

Reframing developmental dyslexia and bilingualism: An overview to enhance strengths and advantages

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Abstract

This paper explores the evolving perceptions of bilingualism and developmental dyslexia, shifting from viewing them as deficits to acknowledging their inherent strengths. This overview contributes to the evolving narrative surrounding dyslexia and bilingualism, urging a reevaluation of these conditions from deficit-centered perspectives to recognize the diverse cognitive abilities and adaptive advantages they offer. It delves into the positive aspects associated with developmental dyslexia, highlighting cognitive strengths like visuospatial skills, narrative reasoning, and dynamic reasoning. Additionally, it examines the multifaceted nature of bilingualism, outlining distinctions between types of bilingualism and emphasizing cognitive benefits such as enhanced cognitive flexibility, attentional skills, and executive functions among bilingual individuals. The complexities of language acquisition, socio-economic factors, and societal support are discussed in understanding the interplay between language acquisition and cognitive development in bilingual contexts. Furthermore, the paper navigates the intricate connection between dyslexia and bilingualism, emphasizing factors like language exposure, linguistic characteristics, and individual cognitive processes that influence their

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interaction. Dyslexia significantly impacts language acquisition and proficiency in both native and second languages, requiring tailored assessments and interventions for dyslexic bilingual individuals.

Keywords: developmental dyslexia; bilingualism; L2; advantages; learning challenges

Introduction

This paper aims to provide an overview from a different perspective on two topics, bilingualism and dyslexia, which have been considered by the literature as disadvantages in the classical studies but have been reconsidered in a new, more positive light by recent literature. Indeed, both psychological and linguistic literature has implemented a shift in recent years from viewing both bilingualism and developmental dyslexia as risk factors for the acquisition of developmental skills to viewing them as different ways of acquiring developmental skills or even as a plus (Bialystok, 2021; Taylor and Vestergaard, 2022). After all, the interest in dyslexia is not new (for a review, Kirby, 2020); However, the focus of interest in more recent years has shifted towards a deeper understanding of the challenge of dyslexia especially in light of the advantages of this neurodevelopmental condition (Eide and Eide, 2012). Similarly, despite the potential challenges, more recent literature has emphasized the advantages of bilingualism, which often outweigh the disadvantages (Bialystok, 2021).

In the following sections, we examine the strengths of developmental dyslexia and the advantages of bilingualism and point out the co-occurrence of developmental dyslexia and bilingualism. In this contribution, therefore, an overview of the studies on developmental dyslexia and bilingualism that have been contributing to this changing trend in recent years will be presented, and then the issue of when bilingualism and dyslexia meet will be addressed.

When Learning is Harder? Strengths of Developmental Dyslexia

As already pointed out, in psychological and linguistic literature there has recently been an inversion of trends concerning the research on Developmental Dyslexia. Very briefly, Developmental Dyslexia (henceforth DD) is a neurobiological disorder (Valdois, 2010) defined as

a disorder in those children who fail to achieve the age-appropriate language skills in reading, writing and spelling despite an intact set of intellectual abilities and a conventional classroom experience (American Psychiatric Association, 2013). The difficulty in achieving a proficient level of reading and writing is due to slow and inaccurate word recognition and spelling, difficulties that persist despite receiving appropriate education and having adequate sensory and cognitive abilities (Peterson, 2012). DD affects 10% of the population and is universal and cross-cultural (Wagner et al., 2020), and has a clear genetic basis (Erbeli, Rice and Paracchini, 2021). Multiple empirical studies indicate that this specific learning condition is often linked to challenges in social-emotional and behavioral realms, leading to significant emotional distress (Francis, Caruana, Hudson, and McArthur, 2018), even though the diagnosis appears to offer protection against situations of distress, especially in school settings (Lombardi, Traficante, Bettoni, Offredi, Vernice, and Sarti, 2021). The deficit-centered view of the past provides an incomplete picture of DD. As early as the 1980s, there were suggestions that people with DD had superior talents in certain visuospatial skills, supporting the idea that many individuals with dyslexia demonstrate high levels of creativity (for a review see Gutierrez-Ortega et al., 2023); in fact, they often think outside the box and not only they have a unique perspective on problem solving, but they also show signs of divergent thinking, such as originality and fluidity (Cancer and Antonietti, 2019). Geschwind (1982) was the first researcher to observe that when a disorder affects a relatively large part of a population, it is worth asking ourselves whether there might be some advantage to it. However, there are still few contributions from research on understanding the abilities associated with DD. Recent literature, however, continues to ask questions about the benefits of this condition, not focusing on the neurodiversity of the dyslexic brain, but rather wondering what might be the its purpose (Eide and Eide, 2019) and arguing that the form of cognition represented by DD plays an essential role in enabling humans to adapt (for a review, Taylor and Vestergaard, 2022).

