

READING FLUENCY IN ELEMENTARY AND MIDDLE-SCHOOL STUDENTS: A
SYSTEMATIC REVIEW

*FLUÊNCIA DE LEITURA EM ESCOLARES DO ENSINO FUNDAMENTAL: UMA
REVISÃO SISTEMÁTICA*

*FLUIDEZ LECTORA EN ESTUDIANTES DE LA EDUCACIÓN BÁSICA: UNA
REVISIÓN SISTEMÁTICA*



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ABSTRACT: The ability to read is fundamental in our society, because through it we acquire knowledge, develop self-criticism, and guarantee our autonomy. Reading fluency is the act of reading naturally, accurately, and expressively, and difficulties in this skill can negatively impact the academic path of students during basic education. Understanding the importance of this reading skill, the aim of this study was to carry out a systematic review on the development of reading fluency in elementary school students, analyzing articles from the PubMed and SciELO literature databases. Of the 117 articles found, 17 studies were selected according to the inclusion and exclusion criteria proposed in this review. The articles suggested a progression of reading fluency throughout the school grades, with a tendency for this skill to stabilize in the final years of elementary school, and highlighted the correlation between reading fluency, reading comprehension and academic performance.

KEYWORDS: Learning. Reading. Elementary and Middle School.

RESUMO: *A habilidade de leitura é fundamental em nossa sociedade, visto que, por meio dela, adquirimos conhecimentos, desenvolvemos autocrítica e garantimos nossa autonomia. A fluência de leitura refere-se ao ato de ler com naturalidade, precisão e expressividade, e dificuldades nesta habilidade podem impactar negativamente o percurso acadêmico dos escolares no decorrer da educação básica. Compreendendo a importância da fluência de leitura, o objetivo deste estudo foi realizar uma revisão sistemática sobre o desenvolvimento desta habilidade em escolares do ensino fundamental, analisando-se artigos das bases de literatura PubMed e SciELO. Dos 117 artigos encontrados, 17 estudos foram selecionados conforme os critérios de inclusão e de exclusão propostos nesta revisão. Os artigos sugeriram uma progressão da fluência de leitura no decorrer da seriação escolar, com propensão à estabilização desta habilidade nos anos finais do ensino fundamental, e destacaram a correlação entre fluência de leitura, compreensão leitora e rendimento acadêmico.*

PALAVRAS-CHAVE: *Aprendizagem. Leitura. Ensino Fundamental.*

RESUMEN: *La habilidad para leer es fundamental en nuestra sociedad, pues a través de ella adquirimos conocimientos, desarrollamos la autocrítica y garantizamos nuestra autonomía. La fluidez lectora es el acto de leer con naturalidad, precisión y expresividad, y las dificultades en esta habilidad pueden impactar negativamente en la trayectoria académica de los estudiantes durante la educación básica. Entendiendo la importancia de esta habilidad lectora, el objetivo de este estudio fue realizar una revisión sistemática sobre el desarrollo de la fluidez lectora en estudiantes de primaria, analizando artículos de las bases de datos de literatura PubMed y SciELO. De los 117 artículos encontrados, 17 estudios fueron seleccionados según los criterios de inclusión y exclusión propuestos en esta revisión. Los artículos sugirieron una progresión de la fluidez lectora a lo largo de los grados escolares, con tendencia a que esta habilidad se establezca en los últimos años de la escuela primaria, y destacaron la correlación entre fluidez lectora, comprensión lectora y rendimiento académico.*

PALABRAS CLAVE: *Aprendizaje. Lectura. Educación Básica*

Introduction

Reading is a complex neurobiological process that involves linguistic and cognitive skills. In our society, it is a fundamental pillar for acquiring knowledge, developing self-criticism and guaranteeing our autonomy. Reading comprehension refers to the extraction of meaning from the text, integrating diverse skills such as reading fluency, motivation, vocabulary, information processing through working memory and the ability to infer (Gentilini *et al.*, 2020).

Reading comprehension and reading fluency performance have been strongly related, with reading fluency being the ability to read accurately, naturally and expressively. Accuracy refers to a correct and efficient decoding of words, which when achieved, becomes natural, effortless and expressed with adequate prosody (Alves *et al.*, 2021).

