

Research articles

The spelling performance of a group of 3rd and 5th-grade students in the early years of elementary school

O desempenho ortográfico de um grupo de alunos do 3º e 5º anos dos anos iniciais do ensino fundamental

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Abstract

This research aimed to analyze the spelling performance of a group of 3rd and 5th grade students in the early years of Elementary School. 54 students from the 3rd and 5th grades of a municipal public school in inland São Paulo participated in the study. The study is characterized as exploratory mixed-methods research. As an instrument, a sentence dictation was used, consisting of ten sentences in which students' errors were analyzed. The comparison between school years was carried out using the Mann-Whitney test. The results indicate that there was no statistically significant difference between school years considering the total number of transgressions in the dictation, as well as in the error typologies analyzed. These data are concerning as they show a non-significant progression of knowledge in relation to the appropriation of orthographic writing.

Keywords: writing; orthography; spelling performance; elementary school.

Resumo

A presente pesquisa teve como objetivo analisar o desempenho ortográfico de um grupo de alunos de 3º e 5º anos dos anos iniciais do ensino fundamental. Participaram do estudo 54 alunos de 3º e 5º anos de uma escola pública municipal do interior do estado de São Paulo. O estudo caracteriza-se como quantitativo de caráter exploratório. Como instrumento, foi utilizado um ditado de frases, composto por dez frases em que se analisou os erros dos estudantes. A comparação entre os anos escolares foi realizada através do teste de *Mann-Whitney*. Os resultados indicam que não houve diferença estatisticamente significativa entre os anos escolares considerando o total de erros no ditado, bem como nas tipologias de erros analisadas. Tais dados são preocupantes pois evidenciam uma progressão de conhecimento pouco significativa em relação à apropriação da escrita ortográfica.

Palavras-chave: escrita; ortografia; desempenho ortográfico; ensino fundamental.

INTRODUCTION

Learning to read and write is of fundamental importance in a person's life, as, besides being an object of knowledge in itself (Zorzi, 2003), it is a necessary condition for academic advancement (Soares, 2020). However, despite being essential, mastering reading and writing still constitutes a challenge for Brazilian students, especially those attending public schools. As pointed out by Corso and Megiatto (2019) and Frederico Neto et al. (2015), writing is characterized as the skill with the highest rate of difficulty complaints by students and one of the most complex to manage in the classroom, according to teachers, in both elementary and high school classes.

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Study conducted at Universidade Estadual Paulista "Júlio de Mesquita Filho" (UNESP), Rio Claro, SP, Brasil.



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Beyond school difficulties, the precarious mastery of writing extends beyond school walls and transforms into disadvantages in people's lives outside of school. According to data from a survey conducted by the Brazilian Internship Center (NUBE) in 2022 (Lima, 2022), 83.5% of internship candidates, approximately 59,000 people, were rejected due to insufficient grammatical knowledge. The data also revealed that the percentage of rejected candidates increased by 67% compared to 2019. Thus, one agrees with Prado (2013, p. 5), who states that "[...] for any type of job, knowing how to write clearly and correctly can be the distance between employment and unemployment [...]".

According to Soares (2020), by enabling interaction between people, both oral and written language possess a socio-interactive function. However, beyond this function, Cagliari (2009) states that writing is also a linguistic act, which implies understanding the functioning of our writing system. Thus, it is necessary to emphasize that, despite recognizing the socio-communicative nature of writing, the focus of this article consists of the learning of writing, specifically spelling, based on studies about metalanguage. According to Gombert (2013, p. 109), metalanguage refers to the "[...] ability to distance oneself from the habitually communicative use of language to focus attention on its linguistic properties". This choice is justified because, as stated by Soares (2020), the mastery of the alphabetic writing system and its orthographic norms constitute a means of access to written culture.

In this sense, the present research is presented, which aimed to analyze the spelling performance of a group of 3rd and 5th-grade students in the early years of elementary school. In order to analyze the students' performance in a more detailed manner, the research is characterized as exploratory mixed-methods research and was conducted with 54 students belonging to the 3rd and 5th grades of a public school in inland São Paulo. This research is justified by the possibility of contributing to studies on spelling learning through the investigation of the spelling performance presented by the participating students, as well as the qualitative advances in these students' writing, the knowledge related to orthographic norms that these students presented at the end of the school year, and the possible error typologies found. To this end, the paper is organized as follows. First, a theoretical discussion regarding writing and spelling was conducted. Following this, the methodological design of the research was described, followed by the presentation and discussion of the results, and finally, the conclusions of the study, aimed at fostering debate on the discussed topic.

