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Original Article

Phonological Awareness and Reading Fluency in Children with and without Developmental Language Disorder in Second, Third, and Fourth Grade of Primary School

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ABSTRACT

Reading fluency requires metaphonological skills for efficient word reading. These skills are often diminished in children with Developmental Language Disorder (DLD). Despite this, insufficient attention has been given to their fluency, which is why this study examines the relationship between reading fluency and phonological awareness in 15 students with DLD and 15 with Typical Language Development (TLD) in second, third, and fourth grades of primary school. Using mixed repeated-measures ANOVAs and considering age as a covariate, the study examines group differences and whether phonological awareness influences variations in reading fluency. The test *Instrumento de Diagnóstico para los Trastornos Específicos de Lenguaje en Edad Escolar* (IDTEL) was employed to measure syllable addition, syllable inversion, and phoneme blending. Reading fluency (speed, accuracy, volume, intonation, pauses, segmentation, overall quality, and total fluency) was assessed using the Reading Fluency Scale in Spanish (*Escala de Fluidez Lectora*). Correlations were observed between phoneme blending and the accuracy, segmentation, and overall quality of reading. In children with TLD, correlations were found between syllable inversion, phoneme blending, and fluency. The main results of the mixed ANOVAs indicate a significant effect of diagnosis on both phonological awareness and reading fluency in children with DLD, and for both groups, an effect of phoneme blending ability on reading fluency.

Keywords:
Phonological Awareness; Reading Fluency; Developmental Language Disorder

Conciencia Fonológica y Fluidez Lectora en Escolares con y sin Trastorno del Desarrollo del Lenguaje de Segundo, Tercero y Cuarto año de enseñanza básica

RESUMEN

La fluidez lectora requiere de habilidades metafonológicas para leer eficientemente las palabras. Dichas habilidades tienden a estar descendidas en los niños con Trastorno del Desarrollo del Lenguaje (TDL). Aun así, no se ha puesto suficiente atención en su fluidez, por lo que en este estudio se describen las relaciones entre esa habilidad y la conciencia fonológica en 15 escolares con TDL y 15 con Desarrollo Típico del Lenguaje (TLD) de segundo, tercer y cuarto año básico. Mediante ANOVAS mixtos de medidas repetidas, y considerando la edad como covariable, se examinan las diferencias entre los grupos y si las habilidades de conciencia fonológica se asocian a diferencias en fluidez lectora. Se utilizó el Instrumento de Diagnóstico para los Trastornos Específicos de Lenguaje en Edad Escolar (IDTEL) para medir adición e inversión de sílabas y unión de fonemas. La fluidez (velocidad, precisión, volumen, entonación, pausas, segmentación, calidad global y fluidez total) se evaluó a través de la Escala de Fluidez Lectora en Español. Se observaron correlaciones entre unión de fonemas y la precisión, segmentación y calidad global de la lectura de los niños con TDL. En los niños con TLD, se observaron correlaciones entre inversión silábica y unión de fonemas con la fluidez. Los principales resultados de los ANOVAS mixtos indican un efecto del diagnóstico en los niños con TDL, tanto en conciencia fonológica como en fluidez lectora. Para ambos grupos existió un efecto de la habilidad fonológica para unir fonemas sobre la fluidez lectora.

Palabras clave:
Conciencia Fonológica; Fluidez Lectora; Trastorno del Desarrollo del Lenguaje

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INTRODUCTION

Reading Fluency (RF) is the ability to read connected texts with appropriate accuracy, speed, and prosody (Ferrada Quezada & Outón Oviedo, 2017; Kim et al., 2021; Kuhn et al., 2010; Rasinski, 2014). Previous research suggests that these skills are not only relevant for reading comprehension, but they can predict its development (Arancibia-Gutiérrez et al., 2022; Arancibia-Gutiérrez & Leiva, 2022; Godde et al., 2020; Groen et al., 2019; Holliman et al., 2014; Kim et al., 2021; Wolters et al., 2022). Consequently, there has been a growing interest in recent years in studying how children become fluent readers.

