
Learning a Language with Dyslexia

It is commonplace to discourage people affected with dyslexia from learning foreign languages. But the condition occurs on a wide spectrum affecting individuals in unique ways. That is why directing people with dyslexia away from language learning solely on the basis of their dyslexia is scientifically unfounded. In this article, we will take a linguistic perspective on this issue, that is to say that we will present the scientific facts about language learning and dyslexia.

Cognitive challenges to learning a language in the context of neuro-diversity

Dyslexia affects language learning according to four main aspects: orthography, patterns, automaticity and motivation.

Orthography

The primary area we should consider is called **orthographic depth**. That is the degree of complexity with which a single sound (or “phoneme” as linguists call them) is transcribed into a writing system. For instance, an Italian dog is called ‘cane’ and reads exactly as the suite of (c = /k/) + (a = /a/) + (n = /n/) + (e = /e/): /kane/. This is a **shallow orthography** where each letter stands for a distinct sound.

So, in weighing the orthographic depth of a target language, one should pay attention to its **granularity**, that is, how many letters are needed to transcribe one sound. One-to-one correspondence is preferable, as with Italian ‘cane’ /k/+a/+n+/e/, Finnish ‘koira’ /koira/ or Welsh ‘ci’ /kii/ (with a long i sound), all words for ‘dog’ in the finest grains observed among European languages.

In contrast, Irish for instance sometimes uses sequences of three letters to transcribe one single sound: ‘aoi’ for /i/ in ‘cathaoir’ or ‘bhf’ for /w/ or /v/ in ‘bhfuil’.

More importantly, the target language should display **consistency** in its spelling. Consider the words ‘two’, ‘too’ and ‘to’ in English: they are all pronounced the same way! Such languages present a much greater challenge to a learner with dyslexia.

Selecting a language with shallow orthography can help learners with dyslexia settle in more quickly into their studies. However, some teachers and researchers report that specific and intensive learning of a new orthographic system in the early stages of the process, will help the dyslexic learner overcome most challenges.

Patterns

People with dyslexia may also experience difficulties in **identifying recurrence of patterns** in a language. This deficiency can affect language learning at two different levels.

Firstly, a learner with dyslexia may not immediately spot the repetition of certain sequences in **words**, known as **morphemes**. The word ‘dyslexia’ itself is made of two morphemes from the ancient Greek: ‘dys’ meaning

“difficult’ and ‘lexia’, meaning ‘speech’. The meaning of the whole word is the sum of the meanings of its morphemes: ‘difficulties with speech’. To support dyslexic learners, language instructors need to purposely point out the patterns in word formation: Irish ‘-ín’ means ‘small’ as in ‘blaithín’ (little flower); Italian ‘-accia’ shows contempt towards the object to whom it is applied: ‘una parola’ is a word, ‘una parolaccia’ is a swear word.

Secondly, dyslexic learners may struggle with how words pattern at **sentence level**. When writing for example, they will generally favour short, declarative sentences and avoid **transformations** such as questions and passive forms. This is because they may struggle with identifying grammatical functions for words or groups of words like verbs, subjects and objects.

Transformational structures by nature, involve manipulation of word order and other adjustments to a declarative sentence.

A typical example would be the handling of object pronouns in romance languages.

Compare the two following sentences in Spanish: ‘Yo leí el periódico’ ‘Yo lo leí’ I read the paper *I it read (I read it)

The substitution of the object phrase ‘el periódico’ (the paper) with its equivalent object pronouns ‘lo’ (it) triggers a change in word order. Learners with dyslexia could be challenged by this transformation because fundamentally, they might have difficulties identifying the grammatical component which needs to be substituted then moved.

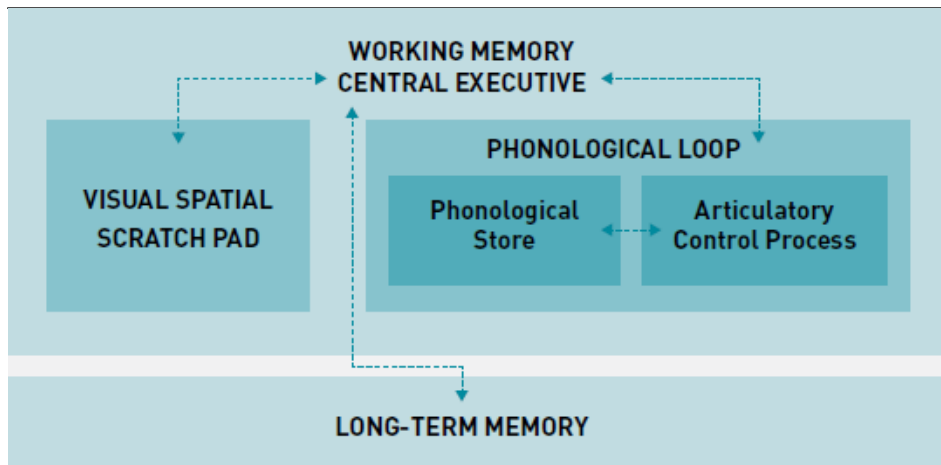
Many learners with dyslexia will strategically compensate the deficiency in patterning language by memorising short sequences of words as whole sentence structures.