In particular, the MIND strengths framework theorized by Eide and Eide (2012) “places abilities rather than disabilities at the center of [...] what it means to be an individual with dyslexia” (page 6). The two authors did not view Dyslexia as a disability thus introducing a revolutionary way of thinking about DD. In fact, their book aimed at a requalification of the whole concept of DD as a deficit in need of compensations and corrections. On the contrary, they viewed DD as an ability rather than a deficit. For this reason, they theorized the “MIND”

model which showed some specific traits and skills that only people with DD seem to possess. The first competence is the M-strengths or Material Reasoning: the ability to perceive the spaces in a tridimensional dimension and modify them to create an entirely new space. Those are commonly referred to as visuospatial abilities. This specific talent of imagining our surroundings not as they are but as they could be, seeing a bridge where others see two separate roads, a drawing room where others see a construction site full of dust, is proper of some of the best architects and designers of our century. The second competences is the I-strengths or Interconnected Reasoning: the ability to create a connection between different concepts, ideas, and events which are not related to each other. This talent of detecting the relationship between ideas also allows one to approach a concept from various angles and to swiftly shift perspective to generate a wider and more integrated network of thought. The third competency is the N-strengths or Narrative Reasoning: the ability to construct a mental scene joining together fragments of one's personal experiences to understand the present, remember and recall the past, and hypothesize future scenarios. This talent relies heavily on episodic memory or personal memory. As a result, it should come as no surprise that this skill is proper of many great writers who can "think in stories". Lastly, the D-strengths or Dynamic Reasoning is described as the ability to effectively predict future events and also to recall past events with a level of accuracy. Essentially, it suggests that individuals with this competency are skilled at both foreseeing future occurrences and understanding accurately past situations. It implies a capacity for strategic thinking, understanding patterns, and making informed decisions based both on past experiences and on future possibilities. As well as Narrative Reasoning, those skills also rely heavily on episodic memory but with a key difference. On one hand, when episodic memory is used to create a new written imaginary world, to paint a picture, or to make a compelling speech, we are in the field of the N-strengths. On the other hand, when episodic memory is used to make predictions on future uncertain events or states, we are in the area of the D-strengths. They aim at understanding the world around us as it is, as it once was and most importantly, as it is probably going to be.

In brief, this shift in paradigm towards recognizing and valuing the intrinsic strengths associated with DD redefines the narrative of this condition, emphasizing the diverse cognitive abilities present in this population and hinting at the adaptive advantages conferred by this particular form of cognition.

Bilingualism is Never a Bad Idea....

