

Initial teacher education and teaching of spelling: required knowledge

Formação docente inicial e ensino de ortografia: saberes necessários

Ana Luzia Videira Parisotto*¹, Gladis Massini-Cagliari**²

*Universidade Estadual Paulista “Júlio de Mesquita Filho”, UNESP, Presidente Prudente-SP, Brazil

**Universidade Estadual Paulista “Júlio de Mesquita Filho”, UNESP, Araraquara-SP, Brazil

Abstract

It would be inconsistent to state that the initial education of teachers can encompass all the knowledge needed for their future practice because they work in contexts fraught with unpredictability. Notwithstanding, teacher education programs must provide students with the theoretical framework needed for their professional practice. As regards the teaching of Portuguese, several studies emphasize the importance of programs addressing discursive aspects of language, its variation, and its role in human interaction, among other aspects. In this sense, this study is based on the following research question: Do future teachers, 4th-year students of a teacher education program, have the required knowledge of the spelling system to be able to explain it? This research, of a qualitative nature, aims at reflecting on initial education of teachers with regard to spelling knowledge and teaching of spelling. Data were collected by means of interviews, dictation of infrequent words, and intentional misspelling activities. The theoretical basis for data analysis and discussion follows the Representational Redescription model established by Karmiloff-Smith (1986) as well as studies carried out by Massini-Cagliari and Cagliari (2001) and Morais (2009). This article presents only the data collected through interviews. Preliminary results indicate that the education of teachers for the first years of elementary school should be reassessed in order to include content capable of promoting analysis of and reflection on the Portuguese language in its curriculum.

Keywords: Teacher education. Teaching of spelling. Explanation of rules.

Resumo

Seria incoerente afirmar que a formação inicial consegue contemplar uma formação plena e definitiva, pois o professor atua num contexto carregado de imprevisibilidade. Em contrapartida, nos cursos de licenciatura é que o futuro professor deve tomar posse dos conhecimentos necessários a fim de compor seus quadros referenciais para o desempenho da profissão docente. No que tange ao ensino da língua portuguesa, os resultados de várias pesquisas enfatizam a importância de se considerar os aspectos discursivos da língua, a linguagem como forma de interação humana, a variação linguística, dentre outros. Nesse sentido, partimos do seguinte problema de pesquisa: será que os futuros professores, alunos do 4^o ano de um

¹ Assistant professor and researcher at São Paulo State University “Júlio de Mesquita Filho” (UNESP-FCT), Presidente Prudente campus. Leader of research group “Teacher Education and Teaching Practices in Basic and Superior Education” – GP FPPEEBS (UNESP-FCT). Email: analuzia@fct.unesp.br.

² Adjunct professor at the Linguistics department of the São Paulo State University “Júlio de Mesquita Filho” (UNESP-FCL), Araraquara campus. Holder of a productivity-scholarship at CNPq and leader of research group “Portuguese Phonology: Archaic & Brazilian”. Email: gladismac@gmail.com.

curso de Licenciatura em Pedagogia, possuem os conhecimentos necessários sobre o sistema ortográfico e são capazes de explicitá-los? Esta pesquisa é de base qualitativa e pretende refletir sobre a formação inicial do pedagogo, no que diz respeito aos conhecimentos ortográficos e ensino de ortografia. Os dados foram coletados por meio de entrevistas, ditado de palavras pouco frequentes e atividades de erro intencional. Os subsídios teóricos para discussão e análise dos dados seguem o Modelo de Redescrição Representacional estabelecido por Karmiloff-Smith (1986); os estudos de Massini-Cagliari e Cagliari (2001), bem como os de Moraes (2009). Neste artigo serão apresentados somente os dados relativos à entrevista. Os resultados preliminares apontam a necessidade de se repensar a formação inicial do pedagogo, possibilitando a inserção, na Matriz Curricular, de conteúdos voltados à análise e reflexão sobre a língua portuguesa.

Palavras-chave: Formação docente. Ensino de ortografia. Explicitação de regras.

