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Artículos científicos

Desarrollo de la escritura para la codificación y decodificación en niños de primaria de Mérida, Yucatán

Development of writing for encoding and decoding in primary school children from Mérida, Yucatán

Desenvolvimento da escrita para codificação e decodificação em crianças do ensino fundamental de Mérida, Yucatán

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Resumen

El objetivo del presente trabajo fue analizar el desarrollo y consolidación de la escritura en niños. Se evaluó a 546 niños entre la edad de 6 a 12 años utilizando pruebas de escritura y lectura con el fin de medir la cantidad de errores ortográficos. En los resultados se encontró que los niños de grados inferiores cometen, de forma frecuente, errores de ortografía natural (modificación que altera la fonología de la palabra, errores heterófonos); y que todos los niños cometen errores de ortografía arbitraria (sustitución de una letra homófona). Particularmente, se observó que los niños de segundo grado no identifican las palabras mal escritas y que son especialistas en el uso de grafías dominantes para representar su respectivo fonema. Los errores heterófonos y homófonos disminuyeron en los niños de cuarto grado, aquí hubo un mayor dominio de la relación fonema-grafema y viceversa; además, la etapa ortográfica se observó a esta edad, ya que los niños identificaron una mayor cantidad de palabras mal escritas, en comparación con los niños de segundo grado. Los niños de sexto grado mostraron una automatización para escribir e identificar unidades lexicales como *-ción*, lo que significa que pueden leerlas como un todo y no como una secuencia de unidades

grafemas-fonemas. Por último, el aprendizaje de la escritura en el idioma español es rápido, la transición de la etapa alfabética parcial a la ortográfica toma dos años. En algunos casos, sin embargo, los individuos muestran dificultades o problemas (dislexia), por lo que siguen cometiendo errores ortográficos naturales, a pesar de estar expuestos a la misma cantidad de textos que sus pares. Estos individuos con problemas de aprendizaje fueron notorios en sexto grado.

Palabras clave: codificación y decodificación, consolidación de la escritura, desarrollo de la escritura, errores ortográficos, ortografía, pruebas de lectura y escritura.

Abstract

The objective of this work was to analyze the development and consolidation of writing in children. 546 children between the age of 6 to 12 years were evaluated using writing and reading tests in order to measure the number of spelling errors. In the results, it was found that children in lower grades frequently make natural spelling errors (modification that alters the phonology of the word, heterophone errors); and that all children make arbitrary spelling errors (substitution of a homophone letter). In particular, it was observed that second grade children do not identify misspelled words and that they are specialists in the use of dominant spellings to represent their respective phoneme. Heterophone and homophone errors decreased in fourth grade children, here there was a greater dominance of the phoneme-grapheme relationship and vice versa; furthermore, the spelling stage was observed at this age, since the children identified a greater number of misspelled words, compared to the second-grade children. The sixth graders showed an automation for writing and identifying lexical units as *-ción*, which means that they can read them as a whole and not as a sequence of grapheme-phoneme units. Finally, learning to write in the Spanish language is fast, the transition from the partial alphabetic stage to the spelling one takes two years. In some cases, however, individuals show difficulties or problems (dyslexia), so they continue to make natural spelling errors, despite being exposed to the same amount of text as their peers. These individuals with learning disabilities were noticeable in sixth grade.

Keywords: writing development, writing consolidation, spelling, spelling errors, orthography, reading and writing tests.