There is currently widespread consensus that in order to achieve fluent reading it is essential to have good command of word reading. An alphabetic system such as Spanish requires explicit instruction in encoding, as "written words exist insofar as we pronounce them" (Bravo-Valdivieso, 2016, p. 4). In other words, beginning readers need to internalize the fact that a grapheme corresponds to a meaningless sound segment, which can be relatively easily learned in transparent languages like Spanish (Bravo-Valdivieso, 2016) due to its higher consistency in grapheme-phoneme relationship (Calet et al., 2017; Castejón et al., 2015).

The mastery of grapheme-phoneme conversions is further facilitated by phonological awareness (PA) or the awareness of the phonological units of spoken language, which translates into the ability to intentionally identify, segment, combine, or manipulate the sublexical units in words (Gove, 2009). This skill primarily develops between the ages of 4 and 8, beginning with larger, more concrete units, such as syllables, and progressing to smaller, more abstract units, such as phonemes (Gutiérrez-Fresneda et al., 2020) that require specific training. The facilitating or predictive role of PA in the acquisition and development of reading and writing has been extensively documented (Bravo Valdivieso et al., 2006; Defior, 2004; Diuk et al., 2003; Guardia, 2003). Accurate phoneme identification has proven to be the most crucial among PA skills for decoding and reading accurately (Defior & Serrano, 2011; Gutiérrez-Fresneda, 2018). When these skills become automatic, readers can read familiar words correctly, quickly, and without conscious effort (Defior, 2014; Ehri, 1995; Logan, 1997).

Automatic recognition of words is essential for reading texts without hesitation or intrusive pauses, thereby increasing speed and making reading more efficient (Kim et al., 2021). This allows the reader to focus their cognitive resources on text comprehension, as evidenced in studies with elementary school children (Bizama et al., 2019; Riffo et al., 2018). However, the aim is not for children to read faster to achieve greater fluency and comprehension, but rather to read with accuracy and at an appropriate speed, respecting syntactic boundaries and punctuation to pause at suitable places in the text (Arancibia-Gutiérrez & Leiva, 2022). Additionally, a certain level of word reading proficiency is required to develop the ability to organize text segments into prosodic units of varying lengths and to add greater expressiveness to reading (Cuadro et al., 2021; Godde et al., 2020).

Prosodic reading is defined as "the natural way in which the reader uses volume, rhythm, intonation, phrasing, and pauses when reading aloud" (Ferrada Quezada & Outón Oviedo, 2017, p. 48). Initially, children read monotonously, paying little attention to punctuation marks (Young & Bowers, 1995). Later, they adopt syntactic prosody, guided by punctuation (Erekson, 2010), until achieving fluent reading that allows for active interpretation of the text (Ferrada Quezada & Outón Oviedo, 2017; Kim et al., 2021; Kuhn et al., 2010). For this reason, prosody is considered a crucial component of fluent text reading (Kim et al., 2021; Kuhn et al., 2010; Rasinski, 2014) and an important indicator of the development of reading skills (Groen et al., 2019).

The acquisition and generalization of the aforementioned skills are described considering a typical language development trajectory (TLD). However, there is part of the school-age population that, despite not exhibiting TLD, still needs to learn to read and write. Such is the case for children with Developmental Language Disorder (DLD), previously referred to as Specific Language Impairment (SLI) (Bishop et al., 2016, 2017). According to the International Classification of Diseases by the World Health Organization, ICD-11 (WHO, 2019), this clinical condition is characterized by persistent difficulties in language acquisition, comprehension, and production, which arise during development—usually in early childhood—without a clear cause. According to the Center for Studies of the Statistics Unit of the Chilean Ministry of Education (*Centro de Estudios* MINEDUC, 2019), DLD accounts for 95% of special preschool education enrollments in the country, with a 6% increase in diagnoses between 2010 and 2016.

