PREDICTIVE READING SKILLS IN SCHOOLCHILDREN IN THE EARLY YEARS OF LITERACY IN TIMES OF PANDEMIC

HABILIDADES PREDITORAS DE LEITURA EM ESCOLARES EM ANOS INICIAIS DE ALFABETIZAÇÃO EM TEMPOS DE PANDEMIA

PREDICCIÓN DE LAS HABILIDADES LECTORAS EN ESCOLARES EN LOS AÑOS INICIALES DE LA ALFABETIZACIÓN EN TIEMPOS DE PANDEMIA

Mariana Garrido SANTANA[1]
Simone Aparecida CAPELLINI[2]
Giseli Donadon GERMANO[3]

ABSTRACT: The aim was to characterize and compare the predictive reading skills of students in the 1st and 2nd year of Elementary School I in times of a pandemic. A total of 40 schoolchildren aged between 6 and 7 years old participated in this study, divided into groups (GI: 20 schoolchildren in the 1st and 2nd year, evaluated during the Pandemic) and GII (20 schoolchildren, paired with GI in relation to school year and age chronological analysis, taken from the Database, evaluated before the pandemic). The students were submitted to the Protocol for Early Identification of Reading Problems. The results indicated a difference for most tests, except phonological working memory, Silent Reading and Listening Comprehension of sentences from Pictures, before and during the Pandemic. Schoolchildren during the Pandemic had difficulties with predictive reading skills, due to not experiencing didactic content for reading acquisition.

KEYWORDS: Pandemics. Learning. Educational measurement.

RESUMO: *O objetivo foi caracterizar e comparar as habilidades preditoras de leitura de escolares do 1º e 2º ano do Ensino fundamental I em tempos de pandemia. Trata-se de uma pesquisa de abordagem quantitativa. Participaram deste estudo 40 escolares na faixa etária de 6 a 7 anos de idade, divididos em grupos (GI: 20 escolares do 1º e 2º ano) e GII (20 escolares, pareados com GI em relação a ano escolar e idade cronológica). Os escolares foram submetidos ao Protocolo de Identificação Precoce dos Problemas de Leitura. Os resultados indicaram diferença para a maioria das provas, exceto memória operacional fonológica, Leitura Silenciosa e Compreensão Auditiva de sentenças a partir de Figuras, antes e durante a Pandemia. Os escolares tiveram durante a pandemia dificuldades para as habilidades*

[1] São Paulo State University (UNESP), Marília – SP – Brazil. Student in the Graduate Program in Speech Therapy. Graduation in Pedagogy (UNESP). ORCID: https://orcid.org/0000-0002-7501-9190. E-mail: mariana.garrido.p@hotmail.com
[2] São Paulo State University (UNESP), Marília – SP – Brazil. Lecturer at the Department of Speech Therapy. ORCID: https://orcid.org/0000-0001-8171-5603. E-mail: sacap@uol.com.br
[3] São Paulo State University (UNESP), Marília – SP – Brazil. Professor at the Department of Education and Human Development. Post-Doctorate in Speech Therapy (UNESP). ORCID: https://orcid.org/0000-0002-3721-9263. E-mail: giseliger@yahoo.com.br

preditoras de leitura, devido a não vivenciarem os conteúdos didáticos para a aquisição da leitura.

***PALAVRAS-CHAVE**: Pandemia. Aprendizagem. Avaliação educacional.*

***RESUMEN**: El objetivo fue caracterizar y comparar las habilidades lectoras predictivas de los estudiantes de 1° y 2° año de la Enseñanza Básica I en tiempos de pandemia. Esta es una investigación cuantitativa. Cuarenta estudiantes de 6 a 7 años participaron de este estudio, divididos en grupos (IG: 20 estudiantes de 1er y 2do año) y GII (20 estudiantes, emparejados con GI en relación con el año escolar y la edad cronológica). Los estudiantes fueron sometidos al Protocolo de Identificación Temprana de Problemas de Lectura. Los resultados indicaron una diferencia para la mayoría de las pruebas, excepto la memoria de trabajo fonológica, la lectura silenciosa y la comprensión auditiva de oraciones de imágenes, antes y durante la pandemia. Los escolares durante la Pandemia tuvieron dificultades con las habilidades lectoras predictivas, por no experimentar contenidos didácticos para la adquisición lectora.*