In the first half of the 20th century, bilingual studies were driven by the question of whether bilingualism hurt the child (Romaine, 1989), supporting the idea that bilingualism is a mental burden on bilingual children that makes them insecure and confused (McLaughlin, 1981); over the years there has been considerable debate about the advantages and disadvantages of this condition (Bruin, Dick and Carreiras, 2021; Dunabeita et al., 2014). However, an important and consistent recent body of studies show a new found awareness of the stronger cognitive flexibility, wider attention skill set, executive function, and theory of mind of bilingual children (Bialystok, 2021; Bialystok, Craik and Freedman, 2007; Djumabaeva and Kengboyeva, 2021; Filippi, Karaminis and Thomas, 2014; Grote, Scott and Gilger, 2021; Yu, Kovelman and Wellman, 2021). Understanding and fluently speaking another language is certainly not enough to be considered bilingual. It is not the purpose of this paper to delve into details concerning the different bilingualism typologies, it is enough to point out briefly the different levels of knowledge during the acquisition of a second language, without presuming to be exhaustive. Classically, the first distinction is between formal and informal language: formal L2 learning occurs in the classroom, whereas informal L2 learning occurs through repeated non-academic interactions with the target language (Cummins, 1979). Another significant difference concerns the period of L2 acquisition. Already Lenneberg (1969) hypothesized the existence of a critical period for language acquisition from the age of two until puberty, during which its acquisition should take place much more easily and naturally than later in life, when it would be almost impossible to reach the L2 level of a native speaker. This hypothesis has been revised over the years, first by placing the idea of less profitable language acquisition beyond the age of sixteen and then by replacing the concept of the critical period with that of the sensitive period in 1989 (Johnson and Newport, 1989). In the last two decades, literature underlined that there are two types of bilingualism, sequential or consecutive bilingualism and simultaneous bilingualism (Bonifacci et al., 2016; De Lamo White and Jin, 2011; Paradis, Genesee and Crago, 2011). The first occurs when a child becomes bilingual by first learning one language, and then acquiring another language later in development. In this case, L1 and L2 are developed at different stages of the child's life. Simultaneous bilingualism happens when a child is exposed to more than one language prior to the age of three. In this scenario, L1 and L2 develop almost simultaneously and equally through constant exposure and the

opportunities to use each language during everyday life. It is also important to underline the difference between additive bilingualism and subtractive bilingualism (Baker, 2011). In sum, additive bilingualism is particularly advantaged by a social context that supports and encourages the use of both languages, whereas subtractive bilingualism is particularly emphasized in the case of minority languages where these languages are sacrificed in favor of the dominant language of the social context (Baker, 2011; Bonifacci, Cappello and Bellocchi, 2012).

The last few years have seen a renewed interest in the topic of bilingualism with a rich set of studies worth mentioning, that underline the advantage of bilingualism, in particular focusing on its cognitive, social and of course, professional benefits.

Recently, Poulin-Dubois and colleagues (2021) studying the effect of bilingualism on infants' cognitive flexibility, wondered whether bilinguals could perform better than monolinguals in tasks concerning executive functions, in particular cognitive flexibility, working memory and inhibitory control. An advantage for bilinguals in executive function-related tasks has already been proven throughout adult life. This specific ability is thought to be due to the superior attention-switching skills needed to constantly switch between two languages (Bialystok, 2021). Furthermore, enhanced cognitive flexibility and better inhibitory control system have also been found in young children and even infants (Comishen, Bialystok, and Adler, 2019). So this evidence, challenges the established idea of a bilingual advantage which would enable the child to suppress or inhibit one of the two languages that is not useful in a specific conversational moment. For this reason, the researchers suggested that the mechanism responsible for the bilinguals' superior scores could be attention rather than inhibition. In fact, the capacity to select the appropriate stimuli and at the same time to ignore the distracting factors is the core feature of attention. Thus, it is evident that a certain degree of cognitive effort is fundamental both in the resolution of the within-language competition of monolinguals, and in the cross-linguistic competition of bilinguals. But another important difference could be found between monolinguals and bilinguals in the process of within-language competition. In fact, the within language competition could harbour wider consequences for monolinguals in terms of their efficiency and their speed; bilinguals manage to resolve the competition faster and better thanks to their previous linguistic experience (Blumenfeld and Marian, 2011).

Furthermore, there is another aspect of bilingualism that affects the quantity and the quality of linguistic expression: the bilingual patterns of language use, and the social-pragmatic use. The bilingual patterns of

language identify the various ways in which a bilingual can choose to use their competence. The role of the interactional context appears fundamental in order to understand the working of the control mechanisms in everyday-life situations. The first context is the single-language context where one language is used in one conversational situation, and the other language in a different one, while the second context is the dual-language context where both languages are used to sustain a conversation with two different people, and lastly the third is the dense-code switching context where the languages are constantly intertwined even in the process of a single utterance, allowing a massive language switching and swiftly adapting the words to the required language (Green and Abutalebi, 2013).