Resumo

O objetivo deste trabalho foi analisar o desenvolvimento e a consolidação da escrita em crianças. 546 crianças de 6 a 12 anos foram avaliadas por meio de testes de escrita e leitura para medir o número de erros ortográficos. Nos resultados, constatou-se que crianças de séries iniciais cometem erros ortográficos naturais com frequência (modificação que altera a fonologia da palavra, erros de heterofone); e que todas as crianças cometem erros ortográficos arbitrários (substituição de uma letra homófona). Em particular, observou-se que as crianças da segunda série não identificam palavras com erros ortográficos e são especialistas no uso da grafia dominante para representar seus respectivos fonemas. Os erros heterófonos e homófonos diminuíram nas crianças da 4ª série, aqui houve maior dominância da relação fonema-grafema e vice-versa; além disso, o estágio de grafia foi observado nessa idade, uma vez que as crianças identificaram um número maior de palavras incorretas em relação aos da segunda série. Os alunos da sexta série apresentaram uma automação para a escrita e identificação das unidades lexicais como -ção, o que significa que podem lê-las como um todo e não como uma sequência de unidades grafema-fonema. Por fim, aprender a escrever na língua espanhola é rápido, a transição do estágio alfabético parcial para o de ortografia leva dois anos. Em alguns casos, porém, os indivíduos apresentam dificuldades ou problemas (dislexia), por isso continuam a cometer erros ortográficos naturais, apesar de serem expostos à mesma quantidade de texto que seus pares. Esses indivíduos com deficiência de aprendizagem eram perceptíveis na sexta série.

Palavras-chave: codificação e decodificação, consolidação da escrita, desenvolvimento da escrita, erros ortográficos, testes de ortografia, leitura e escrita.

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Introduction

Reading and writing involve a complex system that relates to words, meaning continents of different levels of abstraction from the individual's concrete environment, with a graphic expression organized under a certain configuration. It is a skill that is acquired based on the intellectual development of the individual and neurologically implies adjustments related to the acquisition of concepts, the memorization and the management of spelling patterns of words, the establishment of associations of meanings with organized signs and the interpretation of the information.

Models of literacy learning explain the systematic process of acquisition and consolidation of spelling in individuals. In this regard, the author Ehri (2005) carried out a review of all the models that continue to be used. And she immediately proposed a series of phases of reading development. The first phase, known as the pre-alphabetic phase, consists of identifying the words or letters as visual cues. In the second phase, partial alphabetic, individuals know the name of the letters and identify them; however, the subjects still lack decoding skills. In the third phase, complete alphabetic, people develop the decoding strategy, forming connections between graphemes and phonemes, and vice versa. Finally, the orthographic phase consists of storing sequences of combinations of graph-phonemic units, including morphemes, rhymes, monosyllabic and polysyllabic words.

However, the process of learning to read is not the same in all children (Matute, González and Guajardo, 2012). This means that not all individuals have the same facilities or skills for the process.

Correct writing depends on visual memory mechanisms. The storage of lexical units facilitates the recognition of words and spelling patterns (Ferroni, Mena & Diuk, 2016). Therefore, either to write a word well or to identify it in print, as well as for a good development of literacy, the same visual-orthographic imprint stored in long-term memory is called upon. (Gómez *et al.*, 2014).

It should be noted that if the automation mechanisms of an individual do not occur with the expected efficiency according to their age, this will lead to some complications, for example, requiring a longer time to read words than someone without difficulties (Afonso, Suárez and Cuetos, 2020; Suárez and Cuetos, 2013); also the inability to identify spelling errors, which leads to the acceptance of words with homophone spelling errors (E. Hm) (substitution of one letter for another with the same phoneme) as real words (González,

Barrios, Gómez & Zarabozo, 2017 ; González, Gómez and Rodríguez, 2013; Guàrdia, Però, Zarabozo, González and Gudayol, 2015).

Therefore, the objective of this work is to analyze the process of acquisition and consolidation of literacy in 546 individuals of 2nd (164), 4th (184) and 6th (198) grade of primary school in the municipality of Mérida , Yucatán, through writing and reading tests. The number of spelling errors written was correlated with the variables: the use of inconsistent spellings and the detection of spelling errors when reading.

Methodology

With the written informed consent of the school principal and the teacher of each group, 546 children participated voluntarily: 164 from 2nd grade, 184 from 4th grade and 198 from 6th grade. All the children came from public schools in urban areas and from different socioeconomic levels: low, medium and high.

The schools were randomly selected. As verified, the study plans of the selected educational centers follow the national education plan issued by the Ministry of Public Education [SEP] (2017). Finally, the selected schools have a library, as well as a book reading class.

The requirements for participation were the following: that the children know how to read and write; miss a school year; that the mother tongue was Spanish; absence of diagnosis of any disorder or condition of neurological and psychiatric disease, and the consent of the child.