At the beginning of learning to read, most of the students' cognitive resources are focused on decoding orthographic signs, overloading their working memory. At this stage, reading may be slow and require conscious effort to recognize and pronounce words correctly. As schooling progresses, reading becomes automated and, in this way, students can focus their attentional mechanisms on other more complex processes, such as textual comprehension, simultaneously improving reading fluency (Martins; Capellini, 2014; Silva; Fonseca, 2021).

For Martins and Capellini (2019), students who are not very fluent can present difficulties in their academic career, as inadequate reading fluency can represent a significant obstacle in learning the contents of the most diverse subjects. Furthermore, students with reading difficulties may be unmotivated for activities involving this skill, resisting reading practice, which is essential for developing reading fluency. Failures in the reading process can harm learning, resulting in a weakening of the school-student bond.

To Komeno *et al.* (2015), improving reading fluency should be a constant concern in the school environment, as inadequacies in this skill can have a negative impact on all subjects. Fluency alone does not guarantee good academic performance, but it allows for more effective textual understanding.

In 2020, the closure of educational institutions to prevent the spread of the COVID-19 pandemic negatively impacted the development of fluency and reading comprehension among schoolchildren, across the world. In Brazil, coordinated actions at the federal government level were not adopted to practice remote teaching, and Brazilian schoolchildren, who already had low reading performance before the pandemic, were largely harmed by the in-person absence from classrooms (Alves *et al.*, 2022; Starling-Alves; Hirata; Oliveira, 2023).

In a period of academic disruption resulting from the COVID-19 pandemic, in which it is still unknown how Brazilian students have been affected and how this will impact their learning, more than ever, it is necessary for educators and clinical professionals to understand the development of reading fluency to help students with difficulties in this skill, throughout basic education (Pires; Gomes; Germano, 2022).

This study aims to carry out a systematic review and analyze reading fluency in elementary school students I and II (EFI and EFII).

Method

The study is a systematic review of articles published in the PubMed and Scielo databases, in literature searches carried out, more specifically, from May 2022 to May 2023, and covers studies published between April 2005 and May 2023. They were included complete and free articles, available for viewing and *downloading*; studies published in Portuguese and English; articles covering the topic of reading fluency and its aspects of speed, accuracy and prosody, with the target population of the EFI and EFII; also considering the level of scientific evidence, defined by ASHA (American Speech and Hearing Association) and described by Robey (2005).

Articles unrelated to the topic or that did not address fluency with the indicated population were excluded; duplicate studies in the databases; articles whose population had sensory or cognitive disabilities, had genetic or neurological syndromes, and/or had specific learning disorders and/or attention deficit and hyperactivity disorders; studies on intervention programs, screening scales, description of tests or development of applications related to the assessment of reading fluency.

The guiding question of the study was: “Are the parameters of reading speed and accuracy in EFII students, compared to the reading fluency measures found in EFI students, also influenced by school grade and/or age?”

From the PICO table [P – Population, I – Intervention, C – Comparison, O – Outcome (s) (Cañón; Buitrago-Gómez, 2018)], the search strategy was formulated, being 1) population: schoolchildren from EFI and EFII; 2) intervention: reading fluency measures - speed and accuracy; 3) comparison: reading fluency parameters found in EFI and EFII students; 4) results: to determine whether reading fluency parameters improve as schooling progresses throughout PE; 5) time: publications made until May 2023; 6) language: Portuguese and English.