Automaticity

But the third source of hardship experienced by pupils with dyslexia in language learning, is the extreme difficulty with which they memorise information.

Most cognitive psychologists acknowledge the model proposed by Baddeley and Hitch (1974) known as **working memory**. It contains:

- **a visual-spatial scratch pad**
- **a phonological loop** for verbal information, made of two units:
 - **the phonological store** (our ‘inner ear’) processes incoming speech;
 - the **articulatory control process** (our ‘inner voice’) stores what the phonological store has decoded by repeating it on a continuous loop, and thus work towards a response (speech production).
- a **central executive** directs our limited attention towards useful information stored in the visual-spatial scratch pad or in the phonological loop, or retrieved from our long-term memory.



It is the **retention of sounds** that causes problems for a learner with dyslexia. The challenge is to hold those sounds in working memory long enough to manipulate them. These operations are further complicated if the data is presented in written format, leading to more toing and froing of information between the phonological store and the articulatory control process. To help with such complex operations, many people with dyslexia like to read aloud. Recourse to spatial and visual support may also facilitate the recall of information from the visual-spatial store, thus alleviating the burden on the phonological loop.

With conscious learning, repetition and practice, most people will render those complex processes automatic. They will become habitual and operate without much cognitive load on the mind, sometimes even unconsciously. Most of us learn to speak our first language(s) or to ride a bike to the point where we no longer need to think about how we do it: that is **automaticity**. But for the learner with dyslexia, a stage of automaticity can be very difficult to reach and a lot of personal work is needed to compensate this natural deficiency.

Self-esteem and motivation

Sadly, it comes as no surprise that many language learners affected by dyslexia, should suffer from low self-esteem. Relentlessly, their language processing abilities encounter obstacles. They overcome those obstacles only to find out soon that they have forgotten the solutions they had applied. Much repetition and practice is needed to overcome those challenges. Sensitised teachers will encourage this **overlearning** and recommend extra resources for a learner with dyslexia to work with. Learners often locate their own resources through personal initiative, especially in local libraries and on the internet. A supportive network of people can also contribute suggestions and encourage the learner to sustain his/her efforts. Organising such a structure is vital because loss of motivation can strike regularly.

Choosing “the right language” for the learner with dyslexia

From a linguistic point of view, it seems that we should pay particular attention to orthographies and patterns in languages. What should we be focussing in order to assist a learner to choose ‘the right one’?

Sounds

Firstly, we should consider the degree of difficulty in processing the new sounds of the target language: how many sounds are similar to my native language(s)? How many new sounds will I be exposed to?

Vowels are particularly problematic because they are less defined than consonants. Consonants are formed by interfering with the airflow in the mouth with any available barrier: the teeth for /t/ and /d/, the lips for /p/ and /b/, the movement of the tongue towards the roof of the mouth for /s/ and /z/, etc. But typically, vowels are free flowing: they have no borders and one vowel can blend into another as in English diphthongs /ai/ ('buy'), /oi/ ('boy'), */ou/ ('bow'). In acoustic terms, the differentiation between two vowel sounds can be subtle. For instance, French nasal vowels */an/ (as in 'blanc', white) and */on/ (as in 'blond', blond) may become undistinguishable if one has a cold.

So a good question to ask oneself would be: how many vowel sounds are there in the language I am considering taking up? Spanish holds the advantage because it has only five pure vowel sounds against 15 for standard German and 13 for standard French for instance (we are excluding diphthongs here, the combination of two or more vowels). As a way of comparison, British English is said to have 12 vowels, although there are great variations in accents. Moreover, the five pure vowels /a/ /e/ /i/ /o/ /u/ of Spanish are formed at the farther corners of the mouth so as to be as distinguishable from each other as possible.

