

UNIT 3. PART A. LEARNING DISABILITIES IN WORD RECOGNITION: DYSLEXIA

What are we going to learn in this unit?



- What is dyslexia?
- What are other problems relating to reading acquisition?
- How many children with dyslexia are there in the Primary classrooms?
- How can a teacher realize that a child has dyslexia?
- How many type of dyslexia are there?
- Which are the emotional problems related to dyslexia?
- Is difficult for a child with dyslexia to learn other languages?
- What can the teacher do to help a child with dyslexia?

Materials

- ✓ Castles, A. (2006): The dual route model and the developmental dyslexias. *London Review of Education*, 4 (1), 49-61.
- ✓ International Dyslexia Association (IDA): <http://www.interdys.org/>
- ✓ Fact sheet provided by IDA:
 - Social and emotional problems related to dyslexia
 - At-risk student and the study of foreign language in school
 - Multisensory structured language teaching
 - Accommodating students with dyslexia in all classroom settings
- ✓ <http://www.learning-inside-out.com/dyslexia-statistics.html>

Introduction

Teaching children to read accurately, fluently, and with adequate comprehension is one of the main goals of early education. Reading is critical because a great deal of formal education depends upon being able to read and understand what is read. Reading difficulties will inevitably create negative educational consequences, and also are a major source of economic and social disadvantage. But such difficulties can be reduced by suitable early intervention.

Read carefully Sarah's case

Sara hates reading aloud in class. She's never been a good reader; she seems to have trouble saying the words correctly. School's never been her favorite place anyway because his teachers always complain about her writing and her spelling. She often gets discouraged, thinking that she's not as smart as other students. Fortunately, Sara has discovered she has talents that others don't. She's great at dreaming up costume and scenery ideas in drama club, and she's one of the best artists in her school. Sometimes she wonders how she can do so well in some areas of her life and so poorly in others. What Sarah, her parents, and her teachers don't realize is that Sara has dyslexia.

What is dyslexia?



There are a lot of definitions of dyslexia but the most used definition was adopted by the IDA (International Dyslexia Association) Board of Directors in 2002.

1. Find the formal definition proposed in IDA's web page (<http://www.interdys.org/>) and write it to present in class.
2. The prevalence of dyslexia has been estimated to be between 5-10% of the population. In this sense, if you are a teacher of a class with 28 children, how many children can potentially present as dyslexic?

What is not dyslexia?

3. Read these cases and explain which are cases of dyslexia and which are not (because there are other reading problems but they are not dyslexia).

CASE A. Laura has average intelligence and she doesn't have any hearing or visual disability. The teaching of written language has been normal. However her reading is like a child's two years younger than her.

CASE B. Pablo has a disadvantaged family and social environmental. Because of that he has had a lot of class absences during the first years of schooling. Now, his reading is like a child's one year younger than him.

CASE C. María has an IQ of 70. She has a good social environmental and she is very motivated to learn new concepts. However, she has problem to read fluently and shows a lot of mistakes with very long words (such as "entrenamiento")

CASE D. Luis is a smart child, very cheerful and with good oral expression abilities. However he shows problems of reading fluently; he can read with accuracy but not with speed.

A dual route of visual word recognition and reading aloud: Subtypes of dyslexia

To understand the subtypes of dyslexia it is necessary to know how we read words (word recognition/word identification/decoding). In this sense, there is a relevant model called Dual Route that explains word recognition. Read the article¹ by Castles (2006) and answers these questions about the DRM (Dual Route Model).

4. Make a simple diagram to explain the different routes proposed by this model.
5. If I have to read a familiar word (ex. "mesa"), what route I use?
6. If I have to read an invented word (ex. "casomotro"), what route I use?
7. What route is used frequently when children are starting to learn to read?
8. What route is used frequently by an expert reader?

Manifestations of dyslexia

Reading Fluency: Accuracy and rate/speed

Reading fluency encompasses the speed or rate of reading, as well as the ability to read materials with expression. That is, the fluency is the ability to read a text rapidly, smoothly, effortlessly, and automatically with little conscious attention to the mechanics of reading, such as decoding. In this sense, the term fluency, when applied to reading, indicates several attributes. Fluent reading is accurate. Fluent reading is quick; words are recognized automatically, without the need for sounding out or figuring out from context. And fluent reading is expressive, as the reader comprehends and helps the listener comprehend through phrasing and inflection.

Children are successful with decoding when the process used to identify words is fast and nearly effortless or automatic. As noted, the concept of automaticity refers to a student's ability to recognize words rapidly with little attention required to the word's appearance. The ability to read words by sight automatically is the key to skilled reading.