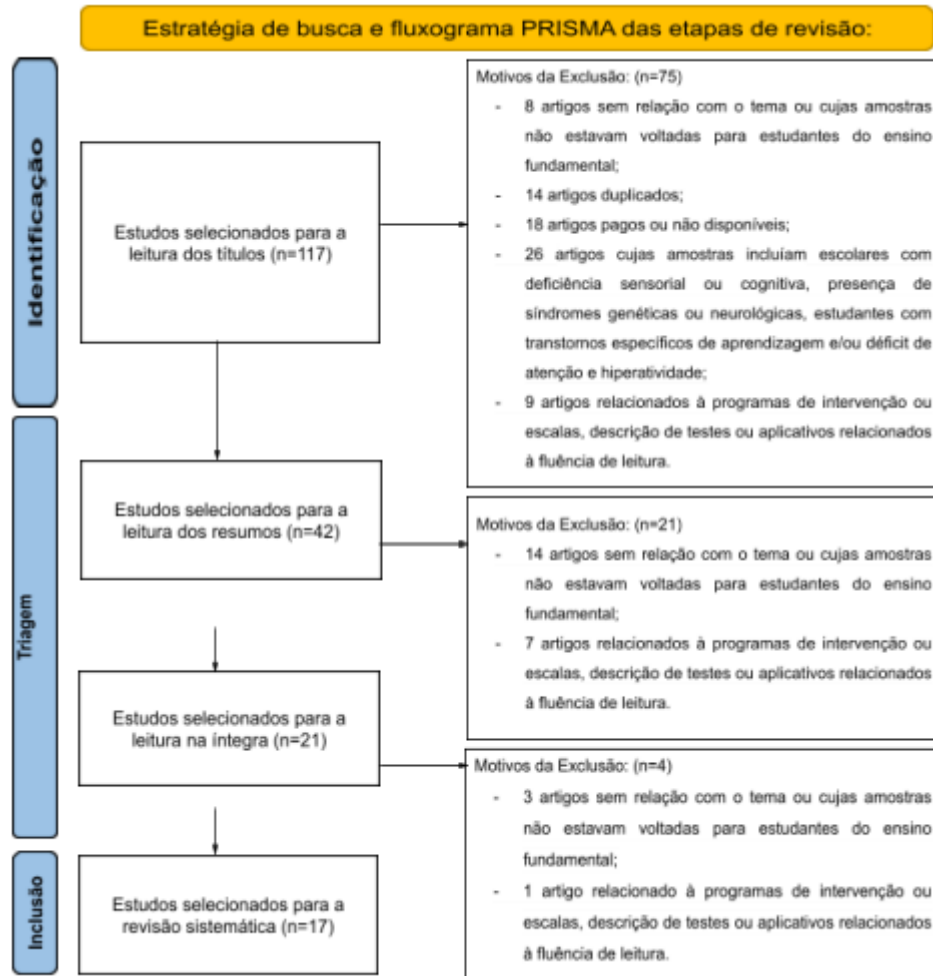
The titles of all studies located in the Scielo and PubMed databases were analyzed, followed by abstracts and full reading of the most relevant articles. The descriptors used were: ("reading fluency "OR" reading speed") AND ("elementary school "OR" middle school "OR" "high school" OR "k-12 education"), and ("reading fluency" OR "reading fluency" OR "reading speed" OR "reading speed") AND ("elementary education" OR "elementary education"). The flowchart, carried out in accordance with PRISMA, of the review steps and the search strategy are described in Figure 1.

Result and Discussion

In total, 117 articles were selected, of which only 17 met the criteria established in this systematic review and were analyzed in full. The selected studies were carried out in the United States (4), Italy (1), Portugal (1), and Brazil (11), and had as their theme the development of reading fluency in PE students. To facilitate the analysis, the characteristics of each article were specified in a protocol form, including authors, title, level of scientific evidence, case series and age group, objectives and methodology (Table 1).

The studies included in this selection were published between 2005 and 2023, and all obtained level 4 evidence, according to the criteria proposed by ASHA and described by Robey (2005). Systematic reviews or randomized studies, with the descriptors used in this systematic review, were not found. The selected studies presented school samples of both sexes, from public and private educational networks, ranging from 32 to 1794 students, from different Brazilian states, the USA, Italy, and Portugal.

Figure 1 – PRISMA search strategy and flowchart of review stages



Source: Prepared by the authors.

Considering the relevance of reading parameters in the detection and treatment of disorders, we also chose to analyze oral and silent reading speed measurements of EFII students from public and private schools, collected in four Brazilian studies selected in this review. The metric used was Word per Minute – PPM (Table 2).