Reading

Secondly we must consider orthographic depth because, 'poor reading in a foreign language [...] in turn negatively influences listening comprehension, oral expression, reading comprehension, syntax, general knowledge and verbal memory' (Sparks, 1995). Before selecting a language to learn, learners and their parents, with the support of teachers and teaching assistants, should first evaluate a learner's reading skills in their native language: have they reached a level sufficient for them to cope with the demands of a new orthographic system? Success in reading in a second language will rely on the transfer of **good reading strategies** from their first language. The learner must possess solid **phonological awareness** in their L1, that is to say that he/she can consistently map out letters and sequences of letters, onto the sounds they represent. A learner will only be as good a reader in their L2 as they are in their L1 at that particular point.

In considering the orthography of a language, we should keep in mind that many dyslexic learners adopt a **whole word strategy** when reading because it fits the global processing approach favoured by their brain. Then they might feel disconcerted by the mechanisms of **agglutination** and **inflection** used in many languages whereby the spelling of words changes.

Agglutinative languages attach grammatical markers to words so as to form long sequences sometimes.

Turkish, for instance, is an agglutinative language:

- kork '(to) fear'
- korku 'fear'
- korkusuz 'fearless'
- korkusuzla 'to become fearless' etc.

Inflective languages modify words, usually at the end. Adding a final -s to a noun to indicate plural is a simple inflection of the English language: 'word'/'words'. The best known form of inflection is probably the process of **conjugation** affecting verbs in all romance languages, including French, Spanish, Italian and Portuguese. For example, in the Portuguese form 'tocaram' (they rang), the inflection -aram indicates all at once the person who called (they), when the call happened (past tense) and the completion of the process: they have hung up.

Another source of frustration for dyslexic readers might be the presence of **diacritics**, little signs added to the standard letters to modify their role in the phonology of a language. A letter with a diacritic represents a new sound which differs from its base letter. In the Turkish phrase 'korkusuzlaÅŸ' (to become fearless), the letter ÅŸ is pronounced /sh/ whereas the letter s is pronounced /s/. Many people with dyslexia have difficulties seeing those subtle add-ons and may mix up the compound sign with its base letter.

However, some evidence has emerged that people with dyslexia may be partial to pointed languages such as Hebrew and Arabic. Pointed languages are languages where vowels are represented by dots carefully placed around the written sequence of consonants.

For example, the word for 'hebrew' in the Hebrew language is אִיבְרִית. It twice contains the vowel /i/ which is represented by a single dot underneath the consonant it attaches to: the silent letter א at the start of the word (remember that Hebrew and Arabic are written from right to left of the page) and the consonant ר in third position, giving rise to the syllables /i/ and /ri/.

Since it is the processing of vowel sounds that causes the most difficulties for a reader with dyslexia, this alternative mode of representation may be quicker to decipher.

Other evidence emphasises the positive response that some learners with dyslexia have towards character-based languages, mostly Asian languages like Chinese, Japanese, Korean and Thai. Logography, to give it its proper name, tends to represent whole words, whereas alphabetical systems roughly represent their component sounds (phonemes).

In keeping with their avowed preference for a global approach to language, dyslexic learners may find reading easier with a logographic system. Moreover, many characters seek to represent words pictorially, and although some element of phonetic representation is also used in logographic systems, they require more visual processing which may balance out slow sound processing abilities. Other languages that require heavy visual processing are the sign languages of the world, including Irish Sign Language (ISL).

So, a learner with dyslexia faced with a choice of languages to engage with, should consider their relative merits in terms of sound processing and orthographic depth. Above all, learners should not be afraid to try out what attracts them. Most obstacles can be overcome with targeted pedagogical interventions, regular work and appropriate accommodations. But a natural affinity with the sounds of a language, the shapes of its letters, the cultures that it conveys, can be the most powerful motivator towards success in language learning.

Author's Note

Please note that, in the course of this article, we are using letters from the standard English alphabet to approximate sounds, rather than the International Phonetic Alphabet devised by phoneticians for the transcription of languages. Unscientific transcriptions are marked with an asterisk*. Conventionally, phonetic transcriptions appear between slashes */slashiz/. Illustrations appear between 'inverted commas'. Translations of illustrations in foreign languages into English are freestanding.

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Thanks to Mr Moti Newman, Chairman, Irish Jewish Museum Trust. My colleagues at Dublin Institute of Technology: Dr Alma Conway, Ms Isabel Martinez and Mr Seán O'Cadhlá.



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