Consequently, 33 2nd grade children (could not read and write), 10 4th grade children (one was a repeater and nine refused to participate) and four 6th grade children (one suffered from neurological problems and three refused to participate). Table 1 shows the characteristics of the participants.

Tabla 1. Caracterización de los participantes

	2.º grado	4.º grado	6.º grado
Total	131	174	194
Edad ^a	6.71 (0.51)	8.77(0.52)	10.81 (0.55)
Varones	61	89	91
Mujeres	70	85	103

^a Promedio (desviación estándar [DE]).

Fuente: Elaboración propia

Instruments

Writing battery

Two writing tasks were designed: word and non-word dictation. In the word dictation test, 19 words were chosen that appear at least three times in the Spanish textbook. First grade (Dávalos, González, Kriscautzky & Omaña, 2018) and that have the letters b, c, g, h, j, ll, s, y, z and the accent sign.

In the non-word dictation test, words, morphemes and lexical units were chosen from the spelling rules in Spanish (for example, after the letter n the letter v is written: nv) that appear more than three times in the textbook already mentioned (Dávalos et al., 2018). Later, they were combined with other words, morphemes and lexical units; for example, histo-town: histo is a morpheme and town is a word, and thus 10 pseudowords were formed.

Homophone spelling errors (E. Hm) were evaluated: substitution of one letter for another with the same phoneme; and heterophones (E. Ht): substitution of one letter for another with a different phoneme.

Spelling error detection test

The short story by Agustín Yáñez (100 words) was taken from the Spanish book. First grade (Dávalos et al., 2018). A spelling of 21 words was changed. The substitute spelling had the same phoneme as the substituted spelling: c-s-z (eight), b-v (six), g-j (one) and y-ll (four); in the case of the letter h (two), the letter was omitted. The test lasted five minutes.

In this test, the spelling errors detected (ED) and the false detections (FD) were evaluated, that is, the correctly spelled words selected as misspelled.

Process

The children were evaluated in their classrooms with the presence of the grade level teacher, and on some occasions with the presence of the school director, with a duration of between 10 and 15 minutes. The author of the project was the one who applied all the evaluations.

The order of presentation of the evidence was counterbalanced. Each task was preceded by several examples in order to ensure that the child understood the instructions.

Results

Dictation of words

Table 2 shows the descriptive results of the word dictation task. The percentage of children who made spelling errors, both heterophones and homophones, is shown.

All children were found to commit at least one E. Hm. Something equally relevant was that most of the 2nd grade children committed at least one E. Ht (see Table 2).

Tabla 2. Resultados descriptivos del dictado de palabras

	2.º grado		4.º grado		6.º grado	
	E. Hm ^a	E. Ht ^b	E. Hm ^a	E. Ht ^b	E. Hm ^a	E. Ht ^b
% niños	100 %	90.08 %	100 %	63.79 %	100 %	27.32 %
Media (DE)	44.82 (6.32)	4.52 (3.9)	31.71 (9.95)	1.52 (2.07)	20.76 (9.49)	0.5 (1.21)
Curtosis	1.76	0.09	-0.68	18.53	0.06	32.15
Skewness	-0.57	0.97	-0.21	3.33	0.46	4.76