Schwanenflugel *et al.* (2006) evaluated the reading of EFI students. The study data revealed that, although reading fluency performance is crucial for reading comprehension in the early years, other skills gain importance as students advance in their schooling.

In their study, Denton *et al.* (2011) investigated the relationships between oral and silent reading fluency and reading comprehension in students from 6th to 8th grades. The authors highlighted that, for this population, there was a greater impact on the relationship between oral reading fluency in texts and reading comprehension, when compared to the fluency parameters verified when reading lists of isolated words.

Table 1 - Protocol form of studies included in the systematic review

Authors	Title	Level of evidence	Casuality and age group	Goals	Methodology
Schwanenflugel <i>et al.</i> (2006)	Becoming a fluent and automatic reader in the early elementary school years	Clinical Outcomes Study	99 1st year, 79 2nd year and 71 3rd year students from four public schools in the United States	Investigate reading fluency performance and determine how fluent reading impacts comprehension	Standardized reading tests (word and non-word processing, text reading, spelling, autonomous reading and comprehension)
Denton <i>et al.</i> (2011)	The relations between oral and silent reading fluency and comprehension in middle school: Implications for identification and instruction of students with reading difficulties	Clinical Outcomes Study	1421 students from American schools, 564 from the 6th grade, 312 from the 7th grade and 545 from the 8th grade	Analyze the correlation between oral reading fluency, silent reading, reading comprehension and verbal knowledge	Battery of reading assessments, including measures of reading comprehension, oral and silent reading fluency, and vocabulary
Barth <i>et al.</i> (2014b)	The effects of student and text characteristics on the oral reading fluency of middle-grade students	Clinical Outcomes Study	1794 US 6th to 8th grade students: 1028 struggling, 704 typical, 62 excluded from sample	Assess the influence of reader characteristics and text characteristics on reading fluency	Five different texts were used, read consecutively, for 1 minute each
Martins and Capellini (2014)	Fluency and reading comprehension in students from the 3rd to 5th year of elementary school	Clinical Outcomes Study	97 students from 3rd to 5th year of EFI from the public school system in São Paulo	Characterize and correlate fluency and reading comprehension	Protocols to assess reading speed, reading comprehension and prosody
Barth <i>et al.</i> (2014a)	The effect of reading duration on the reliability and validity of middle school students' ORF performance	Clinical Outcomes Study	1472 US students in grades 6-8: 839 struggling 633 typical	Assess the reliability of fluency measures collected in the first minute of reading compared to reading the full text	In assessing students' oral reading fluency, sentence reading, text reading and decoding of real words and pseudowords were used.
Komeno <i>et al.</i> (2015)	Reading speed and academic performance in the last year of	Clinical Outcomes Study	32 students in their final year of EF from private schools in São Paulo	Characterize the reading speed of 9th grade students and investigate the relationship with	The students were grouped by school average and had their oral and silent

	elementary school			academic performance	reading assessed in two different texts
Bigozzi <i>et al.</i> (2017)	Reading fluency as a predictor of school outcomes across grades 4-9	Clinical Outcomes Study	489 children from Italian primary, secondary and high schools	Analyze the correlation between reading fluency and academic performance throughout basic education	Standardized reading instruments in Italy to assess fluency and comprehension
Celeste <i>et al.</i> (2018)	Prosodic reading parameters in students from the second to fifth year of elementary school	Clinical Outcomes Study	78 students from the 2nd to 5th year of EFI from the private network in Minas Gerais	Characterize reading time and prosody and analyze their progression with schooling	Investigation of reading time and melodic variation measurements using speech analysis and synthesis software
Martins and Capellini (2019)	Relationship between oral reading fluency and reading comprehension	Clinical Outcomes Study	97 students from 3rd to 5th year of EF I from the public school system in São Paulo	Correlating reading fluency and reading comprehension	Assessment of oral reading time, auditory pauses analyzed by judges and reading comprehension questions
Andrade, Celeste and Alves, (2019)	Characterization of reading fluency in elementary school students	Clinical Outcomes Study	232 students from public and private schools, from 6th to 9th year of EF II	Investigate reading fluency performance in EF II students	Assessment of oral reading of a text, reading comprehension questionnaire and Portuguese school averages
Gentilini <i>et al.</i> (2020)	Development of an instrument for collective assessment of fluency and reading comprehension in elementary school students II	Clinical Outcomes Study	100 public schoolchildren from 6th to 9th year of EF II	Build a collective assessment instrument for fluency and reading comprehension for EF II students	The proposed instrument covered a narrative text compatible with the participants' education and an objective reading comprehension questionnaire.
Silva and Fonseca (2021)	Reading fluency performance of elementary-school fifth-grade students	Clinical Outcomes Study	44 5th year EF I students from public and private schools	Evaluate and compare the reading fluency parameters of 5th year students from different educational institutions	Assessment of reading speed and accuracy with the ADFLU protocol
Alves <i>et al.</i> (2021)	Evolution of reading speed in elementary school I-II	Clinical Outcomes Study	535 EF students from public and private	Analyze reading fluency performance during PE and propose risk	Assessment of reading of PE students using narrative text and reading