DLD affects different aspects of language in several ways, both at the expressive and receptive levels (Acosta, 2012; Bishop et al., 2016; Catts et al., 2002; Coloma et al., 2018). It is also often associated with a reduction in attention and memory skills, as well as difficulties with numerical, behavioral, and social skills, potentially impacting the overall development of children, their learning, and academic performance (Aguilar-Mediavilla et al.,

2019; Ahufinger et al., 2021; Mendoza, 2016). However, due to the heterogeneous manifestation of this disorder, individual differences can also be observed (Bishop & Snowling, 2004; Buil-Legaz et al., 2015; Macchi et al., 2014).

One of the aspects of language that is most affected in children with DLD is PA, making it more difficult for them to acquire decoding skills. The impact of these problems on oral reading in children with DLD is evident in the increased time required to perform word and pseudoword reading tasks, in both opaque and transparent languages (Acosta et al., 2016; Catts et al., 2002; Coloma et al., 2012; McArthur et al., 2000; Soriano-Ferrer et al., 2019; Werfel & Krimm, 2017). This indicates limitations in written word recognition automaticity, resulting in a higher number of accuracy errors during reading (Botting et al., 2006; Catts et al., 2002). This is why children with DLD are considered a high-risk group in the context of learning written language (Reyes Villalobos, 2016).

In Chile, De Barbieri & Coloma (2004) studied the PA of 26 kindergarten children with DLD. The results show that these children performed lower than the control group in syllable awareness but not in phoneme awareness, which could be due to the accelerated development of this skill in first grade, once reading instruction begins. Reyes & De Barbieri (2018) showed that children with DLD and low reading comprehension performed significantly worse in decoding compared to children with DLD without comprehension difficulties. Moreover, in the group with low reading comprehension, these skills correlated with PA measures. They conclude that children with DLD exhibiting this profile are a high-risk group for learning written language, although the effect size was not reported. Similarly, in a study with 51 first-graders with DLD and 53 with TLD, Coloma et al. (2015) found that the DLD group performed significantly lower in linguistic skills, including PA, as well as in decoding and reading comprehension skills. Likewise, De Barbieri et al. (2016) reported significantly lower linguistic and reading performance in children with DLD, when comparing 60 first-graders with DLD and 60 controls. The authors did not report effect sizes. The study also shows that PA skills for synthesizing syllables and phonemes correlated with reading comprehension in both groups, although the performance of children with DLD was significantly lower compared to the control group. Additionally, the correlations were significant, although weaker than in the control group.

Other studies address prosodic skills related to the reading performance of children with DLD (Beattie & Manis, 2013; Cumming et al., 2015; Fisher et al., 2007; Marshall et al., 2009). They have found that children with DLD are less sensitive to prosodic cues, which may underlie their linguistic and reading difficulties. In the Spanish-speaking context, Torres-Bustos et al. (2022) found that Chilean children with DLD display reduced prosodic awareness of lexical and metrical stress. Similarly, González & Calet (2021), in a single-case study, describe difficulties in prosodic imitation tasks, which were linked to decoding problems. The authors suggest that these difficulties affect prosodic planning, which is evident in reading tasks. This is supported by findings from Jordán et al., (2019), who compared 22 Spanish children with DLD and 22 with TLD aged 7 to 13. The study showed that children with DLD made more and longer pauses in inappropriate places within the text. The authors conclude that these children require more time to process information, resulting in hesitant and slow reading that impairs comprehension. However, these results should not be generalized due to the small sample size, wide age range, and uneven age distribution.

In summary, the findings indicate that DLD impacts reading performance in children, potentially limiting their participation in several contexts (Mendoza, 2016). Thus, early detection of this condition is crucial to provide diagnosed children with an environment that offers equal and equitable access to the knowledge society and literate culture.