Introduction

Students from Education courses, future teachers, in regards to the complexity of teaching, need, still in the under graduation period, to build a repertoire composed of a range of knowledge. Therefore, they need to get familiar with schools' daily life to observe teaching practices and, also, it is important that they have the possibility of working contents focused on Portuguese Language reflections and analysis, since they generally arrive at college with serious reading and writing deficits. We also highlight the indispensability of a deep knowledge about the contents to be taught.

Thus, this research aimed to reflect over the Bachelor in Education program, in regard to the orthographical knowledge they should master to teach Portuguese and, consequently, aimed as well: to analyze the level of knowledge representation senior students from the Bachelor in Education have about the writing system; to identify methodological aspects related to teaching orthography and describing and analyzing the methods of explaining orthographical rules.

In order to do that, we proposed the following survey which guided all the research: would teachers have the necessary orthographical knowledge and are able to explain it? This becomes vital when we consider orthography an object of knowledge needed to be worked in a systemic and reflective manner.

The data were obtained through semi structured interviews, verbal rule explanation activities, as well as intentional mistakes and dictation of infrequent words, with 32 last-term senior students from the Bachelor in Education, in a public University, in the interior of São Paulo state, in Brazil.

The scope of this paper is to present data related to the following questions from the interview script: *How did you learn orthography? How do children learn orthography? How would you propose the teaching of some orthography content?* The last question focused on orthographical knowledge concerning the spelling of "strong r", an exemplar case of contextual rules: *How would you explain to a 4TH grade child the orthographical mistake presented on the word "Bezere"? Would you be able to explain some rule conditioning the use of R or RR?*

The first questions focused on aspects related to methodological conceptions for teaching orthography, while the last question focused on explaining rules and the linguistic knowledge presented by the subjects.

Bachelor in Education and teaching Portuguese Language

The debate around teachers' education has affected many professionals, not only the ones from the education field, but also linguists, since the relevance of this theme dwells in its tight relationship with school's success or failure.

Therefore, several studies approach the problems related to reading and writing in all teaching levels, presenting as the preponderant factor the poor teacher's education, who cannot always rely on their initial education for adequate theoretical-methodological knowledge to act as a competent professional; since, in the classroom reality, students seem to have just a few moments set apart for reading and writing. When they do, teaching mistakes are significant (PARISOTTO, 2004; SOARES, 2008; COLELLO, 2007). Writing and reading activities, when performed, hardly go beyond the limits of reading as decodification and writing as a product to get a grade (JOLIBERT, 1994; KAUFMAN; RODRIGUEZ, 1995; KLEIMAN, 1995; GERALDI 1998; ROJO, 2009).

About teachers' education in Brazil, Pereira (2000) states that, in the 1970s, the technical dimension of the process of teachers' education was emphasized, while in the 1980s, there was an advance in this question, since the preoccupation was focusing in professionalization as a service. However, in the 1990s, another approach for teachers' education starts arising: the continuous education, according to Garcia (1992), is related to the teachers' professional development in a process of evolution and continuity, not fitting in the traditional definition of something that was a juxtaposition between the initial education and improvement courses. Imbernón (2010) highlights the need to develop a new approach to the continuous teachers' education, which does not separate education from the professional context. This context, according to the author, is the one which should condition education practices.

In relation to the teaching job, Tardif (2007) describes this practice's epistemological foundations, starting from the premise that the teaching competence embodies a plurality of knowledge established in four modalities: professional knowledge, disciplinary knowledge, curricular knowledge, and experience knowledge.

Professional knowledge is related to the set of knowledge observed by educational institutions for teachers. These come from education sciences as theories and conceptions which can be guided to education practice, thus, produced to be embodied by the teacher's professional education. This would be the pedagogical knowledge teachers would deploy to serve the school institution.

The disciplinary knowledge is related to the knowledge in the many knowledge fields (mathematics, literature, history, etc.), emerging from the cultural tradition and from social groups producing knowledge. They are concerned with definition and selection of the social knowledge, carried out by the University, in other words, the choice of raw materials to be worked in the different courses available.

On the other hand, the curricular knowledge is concerned with aspects relevant to the discourses, goals, contents and methods observed by the University in order for the disciplinary knowledge to function. When contents to be taught are chosen by the teacher, this knowledge suffers a set of adaptative transformations to make it able to occupy a place between teaching objects. It is the important task of didactical preparation elaborated as this object is transferred to teaching situations.