			educational institutions	parameters for reading difficulties	comprehension questionnaire
Martins and Capellini (2021)	Identification of struggling readers or at risk of reading difficulties with one-minute fluency measures	Clinical Outcomes Study	365 readings by students from the 3rd to the 5th year of EF I in the public education network	Characterize the reading fluency of EF I students and determine development parameters	Analysis of readings from a database from the Learning Studies Research Laboratory (LIDA)
Alves <i>et al.</i> (2022)	Reading fluency during the COVID-19 pandemic: a longitudinal and cross-sectional analysis	Clinical Outcomes Study	162 students from the 2nd to 5th year of private schools	Investigate the development of reading fluency in EF I students in remote teaching during the COVID-19 Pandemic	Assessment of reading time and accuracy in different school periods, pre and post pandemic
Rosendo <i>et al.</i> (2023)	Reading in COVID-19 pandemic times: A snapshot of reading fluency of Portuguese elementary school students	Clinical Outcomes Study	52 participants in the 3rd year of the public school system in Portugal, aged between 8 and 10 years old	Analyze fluctuations in the reading fluency of students in remote learning during the COVID-19 Pandemic	Quantitative and qualitative data analysis of students' reading fluency (speed, accuracy and prosody)
Starling-Alves, Hirata and Oliveira (2023)	Covid-19 school closures negatively impacted elementary-school students' reading comprehension and reading fluency skills	Clinical Outcomes Study	Schoolchildren from 2nd to 4th, 2019 cohort – 357 participants, 2022 cohort – 838 participants	To compare fluency and comprehension performance in the pre- and post-pandemic period and investigate the impact of the COVID-19 pandemic on the reading development of students	Protocols for collective assessment of reading comprehension and collective and individual analysis of students' reading fluency

Source: Prepared by the authors.

In Barth *et al.* (2014b), the effects of the reader's profile (reader's ability, gender, education) on the oral reading fluency of students from grades 6 to 8 in American schools were observed. They concluded that the effects of grade and gender on oral reading fluency had less impact in relation to visual word reading, phonological decoding and verbal knowledge. The authors also reported that there was greater fluency and proficiency in older female students when reading texts.

In their study, Martins and Capellini (2014) analyzed the reading speed, expressiveness and reading comprehension of public-school students, from the 3rd to the 5th year. The results indicated that difficulties in letter-sound conversion and in recognizing punctuation marks are factors that can negatively impact reading fluency and reading comprehension. Furthermore, the study data revealed significant differences in the reading speed of students with the same education.

Barth *et al.* (2014a) examined the reliability of fluency measures achieved in the first minute of reading in relation to those obtained when reading the entire text in students from grades 6 to 8. The authors indicated that both measures were moderately valid and suitable for students in higher grades. However, they highlighted that measures obtained from reading full texts would be slightly more sensitive in identifying students with reading deficits.

Komeno *et al.* (2015) evaluated the reading time of 9th grade EFII students. The researchers identified relevant differences between oral and silent reading, with the latter being faster. They also observed a positive correlation between reading time and academic performance in students, as more skilled readers also achieved better pedagogical performance.