Regarding the formal learning of writing, it begins in the early years of elementary school and is subdivided into two stages. The first concerns the acquisition of alphabetic writing, a stage known as literacy acquisition. The objective of this process, according to Morais (2012), is to enable the student to understand two concepts: what writing represents and how this representation is made. In other words, the student must understand that writing is a system of representation of speech through graphic signs, the letters (Ferreiro; Teberosky, 1999). Similarly, for Marchusi (2010), writing is a representation of language, operating with its own characteristics.

In Zorzi's (1998) view, during literacy acquisition, a student's writing is based on the phonological aspects of the word; that is, one writes what one hears, which can lead to errors since not all words are written exactly as they are pronounced. To overcome such deviations, the second process of writing acquisition begins: the learning of orthography, defined as the social convention of the possibilities for using the writing system (Cagliari, 2009; Morais, 2012; Zorzi, 2003).

Cagliari (2009) explains that the function of orthography is essentially to enable the reading of words. This occurs because, in spoken language, it is common for people from different regions of the same country to use distinct forms of communication. Thus, by establishing consensual forms of recording, orthography enables a person to read a word while having the freedom to pronounce it according to their linguistic variation (Morais, 2007a). For Morais (2007a), mastering spelling, besides being a social requirement, is a prerequisite for a person to be more efficient and persuasive in written communication. Furthermore, having sound orthographic knowledge provides an additional gain: by knowing spelling rules well, a person can direct their attention to the elaboration of the text itself during writing, without worrying about the spelling of a specific word (Morais, 2007a).

Based on Zorzi (1998), the acquisition of orthographic writing occurs through a non-linear “evolutionary appropriation scale” (Zorzi, 1998, p. 97); that is, learning takes place gradually, with some aspects being easier to comprehend than others. However, unlike literacy acquisition, the appropriation of orthographic writing cannot be divided into stages, as a student may present difficulties in more than one orthographic aspect simultaneously.

Still according to Zorzi (1998), although there is a progression of orthographic knowledge over the school year, measured by the decrease in the number of errors presented by students as they advance in their education, it must be considered that the fact that 5th-grade students still present spelling errors in their records indicates that the mastery of spelling may require more time to be fully acquired. Furthermore, spelling learning does not occur uniformly for all students, since each student has their own learning pace.

Silva and Morais (2007) asserts that the teaching of orthographic norms can be conceived in three ways. The first, known as the traditional approach, advocates that spelling should be taught through memorization and repetition. In contrast, the second approach, often termed progressive, is based on the idea that spelling learning occurs spontaneously through students’ contact with written texts. This idea, which gained momentum in Brazil in the 1990s, resembles what Soares (2004) described as the “loss of literacy specificity” and, for Cagliari (2002), constituted a neglect of spelling instruction.

There is a consensus among scholars (Cagliari, 2009; Morais, 2007a, 2012; Zorzi, 1998, 2003) that spelling learning should occur through systematized instruction. Thus, contrary to the previous perspectives, the third way of conceiving spelling instruction aims to promote a reflective teaching of orthographic norms, considering spelling as an object of study whose learning occurs through reflection (Silva; Morais, 2007). In this sense, the goal of spelling instruction should be to help students understand the regularities of the orthographic norm and to make them aware that there are irregularities that must be memorized and consulted when necessary.

It is important to highlight that this approach to spelling instruction has reframed the role attributed to students’ errors, previously understood as an indicator of learning problems that, therefore, should not occur (Cagliari, 2009; Morais, 2012). In this view, the error is seen as an integral part of the learning process since, according to Zorzi (1998), transgression, besides demonstrating attempts to understand how writing works, indicate which aspects are the most complex to learn, allowing for the creation of appropriate interventions by teachers.

However, although spelling is fundamental for a person to fully appropriate writing, and its learning process demands a longer period compared to literacy acquisition, according to Santos and Barrera (2012), advances regarding teaching practices are mostly focused on aspects related to initial literacy, giving little prominence to spelling. According to Santos and Barrera (2012), spelling studies are divided into three strands: those that study spelling performance and errors; those that focus on the acquisition process of specific orthographic norms; and research that relates cognitive skills to spelling learning.