***PALABRAS CLAVE**: Pandemias. Aprendizaje. Evaluación educacional.*

Introduction

In early March 2020, with the COVID-19 pandemic, it was decreed the suspension of in-person classes, replacing them by remote teaching (SAMPAIO, 2020). For Batista and Martins (2021), many were the challenges faced by the need for the realization of emergency remote teaching. The authors brought issues related to the limitations in the teaching process, in view of the new configurations in the family environment facing the study at home. They also elucidated how complex and difficult it was to contemplate the school curriculum during face-to-face classes and adjust such content to the family environment.

Thus, in view of this challenging context, the need to identify students at risk for learning problems stands out. Studies (DE JONG; VAN DER LEIJ, 1999; DE JONG; OLSON, 2004; GERMANO; CÉSAR; CAPELLINI, 2017) have reported that metaphonological ability, phonological operational memory, and rapid automatic naming correspond to phonological mechanisms central to the acquisition of reading and writing, being important predictors of later performance in reading. In addition to these indicators, Hulme and Snowling (2014) also highlighted the importance of schoolchildren having knowledge of the letters of the alphabet, as knowledge of letter naming is at the intersection between spoken and written language, due to the fact that letters are the written representations of phonemes or combinations of phonemes. Thus, taken together, students at risk for learning problems have failures in mastering these skills (GERMANO; CÉSAR; CAPELLINI, 2017).

Such performance indicators were based on the act of reading. Learning to read implies a deliberate reflection of speech, promoting metalinguistic awareness (BRADLEY; BRYANT, 1983; HAYES; SLATER, 2008; MENDONÇA; KODAMA, 2016); it is a highly complex task that requires visual integration, orthographic, phonological and semantic information (COLTHEART *et al*., 2001).

Based on the above, the hypothesis of this study is based on the fact that schoolchildren who experienced the period of social and academic isolation imposed by the COVID-19 pandemic have lagging predictor skills for reading development, when compared to the school performance in these skills of schoolchildren who attended classroom education prior to the pandemic period.

Thus, this study aimed to characterize and compare the reading predictive skills of 1st and 2nd grade elementary school students who attended face-to-face and remote education due to the COVID-19 pandemic period.

Materials and method

This is a quantitative, cross-sectional, observational research. The study was approved by the Research Ethics Committee of the School of Philosophy and Sciences of the São Paulo State University (FFC/UNESP), in Marília, SP, under protocol number 4.862.668.

Forty schoolchildren from 6 to 7 years old of both genders from the municipal network of Marília-SP participated in this study. The kids were divided into two groups, as follows:

- Group I (GI): made up of 20 school kids from the 1st year and 2nd year of elementary school I with learning difficulties complaints, 6 females and 14 males, aged from 6 years and 2 months to 7 years and 8 months;

- Group II (GI): 20 school kids paired with GI in relation to schooling and age range.

As exclusion criteria, the schoolchildren should not have a record in their school records of the presence of cognitive, sensory or physical disabilities.

The school-aged children from GII were selected from the data bank of the Laboratory for Investigations of Learning Disabilities (LIDA in the Portuguese acronym) of the São Paulo State University - "Júlio de Mesquita Filho", Campus Marília - SP, set up before the COVID-19 pandemic and selected based on the "expected" performance in more than 50% of the tests from the Protocol for the Early Identification of Reading Problems - IPPL in the Portuguese acronym (CAPELLINI; CÉSAR; GERMANO, 2017).

From this GII selection, the students from GI were submitted to the application of the Early Identification of Reading Problems Protocol - IPPL (CAPELLINI; CÉSAR; GERMANO, 2017), in only one 45-minute session, individually and in person. The application of the protocol occurred in July and August 2021.

The protocol is composed of 13 tests, as follows: test of knowledge of the 23 letters of the alphabet; tests of metaphonological skills (composed of tests of rhyme production and identification; syllabic segmentation; production of words from the given phoneme; phonemic synthesis; phonemic analysis; identification of initial phoneme); test of phonological operational memory; test of rapid automatic naming (NAR); test of silent reading; test of word and pseudoword reading; and test of sentence comprehension based on pictures. The tests were performed in the sequence in which they appear in the protocol and were interrupted after the child had four consecutive errors, and then moved on to the next test. A score of "one point" was given for each correct answer, and a score of "zero" (0 points) was given for errors and/or no answers. The results in each test are classified as "under attention" and "expected" according to the school year, as described in the protocol.