However, children with dyslexia have a lack of automaticity in word recognition so they present deficits in accuracy and/or speed, that is, children with dyslexia read

¹ **Important note:** I know this article is complex but I would like you to try understanding it. You don't need to understand all concepts presented, try to look for the relevant information to answer the questions. Remember that you don't have to worry if your answers are incorrect, all questions will be explained in details during class.

without fluency. For these children, decoding is not automatic or fluent, and their limited fluency may affect performance in the following ways:

- ✓ They read less text than peers and have less time to remember, review, or comprehend the text.
- ✓ They expend more cognitive energy than peers trying to identify individual words
- ✓ They may be less able to retain text in their memories and less likely to integrate those segments with other parts of the text.

The dyslexia symptoms can range from mild to severe but the common characteristic in children with dyslexia is that they find learning to recognize printed words *inordinately* difficult.

9. Listen to the reading of several children and then analyze the manifestations of dyslexia (activity to complete during the class).

Phonological awareness

Phonological processing skills refer to knowledge about sounds of a language and the skill to manipulate these sounds. There is good evidence from across languages and different age groups that learning to read continuously draws upon such phonological skills. These skills are a robust predictor of word recognition attainment in several alphabetic languages. Importantly, difficulties with phonological skills are a defining characteristic of many poor readers, in different types of writing systems and languages and across age groups into adulthood.

Browse though the web pages: <http://phonologicalawareness.org/index.html> and <http://www.ldonline.org/article/6254/> and answer these questions:

10. What is Phonological Awareness?
11. What are Phonological Awareness skills?
12. Why are Phonological Awareness skills so important for reading?
13. Who benefits from Phonological Awareness instruction?
14. What are the differences between phonological awareness and phonemic awareness?

Emotional problems

Read the letter written by Selva, a girl with dyslexia.

- Me molesta que las demás personas se toman la dislexia como una chorrada.
 - No es justo que manden un texto para leer en clase y que mis compañeros lo terminen en poco tiempo y que yo necesite bastante más.
 - O que tenga un examen aprobado y a causa de tener problemas de ortografía me suspendan.
 - O porque tus notas no son brillantes el profesor/sora, crea que no te esfuerzas.
 - Que te aganber en clase es bastante embarazoso, llague notes igual que los demás.
 - Tengo que esforzarme mucho en hacer los deberes y no se valoran mi esfuerzo.
- ⊕ Se todas estas cosas se toman en cuenta no sería tan complicado ser disléxica

Selva D.S. **14** años

Carta extraída de la web de "Dislexia sin barreras"

15. Analyze the errors made by this girl with dyslexia.
16. Reflect on the impact of dyslexia on the emotional aspects from the letter written by the girl with dyslexia.
17. Read the fact sheet by IDA named "Social and emotional problems related to dyslexia" and summarize the most important ideas proposed.

Difficulties to learn a foreign language

18. Read the fact sheet by IDA named "At-risk student and the study of foreign language in school". Why you think that learning a foreign language is difficult for individuals with dyslexia?

Dyslexia: An obstacle, not a limitation

Intervention in Dyslexia

In the case of dyslexia, as in any learning disability, the best intervention is the *prevention*, so it is essential to pay special attention to children who are at "risk". For example, those who have relatives with the same learning disability or showing poor execution in phonological processing tasks during preschool. As noted, **phonological**

skills are an excellent predictor of potential difficulties in learning to read and write, so it is necessary to show special attention to the children who manifests it (see Figure 1 for more early signs of dyslexia).

Figure 1. Early warning signs of dyslexia

- ✓ Naming people and objects.
- ✓ Naming letters.
- ✓ Rhyming words.
- ✓ Distinguishing between words that look or sound similar.
- ✓ Learning and correctly using new vocabulary words.
- ✓ Learning the alphabet, numbers and days of week.
- ✓ Recognizing letters, matching letters to sounds, and blending sounds when speaking.
- ✓ Associating letters with sounds, understanding the difference between sounds in words.

In case prevention is not possible, the *early detection*, and thus early intervention will be one of the factors which increases the effectiveness of any treatment. Therefore, **teachers must remain especially attentive** to the different manifestations of dyslexia as soon as possible and begin to take appropriate measures for early intervention.

Furthermore, it is noteworthy that dyslexia and learning disabilities of reading we still have much to learn. Because of that we are still investigating the factors related with these difficulties. This understanding of the problem will allow us to refine the intervention procedures especially in cases of children with severe difficulty. It is therefore advisable to continue to *update the knowledge* about dyslexia as this will impact on improving teaching practice.