Finally, the author adds experience knowledge, based on the teachers' daily work and the knowledge in their environment. The professional competence, according to Tardif (1999), should express all these types of knowledge, as this competence must understand its subject, its discipline and its programs, it must have knowledge related to education, still developing a knowledge based on its daily experience with students.

As to the initial education of teachers who will act on the first primary grades, we believe it should allow formative experiences in order to render the development of knowledge needed to the professional practice, as this is the moment to build a basis for the future professional development. While the initial education is not able to observe a complete and final education, which would even be incoherent if we accept the fact that the teacher acts in a space fraught with unpredictability, teachers should acquire knowledge in the education which will shape their referential frames for performing the teacher role (MIZUKAMI, 1996).

Cunha (1998) strongly affirms that one of the main complaints from under graduation students is that their courses, generally, do not prepare them to face problems occurring in the school reality they will experience with their students when they become teachers.

Another problem related to teaching Portuguese is related to which linguistic variety to teach: the one used by students or the one considered standard? When we discuss teaching a standard variety, the foremost goal is to get students to master this variety, although the school needs to work on an approach valuing all linguistic varieties and it should not teach one instead of another, because independently from the distance a linguistic variety used by students is situated from the standard, it is complex, articulated and presents rules able to be systematized.

The linguistic variety considered by the school as an exclusive reference to good language is the one used by the economically privileged class. This shows, clearly, that there is no interest in raising students' awareness about linguistic diversity. According to Bourdieu and Passeron (2008), the cost-effective linguistic capital in a school context is distributed in an unequal manner between the different social classes. This constitutes one of the better disguised mediations through which a relationship between social origin and school success is established.

As these children do not present the cost-effective linguistic capital, the ones coming from disadvantaged social backgrounds do not find anything familiar in school, there is no identity between the school's value system and the children's and, because of that, learning problems may arise.

Generally, the person who writes avoiding rules prescribed by Standard Language, including the ones related to orthography, is discriminated. In the same way as society cultivates some prejudice against somebody who speaks a variety considerably different from the one established by the Standard Language, it treats similarly the ones who write without following orthographical rules. In these cases, people commonly find the wrong spelling of a word stranger than a bad formulated text or a badly presented idea (MORAIS, 2009).

The problem comes from the fact that schools have not been successful in making students and teachers think about orthographical difficulties. We are not relegating tasks based on reading and composing texts to a secondary sphere, we are only emphasizing the importance of a systemic orthographical teaching so subjects could

appropriate orthographical conventions, since such appropriation could not be done only through being in touch with books and other printed materials or simply with the advance of schooling.

Cagliari (2001, p. 79) highlights:

It is more interesting to teach reading and writing, explaining what is writing, telling its history, showing possible writing types we use, explaining what is orthography and how it works, clarifying the fact that we can also write alphabetically disregarding orthography, but later on transferring writing to its orthographical form will be needed.

Thus, one needs to think that, in this problem's diametrically opposed approach, we find the teachers' education issue for the primary school first years, because this is the professional who will make students start writing and reading texts.

Therefore, we highlight the challenges faced by teachers teaching orthography, since orthographical mistakes could provide resources about hypotheses or knowledge already acquired by students. By observing such mistakes, it is possible to propose activities which allow reflections about the orthographical system.

Several authors have been researching about teaching standard orthography in order to understand the progressive appropriation of the orthographical system (ZORZI, 1998); the relationship between standard, mistakes and the students' level of orthographical explanation (MORAIS, 2006); the contribution of the phonological and syntactical awareness for learning orthography (REGO; BRYANT, 1993); the relationship between graphical categorization and functional categorization (MASSINI-CAGLIARI, 2001), as well as children presenting difficulties while reading and the implications of orthographical mistakes (NUNES et al., 2000).