All the procedures adopted followed the guidelines described in Prope Normative Instruction no. 01 regarding the spread of the Covid-19 virus, as recommended by the World Health Organization (WHO).

For statistical analysis of the results, we used the SPSS (Statistical Package for Social Sciences) program in its 25.0 version, with a significance level of 5% (0.050). The Mann-Whitney test was applied to compare the scalar variables between groups GI and GII, in order to verify possible differences between the two groups studied for the variables of interest. For the categorical variables, the chi-square test was applied, and, when necessary, Fisher's exact test, in order to verify possible differences between the two groups studied for the variables of interest.

Results

Table 1 presents the comparison between groups GI and GII, from the Mann-Whitney Test for the variables of interest.

Table 1 – Average, standard deviation and p value in the comparison between groups GI and GII

Variablel	Group	Average	Standar deviation	p Value
CA	GI	21,95	1,5	0,001*
	GII	13,95	9,19	
PR	GI	6,55	5,84	< 0,001*
	GII	1,4	3,09	
IR	GI	12,8	5,44	< 0,001*
	GII	0,9	4,03	
SS	GI	20	1,59	< 0,001*
	GII	10,25	8,2	
PPf	GI	18,4	4,29	< 0,001*
	GII	6,5	6,19	
SF	GI	4,45	5,65	< 0,001*
	GII	0,1	0,45	
AF	GI	3,35	4,83	< 0,001*
	GII	0	0	
IFI	GI	11,4	7,54	< 0,001*
	GII	0,75	2,9	
MOF	GI	21	2,94	0,169
	GII	19,15	4,48	
LS	GI	8,7	2,3	0,002*
	GII	6,2	2,61	
SPPP	GI	22,35	15,13	< 0,001*
	GII	2,1	6,21	
CAF	GI	18	2	0,143
	GII	17,2	1,96	

Key: CA= Alphabet Knowledge; PR= Rhyme Production; IR= Rhyme Identification; SS= Syllabic Segmentation; PPF= Word Production from the given phoneme; SF= Phonemic Synthesis; PA= Phonemic Analysis; IFI= Initial Phoneme Identification; MOF= Phonological Operational Memory; LS= Silent Reading; LPPP= Reading Words and Non-Words and CAF= Auditory Comprehension of Sentences from Pictures. Mann-Whitney test (*p<0.05).
Source: Prepared by the authors

Table 1 shows a significant difference between the groups in most tests, with the exception of phonological operational memory and auditory comprehension of sentences based on pictures, suggesting that the students had similar performances for these tests, i.e., that there was no performance change for these tests before and during the pandemic.

Table 2 shows the comparison between groups IM and GII, using the chi-square test and the Fisher's exact test for the variables of interest, regarding the performance classification for each test.

Table 2 – Frequency, percentile and p-value in the comparison between groups for the performance rating

Variable	Classification	GI		GII		p Value
		Freq.	Perc.	Freq.	Perc.	
CL_CA	Expected	17	85,00%	5	25,00%	< 0,001*
	under attention	3	15,00%	15	75,00%	
CL_PR	Expected	11	55,00%	3	15,00%	0,008*
	under attention	9	45,00%	17	85,00%	
CL_IR	Expected	13	65,00%	1	5,00%	< 0,001*
	under attention	7	35,00%	19	95,00%	
CL_SS	Expected	18	90,00%	6	30,00%	< 0,001*
	under attention	2	10,00%	14	70,00%	
CL_PPf	Expected	14	70,00%	1	5,00%	< 0,001*
	under attention	6	30,00%	19	95,00%	
CL_SF	Expected	12	60,00%	1	5,00%	< 0,001*
	under attention	8	40,00%	19	95,00%	
CL_AF	Expected	5	25,00%	0	0,00%	0,017*
	under attention	15	75,00%	20	100,00%	
CL_IFI	Expected	15	75,00%	1	5,00%	< 0,001*
	under attention	5	25,00%	19	95,00%	
CL_MOF	Expected	16	80,00%	13	65,00%	0,288
	under attention	4	20,00%	7	35,00%	
CL_LS	Expected	6	30,00%	5	25,00%	0,723
	under attention	14	70,00%	15	75,00%	
CL_SPPP	Expected	17	85,00%	3	15,00%	< 0,001*
	under attention	3	15,00%	17	85,00%	
CL_CAF	Expected	13	65,00%	7	35,00%	0,058
	under attention	7	35,00%	13	65,00%	