As of today, the multifaceted nature of bilingualism has been universally recognized generating several questions on this complex phenomenon that still remain unanswered. Recently, Kalamala and colleagues (2022) analyzed the relationship between three different aspects used to measure the level of bilingualism: the onset of bilingualism, the daily use of language, and language proficiency. The onset of bilingualism is the age of the L2 acquisition or the age of the first active communication in the L2, which is the first time that the possibility of bilingualism makes its appearance in the child's life. The daily use of language is the amount of time in which the child uses the L2 during everyday activities (Luk, De Sa, and Bialystock, 2011). However, quantifying language proficiency, or the level of competence displayed in a certain language has proven difficult. A consistent number of authors have argued that while the onset of bilingualism and the daily use of language could be easily measured through self-reports, language proficiency is a multilayered construct strongly influenced by the personal characteristics of the speakers and by language acquisition history (Hansen et al., 2019; Tomoschuk, Ferreira, and Gollan, 2019). Therefore, a specific method to evaluate proficiency should be implemented in addition to the known self-assessment methods. These assessments were employed to detect receptive and expressive language skills below the expected age level, focusing on vocabulary and grammar proficiency. For receptive vocabulary, the Italian version of the Peabody Picture Vocabulary Test-Revised (PPVT-R, Stella et al., 2000) and expressive language, Test di Valutazione del Linguaggio (TVL, Cianchetti and Fancello, 2003); for receptive morphosyntax, the Test di Comprensione Grammaticale per Bambini (TCGB, Chilosi, Cipriani, Pfanner, and Piazzalunga, 2023). The BVL 4-12 (Marini, Marotta, Bulgheroni, and Fabbro, 2015) assesses phonological, lexical, semantic, pragmatic, and discursive skills in production, comprehension, and oral

repetition tasks in children aged 4 to 12 years. Recently, a scoping review by Weisleder, Friend, Sin Mei Tsui, and Marchma (2023) revealed a growing interest in bilingual/multilingual vocabulary research over the past two decades, albeit with limited linguistic diversity representation, highlighting the need for standardized reporting practices and the development of dedicated assessment tools tailored for bilingual/multilingual contexts. Furthermore, as Green and Abutalebi (2013) suggest, the language control processes adjust themselves in response to the recurring demands imposed by the interactional context. His adaptation involves altering certain parameters related to their neural capacity or efficiency, as well as their coordination with other control processes, either individually or in sequence.

Starting from these studies, a question arises: are language comprehension and production subjected to these control processes, or are those same control processes adaptable to the request of the everchanging linguistic contexts? The answer to this matter will require further investigation, in particular if we aim to understand the multifaceted interlacement between various languages and the different manifestations of Dyslexia.

Language knowledge itself seems to be critical in the resolution of both within-language and cross-linguistic competition. As a result individual differences could determine a variation in the lexical competition, as shown by Botezau and colleagues (2021) who underlined the enhanced inhibition response of bilinguals individuals when compared to monolinguals, despite comparable behavioral task performance. This underlines that monolinguals may exert greater effort to achieve similar levels of performance as bilinguals and suggests that individual differences in language proficiency and cognitive resources may influence nonlinguistic conflict resolution. To gain a comprehensive understanding of the complex mechanisms involved in encountering various languages or assessing the particular challenges faced by a dyslexic child, it is imperative, thus, to examine the condition of bilingualism.

In conclusion, the exploration of bilingualism has undergone a significant shift from once focusing only on the potential burden it could represent for children, to the recognition of the multitude of cognitive, social and professional advantages it offers. Recent studies have illuminated the advantages of bilingualism, emphasizing enhanced cognitive flexibility, attentional skills, executive functions, and theory of mind among bilingual individuals. The distinctions between sequential and simultaneous bilingualism, as well as additive and subtractive bilingualism, underscore the complex interplay between language

acquisition, socioeconomic factors, and societal support for language use. Furthermore, investigations into the mechanisms underlying bilingual advantages, particularly in terms of cognitive flexibility and inhibitory control, suggest that attentional skills may play a pivotal role rather than mere inhibition.