In quantitative terms, studies on students’ spelling performance have a higher volume of production. Such studies are of paramount importance because, considering that spelling acquisition is a gradual process (Santos; Barrera, 2012; Zorzi, 1998), this research enables an understanding of how writing acquisition occurs and what the students’ primary difficulties are, thus allowing for the development of meaningful curricula for these students’ learning stages.

In the study by Batista (2011), conducted with 240 students from the 2nd to 5th grades of elementary school in public and private schools, the results demonstrated that, in the sentence dictation, the most frequent errors among 3rd-grade students from both public and private schools were related to letter-sound correspondence independent of rules (arbitrary orthography) and unequivocal letter-sound correspondence (natural orthography), respectively. According to Batista (2011), natural orthography characterizes the first phase of writing appropriation and pertains to rules related to the mastery of the alphabetic principle; that is, they concern the literacy process.

Some examples of errors of this nature include: errors in recording phonemes with biunivocal correspondence (such as “poca” instead of “boca”); omission or addition of letters or syllables (“ddo” instead of “dado”); transposing the order of letters or syllables (“secola” instead of “escola”); and improper word segmentation or joining (“amenina” instead of “a menina”).

In turn, arbitrary orthography refers to orthographic issues of the second phase of writing appropriation, such as recording phoneme-grapheme correspondences dependent on rules (e.g., the use of *r/rr*) and correspondences independent of rules (e.g., the recording of the phoneme /s/, which can be written with "s", "ss", "sc", "c", "ç", among others).

Regarding 5th-grade public school students, the most frequent errors were unequivocal letter-sound correspondence (natural orthography), the absence or inadequate presence of accentuation (arbitrary orthography), and letter-sound correspondence independent of rules (arbitrary orthography), respectively. 5th-grade private school students presented more errors in the categories of absence and inadequate presence of accentuation and letter-sound correspondence independent of rules, respectively.

Generally, students presented better performance on the tests, as well as a decrease in the number of errors, as their schooling level increased. Regarding the level of orthographic knowledge, it was noted that students in the 4th and 5th grades presented a similar level of knowledge to each other, which was superior to the groups of students in the 2nd and 3rd grades. However, according to Batista (2011), students from all groups, in both school systems, performed below expectations in all applied tests; in most cases, across the entire study population, more errors related to natural orthography were found than to arbitrary orthography.

Similarly, the study by Sampaio (2012) investigated the spelling performance of 150 students from the 1st to 5th grades of elementary school by characterizing the errors committed. Regarding the results, it was possible to observe that, in all tests, the students presented a significantly lower number of correct answers than expected. Regarding the results of each group separately, it was noted that the number of correct answers generally increased with the advancement of schooling. Concerning the semiology of errors, it was observed that the most frequent transgressions were those of natural orthography. Thus, the author found that, considering the 3rd and 5th-grade students, the largest contingent of students presented an average performance regarding spelling.

Santos and Barrera (2012) proved the existence of a relationship between spelling performance, knowledge of explicit orthographic rules, and the quality of orthographic norm transgressions. This is because, in their research, children with better spelling performance committed more transgressions that did not hinder the reading of words, as they did not violate their phonological aspects (e.g., writing "*belesa*" instead of "*beleza*"). Furthermore, these students were able to justify the changes made, demonstrating greater mastery of orthographic rules. In contrast, students with lower spelling performance committed more transgressions that altered the sound aspect of words, such as recording "*biliza*" instead of "*beleza*", besides being unable to justify the committed transgression. This means that, in addition to making spelling errors, these students transgressed the rules of the alphabetic writing system regarding sound-letter correspondence. According to the authors, this justifies the importance of writing instruction focused on students' reflection regarding orthographic norms.

With the objective of characterizing the orthographic profile of students from the 3rd to 5th grades, Nicolau (2013) found a decrease in spelling errors according to the students' schooling level, especially regarding 5th-grade students. According to the author, 3rd and 4th-grade students achieved similar performance concerning natural and arbitrary orthography errors; however, the 5th-grade class showed a significant difference compared to the two previous stages, with a lower average of errors (both natural and arbitrary).

In turn, Souza (2019) sought to analyze the orthographic knowledge of 5th-grade students based on the spelling errors presented and the observation of the relationship between the level of rule explicitness and the quality of intentional errors. The study included 168 students from a public school, and various collection instruments were used, such as dictation of real and pseudowords, intentional error tasks, text productions, and interviews.