Key: CL = Classification; CA= Alphabet Knowledge; PR= Rhyme Production; IR= Rhyme Identification; SS= Syllabic Segmentation; PPF= Word Production from the given phoneme; SF= Phonemic Synthesis; PA= Phonemic Analysis; IFI= Initial Phoneme Identification; MOF= Phonological Operational Memory; LS= Silent Reading; LPPP= Reading Words and Non-Words; CAF= Auditory Comprehension of Sentences from Figures. Chi-square test (*p<0.05).
Source: Prepared by the authors

Table 2 shows a significant difference between the classifications for most tests, with the exception of Phonological Operational Memory, Silent Reading and Listening Comprehension of sentences from Pictures. Regarding the other tests, the GII children (during the pandemic) were rated "under attention" when compared to "expected" from the GI children, suggesting that difficulties in metaphonological and reading abilities were aggravated during the pandemic.

However, the students had similar performance, being "expected" for the Phonological Operational Memory test, suggesting that the ability to manipulate information was preserved, both before and during the pandemic, indicating the presence of learning difficulties aggravated by the pandemic, and not by possible intrinsic deficits.

In the Silent Reading and Listening Comprehension of Sentences from Pictures tests, the students' performance was "under attention" before and during the pandemic, suggesting that these skills were already in deficit before and during the pandemic, indicating that there is a lack of mental input lexicon formation for reading and information for mental comprehension.

The Rapid Automatic Naming Test could not be statistically analyzed because the students from GI were not able to perform the test as instructed in the protocol. Errors were observed in figure naming and stimulus sequencing.

Discussion

The results of this study suggested that during the pandemic, these GI schoolchildren had difficulties for reading predictor skills, receiving "under attention" ratings for the Alphabet Knowledge tests, metaphonological skills (Rhyme Production; Rhyme Identification; Syllabic Segmentation; Word Production from the Given Phoneme; Phonemic Synthesis; Phonemic Analysis; Initial Phoneme Identification) and reading skills (Silent Reading; Word and Non-Word Reading). However, such difficulties were not observed in GII students of the same school year before the pandemic.

Thus, the findings suggested that 1st and 2nd grade students who experienced remote teaching during the pandemic did not develop the metaphonological skills, which have been described as predictors for reading acquisition. Such a relationship metaphonological skills and reading performance has already been described in the literature (CHARD; DICKSON, 1999; GERMANO; CAPELLINI, 2016; GOMBERT, 1992), revealing that there is a progressive development in the acquisition of these metaphonological skills as the school years advance.

Chard and Dickson (1999) reported a continuum in the development of metaphonological skills, starting from the least complex activities (e.g., rhyme identification, syllable segmentation) to the most complex ones (e.g., phonemic manipulation and perception). The authors point out that phonemic perception occurs last, since it is related to knowledge of the alphabet, i.e., it depends on academic learning.

Such findings allow reflection as to the Pandemic moment and its relationship with the expected described by the National Common Curricular Base (BNCC in the Portuguese acronym) (BRAZIL, 2018). The schoolchildren in this study did not show mastery of initial literacy skills, such as knowledge of the alphabet and perception of syllables and phonemes. According to the BNCC (BRAZIL, 2018), literacy requires the development of knowledge of phonographic relations, which can last for the first two years of elementary school I. However, it is noteworthy that such difficulties with phoneme and phonographeme relations are not exclusive of GI students who have experienced remote education. National studies (CAPELLINI; CÉSAR; GERMANO, 2017; GERMANO; CAPELLINI, 2016) revealed that the lack of systematic teaching of the letter-sound conversion mechanism is one of the difficulties of Brazilian schoolchildren in early literacy years.