It is noteworthy that, at least in Chile, research on reading in schoolchildren with DLD has not addressed text reading fluency (RF). However, considering the previously mentioned difficulties in PA, word recognition, and prosody, it is expected that these children will also exhibit lower performance in RF. To address this topic, we propose a study aimed at advancing knowledge in the area of reading performance in this population. Due to restrictions imposed by the COVID-19 pandemic, the sample was reduced, and the analysis was conducted based on diagnosis (DLD/TLD), adjusting for age. The research questions are: How do RF and PA performances compare between children with DLD and those with TLD? Does PA correlate with RF in children with DLD and TLD?

To answer these questions, the analysis was guided by the following research objectives: a) to determine whether there are differences in PA and RF performance between the two groups; b) to identify whether there is a relationship between PA and the various components of RF in both the DLD and control groups; and c) to establish whether PA moderates possible intergroup differences in RF attributable to the diagnosis.

We hypothesize that children with DLD will show lower performance in both PA and RF compared to children with TLD.

We also hypothesize that PA performance influences RF, along with the diagnostic category.

METHODOLOGY

Participants

Participant selection was non-probabilistic and intentional, conducted during the second semester of 2020 amidst school closures due to the SARS-CoV-2 (COVID-19) pandemic. As a result, from an initial sample of 30 schoolchildren diagnosed with DLD residing in the city of Parral, Chile, 15 children were able to participate. These participants were enrolled in the school integration program (PIE for its acronym in Spanish, *Programa de Integración Escolar*) of a subsidized school in the city. The school's speech-language therapists carried out the diagnostic evaluations in December 2019, following the regulations set by Decree 1300/2002 of MINEDUC (2013). Specifically, the TEPROSIF-R (Pavez et al., 2008), TECAL (Pavez, 2004), and STSG (Pavez, 2010) tests were administered, which are standardized in Chile and have reliability coefficients of 0.90, 0.93, and 0.93, respectively.

For the purposes of this research, these diagnoses were confirmed by one of the researchers, a speech-language therapist, who administered *Instrumento de diagnóstico para los Trastornos Específicos del Lenguaje en edad escolar* (Diagnostic Instrument for Specific Language Disorders in school-age children) or IDTEL (Pérez et al., 2014), during the second semester of 2020.

The control group consisted of 15 children with TLD in elementary education from the same school, whose teachers reported normal academic performance. Each group included five students from three different grades: second, third, and fourth grade. However, due to the small sample size, grade level was not considered as a variable, and age was used as a covariate. For the same reason, the scope of this study is defined as exploratory, within the specific context of the school where the research was conducted.

The inclusion criteria were: a) being a native Spanish speaker, b) being age-appropriate for the grade level, and c) not having intellectual disabilities or comorbidities with other diagnoses, as well as no attentional and/or motivational difficulties that could affect task execution. Due to the sanitary restrictions, it was not possible to assess intellectual development. However, the students showed no signs of cognitive impairment, according to reports from the PIE multidisciplinary team and interviews with parents or legal guardians, as well as with the teachers in each grade. Similarly, all children diagnosed with DLD showed normal development of cognitive skills, namely attention, memory, reasoning, and adaptation levels, based on the results of the *Evalúa* Battery, administered by the school's special education teacher.

Table 1 presents the distribution by grade (considering boys and girls) and the average age of the participants.

Following the Declaration of Helsinki (World Medical Association [WMA], 1975), authorization was obtained from parents or legal guardians through oral consent recorded in a Zoom interview. During the interview, the study's objectives were explained, along with the evaluation procedures, and participants were informed about the ethical use of the information. Subsequently, this consent was signed during the in-person evaluation session. Finally, verbal assent was obtained from the participants before they undertook the tests, and they were allowed to withdraw from the study at any time if they wished.