The study carried out by Bigozzi *et al.* (2017) correlated reading fluency performance with academic performance in 489 Italian elementary and high school students. The results obtained in the research suggested that fluent readers are more likely to succeed at school, even in adolescence.

Heavenly *et al.* (2018) evaluated students from the first segment of elementary school in their research, observing an improvement in reading time and expressiveness with school grading. The study data also showed that the analysis of the first minute of reading is a good parameter in characterizing reading fluency, equivalent to the analysis of reading a text in its entirety.

Table 2 - Protocol form with reading speed metrics in Words per Minute (PPM), oral and silent, public and private schools

	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year
Komeno <i>et al.</i> (2015) - <i>Silent Reading</i>								196.14 group A 198.26 group B (Priv)
Andrade, Celeste and Alves (2019) - <i>Oral Reading</i>					138.4 (Pub) 134.9 (Priv)	135.8 (Pub) 148.3 (Priv)	144.6 (Pub) 148.0 (Priv)	145.8 (Pub) 152.6 (Priv)
Gentilini <i>et al.</i> (2020) <i>Silent Reading</i>					107.53 (Pub)	109.71 (Pub)	124.38 (Pub)	117.94 (Pub)
Alves <i>et al.</i> (2021) - <i>Oral Reading</i>	70.62 (Pub + Priv)	105.64 (Pub + Priv)	116.59 (Pub + Priv)	137.01 (Pub + Priv)	150.43 (Pub + Priv)	160.54 (Pub + Priv)	162.74 (Pub + Priv)	168.74 (Pub + Priv)

Legend: Priv = Private, Pub = Public.

Source: Prepared by the authors

In their article, Martins and Capellini (2019) revealed a significant improvement in reading accuracy in elementary school students as schooling progresses. The authors also identified a positive correlation between fluency and reading comprehension, with aspects of reading fluency, such as speed and accuracy, being relevant measures in screening for reading difficulties in students in this educational segment.

Andrade, Celeste and Alves (2019) characterized the reading fluency of 232 students in the second segment of elementary school, finding an improvement in reading speed and accuracy parameters throughout schooling. According to the authors, as long as they are evaluated with a less complex text, it is possible to identify fluency parameters in each school grade.

In his study, Gentilini *et al.* (2020) suggested a protocol for collective reading assessment. After applying the instrument, they identified an improvement in fluency and reading comprehension skills with the progression of schooling, even though the data did not demonstrate a relevant statistical difference and a possible stabilization of reading fluency parameters in students in the final years of elementary school.

Silva and Fonseca (2021) carried out a comparative analysis of reading fluency in students in the 5th year of elementary school, from public and private educational institutions. Schoolchildren from private schools performed better in reading skills than others, according to the data collected in the research.

Alves *et al.* (2021) conducted a study on reading fluency in 535 elementary school students I and II. The research data identified an improvement in reading parameters throughout schooling, with a tendency to stabilize from the 7th year onwards. Students in the final years of elementary school showed more accurate and fluent reading, approaching the standards expected for skilled adult readers. The authors also suggested reading fluency measures for each school year and a risk scale to identify students with reading difficulties.

In their research, Martins and Capellini (2021) evaluated the reading fluency of 365 students from the 3rd to 5th year of the first segment of elementary school, observing an improvement in reading accuracy with school progression. The authors also established parameters for the identification and monitoring, clinical and educational, of students at risk for reading difficulties.

Alves *et al.* (2022) carried out a comparative study on the reading fluency of students from the same school grade in the period before the pandemic and during the COVID-19 pandemic context. The study data revealed reading deficits in all school years, with a greater impact on the reading fluency rates of students in the 2nd year, an important period of literacy. The reading performance of these students was monitored throughout the pandemic period, identifying a progression in reading speed and accuracy parameters, even with remote teaching.

The study by Rosendo *et al.* (2023) evaluated the impact of remote teaching, adopted during the COVID-19 pandemic, on the reading fluency of 52 Portuguese students in the 3rd year of basic education. The results indicated significant changes in relation to reading speed (lower than expected) and prosody (higher than expected) in this period. The authors highlighted the need to encourage reading practice to improve skills, even during periods away from school.