However, this finding contradicts what is indicated by the BNCC (BRAZIL, 2018), which emphasizes the need for knowledge of the alphabet and its direct and indirect relations of the letter-sound conversion mechanism, this being a learning that should be continuous until the 3rd year of Elementary I.

Furthermore, the students in GI showed alterations in the perception of syllables and phonemes, which can be explained by the fact that less complex skills, such as rhyme and alliteration identification, are not emphasized in academic activities in the early literacy phase, suggesting a lack of instructional experience, corroborating studies that indicated the lack of pedagogical practices aimed at teaching these skills in classroom situations (CAPELLINI; CÉSAR; GERMANO, 2017; GERMANO; CAPELLINI, 2016).

Another important aspect of the results refers to the fact that GI and GII students had similar ("expected") performances in phonological operational memory and "under attention" for Silent Reading and Listening Comprehension of sentences from pictures; the students had "under attention" performance before and during the pandemic.

Together with metaphonological skills, phonological operational memory (FOM) plays a fundamental role in the development of reading, since it is responsible for temporarily storing sound information. The MOF presents limited and temporary capacity and sustains the phonological codes of verbal information while performing information processing tasks

(BADDELEY, 2011). The author pointed out that working memory is formed through the different relations with the knowledge to be acquired. When such a relationship is constant, what we experience becomes stored in our long-term memory.

This memory will be the first to be accessed, and a scan will be made to identify whether the information in question is new or not, whether it is already part of the individual's knowledge. When reading, there is a verification of the word in the mental orthographic lexicon, for the subsequent establishment of the grapheme-phoneme relationship (COLTHEART *et al*., 2001). If the information is part of long-term memory, its access will be fast and even automated, but if we do not have it, this information will need to be sustained until the necessary operation is completed. (BADDELEY, 2011).

Thus, the results of this study suggest that GI students failed to sufficiently experience the information for long-term memory formation, observed both by the failure to perform the rapid naming test and by the failures in the silent reading and Figural Auditory Comprehension tests.

The silent reading measures usually include a decision component, such as semantic categorization, sentence checking, or lexical decision. Furthermore, the main goal of silent reading is to understand and assimilate the meaning of the text, which is based on grapheme-semantic decoding in the lexical route, independently of the acquisition of the specific phonetic code of oral reading (VAN DEN BOER; VAN BERGEN; DE JONG, 2014; ZHAO *et al.*, 2017).

Also, Montgomery (1995) argued that sentence comprehension requires that previous information is temporarily stored while incoming new information is processed. Clark and Clark (1977) proposed that phonological memory is critical for comprehension because listeners presumably store entire sentences in phonological input storage until all syntactic and semantic analyses have been completed.

Thus, we can infer that during the pandemic, the schoolchildren did not experience the minimum didactic content for the acquisition of grapheme-phoneme relations or reading. However, we emphasize that this lack of experience already occurred before the pandemic. With the lack of experience with literacy-oriented content, the students were unable to form and retain such content efficiently in their long-term memory, as observed from the application of the protocol. It is noteworthy that these findings are in line with the complaints reported by the schoolchildren's teachers, such as difficulties in recognizing the letters of the alphabet. Thus, the children were not able to perform simple activities, such as retrieving a word from their

mental lexicon, even though their FMO was preserved when compared to children in the same school year before the pandemic.

The relationship between experience and reading is highlighted by Buzetti and Capellini (2020). The authors state that when lexical information is already possessed, this will facilitate the use of phonological information as well in the decoding and encoding process during reading. The storage of phonological information depends on the memories, impressions and sensations experienced. Because it is a short-lived system, information must be presented several times in order to be retained; this information will migrate from short-term memory to long-term memory and will be accessible at a future time when it is retrieved. This way, if the student is able to automatically recognize the words, that is, if he is already familiar with the presented word, he will dedicate time to decoding, leaving his memory free to understand what is read. This aspect was not observed in the students from GI.

Therefore, we can suggest that the students who experienced the pandemic should be characterized as students at risk for learning problems, mainly due to the lack of these experiences with the written code. Fukuda and Capellini (2011) emphasize the importance of formal instruction for students to understand the letter-sound relationship, because this learning helps in literacy, developing cognitive-linguistic skills necessary for learning the alphabetic basis of the Brazilian Portuguese writing system.