On the other hand, as we perform preliminary bibliographical studies looking for contextualizing the study object, we have noticed the restrict number of researches focusing on students' explanation levels of their knowledge about the orthographical system under the initial phase of teaching education. In general, research show the process of acquiring orthographical writing by students of the initial grades. Therefore, we highlight studies from Massini-Cagliari and Cagliari (2001), Morais (1995), Queiroga, Lins and Pereira (2006). Other works focus on teachers' continuous education (MENEZES, 2008) or emphasize the orthographical system knowledge presented by teachers who are already working (ARAÚJO, 2012). Thus, we justify the importance of researching this theme delimiting it in the sense of reflecting about the teachers' initial education, with regards to the level of representation of the orthographical knowledge of senior students in a Bachelor in Education course.

Contextual and arbitrary rules of the orthographical system

Morais (2009), while studying Portuguese orthography, establishes two types of orthographical difficulties related on the *regularities* and *irregularities* of the orthographical system.

With regards to *regularities*, Morais (2009) states there are underlying rules to all (or almost all) the language words where the mentioned difficulty arises. While approaching the regular phonographical correspondences, the author establishes direct regularities, contextual regularities and morphological-grammatical regularities.

The *direct regularities*, according to Morais (2009), are related to the spelling of P, B, T, D, F and V. Thus, it is understood that the exchanges between P and B, between T and D, and between F and V are explained by the fact that these sounds are similar when realized by the vocal tract. They are called “minimal pairs” because the voiced consonants vibrate the vocal folds while the unvoiced consonants do not. The author also shows the fact that in the production of children with a different pronunciation from the one considered prestigious (*barrer* instead of *varrer*, for example) there will be mistakes which are not common to other children.

Cagliari (2009) states that the literacy teacher needs to take into account the fact that in the beginning of language education, students will make mistakes characterized by the exchanges between voiced and unvoiced consonants ([batu] and [patu], [vaka] and [faka], etc.) For Lemle (1999), the difficulties students present correspond to the language education phase they are in. Thus, for the author, the exchanges between voiced and unvoiced consonants are difficulties present in the first phase of language education, namely, they are related to the moment in which students learn to read and she believes there is a relationship that works both ways between sounds and letters, resulting in writing corresponding to the hypothesis of “monogamous marriage”. Lemle (1999) shows that, in this first language education phase, exchanges between unvoiced and voiced consonants are common and this fact, according to the author, is characterized by the difficulty students present as they classify some distinctive aspect of a sound (*sabo* instead of *sapo*, *gado* instead of *gato*, *pita* instead of *fita*, etc.)

The *contextual regular* difficulties, according to Morais (2009), are the ones in which the internal context of a word defines the letter (or digraph) to be used. Because of this, according to the author, in these cases the correct form does not need to be memorized. For example, to represent the strong sound of R, we use only a letter in the beginning of a word, in the beginning of syllables preceded by consonant or in the end of syllables; for the strong R sound between vowels, we use RR and for the weak R sound we use only one letter.

Lemle (1999) defines the contextual regularities as the theory of polygamy with position restrictions. According to the author, after a student rejects the monogamy hypothesis and, therefore, leaves the first phase, this will avoid mistakes being made based on exchanges between voiced and unvoiced consonants. The teacher should guide students to understand the fact that there are words in which the sound of the letter is determined by its position. Thus, the author defines that the difficulties linked to the polygamy theory with position restriction will arise in the second language education phase.

For Morais (2009), in regards to *morphological-grammatical regularities*, the aspects linked to the part of speech of a word will establish the rule. These rules involve internal parts composing the words (morphemes), generally suffixes indicating its grammatical family.

The difficulties related to irregularities, according to Morais (2009), concern the spellings which are explained by the simple use or by the etymology of a word. In these cases there are no rules helping students to solve doubts, and due to this they need to check a dictionary and memorize these spellings. Teachers should help them by starting with words students use frequently and afterwards extending the explanations to less frequent words.

Still according to the author, memorizing the correct spelling of irregular words will only be possible if students keep in mind photographic pictures of these words. Thus, a vital resource for students learning these written language irregularities is through contact with printed materials (books, newspapers, etc.)

Lemle (1999, p. 31) substitutes the term *irregularities* by *arbitrariness* of the orthographical system. According to the author, difficulties linked to arbitrariness will arise in the third phase of language education. Although, she states, this phase lasts the entire life because “[...] nobody escapes a moment of insecurity about the correct spelling of a rare word”.

