The impact of revision and interaction in orthography performance on children from 3ʳᵈ grade

Ana Cristina Silva
Centro de Investigação em Educação, Instituto Universitário de Ciências Psicológicas, Sociais e da Vida (CIE-ISPA)
Email: csilva@ispa.pt

Learning how to spell

▶ The alphabetic written systems are organised by phonographic and semiographic principles and they can have a more transparent or opaque orthography (Jaffré, 1997).

▶ In case of Portuguese the principle of orthographic notation combined several kind of restrictions :simple relations letter/sound, contextual restrictions about the phonemic value of a letter, morpheme and syntactical restrictions

▶ Spelling acquisition does not imply only learning grapheme-phoneme correspondences. There are phonemes that can be represented by more than one grapheme and children have to learn in which contexts the same letter can have different phonetic values.

▶ Beyond phonology, children must also learn about other linguist dimensions such as morphology and morpho-syntact structures in order to learn the write down correctly.

Portuguese orthography

- Portuguese has 37 phonemes to 67 simple and complex graphemes (Gomes, 2001).

- To correctly spell these sounds, children can rely on the simple phonological rules that /p/ is always written ‹p›.However, other phonemes have multiple correspondences (one phoneme to two, three, or four graphemes). For instance there are cases where there is a grouping of two consonants but forming a single phoneme, such as <nh>; <ch> and <lh>, which are called consonant digraphs.

- there are also contextual and position consistencies rules and morphological rules

Portuguese orthography

- there are also contextual and position consistencies rules and morphological
- rules

- Contextual and position consistencies rules. Examples of contextual consistencies involve /k/ and /g/. If these phonemes are followed by the front vowels /e/, /ɛ/, /i/, /ẽ/, or /ĩ/, the semivowel /j/, or schwa (/ə/), the graphemic representations ‹qu› and ‹gu› should be used.

- Morphological rules; esa/ eza Portuguesa/ firmeza

Learning Orthography

The developmet of any knowledge implies a "redescription" of representations (Karmiloff-Smith,1992)

- During the learning process children should not limit themselves to reproduce spelling rules. They need to understand how the rule works by representing their function on the written code, elaborate written code restrictions and making them explicit (Bousquet, Cogis, Ducard, Massonet & Jaffré, 1999).

- Recent approaches suggests the importance of metalinguist analyses and self-monitorization during the process of writing as way to apprehend orthographic restrictions. It was proved that the children's ability to verbalise orthographic restrictions was correlated to the ability to use them during the writing process (Critten et. al,, 2007, 2013, 2016).

Orthography performance and revision

- There are no studies thar use revision procedures as methodology that induces awareness of several types of orthographic restrictions

- Revision processes may be included in the cognitive process of self-reflection, improving self-regulatory skills and make knowledge more explicit (Zimmerman, 2000).

- Consequently revision procedures can be a mehod that facilitates metalinguist reflection process on phonological, contextual and morphological rules and induces self-correcton of misspelling.

Interaction

► Diferentes points of view between children can lead to significant developments in their cogntive processes during solving problema tasks (Gilly, 1988, Pontecorvo & Orsolini 1996).

► Studies with pre-school children have shown thar the fact that children interact, argue and justyfy their choices lead to significant evolution on invented spelling (Alves Martins, Albuquerque, Salvador & Silva, 2015) .

Aims

Analyse the impact of instructions oriented to the spelling revision through guidelines laid down in two different tables (one regarding orthographic contextual rules, another to phonological rules and another regarding morphologic rules).

Evaluate if there are diferences in orthographic performance depending on the revision being carried out individually or in collabaoration

Experimental Design

Pre-test

Word spelling test that referred to contextual (32 words), phonological (32 words) and morphological (12 words) rules

controlled variables

Intelectual level

Intervention

Exp. G.1 – ditaction and individual revision

Exp. G.2 –ditaction and collaborative revision

Control – dictation and copy

Post-test

Similar to pre-test

Participants

- Participants were 60 3rd grade students, randomly assigned to two experimental (N=20) and control group (N=20).

- Children's cognitive ability, age and number of spelling errors were controlled.

Methodology

▶ Pre e Post-test.

▶ Word spelling test that 76 words.

32 words were refered to contextual rules (r/rr; s/ss; ce/ ci/ que /qui; gue/gui/ge/gi e m before de b and p).

32 palavras refered to phonological rules: palavras that begin by syllables CRV; CVR, CVL, CLV or words that have consonant digraphs)

12 words related with flexional and derivational morphological rules

Intervention Programm

- The experimental intervention program was carried out with children in class and consisted in 9 sessions (3 for each rule)

- Children had to spell words dictated by the adult who, then, underlined their spelling errors with a specific color (each color was assigned for a rule) and asked them to self-correct the errors using the grid, individually or with a colleague

- None of the words used in the pre and post-test was used in the intervention program.