Final remarks

This study allowed for the conclusion that there was a worsening of the development of reading predictor skills during the pandemic of COVID-19 for alphabet knowledge, metaphonological and reading skills.

However, it is noteworthy that some difficulties cannot be exclusively attributed to the pandemic context, as they had already been observed previously in national studies (CAPELLINI; CÉSAR; GERMANO, 2017; FUKUDA; CAPELLINI, 2011; GERMANO; CAPELLINI, 2016), mainly difficulties with the perception of sounds and syllables and letter-sound relationships.

The repercussions of the pandemic on the academic learning of Brazilian schoolchildren are still inestimable, according to (STOLF *et al*., 2021). Thus, professionals working in the field of education must be aware of the overlapping of learning difficulties in reading and writing, due to the lack of instructional teaching of the alphabetic basis of the Brazilian Portuguese writing system, added to the difficulties in the teaching-learning relationship imposed by the

pandemic. Such aspects may imply in failures in the identification of possible diagnoses of learning problems, as well as in the understanding of normality parameters for the acquisition and development of reading and writing.

REFERENCES

BADDELEY, A. D. Memória de trabalho. *In:* BADDELEY, A. D.; EYSENCK, M. W.; ANDERSON, M. C. (org.). **Memória**. Porto Alegre: Artmed, 2011.

BATISTA, F. A.; MARTINS, K. S. B. S. Pandemia e estudantes em casa: Currículo escolar e novas formas de aprendizagem dos estudantes no contexto de Parintins (AM). **Conjecturas**, v. 21, n. 3, p. 142-168, 2021. Available at: https://conjecturas.org/index.php/edicoes/article/view/101. Access on: 06 Feb. 2022.

BRADLEY, L.; BRYANT, P. E. Categorizando sons e aprendendo a ler-uma conexão causal. **Nature**, v. 301, n. 5899, p. 419-421, fev. 1983. Available at: https://www.nature.com/articles/301419a0. Access on: 18 Jan. 2022.

BRAZIL. **Base Nacional Comum Curricular (BNCC)**. Brasília, DF: Ministério da Educação, 2018. Available at: http://basenacionalcomum.mec.gov.br/images/BNCC_EI_EF_110518_versaofinal_site.pdf. Access on: 11 Feb. 2022.

BUZETTI, M. C.; CAPELLINI, S. A. **Habilidades preditoras para alfabetização**. 1. ed. Ribeirão Preto: BookToy, 2020.

CAPELLINI; S. A.; CÉSAR, A. B. P. C.; GERMANO, G. D. **Protocolo de Identificação Precoce dos Problemas de Leitura - IPPL.** 1. ed. Ribeirão Preto, SP: Editora Booktoy, 2017.

CHARD, D. J.; DICKSON, S. V. Consciência Fonológica: Diretrizes Instrucionais e de Avaliação. **Intervention in school and clinic**, v. 34, n. 5, p. 261-270, maio 1999. Available at: https://journals.sagepub.com/doi/10.1177/105345129903400502. Access on: 23 Jan. 2022.

CLARK, H.; CLARK, E. **Psychology and Language**. New York: Harcourt Brace Jovanovic, 1977.

COLTHEART, M. *et al.* DRC: Um modelo em cascata de rota dupla de reconhecimento visual de palavras e leitura em voz alta. **Psychological review**, v. 108, n. 1, p. 204-256, jan. 2001. Available at: https://psycnet.apa.org/buy/2001-16162-009. Access on: 06 Feb. 2022.

DE JONG, P. F.; VAN DER LEIJ, A. Specific contributions of phonological abilities to early reading acquisition: Results from a Dutch latent variable longitudinal study. **Journal of educational psychology**, v. 91, n. 3, p. 450-476, 1999. Available at: https://psycnet.apa.org/doiLanding?doi=10.1037%2F0022-0663.91.3.450. Access on: 06 Feb. 2022.

DE JONG, P. F.; OLSON, R. K. Early predictors of letter knowledge. **Journal of experimental child psychology**, v. 88, n. 3, p. 254-273, jul. 2004. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0022096504000517?via%3Dihub. Access on: 06 Feb. 2022.

