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Analysis of Spelling Errors in Moore by Teachers in French/Moore Bilingual Classes in Burkina Faso

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Abstract

This study focuses on the analysis of spelling errors in Moore made by teachers in French/Moore bilingual classes in Burkina Faso. The problem raised by this research is that a good number of studies are interested in the orthographic productions of learners without questioning the quality of the designs of teachers' educational sheets. We wondered whether the learners' lack of mastery of the spelling rules is not partly linked to the shortcomings of their teachers, especially in the field of national languages such as Moore. Therefore, this study aims at identifying the different categories of errors made by teachers while highlighting the origin of these errors. From a corpus made up of preparation sheets for Mathematics lessons, the hypotheses confronted with the results led to recommendations for remediation in order to contribute somewhat to improving the quality of the teaching of Mathematics in Moore in bilingual French/Moore classes in Burkina Faso.

Keywords: Error analysis, spelling, remediation, error typology, Moore.

INTRODUCTION

Spelling can be defined as the set of conventions and rules governing the writing of a language. It concerns both the words of the language (lexical spelling) and the morphology (grammatical spelling), which can be richer in writing than in speaking (Bezzekhami, 2016, p.3). Spelling is not being limited to the transcription of the phonemes of a given language, mastering the rules that govern its writing is not easy for all learners. This is what some authors like Pit Corder (1980) maintain. They write in essence that we cannot learn without making mistakes, and that mistakes are used to learn.

In the review of the literature on the issue, many investigations relating to the analysis of errors focus on students' productions. On the other hand, there is little work on the preparation of teachers. However, if a course is prepared with errors, it follows that the transmission will be accompanied by the same errors, which will be reproduced later by the learner. Therefore, it is essential to look into the development of teachers' preparation sheets. Even if bilingual education is a reality in Burkina Faso, work on the analysis of errors in the national language Moore also emphasizes on classical education and the production of pupils. This suggests that not only is the analysis of errors much more interesting in production in French, as evidenced by the work of Ouedraogo (2016), Rouamba (2021), etc. but also that, when it emphasizes national languages, it does not pay attention to teachers' preparation sheets (Kabore, 2016). The analysis focuses on the written skills of students in bilingual classes (Sawadogo, 2015). A survey carried out in 2022 as part of mathematical terminological research in Moore in bilingual classes (Tirogo, 2022d) reveals the presence of spelling errors on teachers' preparation sheets. Therefore, one wonders whether

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this situation does not justify, at least partially, the errors frequently observed in the written productions of the learners. This study attempts to answer this concern through the following questions:

Why do teachers continue to produce spelling errors in the development of their sheets? What is the origin of these errors encountered in their written productions?

To provide some answers to these questions, two hypotheses have been put forward: the spelling errors encountered on the teachers' preparation sheets are due to the lack of mastery of the spelling rules that govern the writing of Moore; these errors may also be due to the negative influence of French. Teachers' lack of practice as well as their lack of reading could constitute the major causes of the deterioration of their level.

The objective of this study is to draw up a typology of spelling errors made by teachers of bilingual French/Moore classes in Moore in order to determine their causes and consequently explain them and suggest some ways of remediation.

Theoretical framework

This study is part of the analysis of errors, specifically the theoretical and practical treatment of spelling proposed by Catach (1986). This typology was also developed in the studies of Anis (1983), Gruaz, Karabetian & Mitaine (1986) and, Sautot (2020). It classifies errors into six categories:

(i) Errors predominantly extragraphic

The errors predominantly extragraphic are predominantly calligraphic and predominantly phonetic errors. In French, the predominantly calligraphic error may be due to the malformation of a letter as in *mid instead of nid "nest", * un nâne instead of un âne "a donkey". The predominantly phonetic error is due to poor oral production. It can be an omission or an addition of a phoneme as in * craite instead of crainte "fear"; it can also come from a confusion of consonants or vowels. For example, a learner can write in French *saussure instead of chaussure "shoe" because he does not know that we pronounce [ʃosyR].

(ii) Phonogram-dominant errors

The phonogram-dominant errors are graphical errors. According to Rouamba (2020: 322), these errors "correspond to correct oral and erroneous writing [...]". Phonograms are the graphemes that correspond to the different phonemes. For example, in French, [ɔ̃] corresponds to phonograms: on, om, ons, ont, which means that this situation constitutes a temporary state before moving on to correct spelling. As an example of phonogram-dominant errors, a learner may write * guorille instead of gorille "gorilla", *merite or instead of mérit "merit".

