Linguistic features in expository paragraphs of multilingual fourth-graders

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ABSTRACT

Knowledge of spelling development concerning phonology, orthography, and morphology and the non-linguistic factors affecting spelling execution have significant instructional and theoretical implications. Few studies have been conducted on Binisayang-Sinugboanon regarding spelling and literacy development and primary pupils simultaneously learning Filipino and English languages, which vary in the phonological, orthographical, and morphological systems. This study was conducted to provide an in-depth understanding of the triple word-form theory and cross-linguistic interference by explicitly analyzing the linguistic features and spelling error categories in the expository paragraphs in the Binisayang-Sinugboanon, Filipino, and English of the multilingual fourth-grade spellers. Types of spelling errors were identified and interpreted using the POMAS Coding System and Analysis of Variance (ANOVA), in which the Binisayang-Sinugboanon got more errors in orthographical and morphological features among the three codes, which implies that multilingual participants find their mother tongue very complex in terms of their spelling structures. All three codes were high on orthographically-based errors with many occurrences in capitalization and unusual vowel patterns in English and vowel errors for both Binisayang-Sinugboanon and Filipino. Loanword fusion, a newly discovered error feature, was high in both local codes- proving the effect of multilingualism on spelling. The results of this research have transparent instructional implications for teaching spelling and theoretical implications for multilingualism concerning literacy development. The study may pave the way to research-based instructional intervention, emphasizing the orthographical-phonological-morphological interrelatedness, which may vary pedagogically considering their effects on multilingual learners.

1. Introduction

Spelling instruction underpins reading success by creating an awareness of the sounds that make up words and the letters that spell those sounds. In connection to writing, it well requires a recursive process of ideation, planning, and editing (Graham et al., 2012), and spelling is a fundamental component of writing. Spelling ability indicates pupils' later reading and writing success from early grades through late elementary school.

Despite the acknowledged importance of spelling ability, the current spelling research has focused primarily on native speakers of English. From the national perspective, since the implementation of Mother Tongue-Based Multilingual Education in the Philippines with the end goal of making Filipino children lifelong learners in their L1 (Mother Tongue, the Binisayang-Sinugboanon), L2 (Filipino, the national language), and L3 (English, the global language), little is known about the development of spelling among early graders. More so, fewer studies have been conducted on Binisayang-Sinugboanon with regards to spelling and literacy development in addition to primary pupils simultaneously learning Filipino and English languages which vary significantly on the phonological, orthographical, and morphological systems. Though there have been a number of studies related to spelling development and multilingualism, this study explores on there have been a number of studies related to spelling development and multilingualism, this study explores the theoretical implications of spelling development through a multilingual lens, explicitly utilizing the narrow approach. Using an individual feature analysis and error category analysis, this method looks at how linguistic features impact children's misspellings (Reece & Treiman, 2001; Silliman, Bahr, & Peters, 2006). It typically delimits spelling analysis to one feature at a time in the chosen genre - exposition writing. Analyzing spelling errors with emphasis on their usage rather than marking the spelling of the word 'right or wrong' is a better way to assess and evaluate students' understanding of sounds and conventional spelling patterns. Graham et al. (2013) corroborate this theory, arguing that the trend offers a singular chance to examine misspellings in the context of the genre because the genre shapes the way writers approach composition. Hence, knowledge of spelling development concerning phonology, orthography, and morphology in the three languages and the non-linguistic factors that affect the spelling performance of the participants in their expository essays have important pedagogical and theoretical significance for the implementation of MTB-MLE.

The pedagogical significance of this study addresses the spelling improvement of the mother tongue, Filipino and English, which may be caused by phonological, morphological, and orthographic differences aimed at establishing explicit and systematic literacy instruction. Moreover, the theoretical significance of this study includes the integration of theories from different areas of study: linguistics, SLA, psycholinguistics, and multilingualism which provide a thorough understanding of the Mother-tongue, Filipino, and English spelling processes from a multifaceted language perspective.

2. Theoretical basis

Few investigations have been directed at Binisayang-Sinugboanon regarding spelling and proficiency improvement, notwithstanding young learners learning Filipino and English dialects (which differ extraordinarily in the phonological, orthographic, and morphological frameworks). Accordingly, information on spelling development concerning phonology, orthography, and morphology (triple word-form theory) on the three dialects and the non-phonetic variables (cross-linguistic interference) influence the learner's spelling execution in descriptive expositions are vital in the spelling development of multilingual fourth graders.