Methodology

The research was based on the qualitative research approach that, according to Bogdan and Biklen (1994), presents as essential characteristics: the natural environment as a direct source of data; the researcher as its main instrument; the fact that the data collected are predominantly descriptive; the concern with the process being greater than with the product; the researcher considering the facts from the participants’ perspective, among others.

Thus, in order to verify if fourth-year students of an Education program are instrumented with the necessary knowledge to teach spelling and if they are able to present this knowledge through metalanguage, we opted for qualitative research, since the characteristics of said approach predominate in our work, once we have, among other aspects: data obtained by the researcher themselves, through interviews with students of an Education program of a public university located in the interior of São Paulo state; description of the environment and of situations, and transcription of interviews. During the interviews, the subjects presented their levels of knowledge about spelling, as well as discussed methodological aspects related to such teaching.

The data were obtained through semistructured interviews, recorded in audio files, with thirty-two fourth-year students of an Education program, as well as through activities of verbal explanation of certain orthographic norms, dictation of infrequent words and intentional error elaboration activity.

From the perspective of qualitative research, the interview assumes the position of one of the main instruments for data collection. Lüdke and André (1986: 34) state that:

The great advantage of the interview over other techniques is that it allows the immediate and current capture of the information desired, practically with any type of informant and on the most varied topics. A well-conducted interview can allow the handling of complex subjects and clearly individual choices. It may allow for the deepening of points raised by other collection techniques of more superficial range, such as the questionnaire.

The interview script was composed of seven questions dealing with teaching of spelling. The first and second questions aimed to know how the student had learned spelling and whether they considered the presence of a systematic and reflective teaching of contents related to orthography important in the first cycle of elementary school. The third, fourth and sixth questions raised questions about how children learn spelling and whether reading and dictation contribute to such learning. No less

relevant, the fifth question aimed to know about the methodological aspects related to spelling teaching. In this sense, we asked how the student would propose the teaching of an orthographic content. Finally, in the seventh and last question, we questioned how the student / future teacher would explain, for a fourth-grade student from the first cycle of elementary school, the misspelling presented in the writing of the word *Bezera*, and also if they could explain some rule that conditioned the Use of R or RR. To do so, we showed the interviewee a sheet of sulfite paper in which the word was printed.

In the spellings of words involving the knowledge of contextual rules, the letter-sound relationship is determined by the context, as we can see in the words: *risada* (beginning of word), *honra* (beginning of syllable preceded by consonant), *torta* (end of syllable) and *carro* (between vowels).

In this article, we present only the data related to the first, third, fifth and seventh questions of the interview. Thus, from the questions asked to the students/future teachers, we seek answers to understand: how they learned and how they believe children learn spelling; how they would teach content related to spelling, and they would teach an orthographic rule. The data were analyzed in the light of researchers such as Massini-Cagliari and Cagliari (2001), Morais (2009) and Karmiloff-Smith (1986), using the Representational Redescription Model, since the proposed representation levels allow detailing the knowledge expressed by the research subjects.

Karmiloff-Smith (1994) establishes theoretical distinctions between implicit representations and different levels of progressive representational explanation, which we will present below:

Level 1: Implicit

Knowledge at this level is linked to procedures. In terms of behavior, it is a response from the subject to the environment. It concerns a level of mechanical, everyday knowledge.

Level 2: E1 (primary explanation)

At this level the procedural knowledge is redescribed and, although foreseen in the system, it is not accessible for the subject to be expressed verbally.

Level 3: E2 (secondary explanation)

It is already possible to observe, at level 3, the interrelation of representation between systems. Thus, knowledge can be accessed consciously, though they are not verbally explicit yet. In this case, relations are already established between the parts and the whole of what is being studied.

Level 4: E3 (tertiary explanation)

At this level knowledge is explicit to the system and can be verbalized. Through a new representational redescription, subjects are able to translate a piece of knowledge from one code to another. They do and verbalize the reasons that explain the options adopted.

Results and discussion

Thirty two senior students from the last term in Education Course in a public university were interviewed, in the countryside of São Paulo state. The interviews were based on a script with seven questions about orthography. The researched subjects, in general, pointed more than one answer to what was asked, therefore, data presented are not restricted to thirty two answers.