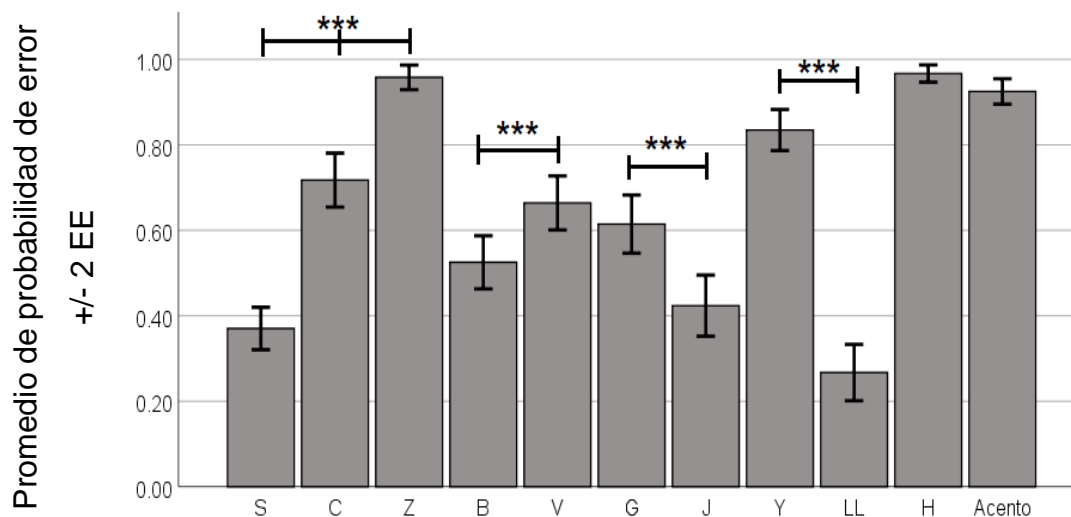
E. Hm = Errores homófonos; E. HT = Errores heterófonos; % niños = Porcentaje de niños que cometen E. Hm y E. Ht; DE = Desviación estándar. a = valor máximo 52. b = valor máximo 19. Fuente: Elaboración propia

In order to find out how primary school children write, the probability of error of spellings belonging to the same phoneme was compared. The Mann-Whitney U was used for the analysis, because the variables did not meet normality according to the Kolmogórov-Smirnov test.

In 2nd grade children, it was found that, in the phoneme / s /, the letter s was better written than the letter c ($U = 3859$, $z = -7.841$, $p < 0.001$) and the letter z ($U = 675$, $z = -13.706$, $p < 0.001$); likewise, letter c obtained fewer errors than letter z ($U = 5303$, $z = -6.942$, $p < 0.001$). In the phoneme / b /, the children were more assertive in the use of the letter b compared to the letter v ($U = 6634.5$, $z = -3.243$, $p = 0.001$). In the phoneme / j /, the children wrote the letter j better than the letter g ($U = 6376$, $z = -3.740$, $p < 0.001$). And in the phoneme / y /, the letter ll was better written than the letter y ($U = 2521$, $z = -10.487$, $p < 0.001$) (see figure 1).

In fourth grade primary school children, it was found that, in the phoneme / s /, the letter s obtained less probability of error than the letter z ($U = 11300.5$, $z = -4.192$, $p < 0.001$); in the same way, the letter c was better written than the letter z ($U = 11723$, $z = -3.758$, $p < 0.001$). In the phoneme / y /, the children were more assertive with the letter ll than with the letter y ($U = 6581$, $z = -9.646$, $p < 0.001$). There were no significant differences in the letter s compared to the letter c ($U = 14965.5$, $z = -0.186$, $p = 0.852$); in letter b with the letter v ($U = 13881$, $z = -1.376$, $p = 0.169$), and in letter j with the letter g ($U = 14662$, $z = -0.565$, $p = 0.572$), since the children had the same probability of error (see figure 2).

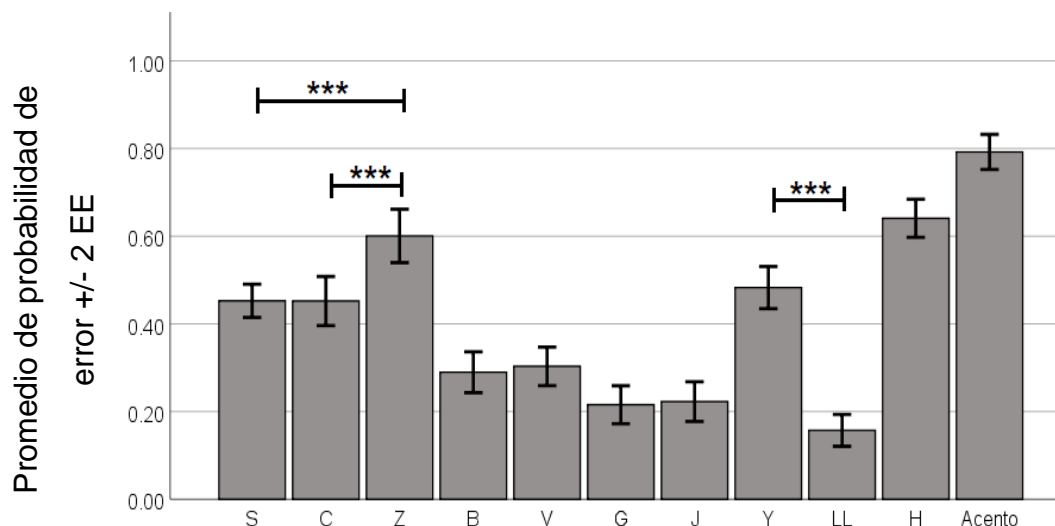
Figura 1. Promedio de probabilidad de error de los niños de 2.º de primaria