(iii) Morphogram-dominant errors

Morphographically dominant errors can be grammatical or lexical. The morphograms "constitute 3 to 6% of the graphic system (Catach, 1986: 27). They are divided into two categories: grammatical morphograms and lexical morphograms.

Grammatical morphograms are "additional graphic endings that are incidentally added to words according to the encounters of the parts of speech (gender and number marks, verbal inflections)" (Catach, 1986: 27). In other words, these morphograms are used to indicate the grammatical category of words through their endings. Thus, a predominantly morphogrammic grammatical error can come from a confusion of nature, category, gender, number or an erroneous omission or addition of close agreements. A learner can write in French * chevaus instead of chevaux "horses", * ils dances instead of ils dansent "they dance".

Lexical morphograms are a type of morphograms used to indicate the marks of the radical and those of the affixes (prefixes, infixes, suffixes). As an example, a learner can write in French *lezart instead of lézard "lizard", *annui instead of ennui "boredom".

(iv) Logogrammatically dominant errors

These errors can be lexical or grammatical. Logogrammatically dominant errors of the lexical type result from confusion between lexical homophones. For example, a learner can write in French * *j'ai fin* "I have end" instead of *j'ai faim* "I am hungry". In French, logogrammatically dominant errors of grammatical type come from confusing grammatical homophones as in * *sont livre* "are book" instead of *son livre* "his book".

(v) Errors with dominant ideograms

Ideograms are signs that are not only related to the alphabet. These are punctuation marks, capital letters, apostrophes, hyphens. For example, in French, a learner can write *leau instead of l'eau "the water", * burkina instead of le Burkina "Burkina".

(vi) Predominantly Non-Functional Errors

Generally, as noted by Pothier (1996), many errors made by learners in French do not always stem from ignorance of spelling rules. Many errors are due to the types of dictations submitted to learners. This is why Catach (1980) emphasizes that a student should never be required to apply what he has not mastered orally.

Conceptual frame

Before starting the study on the analysis of errors, it seems necessary to focus on the clarification of some concepts. The goal is to remove some ambiguities to allow the reader to follow. These are terms such as "error" and "fault" as well as the evolution of the status of error in the act of language learning.

In the forum of words, about mistakes or spelling errors, Jean-Mi posted on February 10, 2010 what follows: "it's my fault, it's my very big fault". It is this expression that most often comes to the mind of any learner. For him, the word fault has moral connotations, it is seen as a sin. In medical matters, we speak more of "lack of diagnosis" than of "diagnosis error". Based on this observation, this study fits into the vision of Jean-MI who postulates that the "fault" implicitly suggests guilt, while the "error" is only a forgivable failure, that is to say it is humanly shared. This is how Pit Corder (1980) argued that mistakes serve to learn. Spelling being the transcription of a language from its spoken code into its written code, it is therefore imperative to remember that normative ignorance is not a fault. Therefore, the term "fault" must yield to the use of that of "spelling error".

The word error comes from the Latin "to err" from the family of "errare" which means "to deviate, to move away from the truth". The error seems to be a delicate concept to define according to certain authors. Thus researchers like Porquier & Frauenfelder (1980: 36) argue that it is impossible to give an absolute definition to the word "error":

Error can (...) be defined in relation to the target language, or in relation to exposure, even in relation to the intermediate system of the learner. We cannot really speak of error. We see then that it is impossible to give an absolute definition of error. Here, as in linguistics, it is the point of view that defines the object. (Translation mine).³

³Source: L'erreur peut (...) être définie par rapport à la langue cible, soit par rapport à l'exposition, même par rapport au système intermédiaire de l'apprenant. On ne peut véritablement parler d'erreur. On voit alors qu'il est impossible de donner de l'erreur une définition absolue. Ici comme en linguistique, c'est le point de vue qui définit l'objet.

On the other hand, other authors such as Cuq et al. (2004:192) propose a provisional definition of error which is that of "deviation from a provisional norm or an expected achievement". From this definition, it is reasonable to question the status of error in the act of teaching/learning languages. As Rouamba (2020) reminds us, in traditional and direct methodologies, error was considered a pejorative act and its presence in class must be sanctioned in the sense that it "reflects the weakness and failure of learners". But, with the advent of the communicative approach, the error will acquire a positive status, it then becomes a sign of learning. Moreover, error is inevitable in the act of learning. To support this state of affairs, Cuq & Gruca (2006: 389) testify that "there is no learning without error, because that would mean that the learner already knows".

Based on this observation, Astofli (1997: 97) shows the status of error over time: "from the end of the 19th century to the beginning of the 20th century, error testifies to weaknesses; from 1940 to 1960, error is excluded from learning; from 1960 to today, the error is seen as a mark on the path of learning".

