead, 'Specific Learning Disorder with impairment in reading' is the term adopted to refer to a set of learning difficulties such as poor word reading, decoding and spelling (APA, 2013). Moreover, it is noted that these problems must be incessant for at least 6 months, even with the interventions. According to APA (2013), academic achievements at lower levels regarding the age or average grades despite high levels of effort or support are good indicators of dyslexia.
2. **International Dyslexia Association (IDA):** The association describes dyslexia as a language-based learning hindrance (IDA Board of Directors, 2002). It is also stated that dyslexia refers to particularly the difficulties in spelling, writing, reading and pronunciation with a bunch of symptoms affecting individuals all over their lives. It is defined as a learning disability as dyslexia can create a great difficulty for a student to be successful in their educations through usual instructions. That a student has serious symptoms of dyslexia makes special adjustments, extra supports or special education essential.
3. **British Dyslexia Association (BDA):** Dyslexia is a learning difference which primarily affects reading and writing accomplishments (BDA, 2010). It is also stated that this difficulty is in fact connected to information processing. Dyslexic people suffer from processing and remembering information thus their attainment of literacy skills is affected negatively.
4. **The World Health Organization (WHO):** This organization defines dyslexia as a developmental learning difficulty weakening reading achievements because of major and insistent learning difficulties in the skills of word reading accuracy, fluency and comprehension (WHO, 2010).

Rice and Brooks (2004) itemised more than twenty different definitions for dyslexia and they were created by different researchers, institutions or administrative organizations for five decades. When these definitions are analysed in the scope of foreign language teaching, some conceptual words gain importance regarding an effective teaching method (Rice & Brooks, 2004). These can be listed as follows:

- Neurobiological/ cognitive learning deficit
- Poor word recognition and decoding abilities
- Spelling problems
- Difficulties in reading comprehension
- Word recognition impairment
- Problems in verbal processing speed, phonological awareness and verbal memory
- Concentration and personal organization problems
- Immune system disorders

In recent studies where a broader sense of investigations has been applied, these characters of dyslexia were confirmed and also dyslexia has been found closely related to RAN, verbal short and long term memory, working memory, visual skills and attention deficits with different complicated and dynamic levels in each person at different ages (Snowling, 2001). In addition, it threatens the developmental process in language activities, metalinguistic activities (the awareness of the connection between letters and sounds and the language systems), metacognitive activities (the cognitive processes involved in comprehension), pragmatic and meta-pragmatic activities (purposeful use of written texts) (Nijakowska, 2010).

2.5. The Acquisition of Reading

In order to understand dyslexia, the basic cognitive mechanisms and processes involved in learning to read should be well known (Reid, 2009). There are many factors that create the skill of reading. The National Reading Panel Report (2000) reveals that there are six essential components for a healthy reading acquisition process:

- Phonics; grapheme-phoneme correspondence; how letters sound/are pronounced,
- Phonemic awareness; dealing with recognizing sounds,

- Vocabulary range,
- Fluency; reading with speed, accuracy and expression,
- Guided oral reading; guidance from skilled readers,
- Comprehension; constructing meaning and information from the text that is read,
- Cognitive abilities (memory, attention, strategic and meta-strategic skills).

The National Reading Panel Report (2000) also states that a proper use of these components generates meaningful information. In addition, individuals should possess many different qualifications to read well. It has been also stated in the report that students learn to read successfully when they:

- have language skills at an average or normal level,
- go through abundant practices in their childhood that nurtured motivation and literacy skills,
- get information on the nature of print/letters and the sub-lexical structure of spoken language along with coherent reading instructions and opportunities to practice .
- contrast spoken and written language properly.

However, dyslexic students are not privileged to possess abovementioned skills. The central problem experienced by these students is the difficulty in the attainment of decoding, spelling (Snowling, 2020) and word-recognition (Kormos & Smith, 2012). The understanding of dyslexia should be, therefore, on a basis of learning the mechanisms associated with the reading skills.

The development of reading skills is a multidimensional process which needs to be regarded more than just seeing printed letters (Reid, 2009). It is therefore important to take some linguistic and cognitive areas into consideration. The vocabulary size, phonological awareness, cognitive networks (to decipher the written texts), attention skills (sustained, selective and divided attention) and also different sources of memory for word recognition (working, explicit and implicit) are specific mechanisms to read well (Daloiso, 2017). A successful reading process can be achieved with the holistic performance of these factors. Reading also demands a number of sub-skills such as transforming letter sequences into familiar words, comprehending the meaning of the printed texts (Ehri, 2005) and they are

hierarchical (Kormos & Smith, 2012). In addition to these skills, using phonological, morphological, syntactic and semantic knowledge is compulsory (Reid, 2009).

Reading can be accomplished at different levels (Daloiso, 2017). First of all, an individual has phonological knowledge of words and their relation to semantic system. Then, they recognize shapes and use pictures and symbols to decipher the meaning of a text without the explicit knowledge of language. At the next stage, they start to develop phonological awareness and learn to read and write at a syllabic level (logographic stage). With a direct instruction, they can use alphabetic knowledge and connect letters in a meaningful way (alphabetic stage) (Daloiso, 2017). Reading unfamiliar chunks starts at the final stage and during this period, developing orthographic skills with the explicit knowledge of spelling, pronunciation and critical reading skills can be achieved (Ehri, 2005). At the final stage, the orthographic processing skills also enable readers to sequence the letters in a word with a correct phoneme-grapheme matching. With the help of these processing skills that work together, readers grasp the meaning and context with a critical analysis of the text (Reid, 2009).

In addition to these skills, readers also use some sub-skills to comprehend the texts; namely, sound-letter recognition, memorizing, dividing and blending words. The declarative knowledge comes into play at higher levels where personal experiences or facts and cultural beliefs or readers are brought together to interpret and understand the texts (Berge & Hezewijk, 1999). However, through these stages, the development of these skills is restricted by dyslexia.

Dyslexic individuals have slower paces in interpreting words and they find it very hard to process the overall informational content of a text or to generalize it. Hence, phonological processing becomes the most challenging stage for them especially when they encounter novel words. They require more explicit knowledge and more practice (Kormos & Smith, 2012).

Other common problems related to reading skills of people with dyslexia can be summarized as below (Reid, 2009; Daloiso, 2017):

- Phoneme-grapheme adaptation (low level acquisition of the alphabetic principle),
- Fluency (imprecise spelling while reading),
- Accuracy (hesitating over words),
- Generalization (difficulty in reading novel words),

- Auditory processing (correlating auditory symbols with sequences of visual symbols),
- Phonological processing (imprecise processing of sounds),
- Letter position coding (struggling with words where precision is needed),
- Working memory (lack of attention to memorize words and letters),
- Slower automatization (slow responses to do tasks and visual coordination difficulties),
- Organizing and analysing information.

These difficulties are important indicators that prove dyslexia in individuals. On the other hand, it has been claimed that reading difficulties are not always sufficient to prove dyslexia. For example, Vellutino et al. (2004) suggest that the reason for dyslexia is neurobiological in origin. Other studies on cognitivist and constructivist approaches also propose that unless our brains achieve visual and auditory connections by two circuits, namely the upper circuit and the lower circuit, the symptoms of dyslexia appear (Milne, 2005). Therefore, in order to identify the symptoms, measures for reading skills should be also based on various factors regarding the neurological, biological, cognitive and behavioural conditions of individuals (Reid, 2009).

2.6. Dyslexia and Teaching Reading

Individuals lacking good word recognition skills are claimed to be poor readers and spellers (Reid, 2009; Snowling, 2020; Kormos & Smith, 2012). As stated in the preceding chapter, reading a text is a complex undertaking for dyslexic individuals. Therefore, a holistic and fundamentalist instruction for language learning will not be appropriate for them (Kormos & Smith, 2012). To illustrate, a student only receiving phoneme instruction can have difficulties in detecting words and comprehending their meanings in a text whereas another student who only receives holistic language instruction can have problems with practicing the sub-skills such as pronouncing new words, spelling and so on. As a consequence, a well-designed instruction programme for reading with the inclusion of variable practices is compulsory.

Within the scope of current literature there are some important paths to follow for educators to support their dyslexic students' reading skills. According to Kormos (2016),

knowledge of vocabulary can be improved through the explicit vocabulary teaching methods. The motivational factors are also vital since reading is successfully accomplished with the help of attention (Nijakowska, 2010). Barber and Susan (2020) also suggest that engaged and motivated readers have a tendency to be high achieving readers. In this regard, the reading texts must have culturally acquainted contexts and the reader should be engaged in the cultural and social environment with a pre-reading activity (Reid, 2009). Therefore, the text prepared for these students should be clearly structured and well planned for their needs; otherwise some of the significant words in the text can be ignored or misinterpreted.

2.7. The Production of Writing

Writing integrates many complicated processes (Reid, 2009). To be able to produce a text, a learner must be good at recognizing orthography, sound-letter correspondences, vocabulary, and grammar (Brown, 2007). They also need to use critical thinking strategies such as collecting and classifying ideas, organizing thoughts, self-observing, and text revision (Reid, 2009). These strategies need the skill of using working memory and attention that are difficult areas for learners with dyslexia. Dyslexic learners experience the main difficulty in combining all those strategies at one time (BDA, 2020). They might accomplish the tasks involving the use of only one skill; however, when trying to accomplish all the skills during the production of writing, they make more errors such as spelling, confusing the letters, poor handwriting and so on (Daloiso 2017).

2.8. Orthography and Transparency

The spelling, pronunciation, phoneme-grapheme representation and sound systems of a language are responsible for the quality of students' learning attainment (Snowling, 2001). Thus, it has been claimed that the difficulty that students face while learning a language is directly correlated to its structure (Nijakowska, 2010). Orthography is claimed to have a great impact on the skills of reading because adaptations of graphemes and phonemes differ from one language to another (Bayraktaroğlu, 2008). Hence, in order to understand the problems of dyslexic learners, it is also essential to analyse the writing mechanisms of a language (Reid, 2009).

The knowledge of speech sounds (phonological information) is the first step to learn a language (Snowling, 2001; Reid, 2009). Alphabetic and syllabic writing systems also serve as

essential tools for this purpose. When individuals learn to read and write, the first ability they need is to recognize the spoken words and to divide them into relevant units, and understand how particular units are represented in writing (orthographically). As for alphabetic writing systems, phoneme-to-grapheme mapping (one of the most serious difficulties for dyslexic learners) has to be achieved. In the case of failure, slow and/or inaccurate word-recognition occurs (Vellutino et al., 2004).

Another difficulty that is caused by the orthographic system of a language is spelling (Reid, 2009). It is called dysorthography which refers to the poor encoding ability of language learners (INSERM, 2007). It generally creates difficulties in sound recognition and writing because just like word recognition, it needs the division of spoken words into phonemes and conversion of these phonemes into letters or letter combinations (Kormos & Smith, 2012).

The orthographic categorization of languages affects the level of language learning attainment. A “shallower” orthography of a language makes the acquisition process easier and faster whereas a “deep”, “opaque” and “inconsistent” orthography has been found to make sound-grapheme connections more difficult to attain (Bayraktaroğlu, 2008). For example, the phonemes and the letters (apart from the letter ğ) in Turkish have one to one correspondence while reading and writing a syllable or word. The interference of regular Turkish orthography offers confusion for Turkish speakers because of the irregular spelling and pronunciation of English (Bayraktaroğlu, 2008; Paulesu et al., 2001).

In addition to orthographic features, transparency of a language is a key factor in gaining literacy skills. Transparency is referred to the sound or phoneme consistency in speech and the writing (letters and letter combinations) (Spencer, 2001). When a language is more transparent, the letters become parallel with the sounds and it is getting easier to attain reading and writing skills. Languages such as Turkish, Finnish, Greek and Italian are transparent and orthographically-shallow languages (Nijakowska, 2010). In contrast, deep, opaque or inconsistent orthography is used to define languages that have irregularities between the sounds of letters and their representations (Nijakowska, 2010). For example, a letter or the combination of letters may have more than one sound in English. (The letter ‘u’ is pronounced /u:/ in ‘boot’, /u/ in ‘bull’, or as an unusual sound /ju:/ in ‘music’).

English has a deep orthography and thus learning English can lead dyslexic learners to suffer from many difficulties in terms of the complexity in the area of phoneme-grapheme relationships. It is obvious that in transparent languages, fluency is the key factor, whereas in English, progress for dyslexic language learners is expected to be both slow and inaccurate

(Grigorenko, 2001). Moreover, Grigorenko (2001) stated that the orthography of English makes the occurrence of dyslexia in FLL classrooms variable in each country and among different languages.

According to Grigorenko (2001), the linguistic mechanisms universally have the same level of difficulties for dyslexic individuals when they acquire their L1 literacy skills. In contrast, the appearance of literacy problems will be challenging in learning L2 when the phonological needs of a foreign language are different from their L1. Therefore, phonemic inconsistencies of English may lead EFL teachers and students to use several reading and writing strategies because of its orthographic system.

While in dealing with the language impairments of dyslexic learners, paying attention to orthographic features can be useful (Bayraktaroğlu, 2008). In order to detect the linguistic needs of students, their awareness on phonemes provides a powerful recognition on the distinctions in reading level, reading accuracy, letter recognition and spelling ability (Koşak-Babuder et al., 2019).