EE = error estándar; *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Fuente: Elaboración propia

Figura 2. Promedio de probabilidad de error de los niños de 4.º de primaria



EE = error estándar; *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Fuente: Elaboración propia

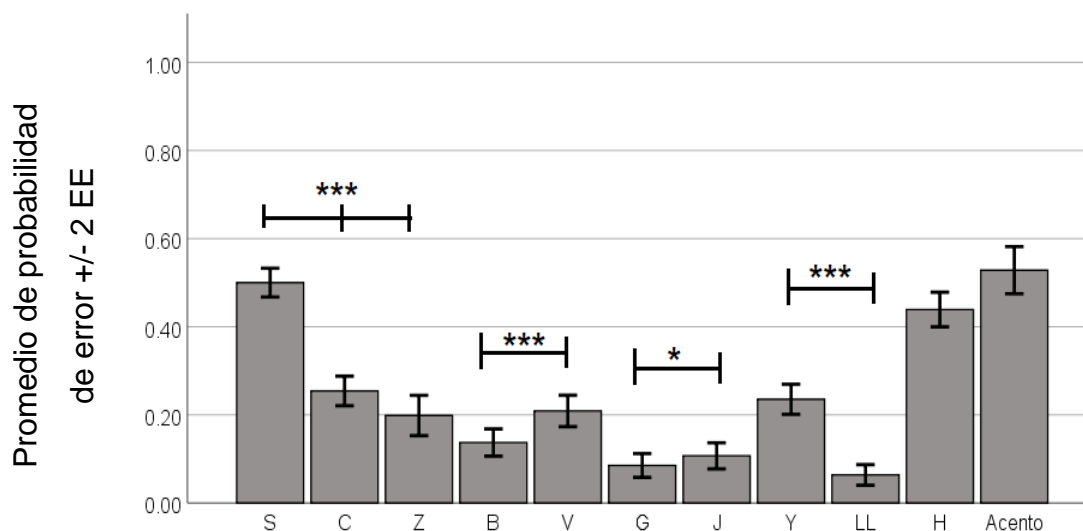
In 6th grade primary school children it was found that assertiveness with the letter s was lower than with the letter c ($U = 8718$, $z = -9.341$, $p < 0.001$) and that the letter z ($U = 8099.5$, $z = -10.185$, $p < 0.001$), while the letter c had more errors than the letter z ($U = 15600$, $z = -3.191$, $p = 0.001$) to represent the phoneme / s /. In the phoneme / b /, the children made fewer mistakes with the letter b compared to the letter v ($U = 14926$, $z = -3.854$, $p < 0.001$). In the phoneme / j /, with the g there were fewer errors than with the letter j ($U = 17131.5$, $z = -2.078$, $p < 0.05$). Finally, with the letter ll, more assertiveness was registered than with the y ($U = 10951.5$, $z = -8.407$, $p < 0.001$) to represent the phoneme / y / (see figure 3).

With regard to the silent letter h and the accent, it was observed that children in lower grades use it less, which is why they have a high probability of error; opposite case of the children of superior grades.

Dictation of no-words

Table 3 shows the percentage of the number of children who used a spelling to represent the phoneme before non-words; in the same way, the probability of using the spellings to represent the phoneme is observed.

