EDICIONES
COMPLUTENSE

Revista de Investigación en Logopedia
e-ISSN: 2174-5218

ESTUDIOS

Relationships between executive functions and reading fluency in reading comprehension

Carolina Carriquiry
Universidad Católica del Uruguay
Florencia Reali
Universidad Católica del Uruguay
Ariel Cuadro
Universidad Católica del Uruguay

https://dx.doi.org/10.5209/rlog.101343 Received February 28th 2025 • First decision April 24th 2025 • Accepted June 2nd 2025.

Abstract: Contemporary approaches to the study of reading comprehension examine how multiple cognitive skills are interconnected. Within this framework, the aim of the present study was to explore the relationships between core executive functions, oral language skills and reading fluency in their effect on reading comprehension. A sample of 78 children in 5th and 6th grade of primary school were tested on reading comprehension and fluency, as well as on working memory, inhibition, cognitive flexibility, vocabulary, oral comprehension and fluid intelligence. Correlation, hierarchical regression, and mediation analyses were conducted. The results show that working memory predicts reading comprehension, even when controlled for oral language skills. However, when reading fluency is introduced into the model, only vocabulary and reading fluency are significant predictors. The mediation analysis shows that reading fluency is a complete mediator of the effect of working memory on reading comprehension. In addition, vocabulary was found to be a relevant predictor of reading comprehension, even controlling for other skills. These findings show that it is crucial to assess interactions between multiple cognitive processes when studying written language comprehension. Furthermore, they suggest that one way in which executive functions affect reading comprehension is indirect and that reading fluency mediates this relationship.
Keywords: Reading comprehension; Reading fluency; Vocabulary; Working memory.

ESP Relación entre las funciones ejecutivas y la fluidez y comprensión lectora

Resumen: Enfoques contemporáneos de estudio de la comprensión lectora examinan el modo en que múltiples habilidades cognitivas se interconectan. En este marco, el objetivo del presente estudio fue explorar las relaciones entre las funciones ejecutivas nucleares, las habilidades lingüísticas orales y la fluidez lectora, en su efecto en la comprensión lectora. Una muestra de 78 niñas y niños de 5° y 6° de escuela primaria fueron evaluados en comprensión y fluidez lectora, así como en memoria de trabajo, inhibición, flexibilidad cognitiva, vocabulario, comprensión oral e inteligencia fluida. Se efectuaron análisis de correlación, regresión jerárquica y mediación. Los resultados evidencian que la memoria de trabajo predice la comprensión lectora, incluso controlado por habilidades lingüísticas orales. Sin embargo, al introducir fluidez lectora al modelo, solo vocabulario y fluidez lectora son predictores significativos. El análisis de mediación demuestra que la fluidez lectora es un mediador completo del efecto de la memoria de trabajo en la comprensión lectora. Además, el vocabulario resultó ser un predictor relevante de la comprensión lectora, más allá de otras habilidades. Estos hallazgos muestran que es fundamental evaluar las interacciones entre múltiples procesos cognitivos al estudiar la comprensión del lenguaje escrito. Además, sugieren que una manera en que las funciones ejecutivas ejercen su incidencia en la comprensión lectora es indirecta y que la fluidez lectora es mediadora de dicha relación.
Palabras clave: Comprensión lectora; Fluidez lectora; Memoria de trabajo; Vocabulario.

How to cite it: Carriquiry, C., Reali, F., & Cuadro, A. (2025). Relationship between executive functions and reading fluency in reading comprehension. *Revista de Investigación en Logopedia* 15 (número especial), 97-115. https://dx.doi.org/10.5209/rlog.101343

Introduction

The ability to understand written language is critical across multiple dimensions of life development (Florit & Cain, 2011; James et al., 2024), including academic achievement (Álvarez-Cañizo et al., 2015; Raudszus et al., 2018; Ricketts et al., 2014). However, reaching reading comprehension (hereafter, RC) requires mastering a wide range of skills and competences (Sánchez Miguel et al., 2011), making reading one of the most complex cognitive activities we perform daily (Catts et al., 2005). Despite the pervasive need for reading in today's society (Kim, 2023), a significant number of schoolchildren fail to comprehend written texts (Choi et al., 2017; James et al., 2023; National Center for Education Statistics, 2024; Torppa et al., 2020). This issue is further exacerbated by socio-economic and cultural background (OECD, 2023; UNESCO, 2024), which is of particular concern in countries where inequalities in this respect are found (OECD, 2022; Ortiz et al., 2024). On average across the 16 countries in the Latin American region, 40% of students in third grade and 60% of students in sixth grade do not reach the minimum level of fundamental skills in reading. Most countries in the region did not show significant improvements in the learning achievement of their primary school students between 2013 and 2019, with some countries experiencing setbacks (UNESCO, 2021). Having solid theoretical models to describe and understand how the multiple processes involved in RC interact is crucial to generate adequate educational proposals and design efficient intervention plans for children with difficulties in this area (Barnes et al., 2024; Guo et al., 2023; Kim & Snow, 2025; Taboada Barber et al., 2021).

RC involves being able to extract and construct meaning from text (Snow, 2002). To achieve this, decoding (Adams, 1990; Perfetti, 1999) and 3 (Hulme & Snowling, 2014; Nation et al., 2004, 2010; Nation & Snowling, 1997) are essential, as proposed by the Simple View of Reading (Gough & Tunmer, 1986; Hoover & Gough, 1990). These skills are distinguishable (Aaron et al., 1999; Oakhill et al., 2003), which is reflected in groups of readers with different types of difficulties. So-called *poor comprehenders* (Oakhill et al., 2003; Stothard & Hulme, 1992) are children who can decode accurately but struggle to understand what they read (Cutting et al., 2013; Oakhill, 1982; Ricketts et al., 2014). Although their cognitive profile remains under investigation (Escobar & Espinoza, 2024; James et al., 2023; Rodrigues et al., 2023; Spencer & Wagner, 2018), there is evidence pointing to weaknesses in oral language as a key factor (Catts et al., 2003, 2006; Guo et al., 2023; Nation et al., 2004, 2010; Nation & Snowling, 1997, 1998, 2000; Stothard & Hulme, 1992).

Despite multiple studies have shown that a significant portion of the variance in RC can be explained by performance on Simple View of Reading-defined components (Catts et al., 2005; Georgiou et al., 2009; Joshi et al., 2015; Lonigan et al., 2018; Protopapas et al., 2012; Tobia & Bonifacci, 2015; Torppa et al., 2016), other publications have reported that not all cases of difficulty in RC can be attributed to problems in decoding or linguistic comprehension (Aaron et al., 1999; Morris et al., 2017). Thus, a growing body of research is pointing to the need to make this classic approach more complex (Cartwright & Duke, 2019; Duke & Cartwright, 2021; Kim, 2020; Kocaarslan, 2022; Taboada Barber et al., 2020). One way to achieve this is through consideration of other cognitive processes that have been tested as relevant to RC (Georgiou et al., 2009; Guo et al., 2023; Kim, 2020; Taboada Barber et al., 2021). Some researchers have examined multiple dimensions of oral language and have highlighted the influence of diverse language skills and knowledge on RC, beyond those explicitly stated by the Simple View of Reading (Cervetti et al., 2020). In this regard, the contribution of vocabulary (Braze et al., 2007; James et al., 2021; Ouellette & Beers, 2010), syntactic processing (Catts et al., 2006; Tong et al., 2014) and morphological awareness (Carlisle, 2000; Kirby et al., 2025; Y. Liu et al., 2024; O'Reilly et al., 2012) have been documented.

Another component identified as fundamental to RC is reading fluency (hereafter, RF) (Duke & Cartwright, 2021; Guo et al., 2023; Kocaarslan, 2022; Pikulski & Chard, 2005). RF has been defined as the combination of accuracy, speed and prosody in reading (Calet et al., 2017; Gómez Zapata et al., 2011; Rasinski et al., 2005). Fluent reading indicates that the reader is able to recognise written words with low cognitive effort (Paige et al., 2014). Thus, RF has been conceived as a bridge between decoding and RC (Pikulski & Chard, 2005; Rasinski, 2004). This hypothesis is explained by the automaticity theory (LaBerge & Samuels, 1974), which posits that reading automaticity enables attention to be directed to the semantic processes involved in RC. Research in languages of varying orthographic transparency has found that RF predicts RC (Ergül et al., 2023; Florit & Cain, 2011; Keresteš et al., 2024; Kim, 2015; Kim et al., 2010).

Likewise, contemporary models of RC (Taboada Barber et al., 2020) point out that higher-level cognitive processes such as inference making (Cain et al., 2001; Silva & Cain, 2015), monitoring (Cain et al., 2004; Oakhill et al., 2005), perspective taking and executive functions (hereafter, EF) (Helder et al., 2013; Kim, 2020, 2023; Taboada Barber et al., 2020) are important in the construction of textual meaning. EF, defined as the capacities that enable the regulation of goal-directed behaviour (Lezak, 1982), have been highlighted as fundamental in RC (see reviews in: Butterfuss & Kendeou, 2018; Follmer, 2018). Working memory (hereafter, WM), inhibition and cognitive flexibility are considered the core EF (Diamond, 2016). An extensive body of literature reports difficulties in these EF in groups of poor comprehenders (Borella et al., 2010; Cain et al., 2004; Cain, 2006; Carretti et al., 2005; Carriquiry, 2022; Cartwright, Bock, et al., 2017; Cartwright, Coppage, et al., 2017; Escobar, Espinoza, et al., 2024; Pimperton & Nation, 2010; Potocki et al., 2017; Yuill et al., 1989).

Much of the research examining the link between EF and RC focuses on the role of WM (Follmer, 2018). According to Baddeley and Hitch's (1974) model, WM is a capacity-constrained system that allows for the temporary storage and manipulation of information needed to carry out a variety of cognitive activities (Baddeley, 2012; Baddeley & Hitch, 1974). WM is critical for making sense of any sequential event, such as spoken language and written language (Diamond, 2016). In RC, WM would allow connecting new pieces of information with those already read or with prior knowledge (Follmer, 2018), and keeping the constructed mental representation accessible (Cain et al., 2004). Studies in children reported that WM predicts performance in RC, beyond key processes such as vocabulary, oral language skills (hereafter, OLS), decoding and RF (Bizama Muñoz et al., 2019; Cain et al., 2004; Kirschmann et al., 2021; Nouwens et al., 2021; Seigneuric et al., 2000; Seigneuric & Ehrlich, 2005; Sesma et al., 2009). However, other publications in children have not found direct effects of WM on RC (Escobar, Meneses, et al., 2024; Johann et al., 2020; Spencer et al., 2020). One possible explanation for the differences reported across studies may lie in the modality used to assess WM. In all cases where significant correlations between RC and WM were found, the latter was evaluated using linguistic paradigms (Bizama Muñoz et al., 2019; Cain et al., 2004; Kirschmann et al., 2021; Nouwens et al., 2021; Seigneuric et al., 2000; Seigneuric & Ehrlich, 2005; Sesma et al., 2009; Spencer et al., 2020). In contrast, the studies by Escobar et al. (2024) and Johann et al. (2020), which did not find associations between WM and RC, used visual paradigms. Additionally, it is worth noting that in the study conducted by Spencer (2020), verbal WM was significantly associated with RC, but this relationship was mediated by decoding. A meta-analysis comparing the performance of good and poor comprehenders on different WM tasks found that those requiring the processing of verbal stimuli are more suitable for distinguishing between these two groups of readers (Carretti et al., 2009).

In the comprehension process, the reader must set aside irrelevant information to avoid WM overload (Borella et al., 2010). This requires the efficient functioning of an attentional filter, given by inhibition (Nigg, 2000). Defined as the ability to suppress automatic responses, ignore irrelevant information or resist proactive interference (Friedman & Miyake, 2004), inhibition would play an important role in helping the reader to manage the information needed to comprehend (Butterfuss & Kendeou, 2018). Some research reported that beyond variables such as socioeconomic status, word reading, WM, processing speed and phonological awareness, inhibition exerts a significant weight on RC (Kieffer et al., 2013; Locascio et al., 2010). During the construction of textual meaning, inhibition may facilitate the appropriate prioritization of information (Tiscornia et al., 2021), mitigating the impact of distracting, outdated, or irrelevant content (Butterfuss & Kendeou, 2018). A number of studies have documented that poor comprehenders perform worse than their peers without RC difficulties on various tasks that require inhibition (Borella et al., 2010; Borella & De Ribaupierre, 2014; Cain, 2006; Carretti et al., 2005; Carriquiry, 2017; Cartoceti, 2012; De Beni & Palladino, 2000; Pimperton & Nation, 2010). In contrast, other studies found no associations between inhibition and RC in children (Johann et al., 2020; Nouwens et al., 2021) and adolescents (Ober et al., 2019).