For the author, it was possible to establish a relationship between explicit orthographic knowledge and the quality of the transgressions committed. However, the researcher warned that the presence of errors related to speech transcription, even though they appeared less frequently, revealed that 5th-grade students still wrote based on orality.

Furthermore, she drew attention to the fact that many students lacked a conscious mastery of spelling and reinforced the importance of systematized, reflective, and contextualized instruction. She also emphasized the need for public policies aimed at the continuing education of teachers, so that the gaps left by initial training can be addressed.

These studies, beyond the importance they hold, draw attention due to several similarities in their findings. That is, despite the temporal difference between the researches, in all of them, the authors pointed out that progress in spelling performance follows the advancement of school grading, indicating that students' orthographic knowledge increases over the school years. Nevertheless, the fact that students present more errors related to initial literacy than to spelling, and that these students performed below the expected level for their grade – two other common points across the studies – along with the results of large-scale national assessments, may evidence that for years we have failed to ensure that our students fully appropriate orthographic writing.

METHOD

The present study is part of a Master's research in Education (Manfroni, 2021) funded by the Coordination for the Improvement of Higher Education Personnel (CAPES), funding code 001, and approved by the Research Ethics Committee under the Certificate of Presentation and Ethical Appreciation (CAAE) No. 20709119.6.0000.5465. This specific scope aims to analyze the spelling performance of a group of 3rd and 5th-grade students in the early years of elementary school and is characterized as exploratory mixed-methods research. The study included 54 students from two classes 3rd and 5th grades of elementary school (25 from the 3rd grade and 29 from the 5th grade) from the same public school and school shift in a municipality in inland São Paulo. The average age was 8.6 years for the 3rd-grade classes and approximately 10.9 years for the 5th-grade classes.

Within the municipality, the school was located in a peripheral region. The population attending the school came from adjacent neighborhoods, and a large portion used the municipal school transport system. In 2019, the year the data were collected, the institution obtained a score of 7.4 on the Basic Education Development Index (IDEB), surpassing the municipal average of 6.7 and the target set for the school, which was 6.8 (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, 2020).

For data collection, the same instrument was used for both school years, and the responses were provided through written records. The writing test consisted of a dictation of ten sentences, selected based on Zorzi (1998), using the author's original sentences (e.g., "*Minha avó, mãe de mamãe, era mais alta e mais magra*"). The choice of this instrument was due to the possibility of ensuring the presence of various elements of our orthographic norms within the children's productions (Morais, 2007b). However, it should be noted that, according to Moraes (2007b), choosing dictation does not imply a defense of spelling instruction based on dictation or repetitive word copying. It is understood that this task should be used solely for the purpose of investigating students' writing, which was the objective of the present research.

Pereira et al. (2025) evaluated the effectiveness of dictation in describing the performance of students from the 2nd to 5th grades of elementary school, as well as in identifying students with writing deficits. The results demonstrated that the instrument proved reliable for diagnostic purposes regarding spelling performance and for identifying students with writing delays. Furthermore, although dictation is a task that assesses students' writing, the authors found that its use could also predict students' performance in reading tasks, as these skills showed a positive correlation (the measures increased or decreased together). Finally, it is important to highlight that one of the benefits of dictation refers to the fact that it is a low-cost task, which can be applied according to the school routine and simultaneously with all students in a class.

In addition to dictation, spontaneous text also constitutes a valid instrument for orthographic diagnosis. However, Moraes (2007b) warns that, besides the impossibility of guaranteeing which phono-orthographic correspondences will be present, it is necessary to consider that

text composition is a more difficult task for students. This is because they must simultaneously concern themselves with spelling and with textual aspects per se, such as structure and content, which can naturally increase the number of errors in their productions. Pereira et al. (2025) also highlighted the importance of both quantitative and qualitative analysis of student records, a procedure followed in the present research. In this study, data analysis was conducted by investigating the responses obtained in the tests, through two approaches: a quantitative survey, which allowed for comparison between school years, and a qualitative analysis, which enabled a more detailed understanding of the results. Statistical analysis was performed using IBM SPSS software, version 26, and the Mann-Whitney non-parametric test was used, with a significance level of $p = 0.05$, the standard value used in such tests.