- The same words were used in the control group but, instead of self-correcting the error, they were shown the correct spelling and had to copy it three times

Self-correction instrument

Tipos de erros:	
Erros que estão relacionados com <u>regras de escrita</u>. Regras em que o <u>som de uma letra</u> depende do <u>sítio onde essa letra está</u> na palavra e das <u>letras que vêm antes e depois</u> dessa mesma letra.	
No princípio das palavras o "r" lê-se "r" com um som forte. Exemplos: roda, rio, rima. No meio das palavras, entre vogais, a letra "r" fica com um som mais fraco. Exemplos: pera, muro, cadeira. No meio das palavras, entre vogais se queremos um som forte temos de utilizar dois "rr". Exemplos: carro, birra, errado.	

Exemplos da Grelha de Correção

Erros relacionados com as regras de formação de palavras:

Erros relacionados com a formação de nomes a partir de adjectivos.

Exemplos:

tolo ⇨ tolice

teimoso ⇨ teimosice

belo ⇨ beleza

frio ⇨ frieza

Results

Mean scores and standart deviations for total misspelling

time	Pre-test		Post-test	
Group	Mean	S. D.	Mean	S. D.
G. 1	34.50	3.706	9.90	5.025
G. 2	34.45	3.137	1.60	1.729
Control G.	34.70	2.867	29.20	3.071

*Total of words: 76

Results

- *ANOVA*

Fastors	Soma dos quadrados	F.	g.l.	Sig.
time	13209.008	2576.926	1,57	.000
time/Group	3936.317	383.965	2,57	.000
Group	4085.317	113.285	2,57	.000

A post-hoc analysis shows that the effect of the training factor proved significant when comparing experimental group 1 and 2 with the control group, (p<0,01) and when comparing experimental group 1 with experimental group 2 (p<0,01)

Results

Mean scores and standart deviations for misspelling related with contextual rules

time	Pre-test		Post-test	
Group	Mean	S. D.	Mean	S. D.
G. 1	13.75	3.307	3.10	2.673
G. 2	13.30	2.577	0.65	0.933
Control G.	14.00	2.271	11.50	2.328

Total of words 32

Results

ANOVA

Factors	Soma dos quadrados	F.	g.l.	Sig.
time	2218.800	1003.345	1,57	.000
Time/group	578.150	130.720	2,57	.000
Group	722.117	36.699	2,57	.000

A post-hoc analysis shows that the effect of the training factor proved significant when comparing experimental group 1 and 2 with the control group, ($p<0,01$), but not when comparing experimental group 1 with group 2. There were no significant differences between the two experimental groups ($p=0,098$)

.

Results

Mean scores and standart deviations for misspelling related with phonological rules

time	Pre-test		Post-test	
Group	Mean	S. D.	Mean	S. D.
G. 1	11.05	1.605	2.60	2.280
G. 2	11.20	1.152	0.35	0.671
Control G.	10.95	1.538	9.70	1.302

Total of words: 32

Results

ANOVA

Factor	Soma dos quadrados	F.	g.l.	Sig.
time	1407.675	948.153	1,57	.000
time/Group	499.200	168.121	2,57	.000
Group	454.067	74.362	2,57	.000

A post-hoc analysis shows that the effect of the training factor proved significant when comparing experimental group 1 and 2 with the control group, (p<0,01), but not when comparing experimental group 1 with group 2. There were no significant differences between the two experimental groups(p=0,08)

Resultados

Mean scores and standart deviations for misspelling related with morphological rules

time	Pre-test		Post-test	
Group	Mean	S. D.	Mean	S. D.
G. 1	9.70	0.801	4.20	1.908
G. 2	9.95	0.686	0.60	0.681
Control	9.75	1.118	8.00	1.076

*Total of words: 12

Results

ANOVA

Factors	Soma dos quadrados	F.	g.l.	Sig.
time	918.533	641.230	1,57	.000
Time/group	288.817	100.812	2,57	.000
Group	259.617	116.981	2,57	.000

A post-hoc analysis shows that the effect of the training factor proved significant when comparing experimental group 1 and 2 with the control group, (p<0,01) and when comparing experimental group 1 with experimental group 2 (p<0,01)

DISCUSSION

The results showed that experimental groups decreased significantly the number of errors, when compared to the control group, with statistically differences for each rule

There were no differences between the two experimental groups, except in misspelling related with morphological rules

The results at pre-test comproved that children have more difficulties in understanding these rules. In experimental group 2, each child corrects the misspelling of the other and that requires a greater verbalization of orthographic rules

DISCUSSION

These results show the importance of inducing self-correction spelling strategies through revision in educational contexts. This strategy seems to make more explicit children´s orthographic representations and improve their ortographic performance.

These results seem to confirm the relevance of redescription" the ortographic representations in order to improve orthographic performance (Karmiloff-Smith, 1991).