With multilingual-based education, where primary pupils in the Philippines are required to learn three language codes simultaneously with varied phonological, orthographic, and morphological rules, learning multiple languages will affect the spelling execution of the children considering the influences and interventions due to cross-code relationships. Hence, looking deeply into the three language codes and their varying linguistic features would provide policymakers, curriculum implementers, and the language academic council of Binisayang-

Sinugboanon with some light on a standardized code for consistency in the usage of all mother-tongue literature.

The fundamental theory of this study, the Triple Word Form Theory, comprises three codes: phonological, which analyzes phonemes in spoken words; orthographic, which examines letters, letter groups, and larger letter patterns in written words; and morphological, which examines root words, prefixes, and inflectional and derivational suffixes in both spoken and written words. By linking new meanings to their corresponding written forms, these cross-code relationships may also affect how richly vocabulary is enhanced (Verhoeven & Perfetti, 2011) in spelling. According to Bahr, Silliman, Berninger, and Dow (2012), the key advantage of our linguistic framework is the improved understanding it permits of students' formative spelling strategies.

Silliman et al. (2006) propose the use of a POMAS (Phonological-Orthographic-Morphological Analysis of Spelling) Scoring System to assess spelling errors, which are categorized as phonologically-based, orthographically-based, and morphologically-based spelling errors with smaller subsets consisting of 56 linguistic features that provide qualitative differences within each error category (Bahr et al., 2012). On the other hand, given the need for more information on spelling in multilingual, the POMAS-Filipino version and the Mother-tongue version with 42 and 40 features were crafted by a pool of experts.

Orthographically-Based Misspellings are primarily derived from a writing routine that segments a plausible error in its convention assigned to meaning in context. In other words, it is the convention that grounds how words are spelled and should be spelled in writing according to the agreed standard of usage. Acquiring a thorough understanding of the conventions used in that code and ample exposure to the language makes one a skilled speller, while a lack of knowledge of these conventions and exposure to text will result in the child making incorrect spelling choices to represent particular sounds. Orthographically-based errors include the following linguistic categories: Apostrophe Error (OAE), Consonant Doubling Error (OCD), Consonant Error (OCE), Capital Letter Error (OCL), Digraph Error (ODI), Hyphen Error (OHY), Hard and Soft Velars Error (OHSV), Letter Doubling Error (OLD), Letter Name Error (OLN), Letter Reversal Error (OLR), Letter Sound Error (OLS), Long Vowel Pattern Error (OLVP), Long Vowel Word Families Error (OLVWF), One Word Error (OOW), Phoneme Addition Error (OPA), Plural Error (OPE), Syllable Juncture (- y to I) Error (OSJ), Silent Letter Error (OSL), Syllabic /l/ Error (OSE), Unusual Vowel Pattern Error (OUVP), Vowel Error (OVE), Vocalic /r/ Error (OVC), and Word Boundary Error (OWB).

Phonologically-Based Misspellings are errors primarily derived from a writing routine that segments a phonological feature assigned to orthographic representations to these individual segments. It is an aspect of language that deals with rules for the structure and sequencing of speech sounds. In the study by Friend and Olson (2008), students with spelling disabilities exhibited significant deficits in reading measures of phonological decoding and language measures of phonological awareness.

Based on "Makabagong Balarilang Pilipino" (Santiago & Tiangco, 2003), the Filipino alphabet, though, in a sense, phonetic (words are spelled as they are pronounced), does not reflect exactly the correct sounds in written form. For this reason, in addition to learning the written alphabet, it is critical for writers to understand how each Filipino sound is represented descriptively in order to better express and write what they intend to say (Filipino Structure, 2003). Moreover, the Binisayang-Sinugboanon language is deemed a phonetic language as well. However, with the absence of standard rules in phonetic orthography coupled with a very

minimal number of books and other reading materials of the language, even if it is the mother tongue of the Cebuanos, this poses a significant challenge to writing in this language with orthographic accuracy, especially for early spellers. Hence, the rules followed in this study are based on the work of the *batidila* (grammarian) of the language, Cesar P. Kilaton Jr., as reflected in the works of De Catalina (2016), Godin (2017).