This test was chosen because the data in this research pertained to independent groups (3rd and 5th grades) that did not follow a normal distribution. The comparison was based on data ranking rather than arithmetic means. This means that, here, the comparison was not based on class averages, but on the ascending order of the students' ranks (the student with the fewest errors in 1st place, and so on). Following this, the samples were separated, in this case, 3rd and 5th grades, and, finally, the sum of the students' rankings was calculated.

The verification of a possible difference between the classes involved observing the significance level (p-value), which is a standard value used in this test. This value concerns a probability measure aimed at answering the following question: if there are no differences between the analyzed groups, what are the chances of obtaining a result as different as this by chance? In the case of this research: if the 3rd and 5th-grade classes analyzed are not different, what are the chances that, by chance, the performance of both would be so diverse? To answer this question, it was necessary to examine the p-value in the studied variables. If the obtained value was greater than 0.05 (the standard value), there would be no significant difference between the groups; however, if the value was less than 0.05, the difference between the groups would be statistically significant.

The errors found were divided into thirteen categories, based on the typologies created by Zorzi (1998), with some adjustments by the researchers. The classifications are presented below; categories 1 to 7 were chosen based on Zorzi (1998), and the remainder (8 to 13) were included by the researchers due to the specificities of the study:

1. **Letter registration confusion:** Letters that can be represented by more than one sound or sounds that can be represented by more than one letter (e.g., writing "*caza*" instead of "*casa*").
2. **Oral language support:** The word is written according to how it is pronounced (e.g., "*figu*" instead of "*figo*").
3. **Omission and/or addition of letters:** Missing registration or the addition of a letter in a word (e.g., "*cabid*" instead of "*cabide*" and "*trisite*" instead of "*triste*").
4. **Unconventional joining or separation of words:** Inappropriate segmentation or agglutination between words (e.g., "*quatro sentos*").
5. **Confusion between "am" and "ão" endings:** Writing words ending in "am" using "ão" and vice versa (e.g., "*cachorram*" instead of "*cachorrão*" and "*queriã*" instead of "*queriam*").
6. **Substitutions involving voiceless and voiced sounds:** Exchanges in the use of letters with voiceless and voiced sounds (e.g., writing "*caneda*" instead of "*caneta*").
7. **Inversion:** Refers to errors regarding the transposition of letters within a syllable (e.g., "*tarbalhar*" instead of "*trabalhar*") and also mirror-image letter reversals in handwriting.
8. **Omission or repetition of dictated words:** Cases where students omitted words from sentences, causing them to lose meaning, or replaced them with words not dictated (e.g., writing "*Larissa*" instead of "*Clarice*").
9. **Accentuation:** Errors involving the omission of graphic accents and the tilde (nasalization mark), unnecessary addition of accents (e.g., "*éra*"), or incorrect placement/type of accent (e.g., "*Cassío*" or "*Càssio*").

10. **Lack or unconventional use of capitalization:** Considered errors when students did not use capital letters at the beginning of sentences or for proper nouns, or used them inappropriately (e.g., "*Por que Você Está de Pijama Azul?*").
11. **Punctuation:** Omission of punctuation, addition in inappropriate places, or using the wrong type, such as using a period in interrogative sentences.
12. **Letter exchange without a defined criterion:** Transgressions not caused by phonological or orthographic confusion (e.g., writing "*sentinde*" instead of "*sentindo*").
13. **Confusion between letters "M" and "N":** Transgressions involving confusion of these letters due to sound or handwriting similarities, especially in cursive.

It is important to emphasize that, although punctuation is not directly related to spelling, its assessment was deemed relevant to this study since the collection instrument consisted of sentence dictation. According to Zorzi (2003), the understanding that sentences possess elements indicating their beginning and end such as capital letters and periods is one of the three structural and functional properties of the Alphabetic Writing System (AWS), specifically relating to grammatical knowledge, which students must appropriate. Still according to the author, the other properties of the AWS refer to orthographic knowledge and text production.

RESULTS AND DISCUSSION

The results found, as well as their discussion, are presented below. Table 1 displays the descriptive statistical analysis of the data, in which it is possible to observe the maximum and minimum number of errors obtained by the students, given in absolute numbers, and the quartiles (used to display data that do not follow a normal distribution, as was the case in this research).

Table 1 can be understood as follows: the "total students" column indicates the number of students who composed the sample, with 25 students from the 3rd grade, 29 from the 5th grade, and 54 in total. The minimum and maximum error columns describe, in absolute numbers, the lowest and highest number of errors presented by a student, considering each school grade separately and the sample as a whole. Thus, in 3rd grade, the lowest number of errors committed by a student was 9, while the highest was 133 errors.