FUKUDA, M. T. M.; CAPELLINI, S. A. Treinamento de habilidades fonológicas e correspondência grafema-fonema em crianças de risco para dislexia. **Revista Cefac,** v. 13, n. 2, p. 227-235, mar./abr. 2011. Available at: https://www.scielo.br/j/rcefac/a/fyJKMBHbpv6jCvSNbTNYHYv/?lang=pt. Access on: 06 Feb. 2022.

GERMANO, G. D.; CAPELLINI, S. A. **Protocolo de avaliação das habilidades metafonológicas.** 1. ed. Ribeirão Preto, SP: Editora Booktoy, 2016.

GERMANO, G. D.; CÉSAR, A. B. P. C.; CAPELLINI, S. A. Protocolo de Triagem para identificação precoce de Crianças Brasileiras em risco de dislexia. **Frontiers in Psychology**, v. 8, p. 1-13, out. 2017. Available at: https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01763/full. Access on: 06 Feb. 2022.

GOMBERT, J. E. **Desenvolvimento metalingüístico.** Chicago: University of Chicago Press, 1992.

HAYES, R. A.; SLATER, A. Three-month-olds' detection of alliteration in syllables. **Infant Behavior and Development**, v. 31, n. 1, p. 153-156, 2008. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0163638307000847?via%3Dihub. Access on: 12 Dec. 2022.

HULME, C.; SNOWLING, M. J. A interface entre linguagem falada e escrita: Transtornos do desenvolvimento. **Philosophical Transactions of the Royal Society B: Biological Sciences**, v. 369, n. 1634, p. 1-8, jan. 2014. Available at: https://royalsocietypublishing.org/doi/10.1098/rstb.2012.0395. Access on: 13 Feb. 2022.

MENDONÇA, O. S.; KODAMA, K. M. R. O. Alfabetização: Por que a criança não aprende a ler e escrever? **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 11, n. esp. 4, p. 2448–2464, 2016. Available at: https://periodicos.fclar.unesp.br/iberoamericana/article/view/9202. Access on: 7 Feb. 2022.

MONTGOMERY, J. W. Sentence comprehension in children with specific language impairment: The role of phonological working memory. **Journal of Speech, Language, and Hearing Research**, v. 38, n. 1, p. 18-25, fev. 1995. Available at https://pubs.asha.org/doi/10.1044/jshr.3801.18. Access on: 06 Feb. 2022.

SAMPAIO, R. M. Práticas de ensino e letramentos em tempos de pandemia da COVID-19. **Research, Society and Development**, São Paulo, v. 9, n. 7, p. 1-16, maio 2020. Available at: https://rsdjournal.org/index.php/rsd/article/view/4430. Access on: 06 Feb. 2022.

STOLF, M. T. *et al*. Performance of early literacy students in cognitive-linguistic skills during the pandemic. **Journal of Human Growth and Development**, v. 31, n. 3, p. 484-490, dez. 2021. Available at: https://revistas.marilia.unesp.br/index.php/jhgd/article/view/12668. Access on: 26 Sept. 2022

VAN DEN BOER, M.; VAN BERGEN, E.; DE JONG, P. F. Underlying skills of oral and silent reading. **Journal of experimental child psychology**, v. 128, p. 138-151, dez. 2014. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0022096514001489. Access on: 21 Jan. 2022.

ZHAO, J. *et al*. Underlying skills of oral and silent reading fluency in Chinese: Perspective of visual rapid processing. **Frontiers in Psychology**, v. 7, p. 2082, jan. 2017. Available at: https://www.frontiersin.org/articles/10.3389/fpsyg.2016.02082/full. Access on: 03 Feb. 2022.

How to reference this article

SANTANA, M. G.; CAPELLINI, S. M.; GERMANO, G. D. Predictive reading skills in schoolchildren in the early years of literacy in times of pandemic. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 17, n. 4, p. 2513-2525, Oct./Dec. 2022. e-ISSN: 1982-5587. DOI: https://doi.org/10.21723/riaee.v17i4.16233

Submitted: 07/02/2022
Revisions required: 29/07/2022
Approved: 18/09/2022
Published: 30/12/2022

Processing and publication by the Editora Ibero-Americana de Educação.
Correction, formatting, standardization and translation.