One thing to note is that there is no general intervention for dyslexia given their heterogeneity, that is, each child will manifest a different profile and that profile is difficult to determine one intervention approach over another. In this sense, it is fundamental to know what the specific manifestations of dyslexia are in order to plan the best intervention for this child.

In any case, the approach should be characterized by the coordination of three pillars: parents, teachers and specialists (outside and/or inside the center). If these three points work in coordination we will ensure the progress of children with dyslexia.

Individual Intervention

Children with dyslexia require *individual* and customized *intervention* based on the deficits that have been identified in the assessment. This intervention will be done by the specialist in school once or twice a week (e.g. speech therapist, specialist in special education ...). Also, you may need to see another specialist outside the center. The main aspects that must be included in an individual intervention in dyslexia are:

Word Recognition. The main problem for children with dyslexia is the specific mechanisms of reading. Therefore, the aim of the intervention is to get the child to acquire the GPCR (Grapheme-Phoneme correspondences rules) and PGCR (Phoneme-

Grapheme correspondences rules) properly and reach the automatization. The goal is to get a fast and accurate reading, that is, reading fluency.

There are several methods to facilitate and support the learning of GPCR. An example of these methods is based on *multisensory teaching approach* where each phoneme is taught through the use of different sensory modalities (visual, auditory and tactile). In that sense, it starts working visual and auditory modalities so that the teacher shows a card with a letter and says its name and sound. Then, this learning is supported with other modalities such as kinesthetic-tactile so that, for example, the child has to do activities like mold plasticine letter, trace it with your finger, form syllables or words with letters manipulated... (see document Multisensory Structure Language Teaching for details).

Importantly, the teaching-learning aim must not only be only letters but also groups of them. Specifically, Spanish children with dyslexia often have special problems for learning consonant clusters (e.g. *br-*, *tr-*, *pl-*), so that there are frequent inversions (read *paltano* instead of *plátano*) or omissions (*Patano* for *plátano*).

This type of intervention helps to especially increase reading accuracy but does not always have an effect on the speed improvement. We must remember that our goal in the intervention is that children get automatization in decoding processes. This will liberate the cognitive load that the child could use to process other activity (e.g. comprehension...).

One way to provide extensive practice is *repeated readings*. This method is for the child to read short paragraphs repeatedly until he/she reaches a certain level of fluency. Then equivalent text is presented to achieve widespread progress. It has been found that this method not only improves the ability of decoding but also increases reading comprehension. However, it has a limitation related to the motivation toward reading. It is therefore advisable to use texts that are very attractive to him/her and are accompanied by images. In addition, graphs can be used to express their improvements.

Another specific method to achieve reading fluency is *reading in shadow*. It consists of reading a text aloud jointly and simultaneously by the student and the teacher. It can also be done by parents or other peers. The effectiveness of this intervention is as good as repeated reading but usually it is more motivating.

Individual interventions that we have detailed so far on the specific mechanisms are complemented by those methods based on the *global recognition of words*. This approach is especially useful in children with surface dyslexia. It consists of the presentation of the complete word with its corresponding meaning for the student to memorize. They often use high frequency words where the child usually makes many errors due, for example, to orthographic complexity (such as the verb "haber"). One way to work the words as a whole is that the child has a "box of words." Every time the child has a problem with a word (by its length, orthographic features ...) they should make a card that includes the word with other information such as its meaning, a drawing, similar words, and so on. At the end of each week the child reviews all the words that have been included in the box and they can remove those that they can read and write properly. This activity can also be done at home, for example, via computer with PowerPoint program.

Phonological awareness (phonological skills). The reading difficulties are closely related to phonological skills, so tasks that facilitate the detection and manipulation of the elements of the language will improve their performance in reading. The specific type of

activities that are implemented will depend on the specific characteristics that the child presents, in Spanish dyslexia, there are particularly suitable phonemic awareness activities, for example, count the number of phonemes in a word or omit the first or last phoneme of a word and see what comes out. The effectiveness of this type of activity increases when accompanied with supporting teaching GPCR.

Reading comprehension. As seen in the definition of dyslexia, the main difficulty lies in decoding but, as a result of this problem children can also have a low reading comprehension level. Children with dyslexia often have less contact with the written material so that your experience with reading is lower than that of their peers without difficulty. The aim of intervention in this area is to help them acquire general language skills that are usually obtained from contact with the reading. In that sense, the intervention should include this area, for example, by increasing level of prior knowledge and oral vocabulary.