Phonologically-based errors include the following linguistic categories: Consonant Deletion Error (PCD), Cluster Reduction Error (PCR), True diphthongs vs. Long/short vowels Error (PDIP), Devoicing Error (PDV), 2 & 3 Element Clusters Error (PECL), Epenthesis Error (PEP), Final Consonant Deletion Error (PFCD), Flaps Error (PFLP), Final Position Voicing and Devoicing Error (PFPVD), Fronting Error (PFR), Long Vowel Error (PLV), Nasal Error (PNE), /s/ Clusters Error (PSC), Silent /e/ Error (PSE), Schwa Error (PSHW), Sonorant clusters Error (PSON), Syllable reduction Error (PSR), Schwa Reduced Syllable Error (PSRS), Stopping Error (PST), Short Vowels Error (PSV), Voicing Error (PVO), Vocalic /r/ Error (PVOCR), and Liquid Approximant Error (PLAE).

Morphologically-Based Misspellings are errors primarily derived from a writing routine that segments a morphological feature assigned to orthographic representations to individual segments. Morphology deals with the arrangement of complex words and parts of words also called morphemes, and the logical aspects of lexical meanings. Morphological and semantic understanding enables human beings to recognize individual words and their meanings in discourse easily. Errors happen due to the learner's lack of grammatical understanding related to word-formation in the target language.

In terms of linguistic typology, Filipino and Binisayang-Sinugboanon codes are, by nature, agglutinative in which the meanings of the words (specifically for nouns and verbs) are governed by AFFIXES (De Catalina, 2016) but also manifest to display inflection. In Filipino, morphological change is common in most suffixes agglutinated to the root word. Though there was a conventional account of the list of distinct affix forms, Schachter and Otanes (1972) specified *17 affixes for noun derivations*, 16 affixes that can be attached to different word classes to form adjectives, and 17 major verbal affixes, while in Binisayang-Sinugboanon, there are about 3700 affixes in our Binisayang-Sinugboanon language according to the late Bishop Manuel Yap (De Catalina, 2016). Confusion as to when to change vowels and to what words these words are loaned from is one of the causes of errors in this category. Omission, deletion, or separation of affix to its base word are common causes of this error.

Morphologically-based errors include the following linguistic categories: Baseword Error (MBE), Derivation Error (MDER), Derivational Morphology Error (MDVM), Homonym Error (MHOM), Inflectional Morphology Error (MINF), Loanword Fusion Error (MLWF), Prefix Error (MPRE), Shifts-Phonological Change Error (MSH), and Suffix Error (MSUF).

A number of studies have been conducted to explore the spelling errors of students. Jayousi and Thaher (2011) have noted that many learners of English show difficulties with English spelling. These difficulties have been attributed to the irregularity of the orthographic system of English and mother tongue interference. Joye, Broc, Marshall, and Dockrell (2022) offer a description of misspellings of elementary students using POMAS to test the "universality" of POMAS and its suitability to track development in French spelling. Interplays between different types of linguistic knowledge were evident at all grades. In comparison with other writing systems, French text spelling competence relied heavily on morphological knowledge. In the study of Bear and Templeton (1998), spelling errors at the phonologic, orthographic, and morphologic levels are a natural part of spelling development. It would be

likely that errors would change as children advance academically, moving from primarily phonological to primarily orthographic and morphological errors, particularly morphological related-errors. Their study focused on the spelling errors extracted from two writing samples, a narrative and expository sample from grade one to six pupils across ethnicity. Padilla and Padilla (2021) conducted a morpho-syntactic error analysis in the written compositions of MTB-MLE policy students in the Philippines. The result reveals that the dominant morpho-syntactic errors include faulty verb tense, wrong use of prepositions, absence of linking verbs, omission of prepositions, and unnecessary use of articles. There was also a considerable number of errors involving spelling, word choice, code-switching, faulty capitalization, punctuation omission, and run-on sentences. While these studies have shed light on spelling errors, there has not been much investigation into spelling errors in various language codes. Hence, this study is geared towards examining linguistic features and spelling errors through a multilingual lens.