On Table 1, below, we present data related to the first question.

The majority of answers dealt with teaching orthography through dictation or based on the teacher's action of marking mistakes and asking for corrections. Our attention is drawn, as well, to the fact that seven students have mentioned exhaustive repetition of a word spelling, namely, if a student committed a mistake about the spelling of a given word, they should rewrite it several times until memorizing it.

Such answers highlight orthography teaching only as a mean of verifying what is wrong and right, according to the Portuguese standard rules and it is not about how contents are able to provide reflections. Leal and Roazzi (2007) strongly affirm that in activities like dictation, exhaustive copying or orthographical training exercises, many times, children will not be asked to think about the differences between their chosen spelling and the one considered correct.

Below, data are presented related to the question: How do children learn orthography, as can be seen on Table 2.

Table 1: How did you learn orthography?

Answers	Absolute frequency	Relative frequency
Dictation	13	40.6
The teacher marked mistakes with a red pen and the student corrected it	13	40.6
Exhaustive repetition of a word's correct spelling	7	21.9
There was not a continuous practice	5	15.6
Do not remember	4	12.5
Calligraphy exercises	3	9.4
Fill in the blanks activities	3	9.4
Learned more among family than at school	2	6.3

Source: Data organized by the authors, based on the research results.

Table 2: How do children learn orthography?

Answers	Absolute frequency	Relative frequency
Reading and writing	12	37.5
When teachers correct and explain	8	25
With repeting spelling exercises	4	12.5
Just reading	4	12.5
Writing and doing exercises	4	12.5
Learning by heart	2	6.3
Making mistakes and counting on teachers' correction	2	6.3
Associating letters with games and songs	1	3.1
With dictation	1	3.1
Did not know how to answer	1	3.1

Source: Data organized by the authors, based on the research results.

The future teachers (37.5%) believe children learn orthography in reading and writing activities and 25% of them consider the importance of the teacher's explanation. With 12.5% there still are the ones who consider relevant exercises based on repetition, reading, writing and doing exercises by itself for the purpose of children learning the orthography standard. Though plenty of research has shown orthography learning should be systematized at schools, several students/future teachers insist on affirming children learn orthography only by reading and writing, and with repetition exercises. This could be a simplistic interpretation based on studies concerning the written language psychogenesis, which envisions, among other aspects, the fact that the learning subject is to be seen as an active subject. Therefore, Ferreiro and Teberosky (1999) highlight that, during the process of learning writing, children could make mistaken generalizations, even though such generalizations could be constructive. In spite of being mistaken or not, the majority of children will only seize the orthographical system through learning mediated by a teacher, who must be able to allow the reflections needed to such learning. Morais (2007) emphasizes that even when we state the conventional-reproductive character of standard orthography, this does not mean learners acquire it passively.

Data related to the question about how students/future teachers would propose the teaching of a content related to orthography are presented on Table 3.

The majority of students/future teachers answered they would teach from texts written by their students, namely, 21.9%. In this same approach, some stated they would start with texts, without specifying whether these texts would be written by students or not (18.8%). We highlight yet, answers are related to teaching the same way they learned (15.6%) and teaching through exhaustive repetition of words (9.4%).

Data showed that students/future teachers already internalized the importance of starting with text written by students to teach orthography. This is a very important aspect, since such teaching involves contents that should be worked systematically, in accordance with orthographical difficulties presented by students in their texts. However, this is not the only aspect that should be taken into account. It should

Table 3: How would you propose the teaching of a content related to orthography?

Answers	Absolute frequency	Relative frequency
From students' compositions/marking mistakes	7	21.9
From texts	6	18.8
Dictation	5	15.6
Would work with games/songs/pictures/newspapers	5	15.6
I do not know	5	15.6
Would teach the same way they learned it	5	15.6
Exhaustive repetition of the spelling of words	3	9.4
Would work on syllables	2	6.3
From words with sounds from a letter, but with different spelling from other words	1	3.1

Source: Data organized by the authors, based on the research results.

be noted as well that goals must be set for each classroom and grade in order to sequence the teaching of orthographical standard rules (MORAIS, 2009).