Starling-Alves, Hirata and Oliveira (2023) investigated the impact of the COVID-19 pandemic on the reading ability of students in the first segment of elementary school. Although they observed a progression in skill, even with the period of remote teaching during schooling, when comparing the fluency and reading comprehension performance of students pre-pandemic (2019) and post-pandemic (2022), they identified a gap in around a year, with more significant losses in the learning of students during the literacy period.

Final remarks

PubMed and SciELO databases with the descriptors used in this study, only 17 references met the inclusion and exclusion criteria of this systematic review. It is important to emphasize that there is a lack of research on the reading fluency profile of Brazilian students throughout basic education, with a greater concentration of studies in EFI. Among the national studies, a reduced population sample size was also observed, which does not allow us to generalize the measures indicated in the studies, especially if we consider socioeconomic-cultural diversity combined with different educational pedagogical practices.

The articles selected in this systematic review suggested a progression in reading fluency with schooling, with a tendency to stabilize in the final years of elementary school, a segment in which the reading fluency of students would approach the reading standards expected for adult individuals. Some articles also mentioned the impact of reading fluency on reading comprehension and academic performance, which was not investigated here.

The results of this study also indicate a growing potential of pre-adolescent and adolescent students with reading difficulties, enhanced by gaps arising from remote teaching practiced during the COVID-19 pandemic. Therefore, the findings of this study alert us to the need for a greater number of research related to the reading skills of EFII and high school students, in order to favor the monitoring of gaps and enable the identification of students with specific reading disorders and offering appropriate clinical and pedagogical support to these students.

Finally, this study warns us about the need to adopt fluency measures in clinical and educational contexts, as they are related to the academic performance of EFI and EFII students.

REFERENCES

- ALVES, L. M. *et al.* Evolução da velocidade de leitura no ensino fundamental I e II. **CoDAS**, v. 33, n.5, p. e20200168, 2021. Available at: <https://doi.org/10.1590/2317-1782/20202020168>. Access: 13 Apr. 2023.
- ALVES, L. M. *et al.* Reading fluency during the COVID-19 pandemic: a longitudinal and cross-sectional analysis. **Arquivos de Neuro-Psiquiatria**, v. 80, n. 10, p. 994-1003, 2022. Available at: <https://doi.org/10.1055/s-0042-1758446>. Access: 15 Apr. 2023.
- ANDRADE, A. J. L.; CELESTE, L. C.; ALVES, L. M. Caracterização da fluência de leitura em escolares do Ensino Fundamental II. **Audiology - Communication Research**, v. 24, p. e1983, 2019. Available at: <https://doi.org/10.1590/2317-6431-2018-1983>. Access: 15 Apr. 2023.
- BARTH, A. E. *et al.* The effect of reading duration on the reliability and validity of middle school students' ORF performance. **Assessment for Effective Intervention**, v. 40, n. 1, p. 53-64, 2014a. Available at: <https://doi.org/10.1177/1534508414545643>. Access: 14 Apr. 2023.
- BARTH, A. E. *et al.* The effects of student and text characteristics on the oral reading fluency of middle-grade students. **Journal of Educational Psychology**, v. 106, n.1, p. 162-180, 2014b. Available at: <https://doi.org/10.1037/A0033826>. Access: 14 Aug. 2023.
- BIGOZZI, L. *et al.* Reading fluency as a predictor of school outcomes across grades 4-9. **Frontiers in Psychology**, v. 8, n. 200, 2017. Available at: <https://doi.org/10.3389/FPSYG.2017.00200>. Access: 14 Apr. 2023.
- CAÑÓN, M.; BUITRAGO-GÓMEZ, Q. The research question in clinical practice: a guideline for its formulation. **Revista Colombiana de Psiquiatria**, v. 47, n. 3, p. 193-200, 2018. Available at: <https://doi.org/10.1016/j.rcp.2016.06.004>. Access: 13 Apr. 2023.
- CELESTE, L. C. *et al.* Parâmetros prosódicos de leitura em escolares do segundo ao quinto ano do ensino fundamental. **CoDAS**, v. 30, n. 1, p. e20170034, 2018. Available at: <https://doi.org/10.1590/2317-1782/20182017034>. Access: 15 Apr. 2023.
- DENTON, C. A. *et al.* 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**, v. 15, n. 2, p. 109-135, 2011. Available at: <https://doi.org/10.1080/10888431003623546>. Access: 11 Apr. 2023.
- GENTILINI, L. K. S. *et al.* Desenvolvimento de instrumento para avaliação coletiva da fluência e compreensão de leitura textual em escolares do ensino fundamental II. **CoDAS**, v. 32, n. 2, p. e20190015, 2020. Available at: <https://doi.org/10.1590/2317-1782/20192019015>. Access: 13 Apr. 2023.
- KOMENO, E. M. *et al.* Velocidade de leitura e desempenho escolar na última série do ensino fundamental. **Estudos de Psicologia (Campinas)**, v. 32, n. 3, p. 437-447, 2015. Available at: <https://doi.org/10.1590/0103-166X2015000300009>. Access: 14 Apr. 2023.