Finally, it's important to note that the intervention should go beyond the academic aspects and also consider the *emotional aspects*, these children often have problems with self-esteem, loss of confidence, anxiety, especially when the problem is detected in older children like in the 5th or 6th grade.

The activities used in this individual focus of the intervention in dyslexia may be implemented in the classroom with the whole group, and will also be made to improve the reading and writing of all children in the classroom.

Intervention in the classroom

Teaching in a classroom with a dyslexic child, in most cases involves only slight modifications or adjustments of teaching methods. Moreover, children with dyslexia will be receiving or will receive individualized treatment to alleviate their difficulties.

The support in the classroom must begin by understanding the problem so that the child knows that the teacher understands the difficulties and knows that it's not due to a lack of motivation or laziness. Teachers must express to the student that they are at the child's disposal. They are there to help her/him and should encourage the child to ask questions whenever the child needs. The teacher must express the idea that the child may need more effort than their peers but he/she can certainly achieve all the objectives proposed.

Regarding the *teaching materials* the teacher must do a critical review of the materials for daily use: font, presence of drawings at the bottom of the text that may be distractive, reading problems' influence on other subjects (science or math). Also, the teacher should think about the manifestations of dyslexia (GPCR, problems in phonological processing, memory, attention ...) in order to understand their overall cognitive processing (which may be easier or harder for him/her). For example, the teacher should be take into consideration the fact that listening and writing simultaneously can be very difficult for a child with dyslexia, so a task such as dictation can be very difficult for these children. In that sense, we can use other methods to improve the spelling as complete sentences with the target words. This kind of method includes the curriculum contents but reducing the difficulty for dyslexic children.

Specifically, the teaching of written language instruction should be **structured, sequential, explicit, cumulative and multisensory**. It is recommended that there is an explication of any written language rules. For example, first we can explain the generality (e.g. we write with b- the words that starts *with bu-, bus-and bur-*) and then apply to concrete examples repeatedly (e.g. *buître, buscar, burgués, ...*).

When the child makes mistakes we must give immediate feedback; teachers should not hesitate to interrupt the reading in order to correct it. The correction must be precise and short so that interference is minimized.

Regarding *daily activities in the classroom*, it is important to remember that these children take more time than their peers to complete activities and also is likely to be distracted easily because reading involves a greater cognitive load. Along these lines, it is important to make frequent changes to the academic tasks, particularly in those tasks with a high phonological demand.

Also, try to avoid having the child copy sentences from the textbook or blackboard; it's better if the teacher gives the child a sheet with all the information in order for the child to devote their resources to solve the task rather than copying. In that sense, as a complementary activity, we can teach them to take notes using short notes.

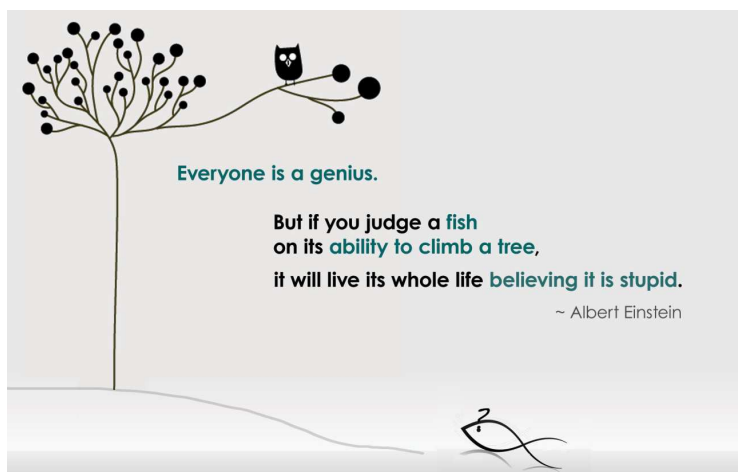
As much as possible the teacher will try to reduce *the homework* that will have to be done at home so that the child can have time available to perform specific tasks related to their problem and/or activities especially motivating for him/her (e.g. playing sports, dancing, playing an instrument ...).

Regarding the *emotional side*, the teacher should try to emphasize the positive aspects of their work individually and publicly. To do this, try to promote activities which are likely to be successful either because the child is motivated or because he/she performs it satisfactorily (e.g. oral, manipulative type tasks ...). In that sense, it is advisable to avoid reading aloud in the classroom unless a text has been previously worked on individually at home or in class.

Finally, it is important that the teacher does not obviate other associated problems that children with dyslexia can manifest such as poor motor coordination, problems in maintaining attention or inconsistency in their performance.