That said, it should be remembered that the status of error in school has changed considerably in recent years. To go in the same direction as researchers who grant a positive status to error, Bezzeckhami (2016: 9) underlines that "today, error is considered a normal stage of learning. The status of the error actually appears to be a good indicator of the learning model in force in the class."

METHOD

The methodological approach adopted in this article is qualitative. As a data collection tool, an interview guide was sent to teachers in order to obtain information relating to teaching practice as well as the difficulties they may encounter related to spelling. The preparation sheets of the teachers holding the French/Moore bilingual classes were analysed. The investigations carried out took place in May 2021 at the bilingual primary school of Samandin B, a school located in Ouagadougou, the capital of the country. The interest was in mathematics lessons, since it is a study falling within the framework of the project "Improvement of the teaching / learning of mathematics in the Moore/French and Fulfulde-French bilingual schools in Burkina Faso" of the APPRENDRE program of the Francophone University Agency (AUF).

To do this, ten preparation sheets for mathematics lessons in first and second year classes were used. The preparation sheet is a personal tool allowing "the formalization of the teacher's work so as not to improvise and to be effective, to keep the common thread of the sequence, to help identify and achieve the objectives of the sequence. (Lingani, 2015: 155). In other words, the preparation sheets for class sequences constitute, therefore, an assembly tool specific to class activities. They derive their importance from the fact that they serve as support, as guides for any sequence presented by the teacher.

Finally, an analysis grid made it possible to list the types of errors. This explains the use of the typological error analysis grid according to Catach (1986), which classifies errors into six categories: errors predominantly extragraphic, phonogrammic, morphogrammic, logogrammic, ideogrammic and errors with non-functional dominant.

The analysis will also fit into the window of the steps recommended by Perdue Clive (1980) which are the following: (i) find the error, (ii) describe the error and (iii) explain the error.

RESULTS

To allow the reader to follow, it is necessary to recall some principles governing the writing of the Moore language in order to better understand the errors that will be analyzed.

Reminders of the rules of orthographic writing of Moore

To provide national languages with an orthographic code, a national alphabet was created by decree n°79/055PRES/ESRS of February 2, 1979. It includes 42 symbols, including 31 consonants and 11 vowels.

The rules and conventions governing the writing of Moore are inspired by the national alphabet. The spelling of Moore includes 26 symbols including 18 consonants and 8 vowels represented in the table below:

Table 1. The Symbols Of The Moore Alphabet

a	⁴'	b	d	e	ε	f
g	h	i	ɪ	k	l	m
n	o	p	r	s	t	u
v	v	w	y	z		

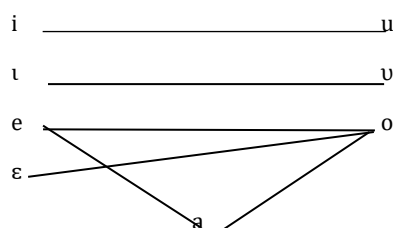
Source: Balima (1997)

After presenting the symbols of the alphabet, the following sections will report on the orthographic representation of these segments and the principles of the orthographic writing of Moore.

Orthographic representation of vowels and consonants

It should be remembered that the eight vowels of short Moore all have corresponding long ones (ii, uu, ɪ, ʊ, ee, εε, oo, aa). Heterotimbral vowels also exist in the spelling of Moore. The different combinations of stamps are shown in the table below:

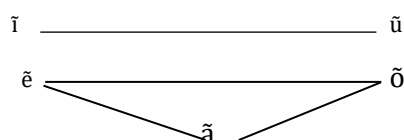
Table 2. The Oral Diphthongs of Moore



Source: Balima (1997)

As with isotimbral vowels, heterotimbral vowels also have long correspondents (iuu, uii, ʊʊ, ʊʊ, eoo, oee, εoo, oεε, eaa, aee, oaa, aoo). Only three oral vowels have no nasal counterparts in Moore: ɪ, ε, v. These nasal vowels can be short or long. As for diphthongs, all nasal vowels do not have the same combination possibilities as shown in the table below:

Table 3. The Short Nasal Diphthongs of Moore



Source: Balima (1997)

When it is a long nasal vowel, only the first bears the mark of nasalization whether it is isotimbral (ãa, ïi, ũu, ēe, õo) or heterotimbral (ũii, ãee, ēoo, õee, ãoo, õaa).

⁴ In Moore, the glottal considered as a consonant in its own right, is symbolized by the apostrophe (').