The orthographic system of any language, not just in the English language, demands that sound and meaning be interconnected, as meaning is encoded onto morphemes while sound is simultaneously mapped to phonemes. Because meaning preservation takes precedence over sound encoding, morphology plays a special role in spelling success (McCardle, Miller, Lee, & Tzeng, 2011). Thus, looking into the spelling capabilities of the multilingual pupils in a multifaceted context is crucial, especially considering the number of issues confronted by the implementation of MTB-MLE curriculum in which Binisayang-Sinugboanon is the medium used. Since standardization is currently in the process of deliberation and most local words used in multimedia contexts are conflicting and inconsistent due to unstable linguistic rules, three perspectives have been employed in support to this study: (1) Edgar Godin, Associate Editor of Bisaya Magazine, in his Lagda sa Espeling 'Mga Batakan sa Panitik sa Binisaya-Sinugbuanon'; (2) Pesirla (2012), a university professor, in his 'Linggwistika sa Sugbu-anung Binisaya'; and (3) De Catalina (2016) in his 'Silid sa Binisaya-Sinugboanong Pinulongan'. However, in the analysis of the data, much was given emphasis and was adapted from Godin's (2017) perspectives because his perspectives were officially adopted by the Komisyon Probinsiyal sa Sinugbuanong-Pinulongan of the Province of Cebu and endorsed for the implementation of MTB-MLE of DepEd Region VII. His perspectives were also used to construct new textbooks and Teacher's Guide in DepEd for Grades 1, 2, and 3 in Mother Tongue (MT).

Based on this crucial notion, this study was conducted to address issues of cross-linguistic effects of multilingual instruction on multilingual pupils. With the pedagogical and theoretical significance that proved to create a pressing need for this study, the result aimed to establish explicit and systematic instruction in Binisayang-Sinugboanon, Filipino, and English subjects, which will also lead to the improvement of literacy skills for the participants. Specifically, the research questions are as follows: (1) What is the extent of the participants' spelling errors in the three language codes? (2) Based on the POMAS Spelling System, what are the most occurring types of linguistic features and spelling error categories committed by the participants on the three language codes? (3) Is there a significant difference between the mean number of spelling errors in the three linguistic features in the three language codes used?

3. Methodology

3.1. Research design

Quantitative-qualitative research methods were employed to present, interpret, and analyze the data gathered and discuss the findings, conclusions, and recommendations.

3.2. Participants

The participants who were chosen using purposive sampling were the 158 selected multilingual fourth-grade pupils from an elementary school in Tuburan, Cebu. Selection criteria required that participants be able to: (1) write in Binisayang-Sinugboanon, Filipino, and English; (2) both participants' parents should originate and live primarily from anywhere in Cebu; (3) should have no previous or current record of disability or special education services; (4) should have received continuous schooling through their current grade level based on the profiling of respondents prior to data collection. Qualified participants were asked to write expository paragraphs on the three language codes using a structured orally prompt to guide their composition with 50 to 100 words. The research was conducted following ethical considerations.

3.3. Instruments and procedures

The three writing samples were composed in English, Filipino, and Mother-tongue, which were evaluated for spelling error patterns. The data that did not have a sense of sentence structure (the majority of what had been written were phrases or fragments) and failed to elaborate ideas (to show written exposition) based on the prompt given were not included as data for analysis. Hence, there were a total of 184 paragraphs being analyzed: 59 for English, 58 for Filipino, and 67 for Binisayang-Sinugboanon. Scores were assigned numerical values, and types of spelling errors were identified and interpreted word for word using the POMAS Coding System by independent raters purposely chosen to ensure reliability. Analysis of Variance (ANOVA) was used to determine the significant difference between the types of linguistic features and spelling errors committed in the three language codes used.

4. Result and discussion

The results of the three sub-problems are laid out: the descriptive profile of the writing samples, the occurrences of linguistic features and spelling error categories committed by the participants on the three language codes, and the significant difference between the mean number of spelling errors in the three linguistic features to the three language codes used.

4.1. Result

4.1.1. Descriptive profile of the writing samples

The descriptive profile presented in Table 1 is about the accumulated expository paragraphs. The mean number of words and the mean number of misspellings are typically accounted for in the written samples on the three language codes: English, Filipino, and Binisayang-Sinugboanon.

Table 1

Descriptive profile of the writing samples

Language codes used in expository paragraphs	Total no. of words	Mean	Total no. of misspelled words	Mean
English (59 Samples)	3,876	65.7	613	15.81
Filipino (58 Samples)	3,285	56.64	473	14.40
Binisayang Sinugboanon (67 Samples)	3,643	54.37	600	16.47

As shown in Table 1, 59 English samples, 58 Filipino samples, and 67 Binisayang Sinugboanon samples were collected from the participants. A total of 184 paragraphs qualified for analysis. The English samples contained a total number of 3,876 words, 613 of which were misspelled words. The Filipino samples had a total number of 3,285 words with 473 misspelled words. Binisayang Sinugboanon totaled 3,643 words with 600 misspelled words. Based on the data presented, Binisayang Sinugboanon has the highest mean of misspelled words per paragraph, with a mean of 16.47. This is followed by the English code, with a mean of 15.81.