Academic Assessment

The assessment of the child with dyslexia should be multicomponent, that is, their final



score must not be based only on written tests (exams) but it must be complemented by oral examinations, work done in class with available materials, oral presentations of the content of the textbook or monographic works made individually or in groups, among others.

Some recommendations for academic assessment of children with dyslexia are:

- ✓ Complete the written tests with oral tests. For example: after the realization of the written exam investigate their gaps with oral questions to check if the problem is due to a lack of knowledge or to their difficulty.
- ✓ The day before the test you should avoid giving homework in order for the child to focus on preparing for the test.

- ✓ It is very important to stimulate their self-assessment, for example, suggesting an exam review before delivering the exam.
- ✓ The teacher can provide more time to complete the test or include fewer questions.
- ✓ It is beneficial to include true/false and multiple choices questions on the exam.
- ✓ The dictation is a particularly complex task for children with dyslexia. Therefore, it's important that you don't include it in an exam or correct only some of the mistakes.
- ✓ It's also advisable to include two notes on each test; one of them to reflect the content and another referred to reflect the errors related to spelling.

(You must complete this information with the information in the document named Accommodation Students with Dyslexia in all Classroom settings)

Family Intervention

The most important role of the parents of a child with dyslexia is to support their emotional level. While the academic help they can provide depends on their cultural level, emotional support you can offer in any case. This support shows that parents understand the problem and want to help child succeed.

The teacher's role in the family begins by providing them with information about dyslexia, its main manifestations and the consequences associated with it. Also the teacher must try to remove misconceptions of the child as "*clumsy, lazy*" that will affect their self-concept and thus, their self-esteem. Also, the teacher must transmit that dyslexia is not a problem to be resolved quickly (on the contrary, can be present throughout their entire academic life) but his collaboration and the center staff can compensate the difficulties.

It's important inform to parents that these children also tend to have problems with attention, memory and their performance can vary on different days. This information is valuable as some parents are confused (they do not understand why yesterday she/he read well one word and today read the same word with mistakes).

We recommend them to seek a fixed study site and all necessary materials with a specified schedule; creating proper study habits is very important, especially in the case of these children.

The family must create an environment that transmits confidence to the child and lets them know that the parents are aware that to achieve good performance it is going to be harder than their peers. In short, parents (as well as teachers) must appreciate the extra effort that is involved in reading and other academic activities.

Children with dyslexia can have younger siblings who read better than them. Sometimes, parents can use this fact as a warning to work more, making comments like: "*Look at your brother, he is younger but reads better than you*". It is important to inform them that it is not advisable to make such comparisons, because they tend to be more demotivating (more than to be an incentive to keep working). At other times, it is possible that some of their relatives have had the same problems as the child (possibly undiagnosed in the school) and we highly recommend for them to get to know the child, and thus they will feel identified.

It is very beneficial to parents to seek other non-academic skills that are motivating for children and those with good performance. For example, playing an instrument, taking computer classes, playing sports, dancing, painting... However, the children should not be overloaded with too many activities (in many cases being treated to once or twice a week, in addition to the academic tasks and daily school activity can lead to an overloaded child). The recommendation is to select the most relevant activities and to assess the changing needs (e.g.: every three months).

Finally, the teacher can provide more information through dyslexia associations and other sites where parents can feel connected with others who are also suffering from the same problem. For example:

- Asociación Dislexia Granada

www.dislexiagranada.es

info@dislexiagranada.es

- Asociación Dislexia Jaén ASDIJA

<http://dislexiajaen.myblog.es>

dislexiajaen@yahoo.es

- Federación Española de Dislexia <http://www.fedis.org/>

- Asociación Dislexia sin barreras, con sede en Madrid
www.dislexiasinbarreras.com

- Dislexia Canarias y otras dificultades de aprendizaje (Dislecan) www.dislecan.es

In summary, children with dyslexia should be identified early. It is demonstrated that benefits from direct and explicit instruction of GPCR, including intervention in phonological skills. The support must be systematic and multisensory, with careful sequencing and using texts adjusted to the reader (not chronological age) which will become more complex as improvements are evident. We recommend the use of concrete and playful materials (plastic letters ...). The fundamental objective of the intervention is to get word recognition automatized to release cognitive resources that can be devoted to reading comprehension and other activities. This requires ensuring extensive practice with repeated readings and other varied activities. You need a good learning environment for reading and controlling motivating aversion that some children develop. In that sense, it is also the emotional aspects involved, such as self-esteem that are important to consider.

19. Summarize the main aspects that cover the intervention of dyslexia.