Regarding the consonants, only l and s can be doubled in the spelling of mooré (ll, ss) if the conditions are met. The consonants k, g can be realized kj or gj but are transcribed k, g in the spelling. The consonants b, d, g can also undergo modifications due to contexts but remain as such in the spelling. In fact, spellings like *soamma (hare), *tōnno (we), *naŋŋa (scorpion) must be transcribed respectively soamba, tōndo and nanga in the spelling.

Principles of orthographic writing of Moore

Several rules govern the spelling of Moore. Here, we briefly recall a few to enable the reader to follow along.

(i) Vocal elision

In Moore, when a word does not end a sentence and is not followed by a pause, its final vowel drops, except for the grammatical elements *ã* (mark of the definite) and *ẽ* (spatial-temporal mark and of the imaginary world). Example: *wa kelge* "come and listen"; *wa kelg la f tũ* (come listen and comply). Here, when the verb *kelge* "to listen" does not end the sentence, the vowel "e" is elided.

(ii) Vocal epenthesis

In Moore, when certain conditions are met, a supporting vowel is inserted to indicate that consonants are pronounced separately and distinctly. Thus, vowel insertion allows us to distinguish words like *wēnega* "a category of dance" from *wēnga* "bad". It should be remembered that there are three epenthetic vowels: i, u, e. Each vowel is inserted according to a specific context.

(iii) Automatic nasalization

In Moore, when a vowel follows a nasal consonant (m, n), it is automatically nasalized and therefore does not bear the mark of nasalization (~). As a result, spellings like **nāaba* "chief", **māam* "me" are not reflected in the spelling and are transcribed *naaba*, *maam* respectively. However, spatio-temporal (*ẽ*) and definite form (*ã*) marks do not obey this rule and bear the tilde regardless of the context.

(iv) Grouping and separating words

Briefly, it is to be recalled here, the spelling of grammatical and non-grammatical elements. They can be separated by a hyphen, written glued or stand alone. Are linked to the word by a hyphen, among others, grammatical elements such as reduced personal pronouns in postverbal position (*kō-a* "give him"); the middle-form personal pronouns after *ne* "with" or *ade* "here" (*ad-ma* "here I am").

The reduced forms *ã* of the mark of the definite *wã*, *a* and *ame* of the mark of the declaration blade, and the mark of location and time or of the imaginary world *ẽ* are transcribed glued to the word: *baagã* (the dog); *roogẽ* (in the house); *pagã yābame* (the woman cried); *biigã yāba zaamẽ* (the child cried yesterday).

The autonomous grammatical elements are, among others, the mark of the definite *wã* (*ki wã* "that millet"), the full form of the affirmative assertion *lame* (*a pāb-a lame* "he hit him"), the mark of the negation *ka....ye* (*a nan ka rı ye* "he hasn't eaten yet).

As for non-grammatical elements, compound words can be written with a hyphen: *na-biiga* "prince"; *pa-weoogo* "emigrated", *togs-n-taare* "imitation"; there are compounds without a hyphen: *zug peoogo* "hat", *maasem tuga* "umbrella"; single-word compounds also exist: *kuware* "groin", *bōnyēga* "the lion".

It should also be remembered that the constituent elements of reduplication are separated by a hyphen: *pēelg-pēelga* "whitish", *maasg-maasga* "slowly". On the other hand, the constituent elements of repetition are written in a single word: *yopoepoe* "seven each", *pisoobsoobe* "sixty each".

After having made this brief reminder of some rules which govern the spelling of the Moore, now let us move on to the analysis of the errors strictly speaking. This reminder allows the reader to follow along.

Presentation and analysis of data

Of the ten (10) preparation sheets, two sheets were chosen at random in order to identify the spelling errors therein. The first worksheet represents a lesson in geometric activities. The second concerns arithmetic. It is determined the type and number of spelling errors made to carry out the analysis. This approach made it possible to have a precise idea of the nature of the most dominant errors that I classified while relying on the typological grid of spelling errors by Nina Catach (1986). In each table, in the column of examples, first, the error is transcribed in italics, then the correction is in parentheses, and finally, the English translation of the expression. The table below shows the errors found on a geometry lesson preparation sheet.