Figura 3. Promedio de probabilidad de error de los niños de 6.º de primaria



EE = error estándar; *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Fuente: Elaboración propia

Tabla 3. Probabilidad de uso de letras en el dictado de pseudopalabras

	2.º grado		4.º grado		6.º grado	
	% niños	Media (DE) ^a	% niños	Media (DE) ^a	% niños	Media (DE) ^a
S	99.23 %	0.846 (0.22)	99.42 %	0.729 (0.21)	100 %	0.604 (0.17)
C	45.04 %	0.129 (0.19)	73.56 %	0.215 (0.17)	91.75 %	0.312 (0.14)
Z	11.45 %	0.017 (0.05)	37.36 %	0.049 (0.08)	62.37 %	0.084 (0.08)
B	91.6 %	0.729 (0.33)	94.83 %	0.644 (0.32)	98.97 %	0.685 (0.23)
V	52.67 %	0.255 (0.33)	71.84 %	0.344 (0.31)	80.93 %	0.315 (0.23)
G	51.91 %	0.336 (0.39)	74.71 %	0.432 (0.36)	85.05 %	0.481 (0.34)
J	81.68 %	0.655 (0.39)	83.91 %	0.556 (0.36)	84.02 %	0.519 (0.34)
Y	35.11 %	0.186 (0.31)	51.72 %	0.199 (0.25)	71.64 %	0.241 (0.21)
LL	87.02 %	0.782 (0.34)	96.55 %	0.784 (0.27)	95.88 %	0.732 (0.24)
H ^b	6.11 %		55.17 %		67.53 %	
Acento ^b	11.45 %		34.48 %		60.31 %	

% niños = Porcentaje de niños que usan la letra; DE = Desviación estándar. ^a Probabilidad de uso de la letra. ^b Letra que no tiene probabilidad de uso.

Fuente: Elaboración propia

Subsequently, the relationship between the number of homophone errors (NEHm) made by the children, from the dictation test, and the probability of use of spellings, from the pseudoword dictation test was searched (see Table 4). For the relationship, the Spearman correlation statistic was used, since the variables did not comply with the Kolmogórov-Smirnov normality test.

Tabla 4. Coeficiente de correlación de Spearman: NEHm y el uso de grafías

	NEHm. 2.º grado	NEHm. 4.º grado	NEHm. 6.º grado
Letra S	0.263**	0.462***	0.430***
Letra C	-0.288***	-0.398***	-0.210**
Letra Z	-0.166	-0.483***	-0.467***
Letra B	-0.143	-0.099	0.115
Letra V	0.081	0.060	-0.115
Letra G	0.438***	0.021	-0.085
Letra J	-0.465***	-0.069	0.085
Letra Y	0.021	-0.166*	-0.109
Letra LL	-0.131	0.138	0.082
Letra H	0.031	-0.456***	-0.265***
Acento	-0.267**	-0.379***	-0.429***

NEHm = Número de errores ortográficos homófonos. En la tabla se observan los coeficientes de correlación de Spearman. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Fuente:

Elaboración propia

Error detection

In the task of detecting spelling errors, it is observed that the 2nd grade children detected few misspelled words and many FD; this means that some children selected words that are not misspelled as misspelled. In the 4th and 6th grade children, EDs increased and FDs decreased (see Table 5).

Tabla 5. Resultados de la prueba de detección del error

	2.º grado		4.º grado		6.º grado	
	Media (DE)	Curt / Skew	Media (DE)	Curt / Skew	Media (DE)	Curt / Skew
Errores detectados	3.41 (0.21)	1.42 / 1.05	6.97 (4.28)	-0.49 / 0.51	11.54 (3.96)	-0.24 / - 0.54
Falsas detecciones	3.78 (0.39)	9.15 / 2.75	1.36 (2.23)	21.62 / 3.87	0.61 (0.91)	5.43 / 2.04

DE = Desviación estándar; Curt = Curtosis; Skew = Skewness.