In turn, the quartiles distribute the percentage of students regarding the number of errors involved, which are displayed as absolute values. Considering the information from both classes, in the 1st quartile, 25% of the students (approximately 13 students) presented fewer than 23 errors in the dictation. As for the 2nd quartile (median), 50% of the students (27 students) committed more than 39.5 transgressions in the task, while the other half committed a lower number of errors. Finally, in the 3rd quartile, it is observed that 75% of the students (about 40 students) presented fewer than 72.8 errors. It is important to emphasize that the use of the median, as well as quartiles, is recommended for the Mann-Whitney test due to its nature.

Since the comparison between the classes' performance was based on the number of errors, it is understood that the lower the median, the better the orthographic performance. In this sense, it is noted that the median for the 5th grade was lower than that of the 3rd grade (36.0 and 44.0, respectively). These values suggest that the 5th grade performed better compared to the 3rd grade. However, the minimum and maximum error values reveal two important points: first, the disparity in performance among students within the same school grade, given that, while some 5th-grade students presented only 5 errors, others presented 131 transgressions in the same task; and second, it exposes a similarity between the minimum and maximum errors presented by students in each school stage. That is, in both school years, there were students who had fewer than 10 errors in the dictation, while others had more than 130 errors.

Table 2, presented below, shows the results of the Mann-Whitney statistical test, conducted to investigate whether the apparent superior performance of the 5th grade constituted, in fact, a statistically significant difference. Table 2 includes an analysis of each typology created to assess student errors, as well as the total error count. Data regarding the dictation are described for each school grade separately (indicated by the row separation), as well as the comparison between both.

Table 1. Distribution of minimum, maximum, quartiles, and p-value regarding the comparison of spelling test data.

	Total students	Minimum errors	Maximum errors	Distribution of error ¹ quantity by quartile		
				25%	50%	75%
3rd grade	25	9	133	32.0	44.0	82.5
5rd grade	29	5	131	20.5	36.0	60.5
Both grades	54	5	133	23.0	39.5	72.8

¹The number of errors was described in absolute values.

Source: Research data. Elaborated by the authors.

Considering the first category described (letter registration confusion), the quartiles for each school grade are provided in absolute values, where it can be observed that the 5th grade presented a lower number of errors across all of them. The p-value shows the comparison between the two school years. It is worth noting that the standard significance level used in the Mann-Whitney test is 0.05. Thus, based on the nature of the test, it is understood that since the mentioned category had a significance value greater than 0.05 ($p = 0.09$), the difference in the number of errors for this category was not considered statistically significant.

According to the data shown in Table 2, it is observed that, although the 5th grade presented a lower number of errors than the 3rd grade ("total errors" row in Table 2), this difference was not statistically significant ($p = 0.23$), which means that the performance of students from both school years was close to each other. Previous studies (Batista, 2011; Nicolau, 2013; Sampaio, 2012, 2017; Zorzi, 1998) found a relationship between the length of schooling and orthographic performance; that is, the longer the schooling, the better the orthographic performance. In the present study, although the 5th grade did, in fact, present better performance, observed through the number of errors in each category and the total errors, the statistical analysis showed that this difference was not significant. According to Zorzi (2003), since the appropriation of writing has a progressive nature, students in more advanced stages are expected to have superior orthographic performance, as, in theory, the more advanced the schooling, the greater the students' contact with activities aimed at learning to write.

In addition to the parity in student performance regarding total errors, a similarity was also observed in the types of errors committed. Among the thirteen error typologies analyzed, a significant difference between the grades was seen in only one of them: the use of accentuation ($p = 0.01$). In this typology, 5th-grade students performed better than those in the 3rd grade, corroborating the study by Ney (2018), which also showed a significant difference between 5th and 3rd grades regarding the use of accentuation. In that study, it was observed that 5th-grade students presented a significantly higher average of correct answers in this regard. Furthermore, in the present research, as in Ney (2018), the most frequent errors concerned the omission of accents in words.

The number of errors presented in a typology is an extremely important datum since, according to Zorzi (2003), the higher the number of transgressions, the greater the level of complexity of an orthographic aspect. Therefore, a careful look at the types of errors students commit is necessary, as the misunderstanding or partial understanding of a given orthographic rule manifests in writing through alterations or errors (Zorzi, 2003). Table 3 shows the number of errors for each school grade in the analyzed categories.

In the present study, the three typologies with the highest number of errors differed between the school years studied. Regarding the 3rd grade, the three typologies with the highest incidence of transgressions were: omission or addition of dictated words (280 transgressions), letter registration confusion (176), and accentuation (168). In turn, for the 5th grade, the three orthographic aspects that caused the most difficulty for the students were: omission or addition of dictated words (238), lack or unconventional use of capital letters (214), and omission or addition of letters or syllables (196).

Table 2. Distribution of quartiles, p-value, U-value, and Z-value regarding students' performance in sentence dictation.

	School grade	Quartile			p-value	U ¹	Z ²
		25%	50%	75%			
Letter registration confusion	3rd grade	4.0	8.0	9.5	0.09	267.000	-1.663
	5th grade	2.5	4.0	8.0			
Oral language support	3rd grade	1.0	2.0	4.0	0.14	278.500	-1.484
	5th grade	0.0	1.0	3.0			
Omission and/or addition of letters	3rd grade	2.5	4.0	9.0	0.54	327.000	-.619
	5th grade	2.0	3.0	9.5			
Unconventional joining or separation of words	3rd grade	1.0	2.0	3.5	0.16	282.500	-1.420
	5th grade	0.0	1.0	3.0			
Confusion between "am" and "ão" endings	3rd grade	0.0	0.0	1.0	0.46	328.500	-.741
	5th grade	0.0	0.0	0.5			
Substitutions involving voiceless and voiced sounds	3rd grade	0.0	0.0	1.5	0.68	343.000	-.421
	5th grade	0.0	0.0	1.0			
Confusion between letters "m" and "n"	3rd grade	0.0	2.0	3.0	0.20	291.500	-1.278
	5th grade	0.0	1.0	2.0			
Omission or repetition of dictated words	3rd grade	4.0	7.0	16.0	0.17	284.000	-1.365
	5th grade	2.0	6.0	11.0			
Accentuation	3rd grade	4.5	7.0	9.0	0.01	220.000	-2.486
	5th grade	2.5	4.0	6.0			
Punctuation	3rd grade	2.0	4.0	9.0	0.39	314.000	-0.851
	5th grade	1.0	2.0	7.5			
Letter exchange without a defined criterion	3rd grade	0.0	1.0	2.5	0.66	338.500	-0.438
	5th grade	0.0	1.0	2.0			
Lack or unconventional use of capitalization	3rd grade	0.0	0.0	8.0	0.12	277.500	-1.554
	5th grade	0.0	2.0	10.0			
Inversion	3rd grade	0.0	0.0	0.0	0.10	287.500	-1.649
	5th grade	0.0	0.0	1.5			
Total errors	3rd grade	32.0	44.0	82.5	0.23	293.500	-1.197
	5th grade	20.5	36.0	60.5			

¹The U-value is the result of the Mann-Whitney test calculation that quantifies the difference between the ranks of the analyzed groups; ²The Z-value represents the transformation of the U-value to the normal distribution scale.

Source: Research data. Elaborated by the authors.

Table 3. Comparison between the total errors of 3rd and 5th-grade students in each analyzed typology.

	3rd grade	5th grade
Letter registration confusion	176	154
Oral language support	62	51
Omission and/or addition of letters	150	196
Unconventional joining or separation of words	76	55
Confusion between “am” and “ão” endings	9	9
Substitutions involving voiceless and voiced sounds	33	17
Confusion between letters “m” and “n”	94	34
Omission or repetition of dictated words	280	238
Accentuation	168	134
Punctuation	120	117
Letter exchange without a defined criterion	43	44
Lack or unconventional use of capitalization	109	214
Inversion	26	59
Total errors	1346	1322

Source: Research data. Elaborated by the authors.

First, it is important to make two considerations regarding this difference between the types of errors that presented the most difficulty for the students. Concerning the typology omission or addition of dictated words, it is understood that the high number of errors may have been caused by two reasons: the students' lack of familiarity with this type of activity and/or the way the dictation was administered by the researcher. Regarding the lack or unconventional use of capital letters, the vast majority of 3rd-grade students did not use cursive handwriting during the test, unlike the 5th-grade students, who preferred, in most cases, to use this type of script. This may explain the higher number of errors in this category for the 5th grade. It is emphasized that, at the time of the dictation, the choice of handwriting style was left to the students' discretion.