Table 4. Number of Errors Noted on a Geometry Teaching Sheet

Type of error	Number	Percentage	Example
Phonetic extragraphic dominant error	05	31,25%	<u>Omission of a phoneme</u> <i>y sā ta yiri</i> (y sā n ta yiri) once at home <u>Confusion of a vowel</u> <i>tiir pu-suka</i> (tiir pv -suka) half perimeter; <i>karēn-biisā</i> (karen-biisā) the learners; <i>yārēmde</i> (yāremde) quadrilateral <u>Incorrect addition of a phoneme</u> <i>yaasere</i> (yaasre) corner
Grammatical morphogramic dominant error	04	25%	<u>Category confusion +definite/-definite</u> <i>zāmsga poorē</i> (zāmsgā poore) at the end of the session; <i>a baaba</i> (a baabā) his father; <u>Category confusion + locative/-locative</u> <i>zāmsga poorē</i> (zāmsgā poore) at the end of the session ; <u>Failure to agree on the name</u> <i>wal-bi zugu</i> (wal-bi zutu) on the slates
Dominant ideogram error	07	43,75%	<u>Lack of hyphen</u> <i>toto</i> (to-to) manner ; ... <i>la a bēega</i> (la a bēeg-a) and draw it ; <i>kog kdsā</i> (kog-kdsā) the widths ; <i>a baabā le paasa</i> ... (a baabā le paas-a ...) his father added to him... <u>Erroneous addition of a hyphen</u> <i>tulsem-takı</i> (tulsem takı) specific objective, <i>b rēesda-b wal-bi zutu</i> (b rēesda b wal-bi zutu) they draw on their slates ; <u>No comma</u> <i>zāmsgā poore biig fāa segd n</i> ... (zāmsgā poore, biig fāa segd n...) at the end of the session, each learner will be able to...
Total	16	100%	

This table shows that the preparation of geometry lessons by teachers reveals several difficulties in each category of errors, including that related to the confusion of phonemes, the absence of punctuation, the confusion of the definite and the indefinite in Moore, etc. These errors are also noted on the preparation sheet for an arithmetic lesson. They are represented in the table below:

Table 5. Number of Errors Noted on an Educational Sheet In Arithmetic

Type of error	Number	Percentage	Example
Phonetic extragraphic dominant error	12	48%	<p><u>Omission of a phoneme</u> <i>geedame</i> (geendame) action of performing a mathematical operation ; <i>gule</i> (gulle) circle ;</p> <p><u>Confusion of a vowel</u> <i>tulsem</i> (tulsem) objective ; <i>bugse</i> (bugse) to meditate ; <i>sigli</i> (sigli) to perform the operation ; <i>puubo</i> (puubo) division ; <i>geel-sigindem</i> (geel-sigindim) operation ; <i>zāndlum</i> (zāndlem) height ; <i>yub-ta-mūmdi</i> (yub-ta-mumdi) parallelepiped ; <i>guls-mōogo</i> (guls-moogo) pen ;</p> <p><u>Incorrect addition of a phoneme</u> <i>Sigl-y la y geele yembr-yembre</i> (sigl-y la y geel yembr-yembre) pose and perform one by one ;</p>
Grammatical morphogramic dominant error	06	24%	<p><u>Category confusion +definite/-definite</u> <i>zāmsga poorē</i> (zāmsgā poore) at the end of the session ; <i>a ma le paas-a</i> (a mā le paas-a) his mother added to him ; <i>a baaba le paas-a</i> (a baabā le paas-a) his father added to him ; <i>karen-biisā gulsda leokra</i> (karen-biisā gulsda leokrā) learners write the answer ; <i>karen-biisa geendame</i> (karen-biisā geendame) students perform the operation ;</p> <p><u>Category confusion + locative/-locative</u> <i>zāmsga poorē</i> (zāmsgā poore) at the end of the session.</p>
Dominant ideogram error	07	28%	<p><u>Lack of hyphen</u> <i>gom zugu</i> (gom-zugu) topic ; <i>a mā le paasa..</i> (a mā le paas-a) his mother added to him ... <i>bugs n geelga</i> (bugs-n-geelga) problem ;</p> <p><u>Erroneous addition of a hyphen</u> <i>zāmsgā - gom zugu</i> (zāmsgā gom-zugu) lesson title ; <i>tulsem-takı</i> (tulsem takı) specific objective ; <i>pis-naas-naase</i> (pis-naasnaase) 200 F CFA ;</p> <p><u>No comma</u> <i>zāmsgā poore biig fāa segd n</i> (zāmsgā poore, biig fāa segd n..) at the end of the session, each learner will be able to ...</p>
Total	25	100%	

All the spelling errors noted on the two sheets are summarized in the table below:

Table 6. Summary Of Errors Found In Mathematics In Moore

Type Of Error	Number	Percentage	Example
Phonetic extragraphic		41,46%	<u>Omission of a phoneme</u>
dominat error	17		<i>geedame</i> (geendame) action of performing a mathematical operation ; <i>gule</i> (gulle) cercle ; <u>Confusion of a vowel</u> <i>tulsem</i> (tulsem) objective ; <i>tiir pu-suka</i> (tiir pu -suka) half perimeter ; <u>Incorrect addition of a phoneme</u> <i>Sigl-y la y geele yembr-yembre</i> (sigl-y la y geel yembr-yembre) pose and perform one by one ;
Grammatical	10	24,39%	<u>Category confusion +définite/-définite</u>
morphogramic			<i>zāmsga poorē</i> (zāmsgā poore) at the end of the session ; <i>a ma le paas-a</i> (a mā le paas-a) his mother added to him ; <i>a baaba le paas-a</i> (a baabā le paas-a) his father added to him ;
dominant error			<u>Category confusion + locative/-locative</u> <i>zāmsga poorē</i> (zāmsgā poore) at the end of the session.
Dominant ideogram	14	34,14%	<u>Lack of hyphen</u>
dominant error			<i>gom zugu</i> (gom-zugu) topic ; <i>toto</i> (to-to) way <u>Erroneous addition of a hyphen</u> <i>zāmsgā - gom zugu</i> (zāmsgā gom-zugu) lesson title ; <i>pis-naas-naase</i> (pis-naasnaase) 200 F ; <u>No comma</u> <i>zāmsgā poore biig fāa segd n</i> (zāmsgā poore, biig fāa segd n..) at the end of the lesson, each learner will be able to ...
Total	41	100%	

In total, on the two sheets that we have chosen at random, forty-one (41) errors were noted. Obviously, this proves that teachers do indeed encounter difficulties related to the orthographic writing of Moore in the preparation of lessons. Among these errors, the most dominant are represented in the graph below:

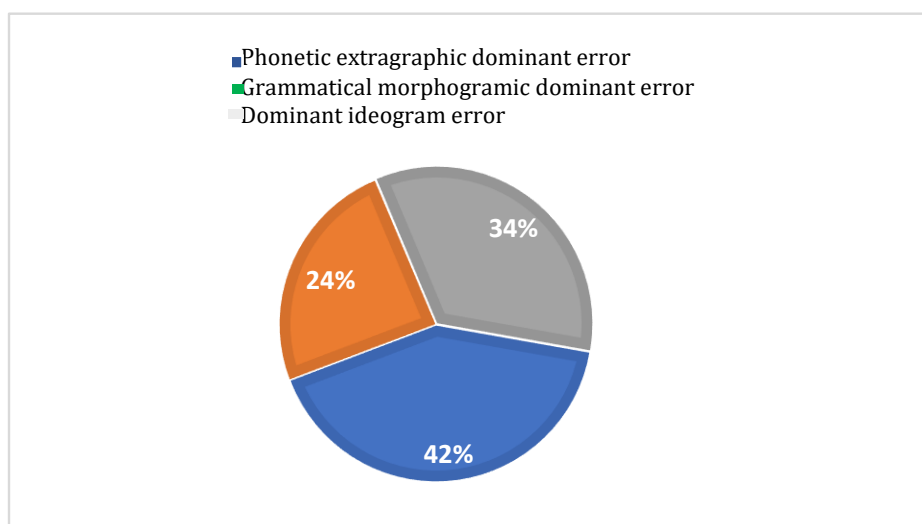


Figure 1. Percent Error Types

The graph above shows that errors with a dominant extragraphic phonetic character are the most recurrent on teachers' pedagogical sheets. These errors are manifested by a phoneme omission, a phoneme confusion, or by an erroneous addition of a phoneme.

DISCUSSION

This section sets out to corroborate or refute the hypotheses initially put forward. If errors have been noted, after their description, it is necessary to explain why these errors are made, and especially by the teachers. From the analysis of the data presented in the tables above, it emerges that the spelling errors encountered by the teachers are errors with a dominant extragraphic phonetic character, errors with a dominant grammatical morphogram and errors with a dominant ideogram.

In grammatical morphogramic errors, the observation is that teachers have difficulty in distinguishing the mark of the definite from that of the indefinite in Moore. For example, to write *At the end of the session*, "the learners will be able to...", where we know which session is about, the teachers give the information as if the session was not known. Instead of *zāmsgā poore* /the teaching, after/, they write **zāmsga poore* /teaching, after/. This is due to the fact that the reduced form of the mark of the definite *wā* in Moore is a nasal vowel /ã/ and is written stuck to the word. Teachers write the oral vowel /a/ which is not a grammatical element in this context. The denasalization of the reduced form of the mark of the definite is not reflected in the spelling. The same is true for the grammatical element, the spatio-temporal mark and the imaginary world /ẽ/ associated with a functionalized name in Moore. The mark /ẽ/ associated with any name or part of the human body generally indicates the locative (*roogẽ* "in the house", *koomẽ* "in the water", *poorẽ* "behind"). In the word *poorẽ*, we have *poore* "back" and /ẽ/ "mark of location". As a functionalized noun, *poore* denotes "after". The expression *At the end of the session*, must be translated into Moore as after the session and not behind the session or concerning the session. Therefore, we must write *zāmsgā poore* and not **zāmsgā poorẽ*. The vowel is oral and not nasal.

The predominantly ideographic errors noted on the educational sheets generally manifest themselves from elements of punctuation such as the absence of the pause (comma), the lack of a hyphen or the erroneous addition of a hyphen. In Moore, when a word does not end a sentence and its final vowel is pronounced, it necessarily requires a comma. This is the example of the word *poore* "back (after)" in the expression *at the end of the session the learners will be able to....* The teachers write **zāmsgā poore karen-biisā segd n ...* respect for the rules wants good writing to be followed by a break so *zāmsgā poore, karen-biisā segd n...*

As we recalled in principles of orthographic writing of Moore section, the use of the hyphen plays a very important role in the spelling of non-grammatical elements in Moore. The observation that is made is that teachers do not master the contexts in which compound words must be written with or without a hyphen or independently. The word "theme" in Moore is transcribed **gom zugu* instead of *gom-zugu*. This could be due to the lack of mastery of the grammar of Moore. In the compound *gom-zugu*, there is the hyphen because the first element of the compound *gomde* "speech" has lost its class suffix {-re}. The compound becomes compact, so it is written with a hyphen. On the other hand, in the compound **tulsem-taki* "specific objective", the first element *tulsem* "need" having not lost its class suffix, this type of compound is written autonomously, therefore *tulsem taki* and not **tulsem-taki*.

Lack of mastery of the grammar of Moore seems to be one of the main causes of the spelling errors noted on their preparation sheets. For example, the personal pronouns of Moore come in various forms: reduced form, medium form and full form. Let's take the third person singular, the full form is "yēnda", the middle form "yē" and the reduced form is "a". Depending on the form of the pronoun and its position in relation to the verbal base, the spelling principles change through the use of the hyphen. On all cards, this error was made by the teachers. During an exercise in arithmetic or geometry, this rule is not respected at all. To say that "his father added (n pebbles) to him", the teachers write rather "his father added" in Moore. Good writing requires that the pronoun "a" which is postposed to the verb, be linked to it by a hyphen; therefore, *a baabā paas-a* and not **a baabā paasa*. This situation could affect students' understanding of mathematical activities. These facts point out, in my view, that the lack of mastery of the rules governing the spelling of Moore is at the origin of the errors made by the teachers on their teaching sheets. This supports the first hypothesis of this study.

Of all the errors noted on the teachers' preparation sheets, those that dominate are phonetic (42%) (see Figure 1). These errors manifest themselves mainly through the omission of phonemes, the confusion of phonemes and the erroneous addition of a phoneme. Whatever the type of phonetic error, it undermines the smooth running of the mathematics teaching/learning process. For example, the word circle, instead of *gulle*, the teacher writes *gule* which means "to write (plural)". The omission of the second consonant /l/ systematically leads to a change of meaning. This is why in the spelling of Moore, the double consonant /ll/ is reflected, if the conditions are met, in order to be able to make a difference with the single consonant /l/.

Another fact that deserves more attention is that of the 42% of phonetically dominant errors noted, 70% are due to a confusion of phonemes, especially vowels. Teachers fail to distinguish, on the one hand, the tense closed front vowel /i/ from its loose corresponding /ɪ/, and on the other hand, the tense high velar vowel /u/ from its loose corresponding /ʊ/ in Moore. Yet these vowels are indeed distinct phonemes in the language. In a proposed exercise in arithmetic, to say "he gave me ..." which translates into Moore as "a kisa maam" /3 sg, give-acc, 1sg/, the teacher instead wrote **"a kisa maam"/3sg, detester-acc, 1sg/* which means "he hates me" in English.

Similarly, the term "problem" translated into Moore by *bugs-n-gēelga* /think-relator-operation/ is written **bugs-n-gēelga* /to frighten-relator-operation/ which would seem to say in Moore "to carry out operations while frightening". By writing /u/ instead of /ʊ/ the teaching does not seem to translate the logic of the educational objectives pursued. But what could be the origin of this confusion of the two vowels?

It should be remembered that teachers in charge of bilingual classes went through classical schools during their school career. That said, in their articulatory habits, they have greatly internalized the symbols of French. The loose vowels /ɪ/ and /ʊ/ are not attested in French. Instead, the vowels /i/ and /u "ou"/ are reflected there. Teachers try to transpose this fact into Moore. This is a phonetic interference that explains the fact that teachers write /i/ and /u/ instead of /ɪ/ and /ʊ/ respectively. This means that beyond the lack of mastery of the spelling rules, the hypothesis stipulating that phonetic interferences are also at the origin of the errors made by the teachers on the educational sheets is confirmed.

SUGGESTIONS FOR REMEDIAL ACTION

The analysis of the elements which are at the origin of the spelling errors committed by the teachers leads us to make proposals going in the direction of filling these gaps. These are therefore some remedial avenues that will lead teachers to correct these errors. Remediation is a "more or less formal device which consists in providing the learner with new learning activities to enable him to fill in the gaps diagnosed (...)" (Bezzekhami, 2016: 29).

As avenues for remediation, it seems necessary to introduce aspects of general linguistics such as phonetics, phonology, morphology and syntax into teacher training curricula in training schools, as recalled by Nacoulma, Bere, and Tirogo (2019) regarding the impact of borrowings from Moore from French on the learning of French in bilingual classes in Burkina Faso. These modules should allow teachers to acquire knowledge on the phonetic realization of sounds in order to understand the phenomena of linguistic interference.

Moreover, the lack of training and lack of interest in continuing education on the part of some teachers holding bilingual classes is one of the main causes of the lack of mastery of the grammar of Moore (Sawadogo, 2015). Faced with this reality, emphasis should be placed on refresher courses. It is being understood that phonetic interferences – which manifest themselves by the confusion of tense and relaxed closed vowels – it is possible to introduce the following activities during refresher courses:

(i) Write *i* or *ɪ*, *ii* or *u* depending on the meaning

a) a *k.sa maam* (he hates me) / a *k.sa maam* (he gave me)

b) a *p..sa ligdi* (he swept away money) / a *p..sa ligdi* (he found money)

(ii) Choose *ui* or *ʊ* depending on the meaning

a) *t..* "to put on"

b) *t..* "spread out (to sit down)"

c) *p..* "to divide"

d) *l..* "to fall"

In order to master the grammar of Moore – which will be manifested concretely by the distinction of the definite from the indefinite and the notion of the spatio-temporal mark – the following activity could be submitted to them:

(iii) Give the correct transcription of the following words and sentences:

a) nine "in the eyes"

b) *biiga loogame* "the child is gone"

c) *koome* "in the water"

d) *f kooma noomame* "your water is good"

e) *paga waame* "the woman has come"

f) a *zīi pīirī* "he is sitting on a mat"

g) a *kēe koome* "he entered the water"

The follow-up of teachers in charge of bilingual classes is provided by pedagogical supervisors. However, some supervisors do not have enough knowledge of the spelling of Moore. Therefore, it is necessary to emphasize training in bilingual education at the Ecole Normale Supérieure (ENS) of Koudougou. Supervisors deserve to be well equipped on aspects relating to bilingual education in order to properly carry out their monitoring activities in the field.

Excellence prizes for writing in Moore can be introduced in order to motivate teachers to master the spelling of the language. And this necessarily involves reading because "to acquire good spelling, you must also use reading to memorize words, to write correctly and do good writing,

you must always note the errors often encountered and consult the dictionary to avoid making the same mistakes. (Djema, 2021: 43).

CONCLUSION

Through this study, I was able to identify the different categories of spelling errors in Moore made by the teachers of bilingual classes in Burkina Faso. While drawing our inspiration from the typology drawn up by Catach (1986), the most dominant errors encountered are three: errors with a dominant extragraphic phonetic character, errors with a dominant grammatical morphogram and errors with a dominant ideogram. Among these errors, the most productive among teachers are those with a phonetic dominance (42%) which essentially manifest themselves by phoneme omission and phoneme confusion. The analysis made it possible to deduce that the main sources of these errors are largely due to the lack of mastery of the rules governing the writing of the Moore language and the influence of French causing phenomena of phonetic interference. These results amply confirm the hypotheses formulated at the beginning of this study. Knowing the origins of the errors, we have proposed some ways to remedy these errors. These proposals range from the introduction of general linguistic modules (phonetics, phonology, morphology, syntax) in teacher training curricula to the development of recycling activities through the emphasis on continuing education.

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