2.9. Dyslexia and Teaching Writing

The most important teaching method is to give direct instructions to dyslexics to integrate all skills necessary in a writing assignment (Reid, 2009). They need more support and a step-by-step practice in developing writing skills (Kormos and Smith, 2012). The direct instruction method is divided in pre-writing, writing, and revising text production phases (Daloiso 2017). It has been suggested that sufficient time is given to the practice of this skill, with an appropriate monitoring of performance (Crombie et al., 2006). Clearly defined and step-by-step objectives should enable each child to progress at his or her own speed. Also, teachers must focus on competent word-processing and keyboard skills of dyslexic learners.

2.10. Dyslexia Research in International Context

Dyslexia as a cognitive difference has been studied since the 1960s. Other disciplines such as psychology, neurolinguistics, neuropsychology and genetics have supported to explain this difficulty since then (Crombie, 2003). However, a major advance in the search of dyslexia and foreign language learning occurred when reading difficulties were explained through the theories of phonological deficit which was later recognized as the chief source of dyslexia in 1980s (Snowling, 2001).

Although many sources have been published on dyslexia and foreign language, most of the authors writing on this topic accept the fact that experimental research is scarce to reach an agreement on appropriate learning methods and strategies for dyslexic learners (Kormos, 2016).

First of all, researchers aim to reach a clear and globally accepted definition of dyslexia and the identification of its symptoms to avoid misunderstandings. They have discussed whether the current definitions and diagnosis of dyslexia are sufficient enough to explain the problem and find appropriate solutions for it. Although more precise definitions and better policies evolve, there are still questions remain to be answered (Reid, 2009; Nijakowska, 2010; Kormos & Smith, 2012; Kałdonek-Crnjaković & Fišer, 2017; Kormos, 2017, Snowling, 2020).

Besides that, curriculum development and accommodations for language learning have been researched by many authors (Peer and Reid, 2003; Schneider and Crombie, 2004; Rontou, 2012; Zafiri et al., 2019; Ghoneim and Elghotmy, 2021). The integration of multi-sensory techniques, restructured FL materials, activities regarding phonetics and phonemic awareness have been suggested when preparing a program for dyslexic learners. Also, it has been advised to include the principles of automaticity, overlearning and explicit and cumulative teaching in the curriculum. Moreover, innovating teaching strategies and methods have been proposed to be integrated in the curriculum (Kormos et al., 2009; Schneider & Evers, 2009; Turek, 2020; Coskun & Mitrani, 2020). In this study, accommodations and interventions will be presented in the findings section in detail through a thematic analysis.

Testing and assessment of dyslexic learners is another important topic when the literature is examined. A range of assessment strategies have been advised to identify the dyslexic learners' strength and weaknesses. It has been found that there exist more than 50 tests and assessment methods used for dyslexic students. The importance of avoiding disproportionality and ambiguity ranks first as a common interest of research in the studies examined (Tsagari, 2013; Kormos, 2016). In addition, the orthographic features of L1 and L2 have been found to be a key factor when designing an exam for dyslexic students. Accessibility for all learners, validity, fairness and proficiency test designs have been also emphasized in the studies (Schneider & Crombie, 2003; Helland, 2008; Snowling & Stackhouse, 2013; Tsagari, 2013; Kormos, 2016).

Teachers' perspectives, beliefs and their trainings have also been researched in many studies. (Washburn et. al, 2011; Cameron & Nunkoosing, 2012; Nijakowska, 2016; Kormos

& Nijakowska, 2017; Nijakowska et al., 2018; Indrarathne, 2019; Nyikes, 2019; Fekih, 2019; Nijakowska et al., 2020). The studies found that language teachers do not have satisfactory acquaintance and experience to help dyslexic learners in the EFL classrooms. Furthermore, the myths that mislead educators and policy makers when diagnosing dyslexia and/or finding an educational solutions have been aimed to be eliminated. To illustrate, Turner (2003) and Kormos (2008) proved that only the specialist could teach dyslexic learner is a fallacy in their books. However, they proved that the trainings of language teachers support their dyslexic students' language learning process and they also provided lots of ideas and resources.

Finally, assistive technologies for a dyslexia-friendly classroom environment have been examined with the help of digital tools. Game-based learning, e-learning, social networking, computer based multisensory interventions and digital literacies are the research areas that have been studied so far (Barden, 2014; Pfenninger, 2014; Vasalou et al., 2017; Gharaibeh and Dukmak, 2021).

2.11. Dyslexia Research in National Context

The studies in the international literature have a range of theories and practices regarding the association between dyslexia and foreign language attainment. However, this relationship has not been researched in Turkey so far and it has been found that the studies generally focus on the mainstream and special education of Turkish students in their mother language. Also, it is seen that dyslexia is mostly examined by the academics from other academic fields such as psychology or neurology rather than language education. Reading difficulties are the most common topic that has been researched so far when the literature is reviewed.

The current studies has also examined the importance of identifying dyslexia for individuals (Niati, 2012), the practices of international dyslexia associations (Gür, 2013), the international educational programs applied to dyslexic individuals (Balci, 2015), the characteristics and needs of Turkish dyslexic students and the institutions that serve for them (Turkish Dyslexia Foundation, 2015; Balci, 2017), the assessment tools developed for Turkish dyslexic students (Erden et al., 2002), the misconceptions regarding dyslexia and its symptoms (Balci, 2017), the assessment processes of writing skills for dyslexic students in Turkish language (Balci, 2017), the international studies regarding the instructional technologies (Şanal, 2017), the dyslexic and non-dyslexic students and their reading

assessment processes (Beşgöl, 2015), orthographical and phonological differences between Turkish and English languages (Khalilzadeh, 2014) and teacher perspectives (Tatlı et al., 2019).

These studies found in national literature mostly present what Turkish students with dyslexia has experienced while learning to read and write in their mother tongue and/or how their parents and teachers approach to this problem (Balcı, 2017). It is obvious that foreign language education and dyslexia relationship has not been an area of interest in Turkey; in other words, only one study including an intervention to accommodate the language learning process of Turkish dyslexic students exists. Coskun & Mitrani (2020) studied vocabulary teaching strategies for dyslexic students at tertiary level and developed a step-by-step approach to improve knowledge on academic words.

2.12. Dyslexia and Foreign Language Learning

Learning a foreign language is a complicated activity to accomplish and a new language system and its cultural components lead individuals to adopt a new way of thinking (Brown, 2007). It is obvious that a lot of time and effort for a successful learning should be spent in order to be successful. In addition, advancing in a set of language skills brings many complex issues and questions with it. The facilitation of language learning process depends on recognizing these issues in categories. The current language learning and teaching issues involve learner characteristics, teacher characteristics, linguistic factors, learning processes, age and acquisition, methodological approaches, teaching language skills (reading, writing, listening, speaking), learning environments, motivational factors, classroom management, testing and assessment, critical thinking skills (Brown, 2007; Harmer, 2010).

There exists an extensive amount of sub-categories and information related to each topic in the list to make individuals language learning process easier and faster. Apparently, most of the literature focuses on the acquisition of foreign language for individuals without a specific learning difficulty. However, the components of language learning are complex and even harder for dyslexic learners. Brown (2007) stated that language learning is linguistic knowledge and skills retention and it needs cognitive organization, memory and repetition with practices. At this point, dyslexia becomes a huge barrier for learners as they mostly suffer from cognitive skills as mentioned earlier. Therefore, the issues on dyslexia and foreign language learning employ both some similar topics and also some other different topics,

questions and practices to make the learning process better and more efficient. It should be noted that concerns on language teaching process for dyslexics always brings different perspectives though this process involves relatively similar headings. Therefore, fundamental issues that have been studied so far will be summarized with some related key information below:

2.12.1. The Identification of Dyslexia in Foreign Language Classrooms

The use formal testing, screening and diagnosis tools, as well as observations or interviews are the most common types of identification of dyslexia used by teachers, experts and specialists (Tsagari, 2013). The poor phonological awareness at both syllable and word levels are also key indicators to identify dyslexia (Kormos, 2016).

2.12.2. The Cognitive Issues on the Process of Foreign Language Learning

Dyslexia causes the learners' brains to have diverse anatomies and functions from that of non-dyslexic ones and it has neurobiological backgrounds with reference to genetic inheritance and functional characteristics of the central brain network (BDA, 2020). Poor phonological processing, reduced reading experience, under-activated structures of the neural system and short concentration span are the main characteristics of cognitive causes of dyslexia. To explain the brain, its different functional performances and the cognitive causes of dyslexia, the most recognized theories have been presented above. Increased brain activation is one of the most important solutions suggested in the literature to relieve the symptoms (Nijakowska, 2010).

2.12.3. Dyslexia and Affective Factors in Language Learning

Emotional feelings have a great influence on dyslexic language learners (BDA, 2020). During the learning practices in EFL classrooms, their pace of learning gets slowing down and they feel anxious and less motivated (Crombie, 2004). In order to motive these learners, five factors are essentially needed to be integrated in the language teaching process (Daloiso, 2017). Firstly, structured materials to attract learners' attention should be prepared and classroom materials should be appropriate to learners' interests. Also, teacher should reinforce rapport with the use of communicative approach. Moreover, personalized feedback is essential for dyslexic learners as each learner may have different types of difficulty. Finally, avoiding unexpected type of tests to reduce anxiety is beneficial. On the other hand, it is

essential to state that low motivation of dyslexic students may not be the reason for the learning problems during the language acquisition process and affective problems may disappear through the treatment of cognitive-linguistic problems (Pfenninger, 2014).

2.12.4. Multi-Sensory Teaching Methods

Explicit/direct instruction, a guided approach, top-down processes in reading comprehension, the emphasis on communicative competence, assistive learning through technology, vocabulary and grammar teaching with alternative methods, training in learning strategies and frequent repetition with ample practice and revision are the suggested methods in the literature (Nijakowska, 2010; Schneider & Crombie, 2012; Kormos & Smith, 2012).

2.12.5. The Acquisition of Literacy and Reading Models

The evidences show that learners with dyslexia have strains while learning the language systems; predominantly phonological awareness, and the associations between sounds and their symbols. Phonological awareness, grammar skills and the automatization of word use in addition to grasping their meanings are the main factors for the development of spelling skills. The acquaintance with phonological symbols and the knowledge on phoneme and grapheme relations are therefore very difficult for dyslexic individuals. Learning to spell correctly starts with the recognition of rhymes and rhyming words, then converting spoken words into sounds is the next skill attained. After that, converting some representations of phonic structures into writing words should be learned and then writing one syllable sounds and more complex words can be achieved (Reid, 2009).

The theoretical and practical approaches suggest a set of reading models to promote these stages. Researchers recommend bottom up, top down and also connectionist models to ease the reading process of dyslexic learners (Reid, 2009).

2.12.6. Assessing the Dyslexic Learners' Language Skills

Validity, avoiding the lack of bias, impartial treatment, fairness in testing, the careful setting and clear purposes, appropriate testing conditions are the key components of testing and assessment process for the dyslexic learners in the literature (Kormos & Smith, 2012). Also, screening tools, eye tracking, read aloud assistance, assistive technologies, extra time allowance, formatting and layouts of the exams have been investigated under this topic (Tsgari, 2013).

2.12.7. Teacher Training on Dyslexia

The studies indicate that instructional practices to promote inclusive approaches are adopted by teachers who are self-competent as they develop positive beliefs and approaches towards inclusion (Kormos & Nijakowska, 2017). Therefore, it is suggested that teachers' perception of inclusive practices should be supported by effective trainings. Moreover, their knowledge, level of readiness and eagerness for an inclusive class should be increased. EFL teachers should be well educated in terms of theories on language learning and literacy skills, linguistic systems, explicit instructions (Indrarathne, 2019). The current findings confirm that teachers and specialists with low level information and experience is related to improper and/or limited in-service teacher training in the institutions (Lahiouel, 2019). In contrast, sufficient, research-based teacher training sessions can contribute to the boost of the language skills in classrooms with dyslexic learners (Nijakowska et al., 2020).

It should be also noted that the range of publications as to both notional and practical aspects of dyslexia and foreign language learning has been getting wider in the last decade; however, each topic in the list needs to be examined through experimental studies so that a global framework of the teaching and learning principles can be agreed upon.

CHAPTER III

METHODOLOGY

3.1. Introduction

This section provides information on the methodology utilised in this research. It includes a comprehensive explanation on the research steps and processes followed in the study and also the critical analysis of findings to raise awareness about the teaching methods and practices for learners with dyslexia. The main and sub research questions of the study are as follows:

1. Are there any relevant and applicable studies in the international literature that produce implementable methods and practices to teach English as a foreign language to dyslexic language learners in Turkey?
 - 1.1. What dyslexia-friendly teaching approaches and strategies in EFL classrooms in the included studies are proved to be beneficial to the improvement of language acquisition of dyslexic language learners in different skills?
 - 1.2. What EFL classroom activities in the included studies are found to be effective to improve phonological skills of dyslexic learners?
 - 1.3. What types of EFL classroom activities in the included studies are found to be effective to enhance the vocabulary knowledge of language learners with dyslexia?
 - 1.4. What types of EFL classroom activities in the included studies are found to be effective to enhance the grammar skills of language learners with dyslexia?
 - 1.5. What types of EFL classroom activities are found to be effective in the included studies to enhance the four basic language skills (reading, writing, listening and speaking) of language learners with dyslexia?
 - 1.6. Are there any applicable programs or strategies to determine the training needs of EFL teachers in teaching dyslexic students in the included studies?

3.2. Research Method

The present study brings dyslexia and FLL methods together in an effort to examine their effectiveness in Turkish EFL classrooms. The main objective of this study is to answer whether any implementable teaching methods and practices that can be similarly applied to Turkish EFL context exist for language teachers of English. There are no studies that examine the availability and suitability of didactic interventions researched in the literature for Turkish classrooms with dyslexic learners of English. Therefore, the qualitative method was utilised to collect more consistent and comprehensive data for the present study. Also, the critical review method was adopted with a detailed inquiry on the practical educational methods and strategies in the existing literature. To facilitate these issues, inclusion and exclusion criteria have been produced and each item has served as an assessment tool to inspect the existence and assess the usefulness of the classroom practices in the literature. Finally, recommendations and future implications on the educational practices included in the studies have been presented with the intention of raising awareness of language teachers and offering applicable solutions for the EFL classrooms.

During the course of preparing this review, the first step was to select key words and search for the literature broadly. At this initial stage, the only criterion for selection was that the studies have been published between the years 2010-2021 and also investigates the relationship between dyslexia and foreign or second language teaching and learning environments. Therefore, any other inclusion criteria were not submitted to further consideration at this step. Consequently, this process provided more than a hundred studies related to the relationship between dyslexia and foreign language learning.

After this process, the titles and abstracts obtained were deeply analysed and it was found that considerable amount of the literature related to this research consisted of theoretical knowledge rather than the practical applications and their effects. However, the aim of this study is not to report theories or opinions where there is no educational practice or evidence; instead, it is desired to represent the best evidences to set attainable educational standards and practices for EFL in Turkey and to give the readers a full understanding of how these practices could be applied in their educational settings. A research plan was also established as follows:

1. Criteria for inclusion and exclusion of the studies should be developed carefully and effectively.

2. The titles need to encompass one inclusion criterion minimum.
3. The titles do not have any of the exclusion criteria.
4. Abstracts should focus on short or long-term practical instructional approaches.
5. Full-text reading should be completed.
6. Citation chaining needs to be applied in order to extend the scope of the study.

Completing these steps, the findings of the studies were schematized and documented. After that, themes emerging from the included studies were analysed deeply. Finally the findings were discussed.

3.3. Inclusion and Exclusion Criteria

A critical review is an outstanding method to synthesize the research outcomes in order to prove evidence and to reveal new topics, which needs more exploration. In this way, theoretical frameworks and conceptual models with principal conclusions can be constructed (Snyder, 2019). The reader should know the central focus and evidence that these conclusions rest on. It is therefore obvious that a review study should have some specific investigation area in order to design high-quality research. Therefore, the descriptions of the inclusion and exclusion process during studying on a review have to be clear and accurate enough to be replicated and obtain effective results. Although inclusion and exclusion criteria are unique in each study in terms of its purposes, they typically involve some similar categories such as population, nature of the intervention, variables on results, time, cultural and linguistic range and the research quality (Meline, 2016). In this regard, it is suggested that inclusion criteria should typically include demographic, experimental, and geographic characteristics. It is a standard and necessary protocol before the process of identifying, classifying, locating, and retrieving of information begins (Meline, 2016).

The essential steps for the reviewers are not only outlining the appropriate inclusion and exclusion criteria but also estimating to what extent they will impact on the results of the study (Patino and Ferreira, 2018). Therefore, it is suggested that the selection step of inclusion and exclusion criteria should rationally come after the review question formation and it should be straightforward because risky or irrelevant data in research could eventually result in an unfavourable outcome for the review. They could also bias the results or raise the amount of the risks for argumentative results. Thus, they should be omitted to make the review more clear, replicable and reliable (Snyder, 2019).

To fulfil these characteristics of a successful review, essential components of an effective educational program in the EFL context were taken into consideration by consulting prominent sources published in the literature and using self-teaching experiences so that the criteria can eliminate the subjectivity and the arbitrariness of the selected studies. Furthermore, these criteria were designed with the aim of finding published sources that would be pertinent to Turkish EFL classroom teaching context. As a result, a set of criteria was generated to exclude papers that would not be generalizable to this environment.

3.3.1. Evidence-based Practices for EFL classrooms

Some limitations exist when describing inclusion and exclusion criteria as two different fields (dyslexia and foreign language teaching) are connected in this study. As dyslexia and foreign language teaching relationship has been a recent research area, there is a shortage of relevant studies that address the purpose of the review. The studies that focus on educational interventions or approaches are scarce. On the other hand, the main purpose of this review is to find out whether there are appropriate and relevant educational approaches, methods and activities applicable to the EFL classroom settings from the level of primary to tertiary education in Turkey. In this respect, evidence-based or recommended adaptations which are likely to be generalized to and used in Turkish EFL teaching have been adopted in the study.

3.3.2. The Comparison of Different Orthographies

The learning and teaching of the English language to dyslexic people is the scope of this study, so genetic classifications and contacts between the Turkish and English languages should also be studied. Nostraticists and Eurasians have been claiming that the linguistic structures of Turkish originally resembles to the Indo-European language family, and structurally involves many similar aspects of flexional languages such as English, Latin, and Greek (Uzun, 2019). Nevertheless, studies demonstrate that differences within the nature of these two languages play more important role in challenging the learning process. For example, the Turkish language and its orthography are totally different from that of the English language. The two languages have different sound-letter representations in their orthographies, namely called “orthographic interference” and the lack of phonemic awareness brings extraordinary challenges for teachers and learners of the English language (Bayraktaroğlu, 2008). When these complexities between Turkish and English languages are

taken into consideration, inclusion and exclusion processes of educational adaptations of other language pairs studied in the relevant literature may not be manageable. Therefore, as long as the foreign language that is aimed to teach in the studies is English, the typological and structural features of the L1 comparisons have been ignored in the selection procedure to include a variety of educational interventions.

3.3.3. Second/Foreign Language Context

As is stated, the inclusion of linguistic differences between the language pairs analysed in the literature may cause unfavourable outcomes, only the studies directed at the English language teaching as a second or foreign language in a classroom setting have been included and studies in which English is the mother tongue or an official language of a country have been excluded. In Turkey, English is mostly learned and used in the classroom setting. In this regard, the studies focusing on mainstream language education and dyslexia in countries such as England, America or Canada are not expected to provide data for this study. Besides that, the demographic and educational characteristics of Turkish students have been taken into account because most of the students and teachers are non-native speakers of English in Turkey. Therefore, the studies in which native English teachers deal with the language problems of native English language students have been removed from the study. Also, there are studies researching immigrants in the countries such as Canada where English is one of the official languages. They have been excluded from this review.

3.3.4. The Complexity of Definitions on Dyslexia

To provide a bigger picture on the educational approaches and interventions of dyslexia in EFL classes, it is necessary to reach a compromise on the theoretical knowledge (Kormos, 2017). However, the definitions of dyslexia have long been problematic to explain this phenomenon. The definitional problem is a big challenge to be confronted. The past discussions on the complexity of dyslexia demonstrate that there might be a various range of dyslexia and it reveals that it might be connected to ‘a family of disabilities’ (Snowling, 2020). Also, “Specific Language Learning Disabilities” is generally used as an umbrella term in the sources to prove the link between dyslexia and other members of learning difficulties in this family (Nijakowska, 2010). While analysing these sources, it seems really useful to gain in-depth knowledge not only on dyslexia but also on other members of learning difficulties such as dyscalculia and dyspraxia or ADHD. However, a huge amount of definitions and

symptoms given together makes it difficult to understand what exactly dyslexia is and which concrete methods should be applied in language classes. In this respect, Snowling (2020) states that central difficulties experienced in dyslexia are generally decoding and spelling. Therefore, it is highly significant in this study that our recognition of dyslexia is only accompanied with developmental dyslexia and the framework of learning to read and write.

3.3.5. Research Methods in the Studies

The next consideration when selecting the studies is assessing all methodologies used in them. The studies that address the relationship between dyslexia and foreign language learning have a variety of methods selected. They apply both quantitative and qualitative methods and these have been documented in Table 1.

3.3.6. Different Writing Systems

Another methodological issue is that writing systems creates linguistic problems for English language learners whose L1 does not have an alphabetical system. It is highly possible that educational implementations will differ meaningfully when dyslexic learners of English lack of alphabetical system in their L1. Therefore, in the current study, the literature on dyslexics without alphabetic L1 background (the research on Chinese or Japanese learners) has been excluded.

3.3.7. The Language Limitations for the Researcher

The language barrier limited the author to find relevant studies because they were written in languages that the researcher does not know. In addition, the translation of these studies would be unreliable and ineffective for the analysis of findings. Therefore, the studies published in other languages except for English and Turkish have been excluded.

3.4. Data Collection Procedure

In the current research, three-stage examination on the literature was adopted after establishing the criteria. These stages are title analysis, abstract analysis and full-text analysis respectively. To fulfil this process entirely, key search terms identification, database search and citation chaining were the prominent methods applied to retrieve information.

According to Gay et al. (2012), the key words selected will bring the success of the research and allow the researcher to get a picture of the topic in the broader context. In this respect, key search terms that might increase the number of studies were initially identified in order to include as many applicable and relevant studies as possible. The identification of these words and phrases was complicated because the definitions and principles of dyslexia and English language teaching/learning have been given in many different ways. For example, some researchers agreed upon that a dyslexic learner should be called as “poor readers and spellers”; some others preferred dyslexia to be defined as a “reading disability” or “reading and writing disorder”. The problem is that there are no clear boundaries or consensus among the scientific papers.

Another problem is that dyslexia is defined with the help of interdisciplinary fields such as cognitive psychology, neuroscience and biology. Many researchers define it from their own study focus. Therefore, it was necessary to use most accepted and common phrases. In this respect, the key words were scanned through the official websites of institutions such as British or American Dyslexia Associations that have established standard definitions. Their definitions helped to set a clear identification process for the possible key terms to be selected.

After examining these definitions from all official sources, it has been palpable that dyslexia is an umbrella term that also involves the other terms in itself. As a result, the researcher has used only “Dyslexia” for data search not to obtain any misinformation. However, the only exemption was applied to the study when the researcher found a relevant study where different definitions of dyslexia exist, but still meets the inclusion criteria that the study had educational practices that might be a useful source of intervention for language educators.

Another stage is to select the key phrases for English language learning and teaching. Foreign language teaching is not the only term used to express the basic components of an educational program for language learning because of the contextual settings or the individuals’ positions in a classroom. This disparity led the publications to use alternative terms such as second language learning, second language acquisition, foreign language teaching, foreign language learning, learning English as a foreign or second language, teaching English as a foreign or second language. The key terms connections used in this study have been presented in Figure 1 below:

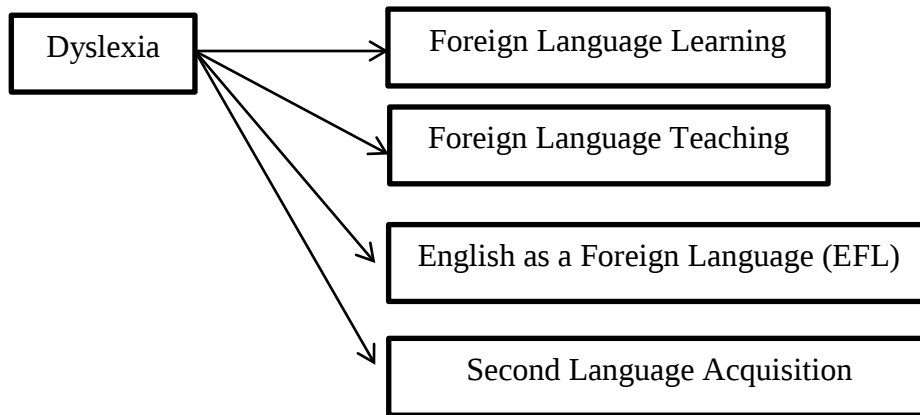


Figure 3.1 Key word combinations for the data search

These combinations were also translated in Turkish to find more relevant studies and the key terms were similarly used for data search in Turkish literature. All the search steps followed in English were also carried out during this procedure.

3.5. Data Collection Instruments

The interactive database sources such as educational handbooks, journals and annual reviews found in online libraries were identified to gather information. The database search of Akdeniz University and Ankara Yıldırım Beyazıt University and Google Scholar provided the relevant databases on the subject. Many prominent publications especially in journals were found and also other relevant databases were identified. ERIC, Education Full Text (EBSCO), SAGE Journals, Elsevier, Springer, ScienceDirect, EBSCO Host JSTOR, Taylor and Francis Online, Oxford Journals, PubMed, Wiley Online Library, ResearchGate, Sage Journals, Semantic Scholar were also benefited from during data collection.

A systematic search with the key terms both in English and Turkish was applied to all of these databases. The identification process of the relevant studies was carried out until May, 2021. Once a relevant article was found, citation chaining was initiated to check whether there exist other studies for further headings. The cited references, website links and the name of the authors were scanned in databases as well. This method made a broad range of sources available. The list of references or footnotes found in journals, books, dissertations, online courses, websites and other studies of the same authors were analysed and documented carefully. After this, the similar inclusion and exclusion criteria submission to each of the study was conducted again.

3.6. Data Analysis

The study adopted three-stage analysis of the relevant literature. These stages are presented with detailed information as follows:

3.6.1. Title Analysis

The titles of studies obtained were separately examined to judge whether they aligned with the most important inclusion criterion which is the presence of an educational intervention in the study. When the title gave signals for this criterion, it was saved for the abstract search stage. Nevertheless, some titles did not point this explicitly. As a result, when the title included at least one inclusion criterion and did not have any of the exclusion criteria, it was also analysed with the abstract and considered as a relevant study.

3.6.2. Abstract Analysis

At this stage, abstracts were judged in terms of their relevancy. This ensured that the research met all the inclusion or exclusion criteria so that it could be saved for further analysis. Moreover, it gave a picture of the participants and the methods applied by the researchers. Therefore, it was possible to judge whether the study was practical to be included in the review. At this stage, the most important concern was to find that all inclusion criteria were involved in the study. However, any exclusion criteria in the abstract confirmed that the article should be eliminated.

3.6.3. Full-Text Analysis

The final stage of the research method was to examine the relevant documents thoroughly. During this process, the participants, methods, procedures and the results of the selected studies were gathered for the critical review process to assess the applicability of educational practices for Turkish EFL classes with dyslexic learners. A detailed summary of each study was documented and the information retrieved was carefully analysed in the light of EFL teaching principles. All the issues were thematically refrained from the studies and presented in Finding Section.

3.6.4. Analysis of Included Studies

The analysis of the studies included has several stages in this study. Firstly, the methodology of each study has been examined and documented in four categories to provide a map of characterization of the research. Secondly, the themes of each research have been found and classified as main and sub-themes. The thematic analysis of the studies was aimed to show the patterns of the language activities. Thirdly, the findings of the studies were examined meticulously. Then, all language practices under the related theme were listed.

3.6.5. The Issues of Generalizability and Bias

It is aimed that this study can be applied to wider population especially in Turkish EFL classrooms, but it might be the case that the findings include some potential risks of generalizability and bias for several reasons.

First of all, the review is based on eighteen studies that were found to be applicable. The number of the included studies has a potential risk for generalizability as the educational interventions or approaches are scarce.

Furthermore, the search method of studies is one of the most important issues of bias. Because of the negative conditions during the pandemic period, online sources were mostly benefited to search the literature. The unavailability of some sources on online platforms may be a potential risk in this review.

Another issue is that the evaluation of the findings is biased towards studies published in some languages that the researcher is not able to translate. The exclusion of research that was published in an unknown language could have been evaluated; however, the researcher avoided the risk of translation. Therefore, it causes bias on criteria selection.

CHAPTER IV

FINDINGS

4.1. Introduction

In this chapter, the analysis of the data gathered from the previous studies that were carried on the subject will be presented. The key terms and the reference chain in the process of literature search provided many titles published in English for further investigation. In the course of analysis and critique process, the emerging themes, the existence of practices that might be applied to Turkish EFL classes, the results and suggestions for educators to improve the language acquisition of dyslexic individuals, the teaching methods of language skills, the language teaching programs applied to dyslexic individuals in research, the measurement and evaluation tools used to observe the language skills of dyslexics, the learning strategies and the restrictions and challenges of the educational practices were thematically analysed and presented.

This analysis was performed according to the process that Wasser and Bresler (1996) defined as the "interpretive zone". This procedure suggested that researcher's individual perspectives, knowledge and experiences be integrated in the process of reviews. In this regard, a critical perspective approach was adopted to analyse and assess the experimental results found in the publications and the generalizability issues.

4.2. An Overview on Included Studies

The inclusion of the studies for the analysis was conducted through a step-by-step search described in the previous chapter. After completing the last analysis (the full text analysis), fifteen articles and three theses for inclusion were found to be eligible. The analysis of the eighteen studies in total was firstly staged in four methodological aspects (methods, data collection instruments, the baseline characteristics of participants) and then, the main themes emerging from them was examined and discussed.

The included studies have used both qualitative and quantitative methods. There are only two studies that use both quantitative and qualitative methods. Quantitative methods have been used more than the qualitative ones. The two studies that used the mixed method are based on an intervention program and interviews with the participants.

The designs utilized in the studies have purposefully been selected as longitudinal and experimental case studies or action research; however, each study has a different aspect in its design. Multisensory Structured Learning (MSL) activities have been mostly integrated in the design of the studies included.

There exist many instruments to collect data in the studies. Proficiency tests, questionnaires, phonological awareness tests, interviews, specially designed curricula, lesson observations, electronic devices, specially designed computer programs, online distance education platforms, paper based lesson materials, test batteries to assess cognitive skills, reading abilities and orthographic knowledge of the students are mostly used instruments in the studies included.

The focuses of these studies are different from each other in terms of their participants. Most of the studies employ elementary and secondary level students aged between 8 and 12. There are three studies with teenager participants and also three studies with adults. Only two studies focus on teachers. One of them aims to train the teachers and the other focuses on teachers' perceptions and observations.

As mentioned above, all the settings of these studies provide second or foreign language education context where English is not the mother tongue or an official language of a country. The studies focusing on language education and dyslexia in countries such as England, America or Canada have been excluded although they provide some educational practices (Barden, 2014; Giusto, 2018).

4.3. The Analysis of Methodology

The methodological components in each study have been presented in Table 1 in four categories; namely, methods, designs, instruments and participants to provide an overall picture for further studies. These are as follows:

	METHODS	DESIGN	INSTRUMENTS	PARTICIPANTS
Pffenninger, 2014	Quantitative	An action research	Lesikus (The computer-based learning software), five English proficiency procedures and a motivation questionnaire	40 elementary school students in Switzerland (9-11 years of age)
Jamaludin et al., 2015	Quantitative	A quasi-experimental research design	Phonological Awareness Literacy Screening for Preschool (PALS Pre-K) and Grades 1 to 3 (PALS 1-3), a semi-structured interview, the Jolly Phonics module and the curriculum by the MOEM (2003)	896 upper primary school students in Malaysia (11-12 years of age)
D'Este & Ludbrook, 2015	Qualitative	An instructional design with pre-course agreement and teacher training	An interview, computer-based test and the records of lessons	Two students at their 20s at a language course in Italy
Trckova, 2015	Qualitative	An action research based on the intervention designed by the researcher	A structured interview, an observation sheet for the lessons and a curriculum for intervention	Two primary school students in the Czech Republic (8-12 years of age)
Libera, 2016	Qualitative	A case study	Interviews, the Personalized Didactic Plan (PDP), a logbook, photocopies and paper materials and a laptop or iPad	Two students at a lower secondary school in Italy (11-12 years of age)
Kormos & Nijakowska, 2017	Quantitative	A principal component analysis of the attitude, self-efficacy and concern-related items	MOOC platform, pre and post course questionnaires and Teacher Efficacy for Inclusive Practices (TEIP) scale	18,860 enrolled teachers from different countries
Kaldonek-Crnjakovic, 2019	A mixed method	A longitudinal case study	The Multisensory Structured Learning activities	Two male students at different ages (10 and 21) in Croatia
Mohamadzadeh et al., 2020	Quantitative	A multiple-case study	Multisensory phonics instruction, pre and post tests	Five Iranian Persian-speaking students (9-12 years of age)
Reraki, 2020	Qualitative	An exploratory case study design	Classroom observations, focus groups, teacher and pupil interviews, reviews of the pupils' assessment tools and the diary of the researcher	Greek students in three different primary schools in Greece
Michalkova, 2020	Qualitative	An exploratory case study design	Interviews, classroom observations, questionnaires, special worksheets, graded books for reading	Three primary school students in the Czech Republic (14-15 years of age)
Romero, 2020	Qualitative	A reflective process with multisensory activities	Classroom observations, multisensory activities, informal interviews, checklist referral	10 teenage students at a public school in Colombia (14-16 years of age)

	METHODS	DESIGN	INSTRUMENTS	PARTICIPANTS
Tribushinina et al., 2021	Quantitative	A contrastive (cross-linguistic) explicit approach and ‘Begrijpend Spellen in het Engels’ method	Lesson handouts, games and the Orthographic Knowledge Test	40 teenage students at a secondary school in the Netherlands (12-14 years of age)
Coskun & Mitrani, 2020	Quantitative	An exploratory case study design based on The Dick and Carey Model	Game-based learning with semi-structured interviews, word cards, flashcards, words formation game chart	A 35-year-old dyslexic student at tertiary level in Turkey
Ghoneim & Elghotmy, 2021	A mixed method	A sequential exploratory descriptive mixed-method design based on VAKT approach	VAKT based program and interviews	40 fifth grade primary stage dyslexic pupils and their teachers in Egypt
Gharaibeh & Dukmak, 2021	Quantitative	An experimental pre-post design	A computer-based multisensory program and a pre-post-test to assess the reading ability	60 fourth-grade students in UAE (9-10 years of age)
Rabia & Salfety, 2021	Quantitative	An instructional design to examine the theory of cognitive retroactive transfer (CRT)	A background questionnaire, Raven and Court’s (1976) matrix test, four screening tests and lesson materials	180 sixth-grade Arabic pupils
Kralova & Soradova, 2021	Quantitative	An experimental action research with the non-probability sampling/ purposive sample	Dictation and reading tests, lesson plans with the Phonics Method instructions	40 primary school students in Slovakia (11-12 years of age)
Kaldonek-Crnjakovic, 2021	Quantitative	A longitudinal multiple case study	TEST-VOC, TEST-SPEL and “the Criteria for Metalinguistic Processing” developed by Schneider (1999)	Two male EFL learners in Croatia (10-11 years of age)

Table 4.1 A summary of methodology in the studies included

4.4. The Thematic Analysis of Findings

The eighteen studies in total were examined to find two types of information. The first one is the examination of main themes emerging from the educational practices in the studies. In this regard, a total of five main themes have been found out: (1) teaching tools, (2) affective factors, (3) language teaching approaches, (4) training of language teachers and (5) testing and assessment. It has been found that most of the research examined the accommodations and differentiations on teaching methods for dyslexic learners. There are twelve studies to present language teaching approaches and methods. Another common theme

that has been studied is the use of educational tools during the interventions. Only one article researched the testing and assessment process of dyslexic learners through the use of educational accommodations at the same time. Also, there exists only one longitudinal study that trained language teachers to provide them awareness and knowledge on dyslexia. All the studies included and their main themes have been presented in Table 2:

	Accommodations	Affective Factors	Approaches	Teacher Training
Pfenninger, 2014		X		
Jamaludin et al., 2015			X	
D'Este & Ludbrook, 2015			X	
Trckova, 2015			X	
Libera, 2016			X	
Kormos & Nijakowska, 2017				X
Kaldonek-Crnjakovic, 2019			X	
Mohamadzadeh et al., 2020			X	
Reraki, 2020	X			
Michalkova, 2020	X			
Romero, 2020			X	
Tribushinina et al., 2021			X	
Coskun & Mitrani, 2020			X	
Ghoneim & Elghotmy, 2021			X	
Gharaibeh & Dukmak, 2021	X			
Rabia & Salfety, 2021			X	
Kralova & Soradova, 2021			X	
Kaldonek-Crnjakovic, 2021		X	X	

Table 4.2 The main themes emerging from the studies included

The included studies were analysed again in order to find the sub-themes after the exploration of the main themes. This stage is important because all the interventions in the studies had supplementary educational components to teach English to dyslexic students. For example, while Pfenninger (2014) investigated the relationship between the motivational and cognitive factors of dyslexic students in the study, he also supplemented the process with specifically designed computer software to perform the language practices. Therefore, it is crucial to integrate sub-components in each study in concurrence with the main factors in

order to adapt our language practices to our classrooms. Table 3 provides all the details related to the main and sub themes with the summary of theoretical knowledge and the list of practical materials or activities.

	Accommodations	Affective Factors	Approaches/ Methods	Teacher Training
Pffenninger, 2014	The use of computer software	Motivation, autonomy, metacognition		
Jamaludin et al., 2015			Synthetic phonics instruction	
D’Este & Ludbrook, 2015	A learning agreement and protocol on teaching and learning			
Trckova, 2015	Songs, rhymes, reading texts, vocabulary games		The eclectic and learner-centred approaches/ Multisensory Structured Learning and Total Physical Response	
Libera, 2015	Exercises regarding sound and spelling rules and orthographic awareness		Multisensory Structured Learning	
Kormos & Nijakowska, 2017				English language teachers' confidence, beliefs and attitudes to practices with dyslexic students
Kaldonek-Crnjakovic, 2019	Structured and explicit vocabulary activities	The age of dyslexic students	Multisensory Structured Learning	
Mohamadzadeh et al., 2020	Activities on letter and sound knowledge and phonemic awareness		Eclectic approach with a multisensory phonics instruction	
Reraki, 2020	Dyslexia-friendly practices		Critical Realism	
Michalkova, 2020	Graded readers in special colours and fonts			
Romero, 2020	Five sets of activities		Multisensory Structured Learning	
Tribushinina et al., 2021	Activities based on a contrastive approach to teach spelling		Spelling Comprehension Method	

	Accommodations	Affective Factors	Approaches/ Methods	Teacher Training
Coskun & Mitrani, 2020	Vocabulary acquisition		The Dick and Carey Model	
Ghoneim & Elghotmy, 2021	A VAKT based program activities and materials		VAKT Phonics Instruction and MSL for reading skills	
Gharaibeh & Dukmak, 2021	A computer based multisensory program			
Rabia & Salfety, 2021	Language activities designed for both L1 and L2		The theory of cognitive retroactive transfer (CRT) of language skills.	
Kralova & Soradova, 2021	Songs, rhymes and tongue twisters		The Phonics Method	
Kaldonek-Crnjakovic, 2021	Vocabulary and spelling practices	Multilingualistic Awareness	The multisensory approach structured explicitly	

Table 4.3 The summary of themes in the studies included.

The examination of the themes indicates that Multisensory Structured Learning approach is the most common field of enquiry in the studies (Trckova, 2015; Libera, 2015; Kaldonek-Crnjakovic, 2019). Other approaches used in classroom activities are The Phonics Instruction (Jamaludin et al., 2015; Mohamadzadeh et al., 2020; Ghoneim & Elghotmy, 2021; Kralova & Soradova, 2021) , Total Physical Response (Trckova, 2015), Critical Realism (Reraki, 2020), Spelling Comprehension in English Method (Tribushinina et al., 2021), VAKT (Ghoneim & Elghotmy, 2021), The Dick and Carey Model and language activities based on games (Coşkun & Mitrani, 2020), Cognitive Retroactive Transfer (CRT) Theory (Rabia & Salfety, 2021).

It has been found that technological tools especially computer software, audio books, recorders and voice synthesizers took part in three studies (D'Este & Ludbrook, 2015; Gharaibeh & Dukmak, 2021). Another important finding is that there are only three studies investigating the affective factors of dyslexic language learners (Pfenninger, 2014; Kaldonek-Crnjakovic, 2019; Kaldonek-Crnjakovic, 2019). These studies examined the motivation, autonomy, the age and metalinguistic awareness of learners. It is also significant to note that academic publications focusing on teacher training practices are rare as an area of interest. Although there are many publications on the language teachers of dyslexic learners, they do not meet the inclusion criteria "Evidence-based Practices for EFL classrooms".

The final important point is that there are two studies examining the relationship between the mother languages (L1) and foreign languages (L2) of dyslexic students (Rabia & Salfety, 2021; Mohamadzadeh et al., 2020).

In light of these themes, the principles of the interventions and implemented language activities will be presented in the next section and these thematic results and activities will be discussed in terms of their applicability and didactic consequences for Turkish EFL classrooms.

4.5. The Results for the Themes Found

In this section, the themes will be explained and a list of educational practices gathered from the studies will be provided in order to indicate the applicable language activities for EFL classes with dyslexic students.

4.5.1. Accommodations

Reraki (2020) carried out an extensive research on dyslexia-friendly practices in different school contexts. The study revealed that differentiated practices helped the dyslexic learners to increase their participation in language activities although their difficulties in particular areas prevented these learners from improving some of the language skills. Additionally, the language teachers improved their relationships with dyslexic students during the activities in the classrooms. These language accommodations to support the dyslexic learners can be listed as follows:

- Group works
- Giving slow paced explanations
- Allowing more time
- Providing a "study buddy" for peer cooperation
- Picture description
- Eliciting information
- Cumulative teaching
- Repetition drills
- Giving frequent feedback
- Using different coloured chalks
- Dictation
- Using big font letters
- Small chunks of vocabulary
- Focusing on specific letters

- Using images and interactive activities
- Group writing
- Paired dictation
- Slow dictation pace
- Discussions on subjects
- Relaxing background music
- Vocabulary games
- Highlighters
- Flashcards
- Photocopies
- Songs with missing words to teach comparatives
- Assessing prior knowledge
- Short movies

Michalkova (2020) examined to what extent the reading strategies such as using some specific colours and/or fonts in graded readers can be beneficial in spelling or to what extent giving some information before the reading activity, the use of pictures, highlighting unknown words, simultaneous listening and reading and matching halves of the sentences as a pre-reading activity can be useful in reading for dyslexic students. The study revealed that blue and yellow were chosen as the most helpful colours by the participants. The most useful fonts marked are Arial, Open Dyslexic 3 and OpenDyslexic. The students told that these fonts make their reading activity easier. Furthermore, the most helpful methods for these students are silent reading together with the simultaneous listening of the text audios and the presence of pictures. The graded readers are the language materials in the study.

Gharaibeh & Dukmak (2021) found that a specifically designed Multi-Sensory Program (MSP) improved the reading skills of dyslexic students in the fourth-grade EFL class. The study is important because it shows that using a computer-based program with multi-media tools developed reading skills and the visual, auditory, kinaesthetic, and tactile intelligences of the students. The targeted vocabulary to be taught was retrieved from English reading textbooks that were used in the class of participants. Language activities designed for dyslexic students are as follows:

- Students read the target word.

- They start to type the word with the use of keyboard.
- The word written by the student is read and the computer records it.
- Students have the chance to listen to their own voices until they read it correctly.

4.5.2. Affective Factors

Pfenninger (2014) examined the relationship between motivation and L3 improvements of dyslexic students through an intervention program with computer software. The study revealed that if metalinguistic strategies are used more in the lessons, dyslexic learners can improve the skills of vocabulary and phoneme deletion. Pfenninger (2014) also found that low motivation of dyslexic students may not be the reason for their learning problems during the language acquisition process and affective problems may disappear through the treatment of cognitive-linguistic problems.

The computer-based learning software (CLS) called Lesikus has some principles that indicate didactic consequences:

- The explicit phonology teaching, the presentation of spelling and sound relationships and morphology training are the main focal points of language activities.
- Colouring individual phonemes and morphemes and separating words into coloured syllables are helpful for dyslexic learners.
- A structured and step-by-step process of language teaching is adopted in the study. Starting from simple exercises can enable dyslexic students move toward more complicated ones.
- Feedback is immediately provided for specific skills.
- The program is designed for an individual study.
- The choice of exercises at any desired speed is allowed.
- Interactive and success-oriented activities are appealing and stimulating for dyslexic students.
- Using a computer to take notes and accomplish writing tasks is very helpful for students with poor handwriting.
- The designed program provides self-directed learning in terms of metacognitive skills. In other words, planning, self- monitoring, self-correction and evaluating their learning are possible for dyslexic students.

4.5.3. Approaches/ Methods

D'Este and Ludbrook (2015) explored the effectiveness of an inclusive language study programme in their study. The results indicated that participants in this research demonstrated dissimilar behaviour patterns, although they had equivalent dyslexia profiles. They also had different scores in their test results. It was claimed that dyslexia-based deficits such as personal motivation, lack of concentration, non-involvement and attention deficit may play an essential role in the students' language attainment. The study recruited an access protocol for the language courses. The language learning protocol in the study is made up of five main stages and related purposes:

1. An initial evaluation meeting is carried out to
 - collect background information about the student in terms of their learning styles, needs and priorities
 - analyse the students' current situations before the admission to the course and the design of the course and the evaluation process
2. The definitions of possible special accommodations and compensatory instruments are documented to
 - define the responsibilities of the teacher and students
 - foster the student motivation and give the control of their own language learning
 - promote the co-operative approach
3. The definition and/or creation of tailored for individual learning material is made to,
 - promote the independence of students
4. The definition of possible exemptions is framed to
 - avoid the difficulties that dyslexia cause for the students
5. Drawing up the learning agreement is important to
 - outline the best learning circumstances presented to the students to accomplish their goals

The suggested educational practices in the study can be listed as below:

- Students record their lessons in preference to taking notes.
- They do written exercises at home. After that, they submit them to teachers through e-mails.

- They are not compelled to show their speaking performances in front of their peers during the classroom lessons.
- They meet the teacher on a regular basis to verify progresses and difficulties they experience.
- They are permitted to leave the classroom during lessons to take breaks.
- Teacher introduces theoretical maps and multisensory materials such as individual reading tasks.
- Vocabulary teaching through exercises is offered through a layout with large and clear fonts.

The evaluation of grammar, vocabulary, reading and listening skills is carried out through a computer-based test. It comprises multiple choice, true-false or gap-filling questions. The layout of the examination can be adjusted and fonts can be altered. Also, a written task and an oral interview are performed by the students. Online delivery of the test, electronic dictionaries, voice synthesis, extra time and spell-check functions are allowed during the exams.

Another included study focusing on accommodations in an EFL classroom is on vocabulary teaching/learning. Coşkun and Mitrani (2020) explored a specific vocabulary learning method engaging game-based tasks for a dyslexic participant in their study. The object of the training was to improve the learner's vocabulary skills with a special program based on the principles offered by The Dick and Carey System Approach. The result of the study showed that The Dick and Carey instructional system provides effective practices to increase the vocabulary knowledge of dyslexic learners.

There are some educational principles and activities based on the Dick and Carey Instructional Method as follows:

- Learner analysis is a vital factor to design a direct instruction in line with the needs of the learners. The learners' prior and current knowledge, attitudes toward learning English, language proficiency level and educational abilities should be examined.
- A wordlist with 50 new words is prepared every week. After 26 or 28 weeks, students are expected to learn about 1040-1120 words through direct instruction.
- The definitions along with the synonyms, antonyms and other forms of the words should be provided in the same wordlist. Furthermore, sufficient examples for each

word should be presented. At the end of each week, a weekly achievement test is arranged to assess the knowledge of learners.

- Working on word-level reading, 'Opendyslexic' fonts, different colours and cards in which the target words are written in big forms are benefited.
- Matching the words with the definitions can be performed with the use of flashcards, visuals, mnemonics and stories.

Other useful activities are as follows:

- Matching words with their synonym and antonyms
- Identification of synonyms or antonyms categories of the target word
- Naming the synonym/antonym
- Identifying the correct word formation with the use of incomplete sentences
- Using the correct form of the words to fill the blanks
- Identifying the sentence in terms of its components such as nouns, main verbs and objects
- Recognizing the words in diverse forms
- Word formation game chart

Reading skills of dyslexic students were also examined in the included studies. Jamaludin et al. (2015) investigated the development of decoding and comprehension abilities of EFL students with dyslexia through the application of "Synthetic Phonics Instruction". It was found that the experimental group had higher scores in the exams. Five tasks, namely writing names, recognizing the alphabet and rhymes, combining individual phonemes, sounds and words are employed to test the learners. The didactic consequences of the study are as follows:

- Synthetic phonics teaching is applied to the experimental group (The Jolly Phonics modules have been benefited).
- The control group has traditional language instructions with reading activities.
- The groups are divided in different places to reduce the interaction between them.
- The researchers meticulously observed the groups and gave feedback to them during the research.
- Both groups were evaluated again in a post-test.

The enquiry on the phonics instruction has also been the main focus in another study included. Libera (2016) administered an intervention with fourteen sets of activities to examine the development of phonemic knowledge of students. The results of the study indicated a great progress in participants. The principles and implemented activities are as follows:

- The first part of each lesson is comprised of spelling activities on vowel and consonants sounds and the division of syllables. And then, exercises such as finding the missing vowels, blending consonants, combining vowels, prefixes and suffixes, forming compound words, identifying rhyming words, dividing sentences into smaller units and classifying syllables are completed in order to improve phonological-orthographic awareness.
- Magnetic letters for repeating the alphabet can be used.
- YouTube videos, interactive games and “Alphabetics” (an application to practice sounds) are used.
- During the use of iPad, the graphic-stylistic screen should be adapted for dyslexic students.

The set of activities designed is divided into two groups: Tasks to do during the course and tasks to do at home. Both groups will be listed in accordance with their order during the intervention:

- The fact that English is a different language from Italian is introduced to the students with culture notes in an activity. The materials used are magnetic letters.
- Learning short vowel sounds are fostered with personal phonics cards and sounds-letters training. Magnetic letters, iPad and flashcards are materials used.
- The consonants should be used adding a vowel to create letter combinations. And then students should read and spell those (Home activities).
- The missing vowels are filled in to make real words so that students recognize the structures of target words. The materials used are iPad, magnetic letters and pen and paper.
- Creating new words checking the dictionary or online sources is the homework.
- Some specific sounds such as ‘ch’, ‘sh’, ‘ntch’, ‘k’, and ‘tch’ are introduced in the lesson because they have specific sound characteristics. iPad, flashcards, magnetic letters, pen and paper are used.

- Searching a text for the words which contain the preceding sounds is the homework.
- The beginning and ending consonant blends are taught to help students to discriminate the distinct consonant sounds and to create existing words. iPad, flashcards and pen and paper are used.
- Finding more related words is the homework.
- Completing incomplete words, selecting the right sounds to identify the sounds and orthographic form are performed with the aid of voice recorder, iPad, flashcards and pen and paper.
- Writing ten new sentences as in the preceding exercise is the homework.
- Distinguishing the combinations of letters in some words and dividing words into their units are performed with the aid of iPad and flashcards.
- A total of twenty new words should be found and their pronunciations should be recorded, then the phonological transcriptions should be written and lastly two sentences with some of the word should be formed (Home activities).
- Splitting words to recognize suffixes or prefixes is performed with the aid of iPad, flashcards, pen and paper.
- Adding prefixes and suffixes to the words and creating new sentences with these words is the homework.
- Finding ten compound words, then transcribing their phonetic forms as well as to write a sentence for each term with their recordings is the homework.
- Writing poetry using rhyming words is assigned.
- Creating a spelling list through dictation is assigned.
- The orthographical forms and the phonological transcriptions should be analysed while writing two new sentences (Home activities).
- Composing sentences with the magnetic letters are performed to write word units. iPad, flashcards, pen and paper, small blocks are used.
- A total of ten new words should be found and their pronunciations should be recorded, then the phonological transcriptions should be written and lastly two sentences with some of the word should be formed (Home activities).
- Dividing some words into their syllables is assigned. After that, the groups of the syllables should be found. iPad, flashcards, pen and paper are used.

- Listening to the recordings to exercise the pronunciation of the words and transcribing the phonetic form of each word is given as homework.

Tribushinina et al. (2021) also administered a research on phonemic skills exploring the explicit spelling instruction and its relationship between L1 transfer and development of L2. This study is of importance as it also examines the relationship between L1 and L2 of dyslexic learners. The research revealed that explicit spelling instruction facilitated the progress of L2 spelling skills of dyslexics. The intervention is performed through 20-minute lessons in eight different sessions. The process of the trainings is given below:

- Activation of the previous knowledge of the students is the first step in each lesson. It is achieved through short and simple activities like memory games.
- Discussion on the materials of previous weeks starts in the next lesson to revise and check the spelling rules.
- The worksheets consisting of a table having the rules in Dutch (L1 in the left column) and English (L2 in the right column) are delivered and used in several exercises.
- Main spelling rules are discussed in Dutch first, and then the corresponding L2 rule is presented and L1 and L2 rules are explicitly compared.
- Self-assignment and group discussions are performed through the worksheet and answers are discussed in class.
- The repetitions are done during the discussion so that students can get aware of the rules on spelling skills.
- The spellings of plural forms, word endings with a sound ‘v’, the pronunciations of ‘c’ as ‘s’ or ‘k’, vowels in long and short forms, silent letters, the differences between ‘ei’ and ‘ie’, word endings with ‘-t’ and/or ‘-d’, and words having ‘-tion, -cion and -sion’ suffixes are taught and practised.

Another included study on the development of phonemic skills belongs to Mohamadzadeh et al. (2020). The study aims to improve the English language skills of dyslexic students through multisensory phonics instruction. It is also aimed to observe the special effects of the noted instruction on participants’ L1 and L2 performance through applying similar reading and phonological awareness tests for L1 and L2. The results revealed that giving instructions with the comparisons of two languages improved students’

performance on the targeted skills. The stages of the intervention with the activities are presented as follows:

- Letter Knowledge Stage involves the teaching of (a) uppercase letters, (b) letter sequence and (c) lowercase letters.
- Sound Knowledge Stage involves the teaching of (a) consonants and vowels, (b) letter–sound correspondence, (c) consonant phonemes, (d) vowel digraphs and diphthongs, (e) consonant clusters in the first and final positions
- Phonemic Awareness Stage involves the teaching of (a) rhyme, (b) sound blending, (c) sound segmentation and (d) sound manipulation

The final included study focusing on the development of phonemic knowledge is based on The Phonics Method. Kralova and Soradova (2021) enquired whether this method can produce positive outcomes in teaching English pronunciation to dyslexic learners. It has been found that The Phonics Method is beneficial for all dyslexic learners. Their progress rate was found to be more than the control group in dictation activities and in reading tests. The activities associated with The Phonics Method are as follows:

- The dictation activity has both familiar and unknown words for the learners and the unknown words should be practised later. (The list of the target words can be seen in the study.)
- The reading comprehension test involves the words or phrases taught before.
- Lessons for both of the groups are based on the same plan, but the experimental group also accomplish a short reading exercise in order to revise the phonics instructions and pronunciation.
- The practices of the sounds are given in a written form and then practised through a number of examples.
- Feedbacks on mispronunciations occurring in the lessons are given by the teacher to make learners realize the problems and correct them.
- Learners are expected to write the precise sound combinations while reading the words.
- The unknown words are added to the text so that students can be encouraged to guess the right pronunciation.
- Learners fill in the exercises first and then exercise the pronunciation of the words in a reading text.

- The critical thinking is reinforced.
- The deductive approach is used when students need to divide the words into sound units.
- Learners often work in pairs or in groups.
- Learners from both groups can be mingled so that they learn from each other.
- Sweets or other small rewards for the motivation are useful in some activities.
- A fly swatter to slap a word on the board is a popular game among dyslexic learners.

The next included study focused on Multisensory Structured Learning (MSL) approach to improve language skills of dyslexic students. MSL has been found effective in many ways, especially for the development reading skills (Nijakowska, 2010). Trckova (2015) conducted a longitudinal intervention where dyslexic students demonstrated a positive change in their language development through the use of MSL. The study has two different focus group and activities vary for each. The names of the activities for the third and sixth grade students with dyslexia are listed as below:

3rd Grade:

- “Find the odd word out” to revise the vocabulary and reading comprehension
- “Song: Bingo the Dog” to provide new vocabulary, expressions and to develop listening
- “Nursery rhyme: Hop A Little” to develop listening and speaking skills and vocabulary knowledge
- “Play-doh” and flashcards to practise vocabulary, spelling, reading and writing skills

6th Grade:

- “Telling the time” to develop speaking skills
- “Physical line-up” to acquire general present simple tense rules
- “Running dictation” to revise the present simple tense to develop speaking, reading and writing skills
- “Odd One Out” to revise known vocabulary, develop reading skills and pronunciation accuracy
- “April in Moscow” to improve learners' reading skills
- “Hit the word” to practise vocabulary and pronunciation

The acquisition of vocabulary in EFL classrooms is also suggested to be fostered by MSL. In this regard, Kaldonek-Crnjakovic (2019; 2021) inspected the impacts of MSL on the foreign language skills of dyslexic students. The study revealed that dyslexic students can advance their language skills especially vocabulary skills through MSL instructions and practices. Also, it was revealed that dyslexic learners can successfully improve their metalinguistic skills through the multisensory approach instructions in the context of EFL no matter what their age is and how much progress they show in language skills before the training. The principles of the MSL in the studies are as follows:

- Three different sessions and breaks between the sessions are scheduled. During the breaks, MSL instructions are not given.
- New phrases are introduced in isolation and the definitions of the words are given in English first.
- The synonyms and antonyms of each word are presented and all the targeted phrases are translated in students' mother language.
- Pronunciation of the phrases is explicitly trained.
- Memorization strategies such as using flashcards and acting out phrases are adopted.
- The new phrases and their pronunciation are revised on a regular basis.
- Creating sentences with the new phrases and gap filling exercises are implemented to develop vocabulary knowledge.
- Each lesson begins with the revise and check of the vocabulary items learned before.
- The phrases are retaught for five times at most if the students cannot remember them.

Romero (2020) also examined the effects MSL on learning grammar knowledge and reading skills. The study showed that the multisensory activities assisted dyslexic students to show a better performance in their learning process. Students tend to remember words more easily and they accomplished comprehension exercises better if their target task is split into smaller language units. Five sets of multisensory card-activities were designed taking into account the linguistic backgrounds of students. During the six month course, the learners

used the cards to work on various tasks. The activities implemented in study are listed as follows:

- “Wh-words” is the first activity in which Wh- question cards are introduced in both English and in Spanish. Some verbs are practised with these questions by the students.
- The second activity involves thirty verbs to facilitate students’ learning process. The pronunciations as well as the use of these verbs are assisted by the mimics and gestures.
- The targeted verbs are revised three times a week by the students and the use of cards during the lessons is promoted.
- “Time Markers” is activity chosen to help learners make a distinction among the tenses of sentences or phrases.
- The time markers are color-coded in black, yellow and red.
- “Minimal Pairs” is aimed to reinforce the pronunciation of vowel sound similarities and recognize the differences in pronouncing words in categories.
- “Real-like Images” involve ten pictures having a familiar context related to real lives of students. While the picture description the future or the past tense is performed by one of the students, others are writing what they hear in the description.

MSL approach has been examined in another study as well. Ghoneim and Elghotmy (2021) focus on an instructional method called VAKT (visual, audio, kinaesthetic, tactile) to examine the ways of developing reading abilities of dyslexic learners. The phonemic awareness, accuracy on reading and spelling skills are investigated through using a VAKT based program. The objectives procedures and related activities suggested in the study are below:

By the end of the program, dyslexic learners will be able to:

- recognize the names of letters.
- identify the alphabets in their special forms.
- distinguish the sounds of words in initial, medial, and final positions.
- categorize long and short vowels.
- select rhyming words.

- orally combine syllables or onset-rimes.
- orally blend separate phonemes into a whole word.
- reorder letters in line with their sounds.
- divide words into sounds.
- count the numbers of letters and sounds in the given words.
- read and spell regular syllable words and regular multisyllabic words easily
- read silent consonants (e.g., kn, gh).
- know some words by sight.
- give answers to the comprehension questions after reading a paragraph.
- express the main idea of a simple story or the main topic of an informational passage by identifying the main characters, setting, and events.

The researchers have used some materials in order to achieve these goals:

- Videos, puppets, flashcards, printed papers, tape records, colourful sand, clay, and cubes are used as lesson materials in general.
- Text, images, posters, models, computers or flash cards are used for visual activities such as using colours to highlight and adjust information or images.
- The creation of art, pictures, text, pictures and video is promoted.
- Audio books, computerized books, and peer assisted reading are used for auditory skills.
- Using finger paints and textured objects to enhance pupils' fine motor skills, modelling games using clay and using small objects are for the tactile skills.

Rabia and Safety (2021) also found a significant improvement in reading skills among the participants with varying degrees of dyslexia. The study indicated that a proper intervention program contributes to a significant improvement in EFL among students with dyslexia as compared with students with dyslexia who did not participate in the program. The aims, subjects and related activities in the intervention program are given as follows:

The 1st aim is the reinforcement of reading skills and the improvement of letter recognition; the sound of vowels; the combinations of consonants and common vowels in English; the common suffixes in English:

- Cards that include explanations, examples and exercise pages related to the subjects aforementioned are used.
- The teacher first shows a large poster with all the letters that appear in small and capital forms (i.e., “a” and “A”).
- The letters appear in different colours and in typical handwriting form.
- The teacher goes over each letter with full student participation.
- After the teacher reads the letter several times, each child is asked to read the letters.
- Then, the children are asked to copy each letter in its two forms while reading it aloud. Reading aloud as a group turns the learning more experiential and enjoyable.
- The next step is the use of the cards that contain simple words (one syllable preferable) and pictures of the words that start with the requested letter.
- Then the teacher begins combining relevant letters to create in writing, and simultaneously reading aloud, the sounds of the combinations.
- It is important that the teacher stresses words that begin with the letters.
- Work sheets are included in the program itself and a set of cards of letters in both forms are provided as homework.

The 2nd aim is expanding orthographic vocabulary in reading and writing with the use of common word lists and their meanings:

- On large posters, teacher introduces five new words in each lesson with their meaning and reads each word to teach the correct pronunciation.
- Sentence completion exercises and clues are other activities are used in the lessons.
- The next stage is moving on to sentences, and even short illustrated texts to practise reading comprehension.
- Teacher plays with the children and drills the words in the text with the help of pictures and work sheets. Then, the words are drilled by creating a sentence both orally and in writing.

The 3rd aim is instilling grammatical rules by teaching and practising a/an/the and some/any; the verb be: am/is/are; have/has; the tenses, declarative/negative sentence/questions:

- Cards including detailed explanations of the rules, examples, instructing spelling rules and exercise pages for each subject are provided.

The 4th aim is introducing spelling rules to change the singular nouns to their plural forms and different tense forms:

- The analysis of the grammatical rule in the text is completed.
- The drilling must continue until the students use the introduced rules well and creatively by forming their own proper sentences and apply them fluently in speech

The 5th aim is developing reading fluency and reading comprehension strategies to reinforce pre-reading, on-reading skills and post-reading skills:

- Texts adapted to age levels are read by the students.
- First, students are encouraged to extract information from the title or pictures before the reading stage.
- Next, the first sentence of each paragraph is examined by the students to identify names and numbers.
- The students are asked to draw conclusions or to analyse information from various parts of the text.

4.5.4. The Training of EFL Teachers

The concerns, attitudes and beliefs of language teachers on inclusive language teaching practices have been commonly studied in the literature. However, it has been found in our study that only one longitudinal research focused on dyslexia and teacher training. Kormos & Nijakowska (2017) enquired about the effect of online teacher training program on knowledge and the self-confidence of language teachers instructing in EFL classrooms with dyslexic learners. The study found that after participating in dyslexia and language teaching training session through a platform called Massive Open Online Courses (MOOC), the attitudes and beliefs of the teachers towards dyslexia changed significantly and their distresses on how to manage a class with dyslexic students reduced. The context of the course can be summarized as this:

- The program adopts the materials developed for the language teachers who joined in the DysTEFL project before (see the website: www.dystefl.eu) (Nijakowska & Kormos, 2016; Nijakowska et al., 2013).

- Face-to-face and online learning sessions employed the use of project materials in different European countries, and then they were modified to the massive open online learning context. Finally, supplementary video lectures, the demos of the tasks, references, discussions and applications were added to the MOOC training.
- The course has one module each week. The first week aims to improve the knowledge on specific learning difficulties and to inform the effects of dyslexia on the foreign language learning attainment. The second week aims to introduce the codes of inclusive language teaching and educational technologies for dyslexics. The third week aims to guide the teachers to develop their dyslexic language students' language skills in terms of vocabulary and grammar. The fourth week aims to guide the teachers to increase their dyslexic students' phonological knowledge, orthographic awareness and reading skills.
- One module is comprised of roughly 15 sub-sections and four hours is the expected time for the teachers to finish each module.
- The instructional materials consist of lectures, teaching demos, student or expert talks and readings on main sources.

It is obvious from these results that multi-sensory approaches create better educational consequences if supported with different techniques and practices. Metacognitive skills that allow all language abilities to be frequently practised are of great importance. Especially, abundant practice on phonological awareness is a must for EFL classrooms with dyslexic students.

CHAPTER V

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1. Introduction

In this chapter, the discussion and conclusion of the study will be presented investigating whether there are relevant and applicable studies that produce implementable methods and practices for the EFL classrooms in Turkey. It also outlines the main results and presents strategies for language teachers with the extra burden of the teaching challenges resulted from dyslexia. After making conclusion on the didactic differentiations for the EFL students with dyslexia, recommendations for further studies will also be given at the end of this chapter.

5.2. Dyslexia-friendly Approaches and Strategies in EFL Classrooms

The first research question investigated the approaches and strategies proved to be beneficial in the included studies for the improvement of language acquisitions of dyslexic individuals in different skills. Although the results do not touch upon all the language acquisition principles, they offer many important theoretical and practical solutions to EFL classrooms with dyslexic students.

First of all, the results reveal that dyslexia-friendly EFL classroom practices are based on different approaches or instructional methods; namely, Multisensory Structured Learning (or The VAKT as named in the study of Ghoneim & Elghotmy, 2021), The Synthetic Phonics Instruction, Multisensory Phonics Instruction, The Phonics Method, Computer-Based Learning and The Dick and Carey Instructional Method. As the names suggest, the stimulation of auditory, visual, tactile and kinaesthetic skills has been found to be effective for the spelling, vocabulary and grammar instructions in many studies. The results in this study proved that employing several different sensory channels facilitate the learning process in a memorable and enjoyable way. These results should impact the principles of language teaching approaches in Turkey so that effective activities and strategies for dyslexic learners at all grades can be produced.

It is also obvious that the development of phonological knowledge has been prioritized and different methods on phonological processing skills have been adopted by the researchers. This result is not surprising because the reduced capacity of dyslexic students to process

phonological units restricts the correct use of the word forms in another language (Kormos & Smith, 2012). Therefore, the smallest units of language should be thought as a significant area of study for dyslexic learners and phonological awareness should be practised in the lessons to contribute to the development of students' word processing skills. This will also improve the reading and spelling skills.

Another important result shows that the direct and explicit method is highly useful to familiarize students with the phonological, alphabetical, morphological and syntactical rules of language. This review also confirms that the positive effects of explicit teaching method on dyslexic students are found to be a great necessity (Nijakowska, 2010; Partanen & Siegel, 2013). It is reasonable to conclude that in order to deduce the irregularities of English language for the Turkish dyslexic learners, further investigations should be performed in national context as well.

Furthermore, the findings of this review support the fact that activities based on the use of technology rank among the most important compensatory sources in EFL classrooms with dyslexics. Language tasks based on assistive technological tools for learners with dyslexia improve solutions for the problematic areas in a language acquisition process (Dawson et al., 2016). The result of this review affirms useful activities enabled by technological tools; therefore it can be assumed that language teachers in Turkish EFL classrooms should support the continuation of these interventions. However, it is important to note that policy makers and school administrators also provide high qualified technological environments both for the group studies in the classroom and personal language tasks outside the classroom.

It is also palpable that the studies frame the language practices within some principles and rules. The most underlined ones are following a structured, linear and step-by-step process, giving slow paced explanations during the lessons, allowing more time to students, repetition of drills, focusing on specific letters, giving frequent feedback, using visuals and different colours for letters, direct and explicit teaching, collecting background information (learner analysis), fostering the student motivation, co-operative learning, the effective use of technology, the activation of prior knowledge in the lessons, the allowance of planning, self-monitoring, self-correction and evaluating. Apart from these, changing the letters into dyslexia-friendly fonts is a frequently benefited principle by the researchers or teachers. It is worth mentioning that these underpinnings can be adopted in national research and classroom activities by educators.

5.3. Effective EFL Classroom Activities to Improve the Sound and Spelling Skills

The second research question explored accessible EFL classroom activities found to be effective to improve phonological skills of dyslexic learners. It has been recommended in the literature that English is rather inconsistent when dealing with the smaller word units such as graphemes and phonemes. Thus, students learning English need both decoding strategies at different levels (Kormos & Smith, 2012). It is suggested that the methods based on phonology instructions as well as the whole word teaching hold a great importance to increase the word recognition ability in English. It has been found that the results of this study align with these theories. Teaching vowel sounds, consonants sounds, dividing syllables, finding the missing vowels, blending consonant, combining vowels, consonants, prefixes and suffixes, forming compound words, rhyming words, separating sentences into words and syllables and classifying syllables have been found in the included studies to be effective activities for dyslexic learners.

Another striking point found is that L1 and L2 transfer is supported while teaching phonological units of the words to assist learners to cope with pronunciation and spelling. It is also claimed that the explicit teaching on the sound and letter equivalence is highly significant especially if the L1 and L2 of learners show difference in their orthographies (Nijakowska, 2010; Kormos & Smith, 2012). It can be concluded that if the phonological and orthographic system of the L2 is non-transparent, the use of L1 is possible for students with dyslexia. Discussing the main spelling rules in L1 first and then introducing the target L2 rule, comparing the phonological rules in L1 and delivering the L2 equivalents are the related activities that support the studies in the past.

As mentioned in Chapter 3, various aspects make the linguistic system of Turkish different from English; therefore, phonological awareness is of great importance in EFL classroom with dyslexic learners. It is reasonable to note that extensive practice is required for Turkish students with dyslexia to attain a high level of phonological knowledge.

5.4. Effective EFL Classroom Activities to Improve the Vocabulary Skills

The third research question investigated the availability of effective EFL classroom activities to improve vocabulary skills of dyslexic learners. The included studies provided effective activities for the development of vocabulary knowledge. It has been noticed that these didactic activities have designs with common characteristics. The researchers mostly

carried out their in-class activities based on the knowledge of definitions of unknown words (both in L1 and L2), synonyms/antonyms, different forms of words and collocations. Matching, naming, identifying, categorizing, filling in the blanks, finding the odd word out and grouping are the types of vocabulary exercises implemented. The experimented activities mostly used visuals such as flashcards, pictures and special word cards for students to experience fewer difficulties during the vocabulary acquisition. Some studies also benefited from game charts, mnemonics and stories to provide new vocabulary and expressions. All of these results align with the recommendations presented in the literature (Schneider & Crombie, 2003; Nijakowska, 2010).

Although the results reveal a lot of effective vocabulary exercises that can be replicated, there are a few restrictions to gather the desired variety of the practices. For example, some included studies provide the principles of vocabulary activities in detail, but they do not mention the types and contents of these activities in their studies. Also, it is worth mentioning that teaching vocabulary exercises are generally staged at phonemic, syllabic and orthographic levels so that learners can discriminate the sounds, find out the various positions of the sounds in words and use them correctly at a sentence level. For these reasons, in further studies, it is advantageous to search more studies on vocabulary teaching although they do not meet the inclusion criteria of this review and to adopt a holistic strategy of vocabulary teaching starting from the easiest units to more complex ones.

5.5. Effective EFL Classroom Activities to Improve the Grammar Skills

The fourth research question was about the availability of applicable and effective teaching activities to develop the grammar skills of dyslexic language learners in EFL classrooms. The previous studies claimed that grammar teaching to dyslexic language learners can show its effectiveness if the explanations on grammatical rules are given explicitly and in small steps (Schneider & Crombie, 2003). It is also important that grammar rules are presented in appropriate contexts. Also the use of grammatical structures without complicated linguistic constructs and terminology will be beneficial to ease the problems related to dyslexia.

However, the results of this review reveal that explicit teaching of grammar rules in the literature is rare. Only three studies integrated activities related to the teaching of grammar rules not as a main subject, but as supplementary activities. The past and present forms of the

verbs using the time markers (Romero, 2020), the spelling the plural forms of the nouns during the course of word formation training (Tribushinina et al., 2021) and teaching the rules of a/an/the and some/any; the verb be: am/is/are; have/has; the tenses, declarative/negative sentence/ questions are the grammar contents of the interventions (Rabia & Salfety, 2021). It is notable that any of the included studies do not touch upon an explicit way of teaching grammar. They did not include any specific grammatical functions in the interventions. It can be assumed that dyslexic learners need a step-by-step process to learn a language and avoiding the explicit teaching of grammar rules at the beginning of the intervention program might relieve their language acquisition. It can be interpreted that grammatical functions can be perceived by the learners through the engagement of word formation activities and/or the creation of sentences with help of the targeted words.

It is reasonable to state that teaching grammar needs to be researched in the national context engaging the theories and principles provided in the previous studies so that the efficiency of the explicit method with the use of MSL structured activities can be observed.

5.6. Effective Activities for the EFL Classrooms

The fifth research question was about the availability of applicable and effective teaching activities to improve the four main language skills (reading, writing, listening and speaking) of dyslexic learners. The results display a higher rate of frequency on the investigation of dyslexic students' reading skills. Besides, the writing skills have been frequently investigated in the included studies. These two skills are often unified in one activity through the use of morphological and syntactic structures. These results are predictable because it is accepted in the literature that phonological deficit is the main cause of dyslexia. Promoting phonological awareness during the reading practices is effective to evade the failures in reading (Snowling, 2006).

The selection of reading activities with smaller-sized language units has been dominantly performed in the included studies. One of the reasons is that the orthographic differences between the mother and foreign languages might cause complications in letter identification. Also, the knowledge of morphology and syntax at an inadequate level might hinder word recognition process. These theories can be recognized among the major reasons why activities at syllabic level were chosen more by the researchers. In this regard, it is suggested that understanding L2 texts is only possible with the assistance of adequate

knowledge of syntactic structures and knowledge about how unity is generated in L2 through repeated and constant practice. Moreover, students with dyslexia should only start reading texts including demanding sentence structures after an intensive development of word reading skills in L2 (Kormos & Smith, 2012). These theories have been confirmed by some of the studies included in this review (Rabia & Salfety, 2021; Ghoneim & Elghotmy, 2021).

Another result related to teaching reading is that visual materials have been highly relied upon in the included studies in order to facilitate the learners' reading process and motivate them. Reading texts have also been accompanied with the audiobooks to facilitate pronunciation and spelling while reading. Specific letters, syllables or words have been highlighted or coloured to form a reading pattern for the students. These results verify theories suggesting that the unknown words can be practised through illustrated text, pictures and highlighted and colour-coded words in the text (Crombie, 2003, Nijakowska, 2010; Kormos & Smith, 2012).

The results also confirmed that specifically designed graphic layouts such as "OpenDyslexic" fonts and the choice of colours that eases the text reading are very effective in developing the reading skills not only at lower order processes but also at higher orders processes. It should be noted that the British Dyslexia Association presented more dyslexia friendly fonts and colours on their web page than the results presented (see the website: www.bdadyslexia.org.uk). Therefore, it is sensible to suggest that other types of fonts and colours should also be examined whether they are useful for students with dyslexia in Turkish EFL classrooms.

Finally, it can be seen from the results of the studies that reading activities are followed by a discussion to identify the main informational content of the text or stories. In addition, questions demanding short answers through speaking performances have been integrated in the implementations to provide chances for the meaningful use of language. These activities used provide concrete and effective outcomes based on the theories in the previous studies (Reid, 2009; Daloiso, 2017).

Following the teaching of reading, it is highly important to analyse the activities on writing skills that were experimented in the included studies. This review searches for eligible tasks that can also be implemented in the national EFL context. In this regard, the results present important outcomes gathered from the interventions. Firstly, it is notable that writing skills have been reinforced through a step by step approach. In other words, smaller units of language have been introduced and practised as many times as students needed. After that,

these pieces are combined with more syntactic structures so that dyslexic students can create new sentences independently. The study of spelling ranks as the foremost activity that has been focused on in the included studies. Three studies designed a program constructed on the use of computer software that enables students to write the words correctly with the aid of self-monitoring and evaluation steps. Furthermore, one of the studies allowed the participants to submit their assignments not in paper but through e-mail. This gives the dyslexic students extra time and independence to check their writings on their own.

Another important task on the development of writing skills has been performed through dictation. The results showed that dictation activities with familiar words at a slow rate are effective in revising the taught vocabulary and spelling of words. The participants given this training succeeded in writing targeted syllables and words correctly. Nevertheless, this result does not confirm the findings in the previous studies. Although it is correct to say that writing activities should be acquaint with gradual and linear teaching process (Kormos & Smith, 2012), sentence dictations are found to be an artificial task in many aspects (Morken, 2013).

The studies included in this review give the underpinnings of writing instructions to dyslexic EFL learners. Also, the steps followed during the activities confirm the basic EFL theories suggesting that teaching the mechanics of writing in English language should start from the recognition phase and once the learners are able to recognize this, they should be encouraged to the production phase (Harmer, 2017).

On the subject of listening skills, the studies reveal teaching techniques addressing the auditory discrimination of similar sounds. However, practices to accomplish a global comprehension of listening texts are rare as is found in preceding skills discussed. The same reasons can be presented to explain this result. Kormos & Smith (2012) stated that it is supportive if only a low number of words are involved in listening tasks because this will prevent dyslexic learners from getting confused with a similar sounding word. In addition, it is problematic for them to concentrate on a continuous oral language and to keep following auditory information for a long time because of their deficit in working memory. As a result, just as with reading texts, listening involvement of dyslexic learners should progress gradually.

Another important point related to the development of listening skills of dyslexic EFL learners is that computer based tasks have been benefited with recording tasks. The participants are supposed to record their voices and listen to themselves or the correct

pronunciation of phonemes and words are provided in the software programs with the relevant linguistic constructions. Although these programs allow students to work on the listening materials by involving movements, it is palpable that they do not cover a general comprehension skill through communicative practices. This result does not support the suggested theories found in the literature (Nijakowska, 2010; Kormos & Smith, 2012).

The last important result is about simultaneous listening and reading task used in the studies included. Audio books have been benefited by the researchers to help dyslexic students notice the correct pronunciation of the words and understand the stories better. This result is a controversial issue in the literature as some researchers recommend that learners just listen and concentrate on the main points in the first listening and they should not be expected to achieve a task while listening (Kormos & Smith, 2012). However, Babuder et al., (2019) found that the read-aloud assistance helped dyslexic participants to understand difficult texts well with similar scores compared to their non-dyslexic peers. Therefore, it is worth examining the efficacy of simultaneous listening and reading tasks in Turkish EFL context.

As for the results related to the speaking skills, it can be stated that activities do not provide eligible activities addressing the opportunities to promote communication in the lessons. There exists no study with specifically designed tasks on the communication skills of dyslexic EFL learners. One of the studies included even exempted students from speaking in front of the class as it was assumed that students would feel extra pressure and might be embarrassed among their friends if they do not construct meaningful sentences. Nevertheless, it contradicts with the theories in the literature. Kormos & Smith (2012) noted that speaking skills are indispensable parts of language teaching process. Still, it is necessary to state that this result is not surprising because a huge amount of literature has pointed the importance of literacy skills development regarding the teaching English to dyslexic language learners. However, on the course of literature review, it has been found that communicative competences based on special interventions or curricula have not been examined by the researchers. In this regard, it has been hypothesized that students may have low level of communicative skills as they are not able to recognize the simple linguistic mechanisms of English language. Even so, theoretical references and related classroom practices in the literature have not been found to be satisfactory so they cannot provide applicable language teaching techniques. It should be stated that the lack of evidence based studies may lead to undesirable outcomes for the dyslexic learners as they will only depend on the teaching of language mechanisms rather than the oral use of the language itself.

5.7. Applicable Training Programs for EFL Teachers

The sixth research question of this study is to answer whether there are special programs on professional trainings for language teachers with the burden of dyslexia in language classrooms. The previous studies, which present the results of interviews, surveys and observations, stated that EFL teachers are likely to be much more confident and successful while implementing inclusive instructional practices in their classrooms if they have greater amount of knowledge on dyslexia. Thus, they need to be equipped with assistance and relevant knowledge that might not be included in their previous teacher-training schemes (Nijakowska, 2019; Indrarathne, 2019; Kormos, 2020). Therefore, it is very important to provide EFL teachers effective strategies and inclusive teaching practices for their dyslexic students. This review, however, have only found one experimental study on the training of EFL teachers in terms of teaching dyslexic students. This longitudinal study revealed that the attitudes and beliefs of participants were found to be much more positive after the training. They also have less concern regarding the classroom practices for dyslexic students thanks to the techniques and sources presented. It can be assumed that the principles and main sources of this program can be benefited in order to help EFL teachers in Turkish classrooms dealing with the dyslexic students.

5.8. Conclusion

Dyslexic individuals suffer from the literacy abilities not only in their mother tongues but also in their foreign language learning. Therefore, this mysterious cognitive difference needs explanations with evidence-based knowledge and must be relieved with the appropriate educational accommodations for dyslexic learners. Therefore, this study aims to present the outcomes of the studies conducted in line with the research questions to find educational practices that can be generalizable.

While some of the results confirmed the theories in the literature, some others were in contradiction with them. The results of this review mainly indicate that the relationship between dyslexia and foreign language teaching has been a recent research area, so the extent of the relevant studies that address the purpose of the review is not satisfactory. In other words, recent linguistic research on dyslexia and its relations to EFL teaching was not accompanied with the didactic works at a desired level.

In addition to a theoretical overview on dyslexia, this thesis offered a critical review of the interventions eligible for the inclusion criteria. It can be understood from the results of the review that the most essential stage to overcome the difficulties of dyslexia in EFL is the understanding of dyslexia itself. Dyslexia is special in nature because it shows a varying level of behaviours for each person. Hence, not all solutions fit all dyslexic learners in the classroom (Heike, 2012). Given this situation, the presented activities in the studies are supposed to make a big difference in helping dyslexic learners since they involve many strategies and ideas. A general conclusion can be drawn in this regard.

Firstly, the main focus on phonology in the included studies was directed at the treatments of linguistic mechanisms at smaller units, mostly engaging reading, writing, and spelling skills through the multisensory structured teaching activities. As the experimental studies are rare, it can be stated that teaching reading skills through activities at larger units should be an interest of field for further research. Also, language teachers in EFL classrooms in Turkey should contribute to this field.

Secondly, the theoretical pathways suggest a set of methods to promote literacy. This study evidently indicates the need for more scaffolding in literacy exercises for dyslexic adults. In order to do so, phonics and vocabulary skills have been reinforced through a step by step approach in the included studies. It has also been found that this approach was gradually followed by more complicated activities to teach reading and writing in L2.

Thirdly, it is necessary that educators dealing with dyslexia in their classroom are aware of the symptoms and classroom strategies as one important aspect of inclusive teaching. Sufficient knowledge on dyslexia's nature along with the specific teaching suggestions can assist teachers in handling of dyslexic learners. In this study, this was found to be true although only one study could be included. It can be noted that it is highly significant to reach more concrete results and strategies by performing further studies on teacher training.

Next, the educational solutions gathered in this review may seem applicable to dyslexic students at primary, secondary and high schools. It is noteworthy that dyslexic students at tertiary level have not been studied through longitudinal and interventional research. It is highly important to carry out academic studies to deal with the difficulties that dyslexic university students have.

Although some certain interference from the included studies can be made, the hypotheses of this review have been partially met for some points. To illustrate, it was

hypothesized that the international literature on dyslexia and foreign language teaching provides theoretical knowledge contributing guidance and awareness to EFL teachers, academicians, educational policy makers and specialists. This hypothesis has been restricted to be fully verified by the inclusion and exclusion criteria. Whereas EFL teachers and academicians can find solutions in this study, educational policy makers and specialists may not reach a conclusion since this study could not integrate the research without educational interventions.

In addition, the pioneering sources suggested some research fields that could not be stated in the results section in this thesis because they also lack of experiments. Dyslexia-associated learning impairments, identification and screening tools and main constructs of assessment process of dyslexics are the topics mainly discussed in these sources but the lack of applicable interventions made them impossible to be involved in this study.

It was also hypothesized that the sources undergone a systematic and critical review process in this thesis allow future references of unexplored fields in the national EFL context. This has been reasonably met in the results as national publications do not provide any EFL methods or practices related to the topic of this thesis.

Finally, it was hypothesized that the studies investigated in this thesis will provide substantial sources on appropriate and effective teaching methods and lesson practices for dyslexic learners in Turkish EFL classrooms. This was also adequately met especially in language teaching approaches and literacy skills. However, it can be stated that analysed activities do not provide sufficient practices on communicative competences of dyslexic learners, which constitutes an unexplored field of study both in national and international EFL context.

5.9. Recommendations

The most noteworthy suggestion of this thesis is to increase the number of new publications exploring the didactic aspects of dyslexia and EFL teaching. Replicating research included in this study can also make a great contribution to the national EFL classrooms with dyslexic learners. It can also reveal how dyslexic students respond to the same teaching methods.

Furthermore, the instructional models found in the studies are appropriate to be generalized for whom experiencing challenges arising from dyslexia during the vocabulary acquisition in a national EFL classroom setting.

As for the computer-based programs used in the included studies, further research on how to adapt them through the use of official curriculum of EFL classes in Turkey can be conducted and more multisensory activities can be added.

Also, teachers can be provided with specific training programs to use the similar methods and practices to benefit from the didactic outcomes so that they can feel supported and become more aware of the solutions and their motivation can increase. However, not only the online platforms but also face-to-face environments can be created to support them.

As the included studies underline the importance of extra time for dyslexic learners, more intervention time during the studies and more chances to revise previous exercises should be allowed. In this way, more guidance can reveal better results in students' language acquisition.

The lack of a satisfactory number of studies that can be generalizable to Turkish EFL classroom can also mean that there are many possible research areas available to be touched upon. All the references in this study can perform as a source of inspiration or reference map.

All in all, this thesis underline the importance of including dyslexic EFL learners in language activities engaging cooperation and different educational opportunities based on their needs. Moreover, it is of importance to remind that multi-sensory approaches create better educational consequences if supported with different techniques and practices. Metacognitive skills that allow all language abilities to be frequently practised are of great importance. Especially, abundant practice on phonological awareness is a must for EFL classrooms with dyslexic students.

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APPENDICES

Appendix A. The List of Included Studies

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8. Kormos, J., & Nijakowska, J. (2017). Inclusive practices in teaching students with dyslexia: Second language teachers' concerns, attitudes and self-efficacy beliefs on a massive open online learning course. *Teaching and Teacher Education*, 68, 30-41. <https://doi.org/10.1016/j.tate.2017.08.005>
9. Kralova, Z. ., & Soradova, D. (2021). The Phonics Method In Teaching Efl Pronunciation To Young Learners With Dyslexia. *Proceedings of CBU in Social Sciences*, 2, 211-217. <https://doi.org/10.12955/pss.v2.223>

10. Libera, D., & Sara (2016). Dyslexia and learning English as a foreign language: the phonological/orthographic teaching through the multisensory method.
11. Michálková, M. (2020). *Teaching English to Dyslexic Learners: Reading Skills in Focus*. (Diploma Thesis) Retrieved from: <https://theses.cz/id/r5tz7y/?lang=en>
12. Mohamadzadeh, S., Sotoudehnama, E., Marandi, S. S. & Tafti, M. A. (2020). Teaching English to Students With Dyslexia in Iran: A Multiple-Case Study, *Reading & Writing Quarterly*, 36:1, 19-33, DOI: [10.1080/10573569.2019.1605951](https://doi.org/10.1080/10573569.2019.1605951)
13. Pfenninger, Simone. (2014). Taking L3 learning by the horns: benefits of computer-mediated intervention for dyslexic school children. *Innovation in Language Learning and Teaching*. 10.1080/17501229.2014.959962.
14. Rabia, S. A. & Salfety, A. (2021). The acquisition of English as a foreign language among different levels of learners with dyslexia, *The Journal of Educational Research*, 114:4, 317-331. DOI: [10.1080/00220671.2021.1933883](https://doi.org/10.1080/00220671.2021.1933883)
15. Reraki, M. (2016). *Dyslexia friendly practices in greek primary EFL classrooms* (Order No. 10121547). Available from ProQuest Dissertations & Theses Global. (1794909279). Retrieved from: <https://www.proquest.com/dissertations-theses/dyslexia-friendly-practices-greek-primary-efl/docview/1794909279/se-2?accountid=15340>
16. Romero, Y. (2020). Lazy or Dyslexic: A Multisensory Approach to Face English Language Learning Difficulties. *English Language Teaching*, 13, 34-48.
17. Trčková, B. L. (2015). Action Research: English Language Teaching to Children with Dyslexia at Primary School.
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ÖZGEÇMİŞ

Kişisel Bilgiler

Adı Soyadı: Esra Dönüş

Doğum Yeri ve Tarihi:

Eğitim Durumu

Lisans Öğrenimi: Akdeniz Üniversitesi Eğitim Fakültesi Yabancı Diller Eğitimi Ana Bilim Dalı İngiliz Dili Eğitimi

Yüksek Lisans Öğrenimi: Akdeniz Üniversitesi Eğitim Fakültesi Yabancı Diller Eğitimi Ana Bilim Dalı İngiliz Dili Eğitimi

Bildiği Yabancı Diller: İngilizce

Bilimsel Faaliyetleri: Yabancı Dil Olarak Türkçe Öğretimi Eğitimi (Çalıştay), Antalya, Nisan 2015; Uluslararası Türkçenin Yabancı Dil Olarak Öğretimi Sempozyumu: “Teknoloji Tabanlı Öğretim”, Ankara, Aralık 2014; Akdeniz Language Studies Conference, Antalya, Mayıs 2012; Elt Symposium A Proactive Look At English Language Teaching Programs, Ankara, Mayıs 2010; An Inged Day, Refreshing Minds, Hacettepe Üniversitesi, Ankara, Ocak 2010;

İş Deneyimi

Stajlar:

Projeler: Imbild Project - Erasmus Intensive Program , Pedagogische Hochschule Oö University, Austria, 2008; Sinex Project - Erasmus Intensive Program - Poland, Pedagogische Hochschule Oö University, 2007

Çalıştığı Kurumlar: Hacettepe Üniversitesi (2009-2011), Akdeniz Üniversitesi (2011-Halen)

İletişim

E-Posta Adresi:

Tarih : 17.02.2022

PLAGIARISM REPORT

A CRITICAL REVIEW OF DYSLEXIA IN FOREIGN LANGUAGE TEACHING: A GUIDE FOR ELT CLASSROOMS IN TURKEY

ORJİNALLIK RAPORU

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Esra DÖNÜŞ