As for teaching the way they have learned or, as they already stated to have learned, by means of an exhaustive repetition of writing certain words, authors such as Tardif (2007) and Pimenta (2002) emphasize the importance of the knowledge of experience, those produced during the life history of the teacher, as well as the knowledge derived from the experience as a student in teaching practices. Conversely, it is important to mention that students are aware that the way they studied spelling did not produce good results. Therefore, it seems strange to us that they aim to teach in the same way. In this sense, it is worth questioning what the effects of the initial formation in the pedagogical practices of these future teachers would be. No student has mentioned the phenomenon of linguistic variation, although this is an important aspect in spelling, since the gap between the register provided by the cultured norm and the register presented by the child makes the spelling mistake likely and natural. In this sense, the error is a sign that some rules have not yet been internalized.

In order to observe how students / future teachers explained rules related to a specific orthographic content, we proposed the seventh question: how would the student / future teacher explain, to a fourth-year elementary school student, the misspelling presented in the written word *Bezera*, and also if they could explain some rule that conditioned the use of R or RR.

We organized the data in Table 4 below, observing the frequency of the answers presented by the students in the interviews, according to the levels of explicitness of the orthographic rule. It is worth mentioning that we used a sheet of printed sulfite paper in which we typed the word *BEZERA* and questioned how he would explain this non-compliance with the orthographic norm for a fourth-year elementary school student. In addition, we asked if there were any rules conditioning the presence of the “strong R”.

The results show that most of the students’ answers are at the implicit level 1, that is, there is no justification or explanation of the rule by the student, who uses knowledge only in a procedural way, as it is possible to verify in the following excerpts:

(1) *oh, I don't know prof... I think the words... I would work many words and would work along with them...* (student 9)

(2) *I would read with the student, you know?... together again this... this same word... bezera... and would make them think with me if it's... if there's*

Table 4: Frequency of answers according to the level of spelling rule specification

Frequency/levels	Absolute frequency	Relative frequency (%)
Implicit Level 1	16	50
Explicit Level 1	14	43.8
Explicit Level 2	2	6.2
Explicit Level 3	0	0

Source: Data organized by the authors, based on the research results.

nothing weird with this sound... and hope they would say so, you know? ((laughter))... ... bezero... is there something wrong with this sound?... it's the name of an animal isn't it? (student 13).

(3) I guess this way it's not... the RR right? ... it's not well explained... I would use some texts... some words with two "r"s... I don't remember... I honestly don't remember (student 18)

(4) professor... I would actually tell the student that 'bezerro' is written with two 'r's... is that right? ((laughter))... actually I guess there's no... rule. (student 27)

In the examples presented, we find that the students demonstrate an ignorance of the rule that establishes the context of use of "strong R". In excerpts (1) and (3), students emphasize that they would bring more words to demonstrate the contextual rule of use of "r-forte", but do not state any rules. The student / future teacher would show other words, but could not provide a reflection on the orthographic norm, due to ignorance of the orthographic system. In example 4, the student states that he would simply explain that the word should be written with RR and make explicit that there is no rule conditioning such use. The excerpt (2) is an emblematic case of the insecurity of the students with respect to the content that they are going to teach.

In this sense, Morais (2009) emphasizes the importance of the teacher having knowledge of the orthographic system to mediate children's findings about writing, in order to facilitate reflection and the internalization of the rule, since spelling knowledge is something that children learn with the teacher's help.

The answers of fourteen students fit into the level Explicit 1. Thus, they present justifications based on some kind of analogy with the writing of other words, although in an unsystematic way, according to what is observed in the following examples:

(5) I would tell the student that the word 'bezerro' is written with two "R" because of the... how do you say?... because of the way you say the word, you know. So, to make it have this 'bezerro'... to make this part stronger, she would have to add an "r". I don't know the rule. (student 3) (6) because 'bezerro' has two "r"... but 'torneira'... the RA is only one "r"... it's ra and not rra... so this would be the differentiation of words which have similar sounds... but not the same which are written differently... and the sound of rra. (student 11)

(7) I couldn't even tell them like that you know... because we keep repeating over and over that one "r" is RO... bezerro... but are you Reading bezerro? Like when we say cachorro... it's stronger...bezerro... but I can't explain... to tell him. (student 5).