Instruments

The IDTEL test (Pérez et al., 2014) assesses the comprehensive and expressive language of Chilean schoolchildren aged 6 to 9 years and 11 months, aiming to detect the presence of Expressive or Mixed Specific Language Impairment. The test evaluates four microdomains: phonological, morphosyntactic, semantic, and pragmatic. It is administered individually and takes approximately 1 hour and 45 minutes to complete. The scoring is criterion-referenced, with a total score of 185 points. The sum of scores across all microdomains determines the presence or absence of the disorder, distinguishing performance based on age. Subsequently, the level of severity and whether the disorder is mixed or expressive is established based on scores obtained in the subtests designed for each age range (6 to 7 years and 11 months, and 8 to 9 years and 11 months).

For this study, in addition to confirming the diagnosis, the results of the phonological awareness tasks from the phonological microdomain were used. These were syllabic addition, syllabic inversion, and phoneme blending, each with a maximum score of 15 points.

Table 1. Participant distribution by grade and age.

	Diagnosis			
	DLD		TLD	
Year	N	Mean Age	N	Mean Age
2nd Grade	5 (2 girls and 3 boys)	7 years, 8 months	5 (2 girls and 3 boys)	7 years, 9 months
3rd Grade	5 (3 girls and 2 boys)	8 years, 7 months	5 (1 girls and 4 boys)	8 years, 7 months
4th Grade	5 (2 girls and 3 boys)	9 years, 9 months	5 (1 girls and 4 boys)	9 years, 7 months
Total	15 (7 girls and 8 boys)	8 years, 8 months	15 (4 girls and 11 boys)	8 years, 8 months

For the oral reading task, a short fable titled "*El zorro y la pantera*," consisting of 143 words, was used. This story was selected to ensure ecological validity, as narrative texts are familiar to students in early grades. It was sourced from the 3rd-grade Language and Communication textbook, and the 2nd-grade teacher confirmed its suitability for the students' reading level. The text had a readability score of 82.22 on the Inflesz Scale, indicating it is very easy to read. Minor modifications were made based on the teacher's suggestions to include dashes for marking direct dialogue, a feature the students had practiced in class to distinguish between characters. The readings were recorded using Audacity 3.1, a free, cross-platform software.

The researchers used *Escala de Evaluación de la Fluidez Lectora en Español* (Scale of Reading Fluency in Spanish, or EFLE), based on the Multidimensional Fluency Scale (Rasinski, 2004) and adapted by González-Trujillo et al. (2014). Since no standardized instruments measure all fluency aspects—speed, accuracy, and prosody—EFLE, a subjective scale, was used in line with existing research practices. The scale evaluates speed, accuracy, prosody, and overall quality of oral reading, with a score ranging from 1 to 4, according to performance. Speed can range from 'slow' to 'adequate'; accuracy is evaluated in terms of errors and self-corrections in word decoding; prosody is evaluated according to volume adequacy, intonation, pauses, and segmentation. Finally, the overall quality ranged from dull reading to one that "sounds like a story is being told, attracting the attention of the listener." The total score ranges from 1 to 28 points, with a Cronbach's alpha reliability of 0.91 in the original sample of Spanish children.

Procedures

IDTEL was administered in person by the first author, a speech-language therapist, in a clinical setting. Each evaluation session lasted about 60 minutes. Simultaneously, parents or legal guardians completed the informed consent form and clinical interview to gather relevant background information. Strict adherence to health protocols was maintained throughout the process.

The oral reading task was conducted by the researchers remotely via Zoom, due to Phase 1 of the plan *Paso a Paso* (Step by Step) in Chile, implemented during the pandemic. The text was displayed on the screen in Arial font, size 14, using PowerPoint. The reading session was audio-recorded for subsequent analysis. Parents or guardians were asked to ensure an appropriate setting for the remote session, including using a computer for the reading session, minimizing noise and distractions that could affect performance or recording quality, and avoiding any assistance from family members during the reading task.

The EFLE test was administered by three trained speech-language therapists, each working independently. Results were reviewed by the corresponding author. An inter-rater agreement index was calculated to ensure the reliability and validity of the evaluations. The overall agreement was .79, with .84 for overall quality being the highest, and .72 for intonation the lowest. Additionally, a reliability analysis of the study's data yielded an $\alpha = .97$, indicating high internal consistency.

Data Analysis

The statistical software R, in its version 4.3.1 for Windows, was used for data analysis. Variables were represented by their mean and standard deviation. To address the first research objective, the Pearson correlation coefficient and the age-adjusted correlation coefficient (partial correlation) were calculated for each group (DLD/TLD). Mixed repeated measures ANOVAs were conducted for the second objective, with age included as a covariate. The diagnosis variable (between-subject factor with two levels) and the within-subject factors, PA (3 levels) and RF (7 levels) were treated as fixed effects, while participants were considered a random effect.

For the third objective, a mixed ANOVA was used, with the different components of RF treated as covariates. The normality of distributions was assessed using the Shapiro-Wilk test, and the homogeneity of variances was checked with Levene's test. In all analyses, a significance level of .05 was applied, and the interpretation of effect sizes was based on Cohen (1988, 1992).

RESULTS

Descriptive statistics for each variable, including means and standard deviations (*SD*), are presented in Table 2 for each group based on diagnosis.

The results of the mixed ANOVA for PA indicated significant differences associated with diagnosis, with a small effect size ($F(1.27) = 5.05$, $p = .03$, $\eta^2 = .16$), and no interactions between the variables ($F(2,54) = 2.37$, $p = .10$, $\eta^2 = .08$), considering a mean age of 8 years and 8 months. The mean PA score for the TLD group was 7.62 (*SD* = 3.68), while for the DLD group it was 5.84 (*SD* = 3.25). Significant differences were also found among the PA measures for the entire sample of children, regardless of diagnosis, with a small effect size ($F(2,54) = 5.08$, $p = .01$, $\eta^2 = .16$). In this case, the mean score was 8.2 (*SD* = 3.48) for the syllabic addition task, 7.47 (*SD* = 3.45) for the syllabic inversion task, and 4.53 (*SD* = 2.70) for the phoneme blending task.

Table 2. Descriptives for the PA and RF variables according to diagnosis.

	Diagnostic Group			
	TLD		DLD	
Variable	Mean	*SD*	Mean	*SD*
Phonological Awareness				
Syllable Addition	9.60	3.40	6.80	3.05
Syllable Inversion	8.00	3.72	6.93	3.20
Phoneme Blending	5.27	2.63	3.80	2.65
Reading Fluency				
Speed	2.89	0.73	1.76	0.90
Accuracy	2.73	0.62	1.64	0.74
Volume	3.56	0.48	2.89	0.70
Intonation	3.02	0.65	2.11	1.02
Pauses	2.82	0.71	1.73	0.89
Segmentation	3.11	0.63	2.11	0.89
Quality	2.84	0.82	1.64	0.80
Overall Fluency	20.98	4.21	13.89	5.36

Regarding RF, the mean score was 13.89 (*SD* = 6.50) for the DLD group, while for the TLD group it was 20.98 (*SD* = 4.89). The difference between the two groups was significant, with a medium effect size related to diagnosis ($F(1,28) = 16.23$, $p < .0001$, $\eta^2 = .37$), and no interactions between the variables ($F(6,168) = 1.77$, $p = .11$, $\eta^2 = .06$). The difference was observed across all aspects of RF, with ($F(14.33)$, $p = .001$, $\eta^2 = .35$) for speed, ($F(19.92)$, $p < .0001$, $\eta^2 = .42$) for accuracy, ($F(9.22)$, $p = .005$, $\eta^2 = .25$) for volume, ($F(8.45)$, $p = .007$, $\eta^2 = .24$) for intonation, ($F(13.75)$, $p = .001$, $\eta^2 = .34$) for pauses, ($F(12.98)$, $p = .001$, $\eta^2 = .32$) for segmentation, and ($F(16.6)$, $p < .0001$, $\eta^2 = .39$) for overall quality.

Additionally, the results indicated that, regardless of diagnosis, there were significant differences among the measures of reading fluency ($F(6,168) = 28.94$, $p < .0001$, $\eta^2 = .51$), with volume showing a significantly higher mean value compared to all other components of RF.

Regarding correlations between the different variables, Table 3 presents the results of the simple and partial (age-adjusted) correlations for each group.

Table 3. Correlations between RF and PA for both groups.

		Non-Adjusted			Age-Adjusted		
Diagnosis	Variable	Syll. Add.	Syll. Inv.	Un. Fon.	Ad. Sil.	Inv. Sil.	Phon. Blend.
TLD	Speed	.33	.60*	.63*	.07	.41	.49
	Accuracy	.39	.53*	.73**	.21	.39	.67**
	Volume	.11	.47	.38	-.22	.16	.12
	Intonation	.24	.43	.52*	.08	.33	.45
	Pauses	.32	.51	.63*	.11	.34	.53*
	Segmentation	.47	.65**	.68**	.30	.59*	.59*
	Quality	.31	.48	.59*	.10	.30	.48
	Overall Fluency	.35	.58*	.67**	.12	.41	.55*
DLD	Speed	.11	-.00	.49	.13	.02	.49
	Accuracy	.29	.08	.60*	.22	-.07	.59*
	Volume	-.04	-.02	.15	-.06	-.04	.15
	Intonation	.08	.05	.45	.02	-.03	.44
	Pauses	.13	.06	.49	.11	.01	.49
	Segmentation	.05	.06	.55*	-.02	-.04	.54*
	Quality	.13	.10	.58*	.08	.02	.57*
	Overall Fluency	.12	.05	.53*	.07	-.02	.52

**. Correlation is significant at .01 (bilateral).

*. Correlation is significant at .05 (bilateral).

When adjusting the analysis for age, no correlations were observed between syllabic addition and RF in children with TLD. In contrast, significant positive correlations were found between syllabic inversion and segmentation. Similarly, there were notable correlations between phoneme blending and pauses, segmentation, and overall fluency, as well as with accuracy in text reading, the latter being highly significant. Fewer correlations were found between PA and RF in children with DLD; however, positive and statistically significant correlations emerged between performance in the phoneme blending task and measures of accuracy, segmentation, and overall quality of text reading. No correlations were found at the syllabic level with RF in this group.

Finally, when examining whether PA moderates differences in RF, the differences according to diagnosis, identified in the earlier model, were confirmed, indicating lower performance in children with DLD ($F(1.27) = 13.40$, $p = .001$, $\eta^2 = .33$). Upon incorporating PA into the model, the ability to blend phonemes was found to be significant for the participants' RF performance ($F(1.27) = 14.45$, $p = .001$, $\eta^2 = .35$). This medium-sized effect was independent of diagnosis, as the interaction with this variable was not statistically significant ($F(6.162) = .81$, $p = .56$, $\eta^2 = .03$). In contrast, the interaction with RF was significant, with a small effect size ($F(6.162) = 3.06$, $p = .010$, $\eta^2 = .10$), indicating that phoneme blending influences RF, but does so differently for each component.

DISCUSSION

This study analyzes the variables of Phonological Awareness (PA) and Reading Fluency (RF) in Chilean children with and without Developmental Language Disorder (DLD) enrolled in second, third, and fourth grades of elementary education at a school in the city of Parral. It examines intergroup differences, the correlations between variables, and the extent to which diagnosis and PA contribute to RF performance, always considering age as a covariable.

Regarding intergroup comparisons, significant differences were found in both PA and RF, indicating diminished performance among children with DLD. Notably, the phoneme blending task proved to be more complex than both syllabic addition and inversion for both groups of children.