According to several literature reviews, cognitive flexibility is the least studied of the core EF in relation to RC (Butterfuss & Kendeou, 2018; Carriquiry et al., 2024; Follmer, 2018). Cognitive flexibility is understood as the ability to direct attention to appropriate stimuli (Morrison et al., 2010) and to switch between tasks or mental states (Miyake et al., 2000). Some authors propose that cognitive flexibility assists RC by facilitating the deployment of textual approach strategies (Kieffer et al., 2013), allowing the consideration of various aspects of the situation described by the text (Guajardo & Cartwright, 2016), and helping to attend synchronously to multiple levels of written material (Cartwright et al., 2010). Studies in children found that cognitive flexibility impacts RC, even after controlling for OLS, decoding, WM, naming speed and non-verbal intelligence (Guajardo & Cartwright, 2016; Kieffer et al., 2013; Nouwens et al., 2016; Søndergaard Knudsen et al., 2018). However, some publications show divergent results. Escobar and Espinoza (2024) found that cognitive flexibility does not directly impact on RC. Although cognitive flexibility was significantly correlated with RC, when RF and vocabulary –variables not simultaneously considered in the aforementioned studies– were included in the analysis, the direct effect of cognitive flexibility disappeared (Escobar & Espinoza, 2024). In addition to this methodological difference, the latter study also differs from previous ones in that the evaluated population consisted of readers of a transparent orthographic system (Spanish) (Seymour et al., 2003). On the other hand, other authors reported that domain-general cognitive flexibility does not predict RC (Cartwright et al., 2010; Colé et al., 2014); it was also found to be a less powerful predictor than domain-specific cognitive flexibility (Escobar, Meneses, et al., 2024; Søndergaard Knudsen et al., 2018).

In addition to integrating diverse processes and skills, contemporary approaches to RC address how these elements are interconnected with one another and with RC itself (Cartwright & Duke, 2019; Kim, 2017, 2020, 2023; Taboada Barber et al., 2020). In this sense, new lines of research examine the indirect relationships that EF establish with RC (Chang, 2020; Escobar & Rosas Díaz, 2023; Georgiou & Das, 2018; Kieffer & Christodoulou, 2020; Spencer et al., 2020), and propose that this perspective be considered in the pursuit of a more detailed and contextualised approach to the object of study (Escobar & Espinoza, 2024). Although still little explored, one of the variables proposed as a mediator between EF and RC is RF (Escobar & Rosas Díaz, 2023; Georgiou & Das, 2018; Kieffer & Christodoulou, 2020). This option is based on the existing evidence on the contribution of EF in the processes involved in word reading (Altemeier et al., 2008; Arrington et al., 2014; Christopher et al., 2012; Colé et al., 2014; Escobar & Espinoza, 2024; Nouwens et al., 2021; Taboada Barber et al., 2021) which, to the extent that they are automated, promote RF (Adams, 1990; Cuadro & Abusamra, 2021; Paige et al., 2014). EF have even been shown to directly influence RF (Cartwright et al., 2019; Escobar & Espinoza, 2024; Kieffer & Christodoulou, 2020). A systematic review analysing how RF and EF are linked in RC found that only six studies between 2019 and 2023 addressed this question, according to the established inclusion criteria (Carriquiry et al., 2024). Furthermore, he reported that only half of the publications performed mediation analyses to examine the indirect role of EF on RC through RF, which makes it evident that this approach is still novel. The results of those publications showed some discrepancies, which may in part be due to the way in which RF was assessed (Carriquiry et al., 2024).

Another line of research has explored the indirect impact of EF on RC based on associations between EF and OLS (Georgiou & Das, 2018). In the case of WM, it is often assumed that it is necessary to integrate the semantic and syntactic information of the words that make up sentences, while their representations are maintained in memory (Nouwens et al., 2021). Research in preschoolers reports that verbal WM explains variance in listening comprehension (Florit et al., 2009, 2011). It was also shown that, using non-verbal measures, inhibition - but not the other core EF - predicts syntactic skills in children (Kaushanskaya et al., 2017).

The findings reported in the literature on the indirect influence of EF on RC via OLS or RF are mixed. In relation to RF, Kieffer and Christodoulou (2020) found that RF partially mediates the effect of EF on RC, which is consistent with that reported by Peng et al. (2024), using a measure of reading-specific EF. With her DIER model, Kim (2020) showed that WM indirectly affects RC through OLS –vocabulary and syntax– and word reading, which contribute to textual RF, which in turn predicts RC. In transparent orthographies, Kocaarslan (2022) found that the prosodic dimension of RF plays a full mediating role in the relationship between WM and RC, but Chrysochoou et al (2011) recorded that RF was not a mediator between executive skills and RC. In Spanish, Escobar and Rosas Díaz (2023) found that the indirect influence of EF on RC through RF is particular according to the reading modality in question: inhibition does so through oral RF, while cognitive flexibility does so through silent RF. In contrast, Escobar and Espinoza (2024) identified that only WM boosted the RC of narrative and expository texts through RF. On the other hand, when comparing children with and without RC difficulties, Escobar et al. (2024) found that RF did not mediate the relationship between EF and RC. This coincides with that reported by Carriquiry et al. (in press), using a measure of silent RF.

Research examining the mediating role of OLS between EF and RC also shows heterogeneous results. Nouwens et al. (2021) did not find that the OLS assessed play this role. In contrast, other studies documented the indirect effect of cognitive flexibility on RC through linguistic comprehension, but not that of inhibition (Kieffer et al., 2013; Taboada Barber et al., 2021), nor that of WM (Spencer et al., 2020). Taboada Barber et al. (2021) found an indirect impact of WM through linguistic comprehension only in bilingual learners, although Orsolini et al. (2022) noted that a component of WM impacted RC through listening comprehension only in monolingual learners. In a longitudinal study, Dolean et al. (2021) recorded that EF share significant variance in RC with oral and fluent decoding skills, although only the latter two independently predict RC development. Some researchers explored the role of vocabulary, in particular. Thus, its mediating role was detected between core EF and RC of different textual genres (Escobar & Espinoza, 2024), and between behavioural and reading-specific EF and RC (Peng et al., 2024). Chrysochoou et al. (2011) found that vocabulary mediated several associations between WM and RC, while Escobar et al. (2024) noted this only for children without RC difficulties.

The present study

The creators of the Simple View of Reading have stated that much more remains to be understood about reading than is represented in their proposal (Hoover & Tunmer, 2018). One promising avenue is the interactions between EF and RC (Escobar & Espinoza, 2024), considering foundational skills such as RF and OLS (Kim, 2020; Wolf et al., 2019). The findings reported in this regard are inconclusive, which suggests the need to extend the study. Thus, the aim of this study is to investigate the incidence of core EF on RC taking into account the effect of OLS and RF, in advanced primary school students (fifth and sixth grade).

We chose this school stage because we expect basic word recognition processes to be considerably developed (Chall, 1983), and thus reading to have acquired fluency beyond the lexical level (Kim & Wagner, 2015). At this educational stage, RF would be a critical tool for learning (Sesma et al., 2009) and students are expected to read fluently in silence (Chen et al., 2025; Price et al., 2016). However, research on the RF-RC relationship shows a strong tendency to use measures of oral RF (Denton et al., 2011; Georgiou & Rothou, 2024), which in turn is reflected in the literature on the mediating role of RF between EF and RC (Escobar & Rosas Díaz, 2023). Since the cognitive processes involved in each reading modality are distinct (Georgiou & Rothou, 2024; Kim et al., 2011; Price et al., 2016), the relationship they establish with EF would also be (Escobar & Rosas Díaz, 2023), it is necessary to increase the number of studies that evaluate silent RF (Chen et al., 2025). Based on the above and considering that sentence RF is a better predictor of RC than word RF in transparent orthographies (Kirschmann et al., 2021), we selected a task that assesses silent sentence RF (*TECLE R*) through the reading efficacy construct (Cuadro & Costa, 2020). We propose to make a contribution to the study of RC in transparent systems by evaluating a population of Spanish readers. Spanish is characterised by a high consistency of grapheme-phoneme correspondence rules (Seymour et al., 2003), which facilitates early reading acquisition (Caravolas et al., 2013). It is relevant to take this into account when exploring the relationship between EF and RF, as such a link would be particular to the orthographic characteristics of the language (Dolean et al., 2021; Kocaarslan, 2022).

With respect to OLS, we include a measure of vocabulary as it is a strong predictor of RC performance (Lervåg & Aukrust, 2010; Suggate et al., 2018) and is often used as an indicator of OLS (Peng et al., 2018). In addition, we added a measure of sentence comprehension, following previous studies that integrate the syntactic level when assessing OLS (Kieffer et al., 2013; Nouwens et al., 2021; Potocki et al., 2017; Spencer et al., 2020; Tapia Montesinos et al., 2022).

Regarding the assessment of EF, we chose to evaluate WM using a verbal digit span paradigm, which is predominantly used in research exploring RC development in school-aged children (Arán-Filippetti & López, 2016; Kocaarslan, 2022; Nouwens et al., 2021; Potocki et al., 2017; Raudszus et al., 2018; Søndergaard Knudsen et al., 2018). Additionally, we selected the Yellow Red battery (Rosas et al., 2022) to assess inhibition and cognitive flexibility, because we aim to highlight the advantages of digital assessment. Specifically, it reduces individual variability in the presentation of instructions and examples, as well as in the feedback provided during task performance, thus ensuring standardized administration (Ruffini et al., 2025). Moreover, Yellow Red evaluates EF in a playful manner (Rosas et al., 2022) and given that digital tools can increase children's motivation, this may help maintain engagement throughout the assessment process (Day et al., 2019) and allow for a more accurate examination of each child's potential (Rosas et al., 2015). Finally, Yellow Red (Rosas et al., 2022) has been used in several of the few regional studies investigating the relationship between EF and RC (Carriquiry et al., in press; Escobar et al., 2024; Escobar & Rosas Díaz, 2023). We believe that continuing to use this instrument is important for ensuring comparability across Latin American studies.

In sum, the aim of this research is to explore the effect of EF, RF, and OLS on RC, as well as the relationships among these variables in this effect. In line with previous studies, we hypothesise that EF will at least indirectly affect RC. Considering that the effect of EF on RC may vary depending on how they are assessed (Butterfuss & Kendeou, 2018), we expect to find discrepancies in the incidence of each. In particular, inhibition and cognitive flexibility may not be linked to RC as strongly as WM, as the tasks used to measure them do not require linguistic processing. As for OLS, we expect them to be relevant for RC, given the available evidence on their influence on advanced schooling children (Chen et al., 2025; Tapia Montesinos et al., 2022). We also hypothesise that RF will play a decisive role in RC, as widely documented (Georgiou & Rothou, 2024). Regarding the interactions between the different variables, making detailed predictions is challenging because the literature shows mixed results. Nevertheless, taking into account research on transparent orthographies (Escobar, Espinoza, et al., 2024; Escobar & Espinoza, 2024; Escobar & Rosas Díaz, 2023; Kocaarslan, 2022), we expect to find that the effect of EF on RC will be mediated by RF and OLS.

Method

Participants

The initial sample consisted of 85 5th grade (n = 55) and 6th grade (n = 30) primary school children from two private educational institutions with medium-high educational opportunities (Abusamra et al., 2010) in the city of Montevideo, Uruguay. According to this classification, the schools were characterized by the following aspects: most of their students came from a middle-high socioeconomic background, the repetition rate was very low, the institutions had libraries, laboratories, computer rooms, and spaces for physical activities, the school day was either half or full time, and the schools offered extracurricular activities. Children from both institutions were exposed to English on a daily basis. Participants met the following inclusion criteria: no diagnosis of neurodevelopmental, sensory or cognitive deficits; no history of school year retention; being native Spanish speakers. These data were provided by the Psychopedagogical Department of each school. In addition, six children who obtained an IQ below 85 on the *Factor g* fluid intelligence test (Cattell & Cattell, 2009) were excluded from the analysis. Additionally, the group test data of one of the participants could not be obtained, so he was also eliminated from the analysis. Thus, the final sample consisted of 78 children (46.2% female; 62% from 5th grade). The mean age was 11.5 years (SD: 0.58).

Measures

Reading comprehension. The *Sentence Comprehension* and *Text Comprehension* subtests of the Uruguayan version of *ELFE II* (Cuadro et al., in press) were used to assess RC. In Sentence Comprehension (37 items), children must complete a sentence by choosing the correct word from five options. In Text Comprehension (26 items), short statements or texts are presented followed by questions with four response options. Children have access to each statement or text while responding to the questions, allowing them to reread the material as many times as necessary. Items are designed considering coherence, information and genre. In both subtests, participants must complete as many items as possible within a time limit of three and seven minutes, respectively. Scoring is based on the number of correct responses. The internal consistency of each subtest is considered in terms of accuracy and speed. Thus, Cronbach's alpha for the Sentence Comprehension subscale is .82 and .81; and for the Text Comprehension scale is .87 and .93, respectively. For the RC variable, the sum of both subtests was calculated, as established by the task.

Reading fluency. TECLE R (Cuadro & Costa, 2020) was used for the assessment of reading efficacy. In this task, children are confronted with a sentence whose final word is omitted and must choose a word that completes the sentence from four options. Among the choices is the correct word, along with three other words that function as distracters of different types: lexical, phonological and orthographic. Deciding which is the right word involves not only accuracy and speed of word recognition but also understanding the meaning of the sentence. The running time is five minutes, during which time the children must complete as many of the 64 items as possible. Direct scoring is applied to evaluate responses, with correct scores obtained by subtracting omissions and errors from the total number of responses. The test-retest reliability study shows a coefficient of temporal stability of .88.

Vocabulary. The Spanish version of the *Peabody* test (Dunn et al., 2010) was used to assess vocabulary. In this test, four images are presented. The task is to choose the one that corresponds to the meaning of a given word. There is no time limit. The test consists of 192 items, applied in sets of 12, and it stops after eight or more errors in a set. The score is obtained by subtracting the total number of errors from the number of the last item reached. Cronbach's Alpha ranges from .80 to .99 depending on the norm groups.

Oral Comprehension. The subtest Following Directions from *CELF 5* in its Spanish version (Wiig et al., 2018) was administered to assess the ability to interpret, remember, and carry out oral instructions of increasing length and complexity. The test consists of 33 items, where children must identify figures according to an oral instruction. Each correct answer adds one point, and the test stops after four consecutive errors. The final score is the sum of correct answers. Reliability, estimated by the split-half method, ranges from .83 to .88 for the ages studied.

Working Memory. The Spanish version of the *Digits* subtest from *WISC V* (Hernández et al., 2015) was used. This test consists of three parts: Digit Span Forward, Digit Span Backward, and Digit Span Sequencing. In the first part, participants must repeat a series of digits in direct order; in the second part, they must repeat the series in reverse order; and in the third part, the task is to repeat the series of digits in ascending order. In all three parts of the test, the items consist of two attempts. Each attempt grants one point for a correct answer and zero points for an incorrect or unanswered response. The total score for Digits is the sum of the scores from the three parts. The reliability of the task, estimated by the split-half method, ranges from .90 to .91 for the ages studied.

Inhibition. To assess inhibition, the *Arrows* subtest from the *Yellow-Red* battery (Rosas et al., 2022) was used, which employs a digital tablet-based format. In this test, a model arrow is displayed on the screen alongside three arrows serving as response options. The arrows point either to the right, left, up, or down. In the first three cases, the child must tap the arrow pointing in the same direction as the model arrow, but they must refrain from touching anything when the model arrow points downward. Arrows consists of 36 items, eight of which involve inhibition tasks. The first 15 items are presented for two seconds, while the remaining 21 items are presented for one second. One point is awarded for each correct response, and zero points are given for each incorrect or anticipatory response (reaction time under 200 milliseconds). Cronbach's Alpha is .88.

Cognitive Flexibility. The *Trios* subtest from the Yellow-Red battery (Rosas et al., 2022) was used to assess cognitive flexibility. The task involves identifying a shared classification criterion among three of the four stimuli presented on the screen. The criterion can be shape (circle, square, triangle, pentagon), colour (green, red, yellow, blue), or size (large, small). The classification criteria are not explicitly stated. Based on the children's responses, the tablet provides clear and explicit feedback regarding the correctness of their choices. After five consecutive correct responses, the selection criterion changes without the children's knowledge, requiring them to discover the new criterion. There is no time limit for item presentation. The test consists of 21 items: five based on the implicit colour criterion, five on shape, five on size, and six on mixed (random) criteria. Children have three attempts to identify the criterion; each incorrect attempt is considered an attentional error, while failure to identify the criterion after three attempts is considered a perseverative error. Correct responses on the first attempt receive one point, 0.6 points on the second attempt, and 0.3 points on the third attempt. One point is subtracted for each attentional error, and two points for each perseverative error. The test is discontinued after three consecutive incorrect responses. Cronbach's Alpha is .86.

Fluid intelligence. Fluid intelligence was assessed using *Factor g* (Cattell & Cattell, 2009). This task consists of four subtests composed of visual stimuli without cultural content: *Series*, *Classification*, *Matrices* and *Conditions*. In Series, the option that completes an incomplete sequence must be selected. In Classification, children must identify the different figure among five options. In Matrices, children must choose the correct alternative to complete a matrix. Under Conditions, children select the figure that meets the same criteria as the reference. Each subtest has a time limit (between two and a half and four minutes), and the total score corresponds to the sum of the correct answers. The reliability, calculated by the method of two halves, is rxx = .80 for grade 5 and rxx = .76 for grade 6.

Procedure

First, the participants' parents signed the informed consent form, and the children gave their written consent. These steps and the other study procedures were governed by the Research Ethics Committee of the Universidad Católica del Uruguay, which authorised this research. Participants were assessed in the first months of the second semester of the current educational year in two sessions of approximately 50 minutes each. In the first instance, the main author administered the tasks to assess RC, RF and fluid intelligence. This assessment was carried out in groups in the children's classrooms, in the presence of their teachers. Multiple examples and practice opportunities were provided, and the instructions were repeated as many times as necessary to ensure understanding by each student. Both adults monitored the students' work during the administration of the tasks. Subsequently, the children were assessed individually in the OLS and EF in appropriate rooms close to the classrooms. This assessment was carried out by the main author and a group of advanced students of Psychopedagogy, selected based on their academic record and specially trained for this purpose -both in theoretical and practical sessions-. The total evaluation time per child was approximately one hour and forty minutes. The tasks were administered in such a way that the required response modality alternated, in order to keep the children attentive and motivated.

Data Analysis

Data were analysed using correlation analysis, hierarchical regression and mediation analysis. Correlation analysis used Pearson's and Spearman's correlation coefficients (r, s). For the hierarchical regression analysis, the EF variables were entered first (Model 1), the OLS (vocabulary and oral comprehension) were entered second (Model 2), and finally RF was added to the model (Model 3). The three models obtained satisfactory values in the assumption tests (Shapiro-Wilk normality tests not significant, collinearity with VIFs less than 1.22, and Darwin-Watson autocorrelation tests not significant). Finally, based on the results of the hierarchical regression, a mediation analysis was conducted to determine whether RF acted as a mediator of the effect of WM on RC. A traditional method for mediation testing was used (MacKinnon et al., 2007), followed by a bootstrap test to confirm the pattern (Preacher & Kelley, 2011).

Results

Tables 1 and 2 show the descriptive statistics and correlations between the variables. All variables in the study met the assumptions of normal distribution in terms of kurtosis (George & Mallery, 2019); however, cognitive flexibility and oral comprehension did not reach the acceptable values of skewness to meet the assumption of normality (see Table 1). For this reason, the correlation matrix included Spearman's rank coefficient (s) in addition to Pearson's coefficient (r). Table 2 shows the correlation matrix. Following Cohen (1988), values of 0.1, 0.3 and 0.5 were considered as small, medium and large correlation values, respectively.

Table 1. Descriptive statistics

Variable	Mean	Median	SD	Skewness	Kurtosis	N
WM	26.1	26	3.4	-0.07	-0.09	78
CF	19.2	20	2.36	-1.23	0.044	78
Inhibition	31.9	33	3.20	-1.01	0.56	78
Vocabulary	123	125	13.8	-0.53	0.81	78
OC	26.9	28	3.28	-1.21	1.80	78
RF	49	51	9.3	-0.27	-1	78
RC	47.4	47	8.3	-1	0.53	78

Note. CF = cognitive flexibility; OC = oral comprehension; SD = standard deviation; N = number of subjects.

Table 2. Correlation matrix

Variable	CC	RC	RF	WM	CF	Inhibition	OC
RF	Pearson's r	0.74***					
	Spearman's ρ	0.75***					
WM	Pearson's r	0.32**	0.31**				
	Spearman's ρ	0.32**	0.29**				
CF	Pearson's r	<0.1	<0.1	0.22*			
	Spearman's ρ	<0.1	<0.1	0.19			
Inhibition	Pearson's r	0.11	0.21	<0.1	<0.1		
	Spearman's ρ	0.12	0.30**	<0.1	<0.1		
OC	Pearson's r	0.29**	0.27*	0.22t	0.24*	<0.1	
	Spearman's ρ	0.41***	0.34**	0.29**	0.21t	<0.1	
Vocabulary	Pearson's r	0.45***	0.27*	0.12	0.13	<0.1	0.21t
	Spearman's ρ	0.51***	0.30**	0.17	0.14	<0.1	0.34**

Note. CC: correlation coefficient; CF = cognitive flexibility; OC = oral comprehension. *p≤0.05; ** p≤0.01; ***p≤0.001; t p≤ 0.10.

Correlation analyses revealed that RC correlated significantly with all variables except inhibition and cognitive flexibility. The correlation between RC and RF was very strong, while the correlation between RC and WM and both OLS variables was moderate, with a higher association between RC and vocabulary. Additionally, a moderate correlation was found between WM and RF, as well as a weak correlation between WM and oral comprehension. Both OLS variables were significantly correlated with each other, and each had a weak/moderate correlation with RF.

In order to determine the contribution of the variables WM, vocabulary, oral comprehension and RF to RC, controlling for the rest of the variables, a hierarchical regression analysis was performed (see Table 3). Because inhibition and cognitive flexibility were not correlated with RC, these variables were not included in the regression. In the first stage (Model 1), WM was added, and it significantly predicted RC, F (1,76)=9.2, p=0.003, adjusted R^2=0.10. In the second stage (Model 2), OLS variables were included, resulting in a 19% increase in explained variance F (3, 74)=3.74, p<.001, adjusted R^2=0.28. In this model, vocabulary and WM significantly predict RC, even controlling for the other two variables. In the last stage (Model 3), the addition of RF caused a 32% increase in explained variance F (4,73)=30.2, p< .001, adjusted R^2=0.60. In this model, only RF and vocabulary significantly explained the variance in RC. All three models met the assumptions of normality, autocorrelation and collinearity. The addition of the RF components to the final model caused WM to cease to be a significant predictor of RC, as indicated by the significance value of the beta obtained. These results suggest that RF could play a mediating role in the relationship between WM and RC. Based on this, a mediation analysis was performed.

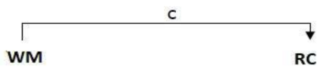
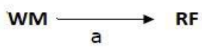
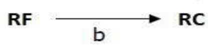
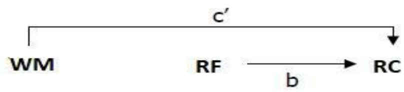
Table 3. Hierarchical Regression Results: Beta Estimator Values for Predictor Variables in Models 1, 2, and 3.

Variable	Model 1	Model 2	Model 3
WM	0.788 (0.26)**	0.6 (0.24)*	0.21 (0.18)
Vocabulary		0.23 (0.006)**	0.16 (0.04)***
OC		0.39 (0.25)	0.11 (0.19)
RF			0.56 (0.07)***

Note. OC = oral comprehension. The values in parentheses correspond to the standard errors associated with the beta estimator. *p≤0.05; ** p≤0.01; *** p≤0.001.

Figure 1 and Table 4 illustrate the stepwise model followed to assess medication (MacKinnon et al., 2007). Step 1 shows that WM is a significant predictor of RC performance (path c). Step 2 shows that WM makes a significant contribution to RF (path a). In Step 3, RF is a significant predictor of RC (path b). Finally (step 4), when WM is controlled, RF remains a significant predictor of RC (path c',b). However, when the whole model is considered, WM no longer significantly predicts RC as it did at the beginning (path c',b). This situation shows that RF plays a fully mediating role in the relationship between WM and RC. In turn, the model shows that WM and RF combined (and in the absence of other factors) explain 56% of the variance in RC. When vocabulary is added, the variance explained rises to 62% (Model 3).

Table 4. Stepwise Mediation Results

	Analysis	Estimators	Visual Description
Step 1	WM, RC; path c	β= 0.78** SE= 0.24	
Step 2	WM, RF; path a	β= 0.84** SE= 0.29	
Step 3	RF, RC; path b	β= 0.56*** SE=0.07	
Step 4	WM, RF, RC; path b,c\`	β_b= 0.63*** SE= 0.07 $\beta_{c`}$= 0.26 SE= 0.19	

Note. SD = standard errors. *p≤0.05; ** p≤0.01; *** p≤0.001.

Table 5. Bootstrap Mediation Test Results in R

Type of effect	β	Valor p	95% CI beta lower limit	95% CI beta upper limit
Total	0.78	0.002	0.30	1.24
Direct	0.25	0.11	-0.05	0.64
Indirect	0.53	0.004	0.17	0.87

Note. Total effect = t = ab + c′. Direct effect = c′ = t – ab. Indirect effect = ab = t – c′. The 95% CIs were obtained using the bootstrap test with 1000 resamples.

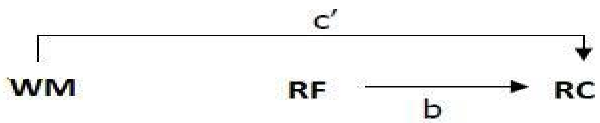


Figure 1. Mediation Model

The second approach used to test the mediation effect of RF on the WM and RC relationship was the bootstrap (re-sampling) method (Tingley et al., 2014). This method involves randomly creating a series of new sets of observations (resamples) from the original data. Statistical calculations are performed on the distributions obtained from these new data sets, and the process is repeated hundreds of times. The bootstrap test for mediation was performed using *R* statistical software (Tingley et al., 2014).

Table 5 shows that the indirect effect of WM on RC (path a,b in Figure 1) is significant and that the bias-corrected confidence intervals do not include zero. On the other hand, the direct effect of WM on RC (path c′, controlling for a,b) is not significant and the confidence interval (CI) includes zero. This demonstrates, like the traditional test above, that RF has a full mediation effect on the relationship between WM and RC.

Discussion

The aim of this study was to explore the relationships between core EF, OLS and RF in their effect on RC. The results suggest that the effect of WM on RC is mediated by RF. Furthermore, vocabulary was found to play a relevant role in RC, even when controlling for other variables.

From the analysis of correlations, it stands out that the strongest link is that of RC and RF. This result is in line with previous studies in Spanish, which show significant relationships between both variables (Álvarez-Cañizo et al., 2015; Suárez-Coalla et al., 2020) and report that weaknesses in RF are linked to low performance in RC (Álvarez-Cañizo et al., 2015). It is also worth highlighting the significance of the correlations between both OLS and RC measures. This relationship suggests that oral and written language processing are strongly linked, which is supported by theoretical (Kim, 2020; Nation, 2005) and empirical background (Suggate et al., 2018; Wolf et al., 2019). Consistent with some previous studies (Kieffer et al., 2013; Nouwens et al., 2021; Potocki et al., 2017), the associations between the different EF were not particularly significant. These results illustrate the diversity underlying the core of the EF proposed by Miyake et al. (2000) and support the assessment of each executive component in its relationship with RC independently (Kieffer et al., 2013; Potocki et al., 2017). Accordingly, WM was the only EF component that was significantly correlated with RC. This result differs from those obtained in some previous studies in similar populations (Escobar, Espinoza, et al., 2024; Escobar & Espinoza, 2024). This could be due to the fact that in those studies the three core EF were assessed using instruments that required the processing of linguistic stimuli, unlike our study, in which the only measure of verbal modality was the WM. This is consistent with precedents that point to the relevance of considering the linguistic dimension of the corresponding executive function, as it would be the one particularly involved in RC (Cartwright et al., 2020; Escobar, Meneses, et al., 2024; Pimperton & Nation, 2010).

The results of the hierarchical regression shed light on the effect of the different variables on RC. As hypothesised, vocabulary was a significant predictor, even controlling for WM (Model 2) and RF (Model 3). This result is consistent with previous studies in Spanish that highlight vocabulary as one of the best predictors of RC (Abusamra et al., 2020; Tapia Montesinos et al., 2022), and even with those that point out that it is an independent predictor of EF (Eason et al., 2012; Escobar & Espinoza, 2024). RC depends on access to the meaning of the words read (Perfetti, 2010), and a large vocabulary provides robust and easily retrievable representations of meaning necessary for textual processing (Rosemberg, 2021). In contrast, contrary to our expectations, oral comprehension exerted a weak effect on RC when controlling for other factors. This disagrees with some previous evidence reporting that oral comprehension predicts RC, even controlling for WM (Kieffer et al., 2013; Orsolini et al., 2022). These differences could be because the measures used to assess oral comprehension were different. While in this study the task involved only the receptive dimension of language, in those of Kieffer et al. (2013) and Orsolini et al. (2022), the productive dimension was also involved. It could be considered that these measurements, which are more comprehensive than ours, could capture the influence of oral comprehension more strongly, and thus have a significant impact on RC. Another difference with our work is that, in the studies mentioned above, vocabulary was not part of the analysis. These different methodological approaches would also affect the results of each study.

As for WM, it was found to predict RC (model 1), and this relationship holds when controlling for vocabulary and oral comprehension (model 2). This result is consistent with the literature documenting that WM makes a significant contribution to RC (Ergül et al., 2023; Nouwens et al., 2021). It is also consistent with the findings of the meta-analysis conducted by Peng et al. (2018), who recorded that when controlling for vocabulary, WM uniquely contributes to RC. In the present study, when introducing RF into model (3), we found that vocabulary and RF are significant predictors of RC, but WM is no longer significant. This also aligns with the results of Peng et al. (2018), who show that the relationship between WM and RC loses significance when vocabulary and decoding (assessed by accuracy and RF) are controlled simultaneously. The authors suggest that the relationship of WM to RC involves both decoding and vocabulary. In our case, we tested the hypothesis that WM influences RC through the mediation of RF. According to the analyses conducted, we found that such mediation was total (Tables 4 and 5).

This result provides clear evidence that RC is not the consequence of the mere sum of isolated processes, but rather of the integrated functioning of these processes as a system (Kintsch & Rawson, 2005). In particular, we have demonstrated that the influence of WM on RC is fundamental, yet indirect, through its effect on silent RF. The task used to assess this variable (TECLE) requires processing the words that make up the stimulus sentence, as well as the words and pseudowords included among the response options. Thus, one way WM may have affected silent RF is by enabling the establishment of grapheme-phoneme correspondences (Baddeley et al., 1985) and the integration of phonological, orthographic, and semantic representations of words (Peng et al., 2018). Moreover, TECLE requires syntactic and semantic processing at the sentence level.

Thus, a second way in which WM may have influenced silent RF is by supporting the active maintenance of representations from the initial parts of the sentences and their integration with those from the final parts (Horne et al., 2022). Ultimately, WM contributed to the construction of textual meaning by assisting in several ways the skills involved in silent RF. This finding aligns with the current emphasis in the academic community on the need to analyze the processes involved in RC simultaneously, to better understand the nature of their relationships (Kim, 2023; Liu et al., 2024; Taboada Barber et al., 2020).

To the best of our knowledge, the study by Kocaarslan (2022) constitutes the only precedent in a transparent language that reports evidence similar to ours. The author recorded that RF components (accuracy, speed and prosody) explained variance in RC, after controlling for sustained attention and WM, although only prosody contributed uniquely to the model. Furthermore, he showed that prosody fully mediated the relationship between WM and RC. Based on his result, Kocaarslan (2022) proposed that prosody would collaborate with RC by retaining a phonological sequence in WM and thus facilitate the construction of the textual mental representation. The prosody assessment conducted by Kocaarslan (2022) shows a notable difference from our study. However, it should be noted that prosodic information is captured by the reader even in silent reading (Ashby, 2006). Given that the participants in this study were readers without difficulties (according to the inclusion criteria), with sufficient experience for their reading to have acquired certain prosodic features (Álvarez-Cañizo et al., 2018; Calet et al., 2015; Kuhn et al., 2010), it could be considered that these would have been involved during the performance of the RF task. Thus, it could be speculated that to choose the missing word in TECLE R, the application of prosodic components during stimulus processing would have facilitated the integration of lexical and sentence-level information into a coherent model of comprehension (Paige et al., 2014). Future research is needed to extend studies in this direction, including the assessment of prosody as a dimension of RF.

Our result also presents points of contact with other studies that report that WM affects RC through RF, although they also report other simultaneous mediation effects, such as word reading and vocabulary (Escobar & Espinoza, 2024; Kim, 2020). On the other hand, this work disagrees with some previous studies in Spanish, which did not find RF to mediate the effect of WM on RC (Carriquiry et al., in press; Escobar, Espinoza, et al., 2024). These differences could be due to methodological aspects. Escobar et al. (2024) included in their mediation analysis the vocabulary variable, operationalised by means of a task of reading utterances in which synonyms had to be identified. It is possible that the prominent vocabulary mediation recorded in their study was linked to being cognitively closer to the RC task than the RF task -which did not require syntactic processing but primarily involved word recognition-. On the other hand, the RC task in the study by Carriquiry et al. (in press) did not involve a time limit, unlike the RF task which did require speed. These particularities could mean that the relationship between the variables was not significant.

Finally, the result of the present study disagrees with that reported by Liu et al. (2024), who found that the effect of WM on RC was completely mediated by language comprehension skills (vocabulary and morphological awareness), but not by decoding (assessed as word reading accuracy and fluency). The differences found could be because the model by Liu et al. (2024) included visual search ability, which showed a stronger effect on decoding than WM. This made the latter's indirect pathway to RC, through decoding, not significant. It should be kept in mind that the Chinese written system has high visual complexity compared to alphabetic systems (Chen et al., 2025). In addition, in the study by Liu et al. (2024), a list of isolated words was used to assess RF, which was combined with a measure of Chinese character recognition to form the decoding variable. This measure of reading ability disagrees in several respects with that of our study, which may also explain the disparities between the findings.

The result we obtained confirms that RF is a critical skill in Spanish (Gutiérrez & Jiménez, 2019) and agrees with numerous precedents that demonstrate its ability to predict RC (Ferroni, 2021; Kim & Pallante, 2012; Tapia Montesinos et al., 2022). In particular, the present study adds evidence in favour of the importance of silent RF in advanced grades (Chen et al., 2025). Furthermore, the results align with previous studies suggesting that higher-level cognitive skills, such as WM, impact on reading development by influencing specific reading skills (S. Liu et al., 2024), such as silent RF. These data suggest that, as indicated by the National Reading Panel (2000), RF should have a central place in classrooms, in service of RC. The collected evidence shows that even in advanced grades, fluent reading promotes RC, which is the ultimate goal of reading (García Madruga, 2006). Understanding written texts is an extremely complex cognitive skill (Kintsch & Rawson, 2005; Seidenberg et al., 2020), requiring the simultaneous and coordinated work of multiple processes (Cartwright, 2012; Castles et al., 2018; Sánchez Miguel et al., 2011). The less cognitive effort required to access the written code, the more cognitive resources are available for constructing textual meaning (Kuhn & Stahl, 2002; Paige et al., 2017).

The findings illustrate the multicomponential nature of RC (Abusamra et al., 2010) and the underlying interconnection between the skills involved (Kim, 2023), which entails a number of practical implications. First, it highlights the need to stimulate RC in an integrated manner (Liu et al., 2024), both in general classroom instruction and in addressing children with difficulties. At the school level, practices aimed at strengthening OLS, such as vocabulary, along with specific reading skills like silent RF, should be included in the curriculum. The instruction of these skills should be explicit and systematic (National Reading Panel, 2000). Moreover, insofar as WM, along with other higher-order functions, constitutes the foundation upon which the linguistic skills that support reading are built, its promotion should be considered to optimize the development of RC (Kim, 2020). EF are malleable (Zelazo & Carlson, 2012), and multiple programs exist for their development (Diamond & Ling, 2019). However, the literature agrees that the most effective interventions to improve RC are those that stimulate EF in specific reading contexts (Cartwright & Palian, 2024; Melby-Lervåg & Lervåg, 2014; Ruffini et al., 2025). This should be taken into account when designing concrete educational proposals. Furthermore, school and community centers that adopt preventive approaches could anticipate that weaknesses in WM, RF, or vocabulary, will affect the development of RC. In this way, the early detection of difficulties in any of these skills would provide an opportunity to promptly address potential problems in RC.

In addition, the findings suggest that children with weaknesses in WM may need specific help to construct the meaning of the texts they read. Simple interventions, such as highlighting important information, emphasizing key words, and reducing irrelevant content, could help these children focus their cognitive resources on processing what is essential for comprehension. In addition, these children could improve their RC skills through individualized and scaffolded training, in which they practice connecting new information with their prior knowledge during reading tasks (Ruffini et al., 2025). Additionally, according to the results of the present study, these children may be at risk of developing difficulties in RF. Implementing high-frequency interventions specifically targeting the mastery of this skill would be key. Among evidence-based practices for improving fluency, repeated and timed reading stands out, where motivational aspects and the intensity level should be carefully adjusted according to the child's level of difficulty (Gutiérrez & Jiménez, 2019). For those who show weaknesses in vocabulary, teaching relevant background knowledge (Peng et al., 2024) and strategies for independently accessing word meanings (Gutiérrez & Jiménez, 2019) could increase their chances of understanding what they read.

The findings of this research should be viewed with caution as they have several limitations. Firstly, the sample selected was small in quantitative and qualitative terms. Future research should cover more children and include a diversity of reading profiles, both in terms of experience and proficiency. This would enable a deeper understanding of the skills examined in a more comprehensive way. Linked to this point, it would be pertinent for future studies to integrate prosody as a key component of RF (Calet et al., 2017; Groen et al., 2019; Wade-Woolley et al., 2022) and thus extend the exploration of its mediating role between EF and RC. In addition, it would be advisable for further research to use multiple measures to assess the variables under study (Kieffer et al., 2013; Kim, 2020). In particular, assessing all EF with linguistic stimuli would reduce the clear limitation that this work presented in terms of the disparity of the modalities used.

In summary, this study makes a contribution to the understanding of the cognitive processes involved in written language comprehension by highlighting the full mediating role of RF in the impact of WM on RC. This constitutes a contribution that integrates with contemporary perspectives on textual comprehension, enriching the approach originally postulated by the Simple View of Reading.

Authorship declaration: Carolina Carriquiry: Article conceptualization; Data collection; First draft writing; Methodology; Writing revision draft.
Florencia Reali: First draft writing; Methodology; Writing revision draft; Statistics.
Ariel Cuadro: Article conceptualization; First draft writing; Methodology; Writing revision draft.

Conflict of interest

There is no conflict of interest to declare.

References

Aaron, P. G., Joshi, M., & Williams, K. A. (1999). Not All Reading Disabilities Are Alike. *Journal of Learning Disabilities*, *32*(2), 120-137. https://doi.org/10.1177/002221949903200203

Abusamra, V., Difalcis, M., Martínez, G., Low, D., & Formoso, J. (2020). Cognitive Skills Involved in Reading Comprehension of Adolescents with Low Educational Opportunities. *Languages*, *5*(3), 34. https://doi.org/10.3390/languages5030034

Abusamra, V., Ferreres, A. R., Raiter, A., De Benni, R., & Cornoldi, C. (2010). *Test Leer para Comprender. Evaluación de la comprensión de textos.* Paidós.

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. MIT Press.

Altemeier, L. E., Abbott, R. D., & Berninger, V. W. (2008). Executive functions for reading and writing in typical literacy development and dyslexia. *Journal of Clinical and Experimental Neuropsychology*, *30*(5), 588-606. https://doi.org/10.1080/13803390701562818

Álvarez-Cañizo, M., Suárez-Coalla, P., & Cuetos, F. (2015). The Role of Reading Fluency in Children's Text Comprehension. *Frontiers in Psychology*, *6*, 1-8. https://doi.org/10.3389/fpsyg.2015.01810

Álvarez-Cañizo, M., Suárez-Coalla, P., & Cuetos, F. (2018). Reading prosody development in Spanish children. *Reading and Writing*, *31*(1), 35-52. https://doi.org/10.1007/s11145-017-9768-7

Arán-Filippetti, V., & López, M. B. (2016). Predictores de la Comprensión Lectora en Niños y Adolescentes: El papel de la Edad, el Sexo y las Funciones Ejecutivas. *Cuadernos de Neuropsicología - Panamerican Journal of Neuropsychology, 10*(1), 23-44. https://doi.org/10.7714/CNPS/10.1.202

Arrington, C. N., Kulesz, P. A., Francis, D. J., Fletcher, J. M., & Barnes, M. A. (2014). The Contribution of Attentional Control and Working Memory to Reading Comprehension and Decoding. *Scientific Studies of Reading*, *18*(5), 325-346. https://doi.org/10.1080/10888438.2014.902461

Ashby, J. (2006). Prosody in skilled silent reading: Evidence from eye movements. *Journal of Research in Reading*, *29*(3), 318-333. https://doi.org/10.1111/j.1467-9817.2006.00311.x

Baddeley, A. (2012). Working Memory: Theories, Models, and Controversies. *Annual Review of Psychology*, *63*(1), 1-29. https://doi.org/10.1146/annurev-psych-120710-100422

Baddeley, A., & Hitch, G. J. (1974). Working memory. *The Psychology of Learning and Motivation*, *8*, 47-89. https://doi.org/10.1016/S0079-7421(08)60452-1

Baddeley, A., Logie, R., Nimmo-Smith, I., & Brereton, N. (1985). Components of fluent reading. *Journal of Memory and Language, 24,* 119-131.

Barnes, Z. T., Fields, R. S., & Cartwright, K. B. (2024). A special educator's guide to the Science of Reading. *Preventing School Failure: Alternative Education for Children and Youth*, *68*(4), 310-317. https://doi.org/10.1080/1045988X.2023.2243847

Bizama Muñoz, M., Saldaño Silva, D., & Rodríguez Rodríguez, C. (2019). Fluid Intelligence, Working Memory, Reading Fluency and Comprehension in Chilean School Children. *Electronic Journal of Research in Educational Psychology*, *17*(48), 295-316. https://doi.org/10.25115/ejrep.v17i48.2251

Borella, E., Carretti, B., & Pelegrina, S. (2010). The Specific Role of Inhibition in Reading Comprehension in Good and Poor Comprehenders. *Journal of Learning Disabilities*, *43*(6), 541-552. https://doi.org/10.1177/0022219410371676

Borella, E., & De Ribaupierre, A. (2014). The role of working memory, inhibition, and processing speed in text comprehension in children. *Learning and Individual Differences*, *34*, 86-92. https://doi.org/10.1016/j.lindif.2014.05.001

Braze, D., Tabor, W., Shankweiler, D. P., & Mencl, W. E. (2007). Speaking Up for Vocabulary: Reading Skill Differences in Young Adults. *Journal of Learning Disabilities*, *40*(3), 226-243. https://doi.org/10.1177/00222194070400030401

Butterfuss, R., & Kendeou, P. (2018). The Role of Executive Functions in Reading Comprehension. *Educational Psychology Review*, *30*(3), 801-826. https://doi.org/10.1007/s10648-017-9422-6

Cain, K. (2006). Individual differences in children's memory and reading comprehension: An investigation of semantic and inhibitory deficits. *Memory*, *14*(5), 553-569. https://doi.org/10.1080/09658210600624481

Cain, K., Oakhill, J. V., Barnes, M. A., & Bryant, P. E. (2001). Comprehension skill, inference-making ability, and their relation to knowledge. *Memory & Cognition*, *29*(6), 850-859. https://doi.org/10.3758/BF03196414

Cain, K., Oakhill, J. V., & Bryant, P. (2004). Children's Reading Comprehension Ability: Concurrent Prediction by Working Memory, Verbal Ability, and Component Skills. *Journal of Educational Psychology*, *96*(1), 31-42. https://doi.org/10.1037/0022-0663.96.1.31

Calet, N., Gutiérrez-Palma, N., & Defior, S. (2017). Effects of fluency training on reading competence in primary school children: The role of prosody. *Learning and Instruction*, *52*, 59-68. https://doi.org/10.1016/j.learninstruc.2017.04.006

Calet, N., Gutiérrez-Palma, N., Simpson, I. C., González-Trujillo, M. C., & Defior, S. (2015). Suprasegmental Phonology Development and Reading Acquisition: A Longitudinal Study. *Scientific Studies of Reading*, *19*(1), 51-71. https://doi.org/10.1080/10888438.2014.976342

Caravolas, M., Lervåg, A., Defior, S., Seidlová Málková, G., & Hulme, C. (2013). Different Patterns, but Equivalent Predictors, of Growth in Reading in Consistent and Inconsistent Orthographies. *Psychological Science*, *24*(8), 1398-1407. https://doi.org/10.1177/0956797612473122

Carlisle, J. F. (2000). [No title found]. *Reading and Writing*, *12*(3/4), 169-190. https://doi.org/10.1023/A:1008131926604

Carretti, B., Cornoldi, C., De Beni, R., & Romano, M. (2005). Updating in working memory: A comparison of good and poor comprehenders. *Journal of Experimental Child Psychology*, *91*(1), 45-66. https://doi.org/10.1016/j.jecp.2005.01.005

Carretti, B., Borella, E., Cornoldi, C., & De Beni, R. (2009). Role of working memory in explaining the performance of individuals with specific reading comprehension difficulties: A meta-analysis. Learning and Individual Differences, 19(2), 246-251. https://doi.org/10.1016/j.lindif.2008.10.002

Carriquiry, C. (2017). *Comprensión lectora y funciones ejecutivas: Contribución de habilidades ejecutivas a la comprensión lectora en niños con y sin dificultades* [Instituto Universitario del Hospital Italiano]. http://trovare.hospitalitaliano.org.ar/greenstone/cgi-bin/library.cgi?c=tesisytr&a=d&d=D1005%0A

Carriquiry, C. (2022). Comparación del rendimiento de niños con y sin dificultades en comprensión lectora en pruebas de fluidez verbal. *Traslaciones. Revista latinoamericana de Lectura y Escritura*, *9*(17), 101-123. https://doi.org/10.48162/rev.5.067

Carriquiry, C., Cuadro, A., & Roldán, L. Á. (en prensa). *Funciones ejecutivas y comprensión lectora: El rol de la fluidez lectora*.

Carriquiry, C., Tonani, J., & Roldán, L. Á. (2024). How do reading fluency and executive functions relate in reading comprehension? A systematic review. *Cuadernos de Neuropsicología*, *18*(3), 63-79. https://doi.org/10.7714/CNPS/18.3.204

Cartoceti, R. V. (2012). Control inhibitorio y comprensión de textos: Evidencias de dominio específico verbal. *Revista Neuropsicología Latinoamericana, 4, 1-12*.

Cartwright, K. B. (2012). Insights From Cognitive Neuroscience: The Importance of Executive Function for Early Reading Development and Education. *Early Education & Development*, *23*(1), 24-36. https://doi.org/10.1080/10409289.2011.615025

Cartwright, K. B., & Palian, S. R. (2024). Considering roles of executive functions in the science of reading: A meta-analysis highlighting promises and challenges of reading-specific executive functions. *Educational Psychologist*, *59*(4), 263-290. https://doi.org/10.1080/00461520.2024.2418392

Cartwright, K. B., Bock, A. M., Coppage, E. A., Hodgkiss, M. D., & Nelson, M. I. (2017). A comparison of cognitive flexibility and metalinguistic skills in adult good and poor comprehenders. *Journal of Research in Reading*, *40*(2), 139-152. https://doi.org/10.1111/1467-9817.12101

Cartwright, K. B., Coppage, E. A., Lane, A. B., Singleton, T., Marshall, T. R., & Bentivegna, C. (2017). Cognitive flexibility deficits in children with specific reading comprehension difficulties. *Contemporary Educational Psychology*, *50*, 33-44. https://doi.org/10.1016/j.cedpsych.2016.01.003

Cartwright, K. B., & Duke, N. K. (2019). The DRIVE Model of Reading: Making the Complexity of Reading Accessible. *The Reading Teacher*, *73*(1), 7-15. https://doi.org/10.1002/trtr.1818

Cartwright, K. B., Marshall, T. R., Dandy, K. L., & Isaac, M. C. (2010). The Development of Graphophonological-Semantic Cognitive Flexibility and Its Contribution to Reading Comprehension in Beginning Readers. *Journal of Cognition and Development*, *11*(1), 61-85. https://doi.org/10.1080/15248370903453584

Cartwright, K. B., Marshall, T. R., & Hatfield, N. A. (2020). Concurrent and longitudinal contributions of a brief assessment of reading-specific executive function to reading comprehension in first and second grade students. *Mind, Brain, and Education*, *14*(2), 114-123. https://doi.org/10.1111/mbe.12236

Cartwright, K. B., Marshall, T. R., Huemer, C. M., & Payne, J. B. (2019). Executive function in the classroom: Cognitive flexibility supports reading fluency for typical readers and teacher-identified low-achieving readers. *Research in Developmental Disabilities*, *88*, 42-52. https://doi.org/10.1016/j.ridd.2019.01.011

Castles, A., Rastle, K., & Nation, K. (2018). Ending the reading wars: Reading acquisition from novice to expert. *Psychological Science in the Public Interest*, *19*(1), 5-51. https://doi.org/10.1177/1529100618772271

Cattell, R. B., & Cattell, AK. S. (2009). *Factor «g». Escalas 2 y 3.* (11.ª ed.). TEA.

Catts, H. W., Adlof, S. M., & Weismer, S. E. (2006). language deficits in poor comprehenders: A case for the simple view of reading. *Journal of Speech, Language, and Hearing Research*, *49*(2), 278-293. https://doi.org/10.1044/1092-4388(2006/023)

Catts, H. W., Hogan, T., & Adlof, S. (2005). Developmental changes in reading and reading disabilities. In H. W. Catts & A. G. Kamhi (Eds.), *The connections between language and reading disabilities* (pp. 25-40). Lawrence Erlbaum Associates.

Catts, H. W., Hogan, T., & Fey, M. E. (2003). Subgrouping poor readers on the basis of individual differences in reading-related abilities. *Journal of Learning Disabilities*, *36*(2), 151-164. https://psycnet.apa.org/doi/10.1177/002221940303600208

Cervetti, G. N., Pearson, P. D., Palincsar, A. S., Afflerbach, P., Kendeou, P., Biancarosa, G., Higgs, J., Fitzgerald, M. S., & Berman, A. I. (2020). How the reading for understanding initiative's research complicates the simple view of reading invoked in the science of reading. *Reading Research Quarterly*, *55*(S1). https://doi.org/10.1002/rrq.343

Chall. (1983). *Stages of Reading Development*. McGraw-Hill.

Chang, I. (2020). Influences of executive function, language comprehension, and fluency on young children's reading comprehension. *Journal of Early Childhood Research*, *18*(1), 44-57. https://doi.org/10.1177/1476718X19875768

Chen, H., Zhao, Y., Sun, P., Wang, H., Zhao, Y., & Wu, X. (2025). Contributions of decoding and listening comprehension to reading comprehension at different levels: Exploring the mediating roles of oral and silent reading fluency. *Learning and Individual Differences*, *117*, 102582. https://doi.org/10.1016/j.lindif.2024.102582

Choi, W., Tong, X., & Deacon, S. H. (2017). Double dissociations in reading comprehension difficulties among Chinese–English bilinguals and their association with tone awareness. *Journal of Research in Reading*, *40*(2), 184-198. https://doi.org/10.1111/1467-9817.12077

Christopher, M. E., Miyake, A., Keenan, J. M., Pennington, B., DeFries, J. C., Wadsworth, S. J., Willcutt, E., & Olson, R. K. (2012). Predicting word reading and comprehension with executive function and speed measures across development: A latent variable analysis. *Journal of Experimental Psychology: General*, *141*(3), 470-488. https://doi.org/10.1037/a0027375

Chrysochoou, E., Bablekou, Z., & Tsigilis, N. (2011). Working memory contributions to reading comprehension components in middle childhood children. *The American Journal of Psychology*, *124*(3), 275-289. https://doi.org/10.5406/amerjpsyc.124.3.0275

Clarke, P. J., Snowling, M. J., Truelove, E., & Hulme, C. (2010). Ameliorating children's reading-comprehension difficulties: A randomized controlled trial. *Psychological Science*, *21*(8), 1106-1116. https://doi.org/10.1177/0956797610375449

Colé, C. A. S., Duncan, L. G., & Blaye, A. (2014). Cognitive flexibility predicts early reading skills. *Frontiers in Psychology*, *5*. https://doi.org/10.3389/fpsyg.2014.00565

Cuadro, A., & Abusamra, V. (2021). De música ligera: La fluidez como condición imprescindible para la comprensión lectora. En V. Abusamra, Á. Chimenti, & S. Tiscornia (Eds.), *La ciencia de la lectura. Los desafíos de leer y comprender textos.* (Tilde editora).

Cuadro, A., & Costa, D. (2020). *Evaluación del nivel lector. Test de Eficacia Lectora Revisado (TECLE) de J. Marín y M. Carrillo*. Grupo Magro Editores.

Cuadro, A., Von Hagen, A., & Costa Ball, D. (en prensa). *Test ELFE II. Adaptación uruguaya.* (Universidad Católica del Uruguay).

Cutting, L. E., Clements-Stephens, A., Pugh, K. R., Burns, S., Cao, A., Pekar, J. J., Davis, N., & Rimrodt, S. L. (2013). Not all reading disabilities are dyslexia: distinct neurobiology of specific comprehension deficits. *Brain Connectivity*, *3*(2), 199-211. https://doi.org/10.1089/brain.2012.0116

Day, J., Freiberg, K., Hayes, A., & Homel, R. (2019). Towards scalable, integrative assessment of children's self-regulatory capabilities: New applications of digital technology. *Clinical Child and Family Psychology Review, 22(1)*, 90-103. https://doi.org/10.1007/s10567-019-00282-4

De Beni, R., & Palladino, P. (2000). Intrusion errors in working memory tasks: Are they related to readingcomprehension ability? *Learning & Individual Differences, 12(2),* 131-143. https://doi.org/10.1016/S1041-6080(01)00033-401

Denton, C. A., Barth, A. E., Fletcher, J. M., Wexler, J., Vaughn, S., Cirino, P. T., Romain, M., & Francis, D. J. (2011). The relations among oral and silent reading fluency and comprehension in middle school: Implications for identification and instruction of students with reading difficulties. *Scientific Studies of Reading*, *15*(2), 109-135. https://doi.org/10.1080/10888431003623546

Diamond, A. (2016). Why improving and assessing executive functions early in life is critical. In J. A. Griffin, P. McCardle, & L. S. Freund (Eds.), *Executive function in preschool-age children: Integrating measurement, neurodevelopment, and translational research* (pp. 11-43). American Psychological Association.

Diamond, A., & Ling, D. S. (2019). Review of the evidence on, and fundamental questions about, efforts to improve executive functions, including working memory. In J. M. Novick, M. F. Bunting, M. R. Dougherty, & R. W. Engle (Eds.), *Cognitive and Working Memory Training* (1.ª ed., pp. 143-431). Oxford University PressNew York. https://doi.org/10.1093/oso/9780199974467.003.0008

Dolean, D. D., Lervåg, A., Visu-Petra, L., & Melby-Lervåg, M. (2021). Language skills, and not executive functions, predict the development of reading comprehension of early readers: Evidence from an orthographically transparent language. *Reading and Writing*, *34*(6), 1491-1512. https://doi.org/10.1007/s11145-020-10107-4

Duke, N. K., & Cartwright, K. B. (2021). The science of reading progresses: Communicating advances beyond the simple view of reading. *Reading Research Quarterly*, *56*(S1). https://doi.org/10.1002/rrq.411

Dunn, D. L., Dunn, L. M., & Arribas, D. (2010). *Peabody PPVT-III: test de vocabulario en imágenes.* (2.ª ed.). TEA.

Eason, S. H., Goldberg, L. F., Young, K. M., Geist, M. C., & Cutting, L. E. (2012). Reader–text interactions: How differential text and question types influence cognitive skills needed for reading comprehension. *Journal of Educational Psychology*, *104*(3), 515-528. https://doi.org/10.1037/a0027182

Ergül, C., Ökcün-Akçamuş, M. Ç., Akoğlu, G., Yalçın, S., Tülü, B. K., & Kudret, Z. B. (2023). Early cognitive and home environmental predictors of reading fluency and reading comprehension in Turkish-speaking children. *Psychology in the Schools*, *60*(1), 234-254. https://doi.org/10.1002/pits.22774

Escobar, J. P., & Espinoza, V. (2024). Direct and indirect effects of inhibition, working memory and cognitive flexibility on reading comprehension of narrative and expository texts: Same or different effects? *Reading & Writing Quarterly*, 1-17. https://doi.org/10.1080/10573569.2024.2400993

Escobar, J. P., Espinoza, V., & Balboa, S. (2024). Relations between executive functions and reading comprehension: a study of fourth-grade students with and without reading comprehension difficulties. *Brain Sciences*, *14*(12), 1174. https://doi.org/10.3390/brainsci14121174

Escobar, J. P., Meneses, A., Hugo, E., Barber, A. T., & Montenegro, M. (2024). Domain-general and reading-specific cognitive flexibility and its relation with other executive functions: Contributions to science text reading comprehension. *Journal of Research in Reading*, *47*(2), 161-180. https://doi.org/10.1111/1467-9817.12446

Escobar, J. P., & Rosas Díaz, R. (2023). Direct and indirect effects of inhibition and flexibility to reading comprehension, reading fluency, and decoding in Spanish. *Reading Psychology*, *44*(2), 117-144. https://doi.org/10.1080/02702711.2022.2141395

Ferroni, M. (2021). Habilidades relacionadas con la comprensión lectora en lectores iniciales que crecen en contextos de pobreza. *CES Psicología*, *14*(3), 1-18. https://doi.org/10.21615/cesp.5188

Florit, E., & Cain, K. (2011). The Simple View of Reading: Is It valid for different types of alphabetic orthographies? *Educational Psychology Review*, *23*(4), 553-576. https://doi.org/10.1007/s10648-011-9175-6

Florit, E., Roch, M., Altoè, G., & Levorato, M. C. (2009). Listening comprehension in preschoolers: The role of memory. *British Journal of Developmental Psychology*, *27*(4), 935-951. https://doi.org/10.1348/026151008X397189

Florit, E., Roch, M., & Levorato, M. C. (2011). Listening text comprehension of explicit and implicit information in preschoolers: The role of verbal and inferential skills. *Discourse Processes*, *48*(2), 119-138. https://doi.org/10.1080/0163853X.2010.494244

Follmer, D. J. (2018). Executive function and reading comprehension: A meta-analytic review. *Educational Psychologist*, *53*(1), 42-60. https://doi.org/10.1080/00461520.2017.1309295

Friedman, N. P., & Miyake, A. (2004). The relations among inhibition and interference control functions: A latent-variable analysis. *Journal of Experimental Psychology: General*, *133*(1), 101-135. https://doi.org/10.1037/0096-3445.133.1.101

García Madruga, J. A. (2006). *Lectura y conocimiento*. Paidós Ibérica.

George, D., & Mallery, P. (2019). *IBM SPSS Statistics 26 Step by Step: A Simple Guide and Reference*. Routledge. https://doi.org/10.4324/9780429056765

Georgiou, G. K., & Das, J. P. (2018). Direct and indirect effects of executive function on reading comprehension in young adults. *Journal of Research in Reading*, *41*(2), 243-258. https://doi.org/10.1111/1467-9817.12091

Georgiou, G. K., Das, J. P., & Hayward, D. (2009). Revisiting the “Simple View of Reading” in a group of children with poor reading comprehension. *Journal of Learning Disabilities*, *42*(1), 76-84. https://doi.org/10.1177/0022219408326210

Georgiou, G. K., & Rothou, K. (2024). Do oral and silent word-reading fluency rely on the same cognitive-linguistic skills? Evidence from a cross-sectional study in Greek. *Journal of Psycholinguistic Research*, *53*(4), 53. https://doi.org/10.1007/s10936-024-10090-9

Gómez Zapata, E., Defior, S., & Serrano, F. (2011). Mejorar la fluidez lectora en dislexia: Diseño de un programa de intervención en español. *Escritos de Psicología*, *4*(2), 65-73. https://doi.org/10.5231/psy.writ.2011.1007

Gough, P. B., & Tunmer, W. E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education*, *7*(1), 6-10. https://doi.org/10.1177/074193258600700104

Groen, M. A., Veenendaal, N. J., & Verhoeven, L. (2019). The role of prosody in reading comprehension: Evidence from poor comprehenders. *Journal of Research in Reading*, *42*(1), 37-57. https://doi.org/10.1111/1467-9817.12133

Guajardo, N. R., & Cartwright, K. B. (2016). The contribution of theory of mind, counterfactual reasoning, and executive function to pre-readers' language comprehension and later reading awareness and comprehension in elementary school. *Journal of Experimental Child Psychology*, *144*, 27-45. https://doi.org/10.1016/j.jecp.2015.11.004

Guo, D., Feng, L., & Hodges, T. S. (2023). Differentiating reading profiles of children with specific comprehension deficits from skilled readers: A systematic review. *Learning Disability Quarterly*, *46*(2), 134-146. https://doi.org/10.1177/07319487221085277

Gutiérrez, N., & Jiménez, J. E. (2019). Modelo de respuesta a la intervención y lectura: Estrategias instruccionales basadas en la evidencia científica. En J. E. Jiménez, *Modelo de respuesta a la intervención. Un enfoque preventivo para las dificultades específicas del aprendizaje.* (Pirámides, pp. 151-195).

Helder, A., van den Broek, P., van Leijenhorst, L., & Beker, K. (2013). Sources of comprehension problems during reading. En B. Miller, L. E. Cutting, & P. McCardle (Eds.), *Unraveling reading comprehension behavioral, neurobiological, and genetic components.* (pp. 43-53). Brookes.

Hernández, A., Aguilar, C., Paradell, E., & Vallar, F. (2015). *Escala de inteligencia de Wechsler para niños-V*. Pearson Educación.

Hoover, W. A., & Gough, P. B. (1990). The simple view of reading. *Reading and Writing: An Interdisciplinary Journal*, *2*, 127-160. https://psycnet.apa.org/doi/10.1007/BF00401799

Hoover, W. A., & Tunmer, W. E. (2018). The Simple View of Reading: Three assessments of its adequacy. *Remedial and Special Education*, *39*(5), 304-312. https://doi.org/10.1177/0741932518773154

Horne, A., Zahn, R., Najera, O. I., & Martin, R. C. (2022). Semantic Working memory predicts sentence comprehension performance: A case series approach. *Frontiers in Psychology, 13,* 887586. https://doi.org/10.3389/fpsyg.2022.887586

Hulme, C., & Snowling, M. J. (2014). The interface between spoken and written language: Developmental disorders. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *369*(1634), 20120395. https://doi.org/10.1098/rstb.2012.0395

James, E., Currie, N. K., Tong, S. X., & Cain, K. (2021). The relations between morphological awareness and reading comprehension in beginner readers to young adolescents. *Journal of Research in Reading*, *44*(1), 110-130. https://doi.org/10.1111/1467-9817.12316

James, E., Thompson, P. A., Bowes, L., & Nation, K. (2023). Heterogeneity in children's reading comprehension difficulties: A latent class approach. *JCPP Advances*, *3*(4), e12177. https://doi.org/10.1002/jcv2.12177

James, E., Thompson, P. A., Bowes, L., & Nation, K. (2024). What are the long-term prospects for children with comprehension weaknesses? A registered report investigating education and employment outcomes. *Journal of Educational Psychology*, *116*(6), 1019-1033. https://doi.org/10.1037/edu0000898

Johann, V., Könen, T., & Karbach, J. (2020). The unique contribution of working memory, inhibition, cognitive flexibility, and intelligence to reading comprehension and reading speed. *Child Neuropsychology*, *26*(3), 324-344. https://doi.org/10.1080/09297049.2019.1649381

Joshi, R. M., Ji, X. R., Breznitz, Z., Amiel, M., & Yulia, A. (2015). Validation of the Simple View of Reading in Hebrew: A Semitic Language. *Scientific Studies of Reading*, *19*(3), 243-252. Scopus. https://doi.org/10.1080/10888438.2015.1010117

Kaushanskaya, M., Park, J. S., Gangopadhyay, I., Davidson, M. M., & Weismer, S. E. (2017). The relationship between executive functions and language abilities in children: A latent variables approach. *Journal of Speech, Language, and Hearing Research*, *60*(4), 912-923. https://doi.org/10.1044/2016_JSLHR-L-15-0310

Keenan, J. M., Hua, A. N., Meenan, C. E., Pennington, B. F., Willcutt, E., & Olson, R. K. (2014). Issues in identifying poor comprehenders. *L'Année Psychologique*, *114*(04), 753-777. https://doi.org/10.4074/S0003503314004072

Keresteš, G., Hjelmquist, E., Veisson, M., & Siegel, L. S. (2024). The importance of fluency in reading: A comparison of English, Swedish, Croatian, and Estonian. *Reading Psychology*, *45*(4), 413-430. https://doi.org/10.1080/02702711.2024.2319576

Kieffer, M. J., & Christodoulou, J. A. (2020). Automaticity and control: How do executive functions and reading fluency interact in predicting reading comprehension? *Reading Research Quarterly*, *55*(1), 147-166. https://doi.org/10.1002/rrq.289

Kieffer, M. J., Vukovic, R. K., & Berry, D. (2013). Roles of attention shifting and inhibitory control in fourth-grade reading comprehension. *Reading Research Quarterly*, *48*(4), 333-348. https://doi.org/10.1002/rrq.54

Kim, Y.-S. G. (2015). Developmental, component-based model of reading fluency: an investigation of predictors of word-reading fluency, text-reading fluency, and reading comprehension. En *Grantee Submission* (Vol. 50, Número 4, pp. 459-481). https://doi.org/10.1002/rrq.107

Kim, Y.-S. G. (2017). Why the Simple View of Reading is not simplistic: Unpacking component skills of reading using a direct and indirect effect model of reading (DIER). *Scientific Studies of Reading*, *21*(4), 310-333. https://doi.org/10.1080/10888438.2017.1291643

Kim, Y.-S. G. (2020). Toward integrative reading science: The direct and indirect effects model of reading. *Journal of Learning Disabilities*, *53*(6), 469-491. https://psycnet.apa.org/doi/10.1177/0022219420908239

Kim, Y.-S. G. (2023). Simplicity meets complexity: Expanding the simple view of reading with the direct and indirect effects model of reading (DIER). In S. Cabell, S. Neuman, & N. Patton-Terry (Eds.), *Handbook on the Science of Early Literacy* (pp. 9-22). Guilford Press.

Kim, Y.-S. G., & Pallante, D. (2012). Predictors of reading skills for kindergartners and first grade students in Spanish: A longitudinal study. *Reading and Writing*, *25*(1), 1-22. https://doi.org/10.1007/s11145-010-9244-0

Kim, Y.-S. G., Petscher, Y., Schatschneider, C., & Foorman, B. (2010). Does growth rate in oral reading fluency matter in predicting reading comprehension achievement? *Journal of Educational Psychology*, *102*(3), 652-667. https://doi.org/10.1037/a0019643

Kim, Y.-S. G., & Snow, C. (2025). advancing the science of teaching reading: introduction to the special issue. *Scientific Studies of Reading*, *29*(1), 1-6. https://doi.org/10.1080/10888438.2024.2438630

Kim, Y.-S. G., & Wagner, R. K. (2015). Text (oral) reading fluency as a construct in reading development: An investigation of its mediating role for children from grades 1 to 4. *Scientific Studies of Reading*, *19*(3), 224-242. https://doi.org/10.1080/10888438.2015.1007375

Kim, Y.-S. G., Wagner, R. K., & Foster, E. (2011). Relations among oral reading fluency, silent reading fluency, and reading comprehension: a latent variable study of first-grade readers. *Scientific Studies of Reading*, *15*(4), 338-362. https://doi.org/10.1080/10888438.2010.493964

Kintsch, W., & Rawson, K. A. (2005). Comprehension. En M. J. Snowling & C. Hulme (Eds.), *The Science of Reading: A Handbook*. Blackwell Publishing Ltd.

Kirby, J. R., Deacon, S. H., Georgiou, G., Geier, K., Chan, J., & Parrila, R. (2025). Effects of morphological awareness, naming speed, and phonological awareness on reading skills from Grade 3 to Grade 5. *Journal of Experimental Child Psychology*, *253*, 106188. https://doi.org/10.1016/j.jecp.2024.106188

Kirschmann, N., Lenhard, W., & Suggate, S. (2021). Influences from Working Memory, Word and Sentence Reading on Passage Comprehension and Teacher Ratings. *Journal of Research in Reading*, *44*(4), 817-836. https://doi.org/10.1111/1467-9817.12373

Kocaarslan, M. (2022). The Relationships between Oral Reading Fluency, Sustained Attention, Working Memory, and Text Comprehension in the Third-Grade Students. *Psychology in the Schools*, *59*(4), 744-764. https://doi.org/10.1002/pits.22641

Kuhn, M. R., Schwanenflugel, P. J., & Meisinger, E. B. (2010). Aligning Theory and Assessment of Reading Fluency: Automaticity, Prosody, and Definitions of Fluency. *Reading Research Quarterly*, *45*(2), 230-251. https://doi.org/10.1598/RRQ.45.2.4

LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, *6*, 293-323. https://doi.org/10.1016/0010-0285(74)90015-2

Lervåg, A., & Aukrust, V. G. (2010). Vocabulary knowledge is a critical determinant of the difference in reading comprehension growth between first and second language learners. *Journal of Child Psychology and Psychiatry*, *51*(5), 612-620. https://doi.org/10.1111/j.1469-7610.2009.02185.x

Lezak. (1982). The problem of assessing executive functions. *International Journal of Psychology*, *17*(2-3), 281-297. https://doi.org/10.1080/00207598208247445

Liu, S., Li, N., Zhang, X., Wang, L.-C. A., & Liu, D. (2024). Effects of working memory and visual search skill on Chinese reading comprehension: Examining the simple view of reading. *Reading and Writing*. https://doi.org/10.1007/s11145-024-10515-w

Liu, Y., Groen, M. A., & Cain, K. (2024). The association between morphological awareness and reading comprehension in children: A systematic review and meta-analysis. *Educational Research Review*, *42*, 100571. https://doi.org/10.1016/j.edurev.2023.100571

Locascio, G., Mahone, E. M., Eason, S. H., & Cutting, L. E. (2010). Executive dysfunction among children with reading comprehension deficits. *Journal of Learning Disabilities*, *43*(5), 441-454. https://doi.org/10.1177/0022219409355476

Lonigan, C. J., Burgess, S. R., & Schatschneider, C. (2018). examining the simple view of reading with elementary school children: Still simple after all these years. *Remedial and Special Education*, *39*(5), 260-273. https://doi.org/10.1177/0741932518764833

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation Analysis. *Annual Review of Psychology*, *58*(1), 593-614. https://doi.org/10.1146/annurev.psych.58.110405.085542

Melby-Lervåg, M., & Lervåg, A. (2014). Effects of educational interventions targeting reading comprehension and underlying components. *Child Development Perspectives*, *8*(2), 96-100. https://doi.org/10.1111/cdep.12068

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: a latent variable analysis. *Cognitive Psychology*, *41*(1), 49-100. https://doi.org/10.1006/cogp.1999.0734

Morris, D., Meyer, C., Trathen, W., McGee, J., Vines, N., Stewart, T., Gill, T., & Schlagal, R. (2017). The simple view, instructional level, and the plight of struggling fifth-/sixth-grade readers. *Reading & Writing Quarterly*, *33*(3), 278-289. https://doi.org/10.1080/10573569.2016.1203272

Morrison, F. J., Ponitzb, C. C., & McClelland, M. (2010). Self-regulation and academic achievement in the transition to school. En S. Calkins & M. Bell (Eds.), *The developing human brain: Development at the intersection of emotion and cognition* (American Psychological Association).

Nation, K. (2005). Children's reading comprehension difficulties. En M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* (pp. 248-265). Blackwell Publishing Ltd.

Nation, K., Clarke, P., Marshall, C. M., & Durand, M. (2004). Hidden language impairments in children: Parallels between poor reading comprehension and specific language impairment? *Journal of Speech, Language, and Hearing Research*, *47*, 199-211. https://doi.org/10.1044/1092-4388(2004/017)

Nation, K., Cocksey, J., Taylor, J. S. H., & Bishop, D. V. M. (2010). A longitudinal investigation of early reading and language skills in children with poor reading comprehension. *Journal of Child Psychology and Psychiatry*, *51*(9), 1031-1039. https://doi.org/10.1111/j.1469-7610.2010.02254.x

Nation, K., & Snowling, M. (1997). Assessing reading difficulties: The validity and utility of current measures of reading skill. *British Journal of Educational Psychology*, *67*(3), 359-370. https://doi.org/10.1111/j.2044-8279.1997.tb01250.x

Nation, K., & Snowling, M. (1998). Semantic processing and the development of word-recognition skills: Evidence from children with reading comprehension difficulties. *Journal of Memory and language*, *39*(1), 85-101. https://doi.org/10.1006/jmla.1998.2564

Nation, K., & Snowling, M. (2000). Factors influencing syntactic awareness skills in normal readers and poor comprehenders. *Applied Psycholinguistics*, *21*(2), 229-241. doi:10.1017/S0142716400002046

National Center for Education Statistics. (2024). *NAEP Report Card: Reading*. https://www.nationsreportcard.gov/reports/reading/2024/g4_8/national-trends/?grade=4

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* National Institute of Child Health and Human Development.

Nigg, J. T. (2000). On inhibition/disinhibition in developmental psychopathology: Views from cognitive and personality psychology and a working inhibition taxonomy. *Psychological Bulletin*, *126*(2), 220-246. https://doi.org/10.1037/0033-2909.126.2.220

Nouwens, S., Groen, M. A., Kleemans, T., & Verhoeven, L. (2021). How executive functions contribute to reading comprehension. *British Journal of Educational Psychology*, *91*(1), 169-192. https://doi.org/10.1111/bjep.12355

Nouwens, S., Groen, M. A., & Verhoeven, L. (2016). How storage and executive functions contribute to children's reading comprehension. *Learning and Individual Differences*, *47*, 96-102. https://doi.org/10.1016/j.lindif.2015.12.008

Oakhill, J. V. (1982). Constructive processes in skilled and less skilled comprehenders' memory for sentences. *British Journal of Psychology*, *73*(1), 13-20. https://doi.org/10.1111/j.2044-8295.1982.tb01785.x

Oakhill, J. V., Cain, K., & Bryant, P. E. (2003). The dissociation of word reading and text comprehension: Evidence from component skills. *Language and Cognitive Processes*, *18*(4), 443-468. https://doi.org/10.1080/01690960344000008

Oakhill, J. V., Hartt, J., & Samols, D. (2005). Levels of Comprehension Monitoring and Working Memory in Good and Poor Comprehenders. *Reading and Writing*, *18*(7-9), 657-686. https://doi.org/10.1007/s11145-005-3355-z

Ober, T., Brooks, P., Plass, J. L., & Homer, B. D. (2019). Distinguishing direct and indirect effects of executive functions on reading comprehension in adolescents. *Reading Psychology*, *0*, 1-31. https://doi.org/10.1080/02702711.2019.1635239

OECD. (2022). *¿Cómo va la vida en América Latina?: Medición del bienestar para la formulación de políticas públicas*. OECD. https://doi.org/10.1787/7f6a948f-es

OECD. (2023). *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. https://www.oecd.org/en/publications/pisa-2022-results-volume-i_53f23881-en.html

O'Reilly, T., Sabatini, J., Bruce, K., Pillarisetti, S., & McCormick, C. (2012). Middle school reading assessment: measuring what matters under a RTI framework. *Reading Psychology*, *33*(1-2), 162-189. https://doi.org/10.1080/02702711.2012.631865

Orsolini, M., Federico, F., Vecchione, M., Pinna, G., Capobianco, M., & Melogno, S. (2022). How is working memory related to reading comprehension in italian monolingual and bilingual children? *Brain Sciences*, *13*(1), 58. https://doi.org/10.3390/brainsci13010058

Ortiz, E. A., Dueñas, X., Giambruno, C., & López, Á. (2024). El estado de la educación en América Latina y el Caribe 2024: La medición de los aprendizajes. *Banco Interamericano de Desarrollo División de Educación*. http://dx.doi.org/10.18235/0013171

Ouellette, G., & Beers, A. (2010). A not-so-simple view of reading: How oral vocabulary and visual-word recognition complicate the story. *Reading and Writing*, *23*(2), 189-208. https://doi.org/10.1007/s11145-008-9159-1

Paige, D. D., Rasinski, T., Magpuri-Lavell, T., & Smith, G. S. (2014). Interpreting the relationships among prosody, automaticity, accuracy, and silent reading comprehension in secondary students. *Journal of Literacy Research*, *46*(2), 123-156. https://doi.org/10.1177/1086296X14535170

Paige, D. D., Rupley, William H., Smith, Grant S., Rasinski, Timothy V., Nichols, William, & Magpuri-Lavell, Theresa. (2017). *Is prosodic reading a strategy for comprehension?* https://doi.org/10.25656/01:14951

Peng, P., Barnes, M., Wang, C., Wang, W., Li, S., Swanson, H. L., Dardick, W., & Tao, S. (2018). A meta-analysis on the relation between reading and working memory. *Psychological Bulletin*, *144*(1), 48-76. https://doi.org/10.1037/bul0000124

Peng, P., Liu, Y., Cartwright, K., Goodrich, M., Koziol, N., Ma, C., & Whitmarsh, C. (2024). The role of domain-general, behavioral, and reading-specific executive function in reading comprehension: does context-specific executive function matter? *Scientific Studies of Reading*, *28*(6), 713-736. https://doi.org/10.1080/10888438.2024.2409635

Peng, P., Wang, W., Filderman, M. J., Zhang, W., & Lin, L. (2024). The Active ingredient in reading comprehension strategy intervention for struggling readers: A bayesian network meta-analysis. *Review of Educational Research*, *94*(2), 228-267. https://doi.org/10.3102/00346543231171345

Perfetti, C. (1999). Comprehending written language: A blueprint of the reader. In C. M. Brown & P. Hagoort (Eds.), *The neurocognition of language* (pp. 167-208). Oxford University Press.