(8) oh I think I... I think I could work... it's the question also because of the phoneme that appears... it's the same, right?... but I would work more the part of showing... I would show more words with the two letters... the difference

in sound... this is... here in this case I would show more words with two “r”.
(student 8)

In excerpts 5 to 8, we see that the justifications are based on the differentiation between the strong-r and the weak-r sounds. However, in this context, students cannot yet explain the specificity of the rule. Again, from the examples mentioned, it is possible to infer that such pupils / future teachers, in teaching this content, would have difficulties in explaining to children the rules that condition the uses of r-forte and r-weak.

Vygotsky (2000) argues that school is central to children’s development and plays an important role in learning the written language. Thus, the belief that the child can learn spelling only from reading well written texts is deconstructed and the role of the teacher in this task is emphasized.

Only the answers of two students were classified in level Explicit 2, since they made reference to the orthographic context, although without being able to express the rule completely, as we can observe in the excerpts (9) and (10), below:

(9) I think... I don’t know if I’m mistaken... but I think... because there it’s the questiono of orthography really because then the teacher would have to explain that, when it’s between vowels... that little rule, right? Of the R sound that when it’s between vowels it has a Strong sound... so it’s another incidence, right? (student 14).

(10) I think he... I think I would have to work the sound issue there... here in bezerro and bezerro... because one R and two R changes the sound... so work the issue of the sound in the middle of the word and in the beginning of the word too... because sometimes too... like rato... so he thought because rato begins with one R and it’s rato... and bezerro... can’t be bezerro... so I think they should work the issue of the two R in the middle of word... one R in the middle ando ne R in the beginning. (student 31).

In excerpts (9) and (10), students make reference to the context that conditions the use of “strong R”, but they do not yet verbalize the restrictions used. Regarding orthographic difficulties, Morais (2009) states that there are irregularities and regularities. In the second case, it is possible to predict the correct form, since there is a generative principle that applies to several (or all) words of the language in which the mentioned difficulty appears. This is the case, for example, with the use of “R” or “RR” in words like “honra” and “cachorro”. To the author, “[...] the understanding of what is regular and what is irregular in our spelling [...] seems fundamental for the teacher to organize their teaching” (MORAIS, 2009, 36).

There were also cases in which the students explicitly explained the rule in an erroneous way, as we can observe in excerpts (11) and (12):

(11) oh because the R between two vowels hs a weaker sound... then we use two R... that’s the way I learned it. (student 25).

(12) I would tell her to take one more look. I would say that in the end of the sentence at the R there was another word missing... I don’t know the rule.
(student 2).

Final considerations

The data presented shows that students / future teachers learned spelling through mechanical processes: dictation, filling in gaps, copying words, that is, activities that did not lead to reflection. Although they still show an interest in practices of little significance for teaching spelling, most prospective teachers, when thinking of proposing such an activity, claim that it would be from texts produced by students.

As for the knowledge about how children learn spelling, 37.5% still believe it is possible to learn it passively. In this sense, they emphasize that the children learn only by reading and writing, that is, only being exposed to reading and writing activities.

The responses of the research subjects to the seventh question, when analyzed according to the Representational Redescription Model proposed by Karmiloff-Smith (1986), made it possible to reflect on the knowledge these subjects presented about the workings of the Portuguese orthographic system, regarding the context of the “strong-r” spelling.

We can state, with respect to the obtained results, that the majority of the students’ answers are in the levels Implicit 1, when there is no justification or explanation of rule by the student and Explicit 1, when the justifications are based on some kind of analogy with the spelling of other words, albeit in an unsystematic way.

We know that in order to provide learning of spelling in a reflexive way, the student / future teacher must have explicit understanding of the object to be taught. In this sense, the results point out the need to rethink the initial formation of the educator, enabling possible the insertion, in the Curricular Matrix, of content focused on the analysis and reflection on the Portuguese Language.

We highlight yet that orthography teaching should allow the written registry of children’s new discoveries and, consequently, getting to know prescriptive rules, without allowing language activities and the description of linguistic variation to be put aside.

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