



ORIGINAL

## EFL Pre-service Teachers' Understanding about Dyslexia

### Conocimiento de la dislexia por parte de los futuros profesores de EFL

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#### ABSTRACT

Initial teacher preparation plays a crucial role in identifying and supporting students with special educational needs, such as dyslexia, a disorder that affects English language learning. The purpose of this study was to examine the level of knowledge and difficulties of 124 pre-service English teachers at a public university in Ecuador about dyslexia. Data were collected in three different courses from 6th to 8th level from a public university and analyzed using SPSS 27.0 through descriptive statistics, Chi test, and Kruskal Wallis test, taking into account the participant's scores from the Knowledge and Beliefs about Developmental Dyslexia Scale (KBDDS). A Spanish-adapted version by Betancor (2022) of the original version by Soriano-Ferrer and Echegaray-Bengoia (2014). The results showed that the participants still did not have enough knowledge about dyslexia. Also, a thorough analysis of gender and level variables was conducted and showed that there was no significant effect. These results suggest the need to promote courses and include the topic of dyslexia for future English teachers in their classes to prepare them to provide more inclusive teaching.

**Keywords:** Preparation; Teachers; Knowledge; Dyslexia; Disorders; Learning.

#### RESUMEN

La preparación inicial de los profesores desempeña un papel crucial en la identificación y el apoyo a los estudiantes con necesidades educativas especiales, como la dislexia, un trastorno que afecta al aprendizaje del inglés. El propósito de este estudio fue examinar el nivel de conocimiento y las dificultades de 124 profesores de inglés en formación de un instituto público de Ecuador sobre la dislexia. Los datos se recogieron en tres cursos diferentes de 6° a 8° de primaria de un instituto público y se analizaron con SPSS 27.0 mediante estadística descriptiva, prueba de Chi y prueba de Kruskal Wallis, teniendo en cuenta las puntuaciones de los participantes en la Escala de Conocimientos y Creencias sobre la Dislexia Evolutiva (KBDDS) y su versión adaptada al español por Betancor de la versión original de Soriano-Ferrer y Echegaray-Bengoia. Los resultados mostraron que los participantes aún no tenían suficientes conocimientos sobre la dislexia. Asimismo, se llevó a cabo un análisis exhaustivo de las variables género y curso, que mostró que no había un efecto significativo. Estos resultados sugieren la necesidad de promover cursos e incluir el tema de la dislexia para los futuros profesores de inglés en sus clases con el fin de prepararlos para impartir una enseñanza más inclusiva.

**Palabras clave:** Preparación; Profesores; Conocimientos; Dislexia; Trastornos; Aprendizaje.

## INTRODUCTION

The difficulties of learning have drawn more attention and research in the educational field.<sup>(1)</sup> These difficulties include a range of disorders that affect students' ability to process information effectively, such as dyscalculia, disorders caused by attention deficit, hyperactivity, and dyslexia.<sup>(2)</sup> These difficulties have significant implications for the academic and social success of individuals.<sup>(3)</sup>

Among learning disabilities, dyslexia is considered the most common learning disability in the population. It affects more adults and children around the world.<sup>(4)</sup> According to the data of the Observatorio Internacional de Dislexia y otras Dificultades Específicas de Aprendizaje,<sup>(5)</sup> dyslexia affects more than 10 % of the world's population, and it can lead to illiteracy and social exclusion if it is not properly treated.

Besides, compared to other learning disabilities, between 6 and 17 % of the world's population may have dyslexia,<sup>(6)</sup> while approximately 3-6 % of the population suffers from dyscalculia.<sup>(7)</sup> For instance, as stated by The Dyslexia Compass Project by the European Union, it is estimated that between 5 % and 12 % of the European population is dyslexic.

In the academic context, dyslexia are considered a language learning disorder that affects language skills. It refers to the disability in children who are unable to achieve the appropriate intellectual abilities through traditional classroom instruction.<sup>(8)</sup>

Dyslexia can block students from reaching the expected levels of learning. It is a learning disorder that prevents students from developing correctly in the teaching-learning environment, generating emotional and cognitive difficulties in their daily lives.<sup>(9)</sup>

The reality of dyslexia in the teaching-learning process is far from facing the problem of inclusive education, especially with dyslexic students. So, teachers must have constant training about dyslexia to reorganize their teaching practice to create a trusting, collaborative, inclusive, and tolerant environment. Besides, teachers agree there are some limitations such as selflessness, economy, time, and individualized attention without the knowledge of strategies and resources to correct difficulties in the teaching-learning process.<sup>(10)</sup>

By analyzing teachers' and pre-service teachers' understanding of dyslexia, there are no differences in the level of knowledge among them, even though teachers have taken courses, they do not have significant awareness of dyslexia, and the only thing they have in common is the sense of responsibility to educate this kind of students, and the feeling of not having enough training to do it.<sup>(11)</sup> However, in the case of pre-service teachers, Nijakowska<sup>(12)</sup> considers that they must understand dyslexia, because this understanding will help them with their work with those types of students.

Learning English as a foreign language (EFL) presents significant challenges for students with dyslexia as they struggle with comprehension. Students already diagnosed as dyslexic who are attempting to learn a foreign language may experience varying degrees of difficulty in acquiring reading and writing skills.<sup>(12)</sup> English's orthographic and phonological complexity can increase learning difficulties for these students.<sup>(13)</sup>

Early detection of dyslexia in EFL learners is crucial to provide effective interventions.<sup>(3)</sup> According to Nushi y Eshraghi<sup>(14)</sup> identifying dyslexia early allows for the application of specific strategies that can greatly improve students' reading and writing, and in English as a foreign language (EFL) learning, this early detection is even more important because students face the difficulties of dyslexia and the challenges of learning a new language.

Teachers play a crucial role in helping English language learners develop their skills.<sup>(15)</sup> However, many teachers do not have a strong understanding of how to work with a specific learning disorder, such as dyslexia, which can significantly affect children's abilities.<sup>(16)</sup> Then, they need to be prepared and aware of the existence of dyslexia in their classrooms to improve a teaching-learning English environment.<sup>(17)</sup>

Regardless of the field of education, it is imperative to acquire knowledge about dyslexia to recognize it and provide assistance. In the fields of national and foreign language pedagogy, English language studies, basic education, scholar psychology, and special education, students recognize and concur that they must enhance their skills and knowledge to effectively address dyslexia in each given area.<sup>(11,18)</sup>

Around the world, some studies point out that the main problem with pre-service teachers is poor knowledge and information about dyslexia.<sup>(19,20,21,22,23)</sup> In addition, another problem with EFL pre-service teachers is misconceptions about dyslexia which would affect their future teaching practice.<sup>(19,20)</sup> Besides, poor understanding and adequate training of EFL pre-service teachers about dyslexia would affect their teaching abilities, and interfere with the effective support of students with this learning disability.<sup>(19)</sup>

However, this absence of knowledge in pre-service teachers could be slightly reduced with lectures and obligated treatment about how to work with Dyslexic students provided by the institutes.<sup>(18)</sup>

In the context of Ecuador, teachers are not well prepared to work with children with dyslexia in EFL classrooms. According to the Ministerio de Educación<sup>(24)</sup> despite the implementation of training programs, teachers are still not prepared to face the challenge of inclusive education, especially with dyslexic students to succeed in learning English.

As it is stated, this study pretends to analyze EFL Pre-service Teachers' level of understanding of Dyslexia as they have to be prepared to face inclusive education, so that teachers in training can handle this type

of information in their teaching-learning process. In addition, the results of this study must be useful for formulating a possible curricular restructuring to include content related to dyslexia, that could make this public university the pioneer in establishing a training curriculum in education careers.

In addition, to reach the objective, two specific research questions were elaborated:

1. Does the gender of the participants influence their KBDDS level?
2. Does the participants' course influence their level of KBDDS?

## METHOD

The research followed a no-experimental- transversal design and the quantitative method, since it collects data from a survey of standardized questions, to investigate the knowledge about dyslexia of pre-service teachers in EFL.<sup>(25)</sup> It involved a descriptive level that employed the scale by Soriano-Ferrer & Echegaray-Bengoa.<sup>(26)</sup>

### Participants

There were 124 volunteer EFL pre-service teachers from a public higher education institution in the province of Cotopaxi in Ecuador who completed the survey. The participants were males and females who ranged in age from 20 to 35 years old, and they were studying in their sixth, seventh, and eighth semesters, respectively. The selection of participants was done by convenience sampling. In total, 124 prospective teachers were involved in the research. The group included men and women between the ages of 20 and 35, in their sixth to eighth semester of their academic training. The specific details of the participants can be found in table 1.

Variables		F	Valid Percent	Cumulative Percent
Level	6to	27	21,8	21,8
	7mo	51	41,1	62,9
	8vo	46	37,1	100
Gender	female	81	65,3	65,3
	male	43	34,7	100
Total		124	100	

### Instrument

The instrument used in this study was a Spanish-adapted version by Betancor<sup>(27)</sup> called Knowledge and Beliefs about Developmental Dyslexia Scale (KBDDS) of the original version by Soriano-Ferrer and Echegaray-Bengoa,<sup>(26)</sup> to ensure that participants fully understood the questions and thus reduce misunderstandings that could arise from language barriers. The use of questionnaires in the participants' native language improves the validity of the research results, by ensuring their better understanding.<sup>(28)</sup>

The research instrument was structured in three main sections. The first section included socio-demographic questions that collected information on participants' gender, age, and educational level. The second section consisted of five dyslexia-specific questions, where participants could select the option that best reflects their level of knowledge. The third and final section comprised thirty-six items assessing knowledge and beliefs about dyslexia, each with three response options: True, False and I don't know. These 36 questions consisted of three dimensions that included moderate levels of general information (17 items), diagnostic questions (10 items), and a subscale dedicated to dyslexia treatment (9 items).

### Data collection and analysis procedures

The present research collected data between May and October 2024 using the KBDDS instrument. In order to facilitate participation, the scale was adapted to the Google Forms format, and participants were invited to complete it voluntarily and online. Data confidentiality was guaranteed and adhered to established ethical principles. However, specific information on dyslexia was omitted to evaluate the participants' level of prior knowledge regarding this topic.

Data analysis was carried out using SPSS 27.0 software. Response frequencies were calculated for each KBDDS item, categorizing the responses into "Correct", "False" and "Don't know". Subsequently, the Kruskal-Wallis test was used to examine whether there were significant differences in the results of the three factors as a function of the independent variables.

To deepen the analysis and obtain a more detailed view of the results, the three most frequent response

categories were presented. This made it possible to identify the aspects in which the participants showed greater or lesser knowledge, which contributed to increasing the validity and reliability of the findings.

### Ethical Considerations

Before getting the data from the participants, informed consent was included in the survey in Spanish for a better understanding of the pre-service teachers. It was specified that they were free to participate, and it was explained that their participation would be completely anonymous and for research purposes. Before taking the survey, to maintain responsibility, clarity, and professionalism with the institution, the director of the high-level public institution and the director of the Pedagogy of Nationals and Foreign Language career signed a letter about the purpose of the instrument. Both of them gave their consent to do it.

### Findings

To achieve the general objective, the results of the Developmental Dyslexia Scale (KBDDS) can suggest that the pre-service teachers involved in the study have little knowledge about dyslexia. The percentage of correct answers was 41,3 %. It is 35,3 % for General Information, 50 % for Diagnosis, and 42,9 % for Treatment. This denoted that the participants answered incorrectly and stated that they did not know enough about more than half of the items.

	Percentage of Correct Answers	Percentage of Wrong Answers	Percentage of Do Not Know
General Information	35,3	30,5	34,2
Diagnosis	50	23,3	26,7
Treatment	42,9	23,1	34
Total	41,3	26,7	32

To answer the first research question concerned to analyze the influence of the participants' gender on their dyslexia knowledge in KBDDS, it was found that the average scores of males were slightly higher in factor 1. On the other hand, in Factor 2 and Factor 3, the variance in the scores of females was a little higher. In factor 3 the means were equal for males and females as in factor 2. This suggests that the observed differences are attributable to random variability not to the genders. Therefore, the analysis in table 3 indicated that there was no statistical significance between men and women taking into account all the factors.

Gender	n	Mean	SD	df	t	p
f1 Male	43	7,14	3,277	122	-0,894	0,373
Female	81	6,62	2,998			
f2 Male	43	3,91	1,702	122	0,052	0,959
Female	81	3,93	2,036			
f3 Male	43	3,91	1,702	122	0,052	0,959
Female	81	3,93	2,036			

**Note.** f1: General Information, f2: Diagnosis, f3: Treatment factors)

To answer the second research question about the influence of the students' level, the statistical analysis in Table 4 was done by the Kruskal-Wallis test. The analysis of mean scores among 6th, 7th, and 8th-level students also did not show a statistically significant effect. In factor 1, the seventh level had a slightly higher mean, but there was no significance. For factor 2, the means were quite similar among 6th, 7th, and 8th level. In factor 3, 6th and 7th level students had better scores. However, it was not significant. This indicates that the differences can be attributed to random variability rather than systematic differences among levels.

Table 4. Results according to the level							
		N	Mean	Std. Deviation	x 2	P	Significance
f1	8vo	46	6,65	2,791			
	7mo	51	6,96	3,544	39,611	0,072	No
	6to	27	6,74	2,754			
f2	8vo	46	4,85	2,108			
	7mo	51	5,00	2,298	21,978	0,233	No
	6to	27	5,11	1,423			
f3	8vo	46	3,65	1,969			
	7mo	51	4,02	1,965	14,018	0,728	No
	6to	27	4,19	1,755			

**Note.** f1: General Information, f2: Diagnosis, f3: Treatment factors.

## DISCUSSION

The first research question about the level of knowledge and gaps about dyslexia among pre-service teachers in a public high school in Ecuador revealed that less than half of the participants answered the questions from the KBDDS scale correctly. These results indicated that the participants had a deficiency of knowledge about dyslexia. It means that they are not yet prepared to educate dyslexic students. The wrong knowledge pre-service teachers have about dyslexia will affect their future teaching practice.<sup>(19,22,23)</sup>

The statements of insufficient knowledge (don't know) by the participants were associated with 5,3 % more than incorrect answers. This showed that participants were aware of their absence of knowledge but they had fewer misconceptions about dyslexia.

The percentage of general information (factor 1) was particularly low, indicating that participants did not know much about dyslexia. Therefore, it may affect their future classroom practices.

The analysis of the most common correct, incorrect, and don't know answers to understand the participants' perceptions of knowledge and beliefs about dyslexia showed that the correct answers came from the diagnostic factor even though they had problems with some particular questions.

On the other hand, the analysis of the most common incorrect answers showed that the participants wrongly believed that the main characteristic of dyslexia is the reversal of letters and words. Furthermore, the most common Don't Know answers were in item 7 from the General Information factor (Most studies indicate that about 5 % of school-age students have dyslexia), item 27 (Problems establishing laterality (body schema) are the cause of dyslexia), and item 35 (Dyslexia usually lasts a long time).

These findings revealed that participants need more knowledge about general information about this learning disability. Knowing about dyslexia in the educational field can help children and young learners in the teaching process taking into account that there must be at least one or two students per class with dyslexia, assuming that the number of students is between 30 to 40 per grade, as is common in Ecuadorian classrooms.

The participants had an absence of knowledge about the essential causes of dyslexia such as establishing laterality. Undefined laterality or crossed laterality presents problems in learning reading and writing, difficulties with the body schema and space-time, as well as difficulties in mental arithmetic.<sup>(29)</sup> The most common incorrect answer suggests that participants mistakenly believed that dyslexia was not inherited. However, dyslexia are a common neurodevelopmental disorder that is highly heritable.<sup>(30)</sup>

The first and second research questions focused on determining whether gender and level had any effect on participants' level of KBDDS. The study revealed that gender did not influence any of the factors, the present statement is in agreement with Atar and Amir<sup>(19)</sup> who found that gender was not related and had no significance in dyslexia knowledge.

In the same way, the analysis by the 6th, 7th, and 8th level with the KBDDS scale showed that there was no significant effect on the participants' knowledge about dyslexia. The poor assistance in teaching about dyslexia generates a conflict since future teachers still do not know how to identify students with this problem. It would affect their future teaching practices.

The analysis of the results compared with previous studies indicated that the knowledge of pre-service teachers regarding dyslexia is extremely limited by their gaps and misunderstandings. It could be reduced by applying mandatory lectures and treatments for dyslexic students given by educational centers.<sup>(18)</sup> Early identification of dyslexia in EFL learners is critical to provide effective measures.<sup>(3)</sup>

Future research should examine best practices for forming future educators about the origins, prevalence, characteristics, and instruction of dyslexia.<sup>(11)</sup>

## CONCLUSIONS

Dyslexia is a disorder that affects English language learning. EFL pre-service teachers present misconceptions and little information about dyslexia, especially related to general information, it means about Diagnosis, and about Treatment. This fact denoted that the participants answered incorrectly and stated that they did not know enough about more than half of the items. Therefore, it is crucial to address how to instruct EFL pre-service teachers on dyslexia, to be more inclusive in the English classroom.

On the other hand, the analysis of the factors of general information, diagnosis, and treatment showed that knowledge about dyslexia is not limited to gender, but to the appropriate information and education received by both males and females. To sum up, none of these variables (gender and level) were a significant predictor of KBDDS performance.

Besides, the level of the participants, such as 6th, 7th, or 8th-level, did not determine their knowledge of dyslexia. The knowledge about this learning disability depends more on the knowledge and training that is provided to them. than the academic level of the EFL pre-service teachers.

## Further Research

This study was developed in one public university in Ecuador, where pre-service teachers are trained, however, it is important to conduct research in more institutions to improve the results. It is clear that more evidence is needed to examine the challenges faced by pre-service English teachers in educational institutions in Ecuador in terms of knowledge of dyslexia. Consequently, it is necessary to conduct further research on dyslexia knowledge and how to implement it in courses or workshops in the teacher training and in-service programs of universities from Ecuador. This will contribute to future research focused on learning difficulties in EFL classrooms and improve teaching practice in future teachers. It also will contribute by improving the understanding of the foundational knowledge of pre-service teachers of English as a foreign language.

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## ANNEX

## Appendix A. Descriptive Results of KBDDS

Factors	Item No.	Items	Verdadero		Falso		No sé		Correct answer
			N	%	N	%	N	%	
Gen. Info.	1	La dislexia es un trastorno de base neurológica.	73	58,9	14	11,3	37	29,8	Verdadero
	2	La dislexia es causada por déficits de percepción visual que resultan en la inversión de letras y palabras.	66	53,2	35	28,2	23	18,5	Falso
	3	Un niño puede ser disléxico y superdotado.	68	54,8	13	10,5	43	34,7	Verdadero
	4	La mayoría de los niños con dislexia suelen tener problemas emocionales y / o sociales.	44	35,5	43	34,7	37	29,8	Verdadero
	5	El cerebro de las personas con dislexia es diferente al de las personas sin dislexia.	37	29,8	55	44,4	32	25,8	Verdadero
	6	La dislexia es hereditaria.	28	22,6	56	45,2	40	32,3	Verdadero
	7	La mayoría de los estudios indican que alrededor del 5% de los estudiantes en edad escolar tienen dislexia.	35	28,2	20	16,1	69	55,6	Verdadero
	8	La dislexia es más frecuente en hombres que en mujeres.	28	22,6	31	25	65	52,4	Verdadero
	16	Todos los lectores deficientes tienen dislexia.	17	13,7	70	56,5	37	29,8	Falso
	20	Los estudiantes que tienen discapacidades de lectura sin una causa aparente (por ejemplo, discapacidades intelectuales, ausentismo, instrucción inadecuada, ...) se denominan disléxicos.	27	21,8	48	38,7	49	39,5	Verdadero
	21	Los niños con dislexia no son estúpidos ni perezosos. Conocer la dislexia puede ayudarlos.	89	71,8	22	17,7	13	10,5	Verdadero
	25	Creo que la dislexia es un mito, un problema que realmente no existe.	13	10,5	90	72,6	21	16,9	Falso
	27	Los problemas para establecer la lateralidad (esquema corporal) son la causa de la dislexia.	28	22,6	28	22,6	68	54,8	Verdadero
	29	La dislexia se refiere a una condición relativamente crónica que generalmente no se puede superar por completo.	35	28,2	42	33,9	47	37,9	Verdadero
	30	Muchos estudiantes con dislexia continúan teniendo problemas de lectura cuando son adultos.	70	56,5	20	16,1	34	27,4	Verdadero
	31	Muchos estudiantes con dislexia tienen baja autoestima.	51	41,1	33	26,6	40	32,3	Verdadero
35	La dislexia suele durar mucho tiempo.	36	29,0	23	18,5	65	52,4	Verdadero	
Diagnosis	9	Generalmente, los niños con dislexia tienen problemas con la conciencia fonológica (p. Ej., La capacidad de escuchar y manipular sonidos en el lenguaje).	55	44,4	28	22,6	41	33,1	Verdadero
	11	Las personas con dislexia tienen una inteligencia por debajo del promedio.	18	14,5	74	59,7	32	25,8	Falso
	12	Los estudiantes con dislexia a menudo leen con imprecisión y falta de fluidez.	79	63,7	18	14,5	27	21,8	Verdadero
	13	La inversión de letras y palabras es la principal característica de la dislexia.	82	66,1	21	16,9	21	16,9	Falso
	14	La dificultad con el procesamiento fonológico de la información es uno de los principales déficits que se encuentran en la dislexia.	50	40,3	21	16,9	53	42,7	Verdadero
	15	Las pruebas de inteligencia son útiles para identificar la dislexia.	52	41,9	37	29,8	35	28,2	Verdadero
	32	Los niños con dislexia tienen problemas con la decodificación y la ortografía, pero no con la comprensión auditiva.	76	61,3	19	15,3	29	23,4	Verdadero
	33	La aplicación de una prueba de lectura individual es esencial para diagnosticar la dislexia.	84	67,7	11	8,9	29	23,4	Verdadero
	34	Los niños con dislexia generalmente tienden a hablar mal.	40	32,3	41	33,1	43	34,7	Verdadero
	36	La dislexia se caracteriza por dificultades para aprender a leer con fluidez.	84	67,7	19	15,3	21	16,9	Verdadero

<b>Treatment</b>	<b>10</b>	El modelado de la lectura fluida se utiliza a menudo como técnica de enseñanza.	63	50,8	14	11,3	47	37,9	Verdadero
	<b>17</b>	Se puede ayudar a los niños con dislexia mediante el uso de lentes de colores / superposiciones de colores.	27	21,8	32	25,8	65	52,4	Falso
	<b>18</b>	Los médicos pueden recetar medicamentos para ayudar a los estudiantes con dislexia.	25	20,2	36	29,0	63	50,8	Falso
	<b>19</b>	Se ha demostrado que la instrucción multisensorial es un método de enseñanza ineficaz para tratar la dislexia.	41	33,1	23	18,5	60	48,4	Falso
	<b>22</b>	Dar a los estudiantes con dislexia adaptaciones, como tiempo adicional para las tareas, listas de ortografía más cortas, asientos especiales cerca del maestro, etc., es injusto para otros estudiantes.	54	43,5	50	40,3	20	16,1	Falso
	<b>23</b>	Los programas de intervención que enfatizan los aspectos fonológicos del lenguaje con letras como apoyo visual son efectivos para los estudiantes con dislexia.	69	55,6	18	14,5	37	29,8	Verdadero
	<b>24</b>	La mayoría de los profesores reciben formación específica para trabajar con niños disléxicos.	41	33,1	53	42,7	30	24,2	Falso
	<b>26</b>	Las técnicas que involucran la lectura repetida de material (por ejemplo, palabras, oraciones o textos) ayudan a mejorar la fluidez en la lectura.	78	62,9	17	13,7	29	23,4	Verdadero
	<b>28</b>	Los estudiantes con dislexia necesitan instrucción estructurada, secuencial y directa en habilidades básicas y estrategias de aprendizaje.	81	65,3	15	12,1	28	22,6	Verdadero