Fuente: Elaboración propia

To assess whether the amount of misspelling affects the detection of spelling errors, the NEHm made by the children and the variables of the error detection test were correlated: ED and FD. The Spearman correlation statistic was used.

It was found that the 2nd and 4th year children who committed more E. Hm had more DF (2nd $\rho = 0.236$, $p < 0.01$; 4th $\rho = 0.353$, $p < 0.001$); It was also found that the 4th and 6th grade children who committed less E. Hm identified more misspelled words (4th $\rho = -0.634$, $p < 0.001$; 6th $\rho = -0.636$, $p < 0.001$).

No correlation was found between the NEHm committed by the 2nd year children and the detection of misspelled words ($\rho = -0.157$, $p = 0.075$), nor was found between the NEHm committed by the 6th year children and the FD ($\rho = 0.061$, $p = 0.396$).

Discussion

In the present investigation, the process of acquisition and consolidation of literacy in children of 2nd, 4th and 6th grade of primary school was analyzed through writing and reading tests.

In general, the descriptive results show a lower number of misspellings, a greater use of dominant letters, and a greater detection of misspelled words in children in higher grades compared to those in lower grades. This difference in degrees is also found in the works of Defior, Martos and Herrera (2000), Defior, Jiménez and Serrano (2009) and Diuk, Borzone, Sánchez and Ferroni (2009).

The word dictation test is intended to identify the development of spelling knowledge and the age at which it begins to matter, in addition to identifying possible literacy learning problems. In this test two results are obtained: the commission of E. Ht and E. Hm.

It will not be detailed in depth about the E. Ht because a set of phonemes was used (/t/, /m/, /r/, /l/, /a/, /e/, /i/, /o/ y /u/) that result in very few misspellings. Although it would be interesting to continue with this research and find out what are the main causes that lead the individual to transfer the phoneme to a spelling that does not correspond to the moment of writing, as was done in the work of Leal, Matute and Zarabozo (2005).

A cursory review of E. Ht's results show that over 90% of 2nd graders make this type of misspelling. Researcher Ehri (2005) mentions that, being new to the field of reading and writing, individuals lack the skills to decode and encode. So E. Ht's commission in writing would be considered normal at this school level.

The opposite is the case for children in 4th and 6th grade of primary school, who have had a greater exposure to printed texts, at least the books of the previous grades they have studied, for which the E. Ht commission could be considered a problem of the literacy learning (Baron et al., 2018; Morken and Helland, 2013; Suárez and Cuetos, 2015)

This effect is detailed in the work of Landerl, Frith and Wimmer (1996), who point out that the problem in individuals with dyslexia is explained by a weak link between phonological and orthographic representations. This means that seeing a written word does not automatically evoke the internal sound of the words; nor does the sound of a word automatically evoke the internal orthographic representation.

With respect to the E. Hm, it is observed that all the children represented the phoneme, in most of the times, by the same letter, known as the dominant spelling. This shows that children are specialists in the use of dominant spellings in writing, both in words and in non-words. The most used letters to represent the phoneme /s/ is s, the phoneme /b/ is b, the phoneme /j/ is j, and the phoneme /y/ is ll.

These results are similar to many research works (Diuk et al., 2009; Gómez et al., 2014; Jiménez et al., 2008). Therefore, it is interpreted that the participants have a good phonological command, but have poor spelling knowledge (Sánchez, Diuk, Borzone and Ferroni, M., 2009; Signori and Borzone, 2003).

The specialization of spellings in writing decreases as the school grade increases (Defior et al., 2000; Gaintza, 2005), but it does not disappear, since individuals of adulthood continue to make this type of spelling error (Gómez *et al.*, 2014; Moojen *et al.*, 2020).

A relevant result of the word dictation test is the increase in the probability of error of the letter s in 6th graders of primary school (see Figure 3). The increase in error is considered to be due to the invocation of small lexical units, known as morphemes. In the word dictation test, words with the phonological ending / sion / were used, normally the words that end with this sound are represented in printed form with the spelling c, as -ción; but in this work the words were represented with the spelling s, for example: precision, version and invasion.