Regarding the use of accentuation, as previously described, this was the only typology in which a statistically significant difference between the studied grades could be observed. This datum indicates that there was a learning progression in this orthographic aspect by the 5th-grade students.

By analyzing the second category with the highest number of transgressions in the 3rd grade – letter registration confusion – as well as its absence in the 5th grade, it is possible to interpret, at first, that 5th-grade students have consolidated this orthographic aspect. As previously mentioned, this typology refers to the correspondence rules between letters and sounds in our language, which, according to Zorzi (1998), is the most complex property of our orthography for students. However, when looking at the aspects that presented the most difficulty for 5th-grade students, the typologies of lack or unconventional use of capital letters and omission or addition of letters or syllables appear. The presence of these types of errors in the writing of 5th-grade students, the final year of the early stages of elementary school, is concerning, as it indicates that students have not yet appropriated the orthographic norms for using cursive capital letters and still commit errors that violate the alphabetic aspect of writing.

It is reiterated that, according to Zorzi (1998), this mode of word registration corresponds to the first stage of learning to write – literacy – and learning orthography requires students to overcome this form of registration. Furthermore, according to Santos and Barrera (2012), errors of this nature are considered lower-quality transgressions, since they violate the phonological aspect of words and, therefore, hinder their reading.

Such errors presented by the 5th grade reveal a lag in the knowledge these students possess about writing and confirm the results of previous research (Batista, 2011; Nicolau, 2013; Sampaio, 2012; Santos; Barrera, 2012; Souza, 2019), which also highlighted performance below expectations for students in the early years of elementary school. This fact is understood to be concerning because, according to Nobile and Barrera (2016), the frequency of errors in more regular aspects of orthography highlights a precariousness in the students' mastery of the orthographic system.

Furthermore, it is of utmost importance to reaffirm that studies aimed at investigating orthographic performance in the early years of elementary school, although they have found orthographic knowledge below expectations regarding the students' school grades, managed to demonstrate a significant difference in orthographic appropriation between different grades, indicating a progression of knowledge. Conversely, in the present study, it was found that, in addition to the students' lag relative to their respective school years, there was no statistically significant difference, revealing that there was little learning progression as schooling advanced. Therefore, these data suggest an absence of systematic work focused on learning orthographic writing for this group of students.

FINAL CONSIDERATIONS

The results of the research, which aimed to analyze orthographic performance in a group of 3rd and 5th-grade students from the early years of elementary school, showed that the students presented statistically similar orthographic performance, which may suggest a lack of learning progression between the school years. Beyond the quantitative aspect, parity between the performance of the stages was also observed during the qualitative analysis of the children's writing, as there was a significant difference in only one of the analyzed typologies: the use of accentuation.

Furthermore, it was observed that the orthographic aspects that presented the most difficulty for the students, measured by the number of errors, were different for both stages. It was noted that 5th-grade students had more difficulty with less complex aspects of our orthography, such as the correct use of cursive capital letters and writing words without omitting or adding letters or syllables. Thus, based on the assumption that mastery of orthographic writing presupposes overcoming alphabetic writing, it is understood that the students, especially those in the 5th grade, presented writing knowledge below the expectations for their schooling level, with errors related to the literacy stage.

The data found by the present study are considered concerning, as they denote that students with a two-year difference in schooling, who attend the same school and the same shift, presented performance levels close to each other. The grade effect regarding student performance, that is, better orthographic performance as school grading advances, found in previous studies, was only partially seen here; although 5th-grade students presented a lower number of errors, this difference did not prove to be statistically significant.

Thus, it is understood that there is much to be done for students to complete the early years of elementary school with adequate mastery of orthographic writing. It is believed that ensuring students finish each school stage with proper orthographic writing is possible; however, it is necessary to reflect on new teaching methods, especially when considering the context caused by the COVID-19 pandemic and the current scenario, in which the Ministry of Education seeks, by 2030, to improve indices related to the acquisition of writing and reading among Brazilian students.

However, it must be emphasized that the data found in the present study cannot be attributed to the pandemic, as they were collected at an earlier time (late 2019). Furthermore, data from national assessments, widely reported in the media, as well as academic research, reveal that even before the pandemic, there was already a difficulty in ensuring that students fully appropriated orthographic writing. Finally, the importance of considering a new teaching approach is reiterated, one based on the systematic and reflective teaching of written language that guarantees students their right to receive a high-quality education.

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