Perfetti, C. (2010). Decoding, vocabulary, and comprehension: The golden triangle of reading skill. En M. G. McKeown & L. Kucan (Eds.), *Bringing reading research to life* (pp. 291-303). Guilford Press.

Pikulski, J. J., & Chard, D. J. (2005). Fluency: Bridge Between Decoding and Reading Comprehension. *The Reading Teacher*, *58*(6), 510-519. https://doi.org/10.1598/RT.58.6.2

Pimperton, H., & Nation, K. (2010). Suppressing irrelevant information from working memory: Evidence for domain-specific deficits in poor comprehenders. *Journal of Memory and Language*, *62*(4), 380-391. https://doi.org/10.1016/j.jml.2010.02.005

Potocki, A., Sanchez, M., Ecalle, J., & Magnan, A. (2017). Linguistic and cognitive profiles of 8- to 15-year-old children with specific reading comprehension difficulties: The role of executive Functions. *Journal of Learning Disabilities*, *50*(2), 128-141. https://doi.org/10.1177/0022219415613080

Preacher, J. K., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, *16*(2), 93-115. https://doi.org/10.1037/a0022658

Price, K. W., Meisinger, E. B., Louwerse, M. M., & D'Mello, S. (2016). The contributions of oral and silent reading fluency to reading comprehension. *Reading Psychology*, *37*(2), 167-201. https://doi.org/10.1080/02702711.2015.1025118

Protopapas, A., Simos, P. G., Sideridis, G. D., & Mouzaki, A. (2012). The components of the simple view of reading: A confirmatory factor analysis. *Reading Psychology*, *33*(3), 217-240. https://doi.org/10.1080/02702711.2010.507626

Rasinski, T. V. (2004). Assessing reading fluency. *Pacific Resources for Education and Learning*. https://files.eric.ed.gov/fulltext/ED483166.pdf

Rasinski, T. V., Padak, N. D., McKeon, C. A., Wilfong, L. G., Friedauer, J. A., & Heim, P. (2005). Is Reading Fluency a Key for Successful High School Reading? *Journal of Adolescent & Adult Literacy*, *49*(1), 22-27. https://doi.org/10.1598/JAAL.49.1.3

Raudszus, H., Segers, E., & Verhoeven, L. (2018). Lexical quality and executive control predict children's first and second language reading comprehension. *Reading and Writing*, *31*(2), 405-424. https://doi.org/10.1007/s11145-017-9791-8

Ricketts, J., Sperring, R., & Nation, K. (2014). Educational attainment in poor comprehenders. *Frontiers in Psychology*, *5*. https://doi.org/10.3389/fpsyg.2014.00445

Rodrigues, B., Cadime, I., & Ribeiro, I. (2023). Cognitive and metacognitive strategy use in poor comprehenders: An exploratory study. *Australian Journal of Learning Difficulties*, *28*(2), 139-153. https://doi.org/10.1080/19404158.2023.2287611

Rosas, R., Espinoza, V., Martínez, C., & Santa-Cruz, C. (2022). Playful testing of executive functions with yellow-red: tablet-based battery for children between 6 and 11. *Journal of Intelligence*, *10*(4), 125. https://doi.org/10.3390/jintelligence10040125

Rosas, R., Ceric, F., Aparicio, A., Arango, P., Arroyo, R., Benavente, C., Escobar, P., Olguín, P., Pizarro, M., Ramírez, M. P., Tenorio, M., Véliz, S., & Universidad del Desarrollo. (2015). ¿Pruebas Tradicionales o Evaluación Invisible a Través del Juego? Nuevas Fronteras de la Evaluación Cognitiva. *Psykhe (Santiago)*, *24*(1), 1-13. https://doi.org/10.7764/psykhe.24.1.724

Rosemberg, C. R. (2021). Hogar dulce hogar: Oportunidades para el desarrollo del vocabulario y la alfabetización temprana en el contexto lingüístico del hogar. En V. Abusamra, Á. Chimenti, & S. Tiscornia (Eds.), *La ciencia de la lectura: Los desafíos de leer y comprender textos.* (pp. 85-113). Tilde editora.

Ruffini, C., Pizzigallo, E., Pecini, C., Bertolo, L., & Carretti, B. (2025). Integrating executive function activities into a computerized cognitive training to enhance reading comprehension in primary students. *Reading Research Quarterly*, *60*(2) https://doi.org/10.1002/rrq.70006

Sánchez Miguel, E., J. Ricardo García Pérez, & Rosales Pardo, J. (2011). *La lectura en el aula. Qué se hace, qué se debe hacer, qué se puede hacer.* Graó.

Seidenberg, M. S., Cooper Borkenhagen, M., & Kearns, D. M. (2020). Lost in translation? challenges in connecting reading science and educational practice. *Reading Research Quarterly*, *55*(S1). https://doi.org/10.1002/rrq.341

Seigneuric, A., & Ehrlich, M.-F. (2005). Contribution of Working Memory Capacity to Children's Reading Comprehension: A Longitudinal Investigation. *Reading and Writing*, *18*(7-9), 617-656. https://doi.org/10.1007/s11145-005-2038-0

Seigneuric, A., Ehrlich, M.-F., & Yuill, N. M. (2000). Working memory resources and children's reading comprehension. *Reading and Writing: An Interdisciplinary Journal*, *13*, 81-103. https://doi.org/10.1023/A:1008088230941

Sesma, H. W., Mahone, E. M., Levine, T., Eason, S. H., & Cutting, L. E. (2009). The contribution of executive skills to reading comprehension. *Child Neuropsychology*, *15*(3), 232-246. https://doi.org/10.1080/09297040802220029

Seymour, P. H. K., Aro, M., & Erskine, J. M. (2003). Foundation literacy acquisition in European orthographies. *British Journal of Psychology*, *94*(2), 143-174. https://doi.org/10.1348/000712603321661859

Silva, M., & Cain, K. (2015). The relations between lower and higher level comprehension skills and their role in prediction of early reading comprehension. *Journal of Educational Psychology*, *107*(2), 321-331. https://doi.org/10.1037/a0037769

Snow, C. E. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. RAND.

Søndergaard Knudsen, H. B., Jensen De López, K., & Archibald, L. M. D. (2018). The contribution of cognitive flexibility to children's reading comprehension – the case for Danish. *Journal of Research in Reading*, *41*(S1). https://doi.org/10.1111/1467-9817.12251

Spencer, M., Richmond, M. C., & Cutting, L. E. (2020). Considering the role of executive function in reading comprehension: a structural equation modeling approach. *Scientific Studies of Reading*, *24*(3), 179-199. https://doi.org/10.1080/10888438.2019.1643868

Spencer, M., & Wagner, R. K. (2018). The comprehension problems of children with poor reading comprehension despite adequate decoding: A meta-analysis. *Review of Educational Research*, *88*(3), 366-400. https://doi.org/10.3102/0034654317749187

Stothard, S. E., & Hulme, C. (1992). Reading comprehension difficulties in children: The role of language comprehension and working memory skills. *Reading and Writing*, *4*(3), 245-256. https://doi.org/10.1007/BF01027150

Suárez-Coalla, P., Cuetos, F., Cueva, E., & Álvarez-Cañizo, M. (2020). Reading fluency and reading comprehension in Spanish secondary students. *Psicothema*, *1*(32), 75-83. https://doi.org/10.7334/psicothema2019.196

Suggate, S., Schaughency, E., McAnally, H., & Reese, E. (2018). From infancy to adolescence: The longitudinal links between vocabulary, early literacy skills, oral narrative, and reading comprehension. *Cognitive Development*, *47*, 82-95. https://doi.org/10.1016/j.cogdev.2018.04.005

Taboada Barber, A., Cartwright, K. B., Hancock, G. R., & Klauda, S. L. (2021). Beyond the Simple View of Reading: The Role of Executive Functions in Emergent Bilinguals' and English Monolinguals' Reading Comprehension. *Reading Research Quarterly*, *56*(S1). https://doi.org/10.1002/rrq.385

Taboada Barber, A., Cartwright, K. B., Stapleton, L. M., Lutz Klauda, S., Archer, C. J., & Smith, P. (2020). Direct and indirect effects of executive functions, reading engagement, and higher order strategic processes in the reading comprehension of Dual Language Learners and English Monolinguals. *Contemporary Educational Psychology*, *61*, 101848. https://doi.org/10.1016/j.cedpsych.2020.101848

Tapia-Montesinos, M. M., Ripoll-Salceda, J. C., Aguado, G., & Joshi, R. M. (2022). Simple view of reading in Spanish: A longitudinal study. *Revista de Logopedia, Foniatría y Audiología*, *42*(4), 214-226. https://doi.org/10.1016/j.rlfa.2021.09.002

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). mediation: R Package for Causal Mediation Analysis. *Journal of Statistical Software*, *59*(5), 1-38. https://doi.org/10.18637/jss.v059.i05

Tiscornia, S., Chimenti, Á., & Abusamra, V. (2021). Un «quimérico museo de formas inconstantes»: Memoria y comprensión. En V. Abusamra, Á. Chimenti, & S. Tiscornia, *La ciencia de la lectura. Los desafíos de leer y comprender textos.* Tilde editora.

Tobia, V., & Bonifacci, P. (2015). The simple view of reading in a transparent orthography: The stronger role of oral comprehension. *Reading and Writing*, *28*(7), 939-957. https://doi.org/10.1007/s11145-015-9556-1

Tong, X., Deacon, S. H., & Cain, K. (2014). Morphological and syntactic awareness in poor comprehenders: Another piece of the puzzle. *Journal of Learning Disabilities*, *47*(1), 22-33. https://doi.org/10.1177/0022219413509971

Torppa, M., Vasalampi, K., Eklund, K., Sulkunen, S., & Niemi, P. (2020). Reading comprehension difficulty is often distinct from difficulty in reading fluency and accompanied with problems in motivation and school well-being. *Educational Psychology*, *40*(1), 62-81. https://doi.org/10.1080/01443410.2019.1670334

Torppa, Georgiou, Lerkkanen, Niemi, Poikkeus, & Nurmi. (2016). Examining the simple view of reading in a transparent orthography: A longitudinal study from kindergarten to grade 3. *Merrill-Palmer Quarterly*, *62*(2), 179. https://doi.org/10.13110/merrpalmquar1982.62.2.0179

UNESCO. (2024). *Global Education Monitoring Report, 2024/5, Leadership in education: Lead for learning*. GEM Report UNESCO. https://doi.org/10.54676/EFLH5184

UNESCO. (2021). *Los aprendizajes fundamentales en América Latina y el Caribe. Evaluación de logro de los estudiantes. Estudio Regional Comparativo y Explicativo (ERCE 2019). Resumen ejecutivo.* https://unesdoc.unesco.org/ark:/48223/pf0000380255

Wade-Woolley, L., Wood, C., Chan, J., & Weidman, S. (2022). Prosodic competence as the missing component of reading processes across languages: Theory, evidence and future research. *Scientific Studies of Reading*, *26*(2), 165-181. https://doi.org/10.1080/10888438.2021.1995390

Wiig, E., Semel, E., & Secord, W. (2018). *CELF-5: Evaluación Clínica de los Fundamentos del Lenguaje-5*. Pearson.

Wolf, M. C., Muijselaar, M. M. L., Boonstra, A. M., & de Bree, E. H. (2019). The relationship between reading and listening comprehension: shared and modality-specific components. *Reading and Writing: An Interdisciplinary Journal*, *32*(7), 1747-1767. https://psycnet.apa.org/doi/10.1007/s11145-018-9924-8

Yuill, N., Oakhill, J. V., & Parkin, A. J. (1989). Working memory, comprehension ability and the resolution of text anomaly. *British Journal of Psychology*, *80*(3), 351-361. https://doi.org/10.1111/j.2044-8295.1989.tb02325.x

Zelazo, P. D., & Carlson, S. M. (2012). Hot and cool executive function in childhood and adolescence: development and plasticity. *Child Development Perspectives*, *6*(4), 354-360. https://doi.org/10.1111/j.1750-8606.2012.00246.x