In terms of RF, the analysis reveals significant differences across all its components, indicating that reading in children with DLD

is characterized by slower speeds and frequent decoding errors. Prosodically, this group read at a low volume or randomly alternated volumes. Intonation tended to be flat, although at times they did stress interrogative or exclamatory sentences. Furthermore, numerous pauses were observed within words, in addition to phoneme elongation, repetitions, and frequent hesitations, all of which indicated difficulties in reading words correctly. These issues ultimately affected their reading speed and pause patterns. These findings align with those of Coloma et al. (2018), who found that children with DLD face challenges in decoding tasks. Additionally, reading in this group was characterized by a word-by-word approach or by breaking semantic-syntactic units, resulting in a disregard for the meaning of phrases and/or punctuation marks. As a result, the overall quality of their oral reading appeared to only occasionally capture the listener's attention. These results concur with Jordán et al. (2019), who assert that children with DLD have difficulties with speed and accuracy in their oral reading, as well as unnecessary pauses and fewer tonal variations. Similarly, Soriano-Ferrer et al. (2019) indicate that between 30% and 50% of children with DLD in their sample present difficulties in reading accuracy and speed, and Marshall et al. (2009) describe that these children display poorer intonation compared to their peers with TLD. This can be explained by the fact that the prosodic aspects of reading depend on the prosodic knowledge of spoken language and the level of automaticity in word reading (Kuhn et al., 2010). Accordingly, this knowledge could be influenced by perceptual deficits present in DLD or by diminished performance in reading speed and accuracy. In summary, children with DLD struggle to achieve accurate, automatic reading with appropriate prosody. Given that these skills are essential for text comprehension and accessing the content of the national curriculum, this population faces substantial disadvantages compared to their peers with TLD.

After controlling for age, only one correlation was found between syllabic-level PA and RF, specifically the relationship between syllable segmentation and inversion in the TLD group. In contrast, at the phonemic level, more correlations with RF were found in both groups. For the group with DLD, correlations were identified between phoneme blending and reading accuracy, segmentation, and overall quality of oral reading. These can be explained by the fact that phoneme blending is a prerequisite for word reading. If this fails, more errors and hesitations will occur, potentially disrupting phrasing according to punctuation and syntax. Similar findings were reported by Jordán et al. (2019), who described longer grammatical pauses (marked by punctuation) in children with DLD, as well as more intrusive pauses, both within and between words, which resulted in inappropriately segmented phrases. Similarly, when phoneme blending fails, leading to more errors or hesitations, the perception of overall reading quality is affected, distracting the listener and causing them to lose interest. Conversely, in the TLD group, children presented better phoneme blending skills, more accurate reading, improved segmentation or phrasing, and fewer intrusive pauses.

Regarding the effect of PA skills on RF, the results suggest that as children with and without DLD further develop their phonemic skills, their performance is improved across various aspects of RF. This confirms the importance of phonemic-level metafunctional skills over syllabic-level skills once children have moved beyond the initial stages of literacy acquisition. However, children with DLD show lower performance than their TLD peers in both phoneme blending and RF, suggesting that the negative effects of the gaps in their reading skill development may persist longer and have a more prolonged impact on their reading performance. Similar results were reported by De Barbieri & Coloma (2004), who describe limitations in literacy acquisition among children with DLD, linked to difficulties in identifying and manipulating minimal oral language structures.

Projections

The results of this research contribute to the development of intervention programs focused on phonological awareness skills in children with Developmental Language Disorder (DLD), as these initiatives influence success in reading acquisition (Gutiérrez-Fresneda, 2018).

Systematic practice is essential as a strategy for RF intervention, which should be multidimensional. This means it should not be limited to developing reading speed or accuracy but should also include prosodic aspects. Finally, it is important to incorporate texts of varying syntactic complexity and different communicative functions to help reduce the impact of the linguistic difficulties faced by children with DLD.

Limitations

This study reflects a reality confined to a specific context and a limited number of participants. Therefore, the results, while providing new evidence on the issue, are not generalizable. It is also important to consider the abrupt and prolonged interruption (2020-2021) of normal reading instruction conditions and the work of the team of professionals supporting the development of linguistic and communicative skills in the school. This could have influenced the performance of the participants and could be a subject for future research.

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