In transparent language works, in Spanish (Suárez, Martínez and Cuetos, 2017) and in Italian (Angelelli, Marinelli, De Salvatore and Burani, 2017), the use of morphemes in “normolector” and “dyslexic” children was evaluated. The results show that, regardless of the group, children are more exact in writing the words and pseudowords that have frequent morphemes as roots.

In the Spanish language, -ción is a frequent morpheme and -sion is considered an infrequent morpheme, since its use depends on knowing some spelling rules of the Spanish language, so these results give indications that children of 6th grade they begin to write through what is stored in long-term memory and not through the phonological, in other words, with the orthographic or lexical knowledge.

Thus, there is a storage of small and large lexical units in long-term memory that contribute to writing correctly (Ferroni et al., 2016; Gómez et al., 2014, Suárez et al., 2017) and identifying words (Suárez and Cuetos, 2013; D'Alessio, Wilson and Jaincheco, 2019). However, in this case, and according to our results, it interferes with correct writing.

Despite not being one of the objectives, nor of the hypotheses raised, the result of the commission of E. Ht of children in 6th grade is relevant, since in this grade the difference between children with problems is noticeable literacy learning, or dyslexia, with their peers. The authors Suárez, Álvarez, Martínez, García and Cuetos (2015) mention that individuals with literacy learning problems show difficulty in acquiring and automating the alphabetic code, as well as in developing orthographic representations of words. A more exhaustive study of 30% of the children who committed an E. Ht.

The results of the spelling error identification test are similar to the research works of some authors (González et al., 2013; Guàrdia et al., 2015; González et al., 2017; Moojen et al., 2020), who indicate that people with a good lexicon detect more words with spelling errors and have different electrophysiological responses (González et al., 2013) and neuroanatomical activations (González et al., 2017; Guàrdia et al., 2015) than individuals with a low lexical level.

Something that reinforces the previous point is that in this study there is no correlation between NEHm and ED in 2nd grade children: having little reading experience, the children guess what the misspelled word is (see Table 5). This means that children do not recognize the spelling part of words.

Word recognition is seen in 4th grade children, with an increase in the detection of misspelled words and a decrease in false detections, in addition to a decrease in dominant spellings. This agrees with the authors Jiménez et al. (2008), who mention that Spanish children in 4th grade begin to write with spelling knowledge.

The learning process of writing is similar to the learning model of the author Ehri (2005). Writing begins in the partial alphabetic phase, where individuals begin to use the sounds of some letters to form partial connections, syllables; however, they lack coding skills, as seen in this research paper. Thus, children resort to different strategies such as guessing, using partial phonetic clues or similar letters.

The entire alphabetic stage is visualized in 4th grade children. In this phase, the ability to decode and encode is developed, the subjects resort to the grapheme-phoneme strategy and vice versa. In addition, the alphabetical consolidation or spelling stage is displayed, where storage in long-term memory begins, which facilitates the automation of words to later recognize or read them at a “glance”: morphemes, rhymes, monosyllabic words and spelling of most frequent syllables in polysyllabic words, to name a few examples.

As readers learn to read words that share letter patterns, those that symbolize the same combination of phonemes of different words, eg, song, publication, communication, a consolidated unit is formed. Knowledge of -tion as a consolidated unit means that readers can read it as a whole and not as a sequence of grapheme-phoneme units.

Conclusions

Spelling errors are common in the literacy learning process and decrease as there is greater exposure to books. However, they do not disappear.

In tune with the acquisition and consolidation process, similar to that described by current models, despite the difference in languages, 2nd grade children begin the development of phonological awareness, phoneme-grapheme relationship and vice versa, but they have poor spelling knowledge, which allows them to write most of the words according to sound, characteristic of the partial alphabetic phase.

Whereas, in 4th grade children a greater domain of phonological awareness is observed and they begin to develop the storage of lexical units, both monosyllabic and polysyllabic. Although the storage of letter combinations is not always favorable. Therefore, this grade level is considered to be a transition between the full alphabetic phase and the spelling phase.

Taking the above into consideration, we can say that the learning process of writing in the Spanish language is similar to languages considered opaque, such as English, with the only difference that the transitions between stages are faster.

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