MARTINS, M. A.; CAPELLINI, S. A. Fluência e compreensão da leitura em escolares do 3º ao 5º ano do ensino fundamental. **Estudos de Psicologia (Campinas)**, v. 31, n. 4, p. 499-506, 2014. Available at: <https://doi.org/10.1590/0103-166X2014000400004>. Access: 15 Apr. 2023.

MARTINS, M. A. CAPELLINI, S. A. Relação entre fluência de leitura oral e compreensão de leitura. **CoDAS**, v. 31, n. 1, p. e20170244, 2019. Available at: <https://doi.org/10.1590/2317-1782/20182018244>. Access: 15 Apr. 2023.

MARTINS, M. A. CAPELLINI, S. A. Identification of struggling readers or at risk of reading difficulties with one-minute fluency measures. **Psicologia: Reflexão e Crítica**, v. 34, n. 10, 2021. Available at: <https://doi.org/10.1186/s41155-021-00174-z>. Access: 12 Apr. 2023.

PIRES, R. S. A. V.; GOMES, R. S.; GERMANO, G. D. Fluência de leitura em escolares de Ensino Fundamental I e II: revisão sistemática. In: VII EDIÇÃO BRAIN CONNECTION, 7., 2022, [S. l.]. **Anais [...]**. [S. l.], 2022. Available at: <https://cdn.congresso.me/53zfv9hhfs6pzhmyjvzysen3kab>. Access: 26 de July 2023.

ROBEY, R. R. **An introduction to clinical trials**. [S. l.]: The Asha LEADER, v. 10, n. 7, 2005. Available at: <https://doi.org/10.1044/leader.FTR3.10072005.6>. Access: 14 Aug. 2023.

ROSENDO, D. *et al.* Reading in COVID-19 Pandemic Times: a snapshot of reading fluency of portuguese elementary school students. **Children (Basel)**, v. 10, n. 1, 143, 2023. Available at: <https://doi.org/10.3390/children10010143>. Access: 13 Apr. 2023.

SCHWANENFLUGEL, P. J. *et al.* Becoming a fluent and automatic reader in the early elementary school years. **Reading Research Quarterly**, v. 41, n. 4, p. 496-522, 2006. Available at: <https://doi.org/10.1598/RRQ.41.4.4>. Access: 14 Apr. 2023.

SILVA, C.; FONSECA, B. V. Reading fluency performance of elementary-school fifth-grade students. **Revista CEFAC**, v. 23, n. 6, p. e8621, 2021. Available at: <https://doi.org/10.1590/1982-0216/20212368621>. Access: 15 Apr. 2023.

STARLING-ALVES I, HIRATA G, OLIVEIRA J. B. A. Covid-19 school closures negatively impacted elementary-school students' reading comprehension and reading fluency skills. **International Journal of Educational Development**, v.99, 102753, 2023. Available at: <https://doi.org/10.1016/j.ijedudev.2023.102753>. Access: 27 July 2023.

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