4.1.2. Most occurring types of linguistic features and spelling error categories

The spelling execution of the selected multilingual fourth-graders in their expository paragraphs in terms of linguistic features is investigated by looking into the standard error of spelling words used in the sentence. The spelling error is analyzed based on the morphologic, phonologic, and orthographic features. Each of these features is broken down into specific elements, such as structures relating to sounds, words, and conventions in writing. Tables 2, 3, and 4 show the number of occurrences of every spelling error category on the three types of linguistic features per language code to trace the source of the errors committed by the multilingual spellers.

Table 2

Most occurring types of linguistic features and spelling error categories (English)

Orthographically-based errors			**Phonologically-based errors**			**Morphologically-based errors**		
OCL	**302**	**49.27**	**PEP**	**23**	**3.75**	**MINF**	**18**	**2.94**
OUVP	**47**	**7.67**	**PSV**	**21**	**3.43**	**MBE**	**15**	**2.45**
OVE	**46**	**7.50**	**PVD**	**16**	**2.61**	**MHOM**	**11**	**1.79**
OAA	33	5.38	PSHW	13	2.12	MSUF	**5**	0.82
OCD	28	4.57	PLV	11	1.79	MDER	**5**	0.82
OWB	24	3.92	PCR	10	1.63	MSH	**3**	0.49
OPA	23	3.75	PSE	9	1.47	MS	**2**	0.33
OLS	22	3.59	PST	8	1.31	MPRE	1	0.16
OLR	19	3.10	PCD	2	0.33	MDVM	**1**	0.16
OPE	16	2.61	PFR	2	0.33			
OSL	16	2.61	PNE	2	0.33			
ODI	13	2.12	PSR	2	0.33			
OCE	10	1.63						
OOW	8	1.31						
OHY	2	0.33						
OLD	2	0.33						
OLVP	2	0.33						
Total	**613**	**100.00**	**Total**	**123**	**20.07**	**Total**	**61**	**9.95**

Table 2 shows that the multilingual participants committed a practically significant percentage of orthographically-based spelling errors, with a rating of 100 percent occurrences. All expository paragraphs using the English code have errors in this particular linguistic feature. Specifically, it rated high in the Capitalization Error (OCL) with 302 or 49.27 percent, caused by the non-observance of a capitalized letter in proper nouns and at the beginning of the sentence. Unusual Vowel Pattern Error ranked second in the greatest number of errors that occurred in the expository paragraphs of the participants, with 47 or 7.67 percent occurrences. Vowel Error is placed third with 46 or 7.50 percent occurrences. Categories under the phonologically and morphologically-based errors in the English codes are not significantly high, with 123 or 20.07 percent and 61 or 9.95 percent occurrences.

Table 3

Most occurring type of linguistic features and spelling error categories (Filipino)

Orthographically-based errors			**Phonologically-based errors**			**Morphologically-based errors**		
OVE	**112**	**28.87**	**PCD**	**10**	**2.58**	**MHOM**	**36**	**9.28**
OCL	**97**	**25.00**	**PVD**	**5**	**1.29**	**MPRE**	**26**	**6.70**
OOW	42	10.82	**PDIP**	4	1.03	**MLFE**	22	5.67
OWB	21	5.41	PFCD	3	0.77	MI	15	3.87
OPA	10	2.58	PSE	3	0.77	MINF	14	3.61
OLR	8	2.06	PSR	2	0.52	MIOP	13	3.35
OLS	5	1.29	PSON	1	0.26	MSUF	8	2.06
OSJ	3	0.77	PVO	1	0.26	MBE	8	2.06
OSL	3	0.77						
OCE	2	0.52						
ODI	2	0.52						
Ovr	1	0.26						
Total	**306**	**78.87**	**Total**	**29**	**7.47**	**Total**	**142**	**36.60**

Categories under the phonologically-based errors in the Filipino code are significantly low, with 29 or 7.47 percent occurrences. In contrast, the participants committed a practically significant percentage of orthographically-based spelling errors, rating 306 or 78.87 percent. This figure means that the Filipino code's expository paragraphs have 306 errors over 473 in this particular linguistic feature. It rated high in the Vowel Error (OVE) with 112 occurrences or 28.87 percent. Errors using capitalization (OCL) were also evident in the Filipino code's expository paragraphs, with 97 occurrences or 25 percent. One word error (OOW) came in third, with 42 occurrences or 10.82 percent. Morphologically-based errors were also high, with 142 or 36.60 percent occurrences, and a rating high in Homonym Errors (MHOM), with 36 or 9.28 percent occurrences. Error in prefixes (MPRE) and loanword fusion (MLFE), a newly discovered error category, were also observed with 26 or 6.70 percent and 22 or 5.67 percent occurrences, respectively.