The Challenge When Bilingualism and Dyslexia Meet

The interaction between dyslexia and bilingualism may differ depending on factors such as the individual's languages, the age at which they learned each language, and the severity of dyslexia. For some people, bilingualism may pose an additional challenging task, while for others, it may offer some cognitive advantages. There is evidence that the acquisition of a second language, especially regarding English, a language with opaque orthography (see for example Tainturier et al., 2011), has become necessary in an adaptive sense to navigate social contexts throughout our lives and even working into adulthood. Thus, from the earliest stages of development we are exposed both formally and informally to a language other than our L1. A common and unavoidable language essential both in formal and informal contexts is, of course, English. However, for people with DD, learning a foreign language can be a challenging experience, without even addressing the issue of different languages and multilingualism.

But is a deficit truly always present and unchangeable? Or could something be done to improve these abilities? Literature tried to answer this important topic starting from the last decades of the twentieth century. The idea that linguistic abilities in one's mother tongue and a second language should be similar originates from the "Linguistic Coding Deficit Hypothesis" (LCDH) proposed by Ganschow and colleagues (1998). They analyzed the performance of a group of Harvard students in Foreign Language Courses and discovered significant difficulties in acquiring the second language. These difficulties were attributed to specific impairments in their first language, making the study of a second language more challenging. This supports the notion that a strong skill set in one's native language is fundamental for acquiring a second language (Spolsky, 1989). These approaches were fixed on the discovery of single learning conditions with a motivational input that could solely explain the process of acquisition of a second language. However, this line of research ended abruptly during the twenty-first century. It has been particularly opposed by Norton who rejected all motivational-oriented theories. The author coined the term investment to describe the historical and social connection that each

person creates with the target language in learning settings, such as the classroom, which are significant learning vessels (Norton, 2013). On the contrary, Brown in 2015 proposed an individualistic approach to the acquisition of L2 (Brown and Lee, 2015). He believed that to be effective, linguistic learning should be directly connected to the interests and goals of the student. Despite proposing different interpretations of the process of learning a second language, all these theories have one fundamental element in common: the idea that children with DD all share some core deficits in phonological awareness, working memory, and stimuli processing speed. One of the variables depends, in fact, on some linguistic factors such as phonological awareness, especially for the L1 (Vender and Melloni, 2021). English and Italian, for example, differ widely one from the other in the extent of how transparent they are. Italian is defined as a transparent orthography, that is to say, a language in which each grapheme mostly corresponds to a sound, except for a few irregular words. Therefore, Italian can be considered a more regular language compared to English which is characterized by many homophones such as “hear” and “here” or “by” and “bye”. Unlike Italian, English does not have a consistent orthography in which every phoneme has a corresponding grapheme, thus making it an opaque orthography. Furthermore, compared to Italian, English is rich in irregular words and usually has a bi-univocal correspondence between each letter and each sound, the vowel sound can be long or short and some letters are pronounced differently according to the context or are not pronounced at all despite being written.

Recent literature, focusing on language orthography, suggest that significant attention has been recently given to various studies on language spelling, writing systems or orthographic conventions (for a review, see Lecerf, Casalis and Commissaire, 2023). It is particularly worth mentioning the approach that analyzes dyslexia in a global way, both via cross-linguistic and cross-cultural perspectives, and highlights that dyslexic students just learn differently and can reach an excellent knowledge of different languages (Maunsell, 2020). The author investigated the multi-cultural aspects of dyslexia, finding several different symptoms and manifestations. Those difficulties seem to be due to the degree of consistency or opaqueness of each language’s orthography. On one hand, the difficulties in language with opaque orthography are evident in a slow reading with a low reading accuracy, and most importantly in an almost absent phonemic awareness. On the one hand, the difficulties in languages with opaque orthography are evident in slow reading with low reading accuracy, and most importantly in an almost absent phonemic awareness. On the other hand, the

difficulties in transparent orthographies are encompassed in a poor organization of a writing task, slow reading, and a deficient short-term memory. So, while the challenges may vary between an opaque orthography and a transparent one, there is a concept considered unchangeable in literature: all difficulties in the mother tongue will be reflected in the L2. This passage of deficits seems to occur because every time that a dyslexic student has to learn something, he can rely on some compensatory strategies, but the acquisition of an entirely new language would mean starting the process all over again without the known compensation skills.

Bogdanowicz & Bogdanowicz (2016) suggest that learners with DD can experience difficulties in foreign language acquisition in any of five language subsystems (i.e., phonology, morphology, lexical, syntax and stylistic). Regarding phonology, the difficulties concern the discrimination and production of phonemes; similar problems may also apply to different types of accents, rhythmic and intonation patterns as well as understanding the meaning they bear. With regards to morphology, dyslexic children may not understand the role of certain meaningful language units like affixes and have problems with creating new words based on the knowledge of specific word formation rules. Furthermore, people with DD often experience difficulties in the lexical subsystem due to the problems with remembering and reproducing vocabulary on demand and both the syntax (rarely manage well with grammar) and stylistic (may have problems with written expression) dimensions. In this vein, the main difficulties faced by DD second language learners are the same as for monolingual children with DD. The main problem for these children is the difficulty in learning to decode written words in an accurate and fluent manner so that they can grasp the meaning and understand the written text (Paradis, Genesee and Crago, 2011).

If children's word-reading skills are impaired, their comprehension of written text will also be impaired because they cannot read individual words accurately and fluently enough to create meaningful text. In addition, second language learners with dyslexia face the challenges that all second language learners encounter: limited vocabulary and grammatical competence and lack of familiarity with the cultural or social context of the text. In this sense, their challenges are different from those of monolingual children. Literature about the relationship between DD and L2 seems unanimous in showing that when there is a specific learning disorder, as dyslexia, the reading and comprehension abilities in the second language will be significantly affected (Bellocchi, Tobia and Bonifacci, 2017; Kořak-Babuder et al., 2019).

Elin Thordardottir focused her lifework on the relationship between DD and bilingualism (Thordardottir and Juliusdottir, 2013). In fact, being born in Iceland and having done research in Canada all her life, the theme of learning in a bilingual context came naturally. In particular, she tried to answer two questions: i) how DD affects bilingualism? and ii) Do bilingual children experience similar challenges in both languages? Thordardottir (2005; 2006) believes that bilingual children are a heterogeneous population and for this reason, establishing a firm description of the typical bilingual behavior could be very difficult. However, she hypothesizes, following the general view, that the amount of exposure to a language could be a determining factor in bilingual development. Furthermore, she affirms that the children who are exposed to both languages for the same amount of time will likely perform at the same level in the two languages; while those who are exposed to only one language for a larger amount of time, will end up with a stronger and a weaker language especially in the areas of grammar, syntactic and spelling. Thordardottir and Brandeker (2013), along with many other researchers, recommended for a comprehensive assessment of both languages to enhance deficient skills. This approach aims to foster genuine bilingualism and potentially mitigate the risk of dyslexia development in both the first (L1) and second (L2) languages in the future. In the same way, given the extent of the challenges that bilingual children with Dyslexia have to face a committee of Italian researchers and experts has recently drawn up some guidelines for the identification of the main markers of DD in bilingualism (ISS, 2022). The recognition of the heterogeneity within this target population suggests assessing the various abilities and difficulties across four categories: i) monolinguals versus bilinguals with typical linguistic development; ii) monolinguals with typical linguistic development versus monolinguals with DD; iii) monolinguals with dyslexia versus bilinguals with dyslexia; iv) bilinguals with typical linguistic development versus bilinguals with dyslexia. Simplification of the relationship between L2 and DD for both monolinguals and bilinguals could be achieved through this approach. Lastly, the guidelines suggest focusing on the linguistic history of each child to understand if he/she is a sequential or simultaneous bilingual, while for the monolinguals to verify the amount, and the quality of exposure to the L2 during the first grades of primary school. However, due to the disorder underlying DD being part of the learner's genetic profile and its effects affecting the child's ability to learn to read in any language, dyslexia in bilinguals are evident in both languages (Paradis et

al., 2011). Obviously, since many bilinguals are more proficient in one language than the other, the extent of their disorder will be more evident in the weaker language.

Another particularly noteworthy approach is the analysis of the mechanisms of language and lexical retrieval for monolingual and bilingual children. Botezatu and colleagues (2021) wondered whether there could be a difference in fluency production between monolinguals and L2 speakers. In general, for every speaker, it is mandatory to put in place an efficient lexical retrieval in order to obtain a fluent and coherent speech. However, the process of lexical retrieval strictly depends on the vocabulary size and the lexical selection. The vocabulary size plays a significant role because the development of every sentence is limited to the range of available lexical candidates. As a result, the lexical selection allows the person to select the most suitable option from several lexical candidates; so, the wider the vocabulary, the more lexical options that student will be able to choose from. It is a competitive process, based on inhibitory control (Levelt et al., 1999). In fact, a better inhibitory control generates a faster resolution of the lexical competition, in turn producing a more fluent language production. It is at this point of the process that the author believes a difference could arise between monolinguals and bilinguals.

In summary, recent literature explores the intricate relationship between dyslexia and bilingualism, emphasizing that this interaction is influenced by various factors like language exposure, language characteristics (e.g., transparency vs opacity), and individual cognitive processes. Dyslexia can significantly impact written language acquisition and proficiency in both the mother tongue and second languages. Bilingual development is influenced by exposure duration, and dyslexia manifests in similar ways across the language dimensions, necessitating tailored assessments and interventions for dyslexic bilingual individuals.

Conclusion

The mainstream literature on bilingualism and dyslexia has often highlighted the weaknesses of these two conditions even if they occur in isolation. However, recent psychological and linguistic literature has shifted from considering bilingualism and developmental dyslexia as risk factors for the acquisition of developmental skills to considering them as different ways of acquiring developmental skills or even as an advantage. This work aims to bring to light this literature, which offers a

stimulus to rethink in a different way those considered to be two issues for the acquisition of language skills, in particular a new point of view on the relationship between Developmental Dyslexia and bilingualism.

In conclusion, this overview of the intersection between developmental dyslexia and bilingualism highlights the evolving paradigms surrounding these apparently dissimilar conditions. Over time, the literature has shifted from viewing dyslexia solely as a deficit to recognizing and valuing the built-in strengths associated with this neurodevelopmental condition. The MIND strengths framework, proposed by Eide and Eide (2012), emphasizes the unique cognitive strengths present in individuals with dyslexia, redefining the narrative and suggesting the adaptive advantages conveyed by this developmental condition. Similarly, the understanding of bilingualism has undergone a profound transformation, moving from historical debates about its potential burden on children to the recognition of the multiple cognitive, social, and professional benefits it offers. Recent studies highlight improvements in cognitive flexibility, attention skills, and executive functions among bilingual individuals, emphasizing the complex interaction between language acquisition, socioeconomic factors, and social support for language use. However, when these two conditions converge, as in the case of bilingual individuals with dyslexia, the interaction presents a unique set of challenges and opportunities. The impact of dyslexia on written language acquisition and competence in both primary and secondary languages is substantial. The occurrence of dyslexia across language dimensions requires tailored assessments and interventions, recognizing individual cognitive processes, language characteristics, and duration of exposure. In-depth evaluations of both languages, considering aspects of grammar, syntax, morphology, phonology, and stylistics, become indispensable to address the diverse needs of dyslexic bilinguals. The interplays entailed in this intersection emphasize the importance of ongoing research, including inter-linguistic perspectives, sociocultural factors, and individualized approaches to learning. The efforts to reveal the complexities between dyslexia and bilingualism not only enhance our understanding of these conditions but also lead the way to more effective strategies in educational settings. Embracing the inherent strengths of dyslexia and drawing on the advantages of bilingualism by addressing the challenges posed by their overlap can lead to more inclusive and tailored interventions, fostering holistic development in individuals navigating these intertwined cognitive domains.

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