Table 4

Most occurring type of linguistic features and spelling error categories (Binisayang-Sinugboanon)

Orthographically-based errors			**Phonologically-based errors**			**Morphologically-based errors**		
OVE	**236**	**39.33**	**PCD**	**13**	**2.17**	**MHOM**	**102**	**17.00**
OOW	**76**	**12.67**	**PST**	**10**	**1.67**	**MBE**	**50**	**8.33**
OCL	**53**	**8.83**	**PEP**	**9**	**1.50**	**MPRE**	**33**	**5.50**
OHY	39	6.50	PFCD	8	1.33	MLFE	19	3.17
OCE	27	4.50	PNE	8	1.33	MSUF	12	2.00
OWB	18	3.00	PSV	8	1.33	MDER	5	0.83
OLS	10	1.67	PVD	6	1.00	MINF	3	0.50
OLR	9	1.50	PSR	5	0.83			
OPA	9	1.50	PLV	4	0.67			
OCD	4	0.67	PDIP	2	0.33			
ODI	4	0.67	PDV	2	0.33			
OLD	4	0.67	PCR	1	0.17			
OLVP	2	0.33	PSE	1	0.17			
OPE	1	0.17	PSON	1	0.17			
			PVO	1	0.17			
Total	**492**	**82.00**	**Total**	**85**	**14.17**	**Total**	**227**	**37.83**

As reflected in Table 4, categories under the phonologically-based errors in the Binisayang Sinugboanon code are significantly low, with 85 or 14.17 percent occurrences. The participants committed a practically significant percentage of orthographically-based spelling errors, rating 492 or 82 percent occurrences, which means that the expository paragraphs using the Binisayang Sinugboanon code have 492 errors over 600 in this particular linguistic feature. Specifically, it rated high in the Vowel Error (OVE) with 236 or 39.33 percent. Category under one-word error was also evident in the expository paragraphs using the Binisayang Sinugboanon code with 76 occurrences or 12.67 percent. Errors using capitalization (OCL) were also evident in the expository paragraphs using the Binisayang Sinugboanon code, with 53 occurrences or 8.83%. Baseword error (MBE) and error in prefixes (MPRE) were also observed with 50 or 8.33 percent (errors were taken from 53 sample paragraphs) and 33 or 5.50 percent occurrences from 29 sample paragraphs out of 67 sample paragraphs analyzed. Loanword fusion (MLFE), a newly discovered error category, was also evident in the expository paragraphs of the multilingual graders, with 19 or 5.17 percent occurrences.

4.1.3. Significant difference between the spelling errors in the three linguistic features to the three language codes used

The significant difference presented in Table 5 shows whether there is a measurable difference between the spelling errors in the three linguistic features of the three language codes used: English, Filipino, and Binisayang-Sinugboanon, and whether, statistically, the probability of obtaining that difference has significant, little or no practical importance.

Table 5

Significant difference between the spelling errors in the three linguistic features to the three language codes used

Language codes	Orthographically -based errors		Phonologically-based errors		Morphologically-based errors		TOTAL	X^2	CV at 0.05	Decision
	fo	*fe*	*fo*	*fe*	*fo*	*fe*				
English	613	541.17	123	90.90	61	164.92	797	2206.85	5.991	Ho Rejected
Filipino	306	323.89	29	54.40	142	98.71	477	1016.68	5.991	Ho Rejected
Binisayang-Sinugboanon	492	545.93	85	91.70	227	166.37	804	1491.51	5.991	Ho Rejected

Table 5 shows that there is a significant difference between the three linguistic features' mean number of spelling errors and the three language codes used. The null hypothesis is rejected because the x2 computed value (146.1) is greater than the tabular value (9.488).

4.2. Discussion

Categories under the phonologically and morphologically-based errors in the English codes are not significantly high, with 123 or 20.07 percent and 61 or 9.95 percent occurrences, respectively, which suggest that spelling errors committed by multilingual spellers are basically caused by their lack of knowledge of the set of conventions for writing the English language which resulted in the young spellers inventing lexicons that represent particular sounds. Spellers, eventually, develop through phases, expecting them to attempt to "apply a set of orthographic conventions." However, due to a lack of mastery, confusion may arise, which would result in guessing or figuring out patterns on their own (Bear, Invernizzi, Templeton, & Johnston, 2016).

The Filipino language is a phonetic language, which has a direct relationship between the spelling and the sound. However, like any phonetic language, it does not reflect exactly the correct sound in written form. The misspellings committed are mostly due to the allophonic variations of vowels in the Filipino language. The vowels /e/ and /o/, not native to Tagalog were originally allophones of /i/ and /u/, respectively, as a result of influences from borrowings (Comrie, 1990). Lack of mastery in the orthography of words with allophonic variation in this language often made young spellers utilize the following variations in written forms like *ate* or *ati* for 'older sister'. Relying on orthographic and phonological knowledge in word spelling is not enough since morphological knowledge is also critical for conventional spelling (Nunes, Bryant, & Bindman, 1997). Morphological knowledge involves an awareness of the minor meaningful units of language (root words, suffixes, and prefixes) and understanding the relationship between root words and the related derived or inflected forms (Kelman & Apel, 2004). In this case, young spellers considered prefixes as independent words having their own meaning rather than recognizing that these are inflectional morphemes that provide grammatical information on the tense of the word, such in the case of the errors committed by young spellers using the Filipino code. Loanword fusion, which is a morphologically-based newly discovered error, is an error that attempts to fuse a loanword to the target word together erroneously, thus creating a fusion of two different language codes with a made-up orthography. This kind of error occurred 22 times in 22 different paragraphs. Third language (English) interference is observed to influence the words such as *telephono* (telephone) for *telepono* (P13f) using *'phon'* as a phonologically activated

syllable from the English word *'phone'*, and *'cell'* instead of *'sel'* in *cellpon (P25f)* in *selpon* (the correct translation for cellphone) since Filipino code does not have 'c' or double letter in its orthography. First language interference is further evident in words such as *pamplete or pamlete* (from the Sinugboanong Binisaya code *'plete'* - for vehicle fare (n. object of prep.) for *pamasahe* (P21f) (from 'pasahe' Filipino baseword of 'fare'/n. object of prep.), This is also evident in some of the following combinations, *pangilis* (*pang-ilis* - for changing clothes) for *pamalit* (P24f), and *papalit* (palit - to buy something) for bibili (P31f). As shown in the analysis, the language interference that influences the language's use, specifically in spelling, indicates how multiple languages interact. As Munoz (2000) pointed out, 'the interaction between different languages can be seen when the scores in three languages are correlated, and the multi-directionality of cross-linguistic interaction is analyzed. Furthermore, the analysis result is what Cenoz and Jessner (2009) emphasized multilingual get many "free rides" when learning additional languages as their prior linguistic knowledge helps on all levels of language - grammar, pragmatics, lexicon, pronunciation, and orthography. However, these free rides should be geared to proper and accurate directions starting at early levels, especially in formal writing, so that cross-linguistic influences can be taken advantage of by multilingual learners.

In the language's articulatory system for Binisayang-Sinugboanon, specifically for vowel sounds, there seems to be no distinction between the vowels *i* and *e*; and between *u* and *o*. In addition, there are varying degrees of intonation patterns: hard *u* and soft *o*, and hard *i* and soft *e* used by everyday conversation equated with the complexities in the production of some phonemes, which include vowel position between back and center (like, *nasod* or *nasud* for country) and between front and center (like, *babaye* or *babayi* for woman) (De Catalina, 2016). The confusion in using vowels is greatly attributed to the unstandardized orthography of the Binisayang-Sinugboanon language. With the speller's exposure to printed text in multimedia platforms with different orthographic versions, like *polis/pulis*, *sugbu/sugbo*, *ate/ati*, the inconsistencies significantly affected the idea of spelling accuracy in this language. This assertion is supported by *The Linguistic Data Consortium*, which documented the significant inconsistencies of Binisayang-Sinugboanon and recognized the distinctions of the native speakers' perception of how they represent phonetic changes in the orthography of a word. Early spellers lacked the awareness of the function of a prefix as a morpheme (the smallest unit of a language that could not stand by itself) and considered it a word that builds its own meaning, the separation of prefix to its base word. Though the accuracy of the speller's choice of the prefixes is high as expected from a native speaker of the language, the separation error (prefix + baseword) can be spawned from the speller's poor morphemic knowledge of how morphemes can be used to form words. This morphemic problem with evident instructional implications can also be ascribed to students' less exposure to print in the target language. It is imperative to note that both phonetic languages, Filipino and Binisayang-Sinugboanon, have very similar errors, including Homonym Errors. Homonyms in these language codes differ only in vowel usage; they are uttered with no evident distinctions in the casual oral conversation - an idea supported by De Catalina (2016). Words such as *kong* in Binisayang-Sinugboanon are used as a personal pronoun from a morphological contraction *'ko nga'*, e.g., *Ganahan kung* (instead of *kong* or *ko nga*) *moadto sa merkado*. (I want to go to the market.) The *kung* (if), which is a conjunction, is supplemented erroneously in terms of usage in this sentence. This is also similar to *og* (an article or preposition) and *ug* (a conjunction 'and'). As expected from the irregular case of phonemic orthography, the case of vowels specifically in Binisayang-Sinugboanon deviates from the ideal one-to-one grapheme-phoneme correspondence that affects the predictability of spelling from pronunciation.

There were 14 baseword errors that reflected spellers' unfamiliarity or carelessness with its baseword when connected to other morphemes in the word, like *'ihawon'* for *'uhawon'* in which the baseword is *'uhaw'* not *'ihaw*'. These words differ significantly in their lexical meaning: *'uhaw'* (adj. Thirst/thirsty) while *'ihaw'* (n. grill); the same as true with *'ibutan'* for *'ibutang'* in which the baseword is *'butang'* (v. to place) not *'butan'* (not a lexicon in Sinugboanong Binisaya). These are errors that already distorted contextual meaning. On the other hand, the 36 baseword errors like *'ohawon* for *uhawon' (uhaw + on) 'gutumonko* for *gutomon (gutom) ko'* (being a personal pronoun) are pieces of evidence of a combination of word-formation issues and vocabulary growth problem. These patterns concern triple-word form theory. Learning to identify words' phonological, orthographical, and morphological inter-relatedness as used in context is critical in reading and spelling (Berninger, Nagy, Richards, & Raskind, 2006). Advancement in vocabulary development may also be achieved through in-depth knowledge of these cross-code interrelationships by connecting new meanings to their corresponding word forms (Verhoeven & Perfetti, 2011).

Prefix errors (MPRE) are caused by the separation of prefixes to their baseword, such as *pag kaon* for *pagkaon* (noun because of the prefix pag- /food), *mag suwat* for *magsuwat* [verb because of the prefix mag-/will write]. The inaccuracy of spelling and usage in the prefixes used are seen as apparent unawareness of Binisayang-Sinugboanon morphemes (the smallest unit of a language that could not stand by itself). In Binisayang-Sinugboanon, being the lingua franca of the participants, the auditory input impacts the written word. With insufficient exposure to orthographic output, it is clear that young native speakers of the language systematically accessed orthographic codes from spoken words. This is expected since, developmentally, phonological knowledge is acquired much earlier than orthographic knowledge (Qu, 2017).

Loanword fusion (MLFE), a newly discovered error category, was evident in the expository paragraphs of the multilingual fourth graders, with 19 or 5.17 percent occurrences. Errors vary from spellers' lack of knowledge of loanword spelling rules to unawareness of the Binisayang-Sinugboanon alphabet, such as *silphon* (lexically wrong) for *selpon* (cellphone). Since *selpon* is a loanword, vowels used in the loan language are still adopted according to Godin, and in this case the 'e' (in cell) and 'o' (phone - final vowel/silent e is not included). However, since there is no letter *c* and *ph* in Binisayang Sinugboanon alphabet, *c* is replaced with *s* and *ph* is replaced with *p* not f since Binisayang-Sinugboanon does not have *f* in its alphabet. The spellers' use of s in *sel-* (for cell) and the exclusion of the silent e in phon (for phone) are already indicators that his/her native language orthographically influences the speller. Meanwhile, the fusion of the last syllable '-phon' (with the ph) results from the spellers' familiarity with the word in the English language. This implies that young spellers have been influenced by ortho-phonological characteristics of words that English (L2) spelling represents while also consciously aware of the target code (L1) utilized in the written output. This type of error is especially evident for lexicons that do not have clear native-language correspondence. Researches on this unique phenomenon committed by multilingual spellers are sparse, especially on the fusion of two languages in one lexicon like *swimsot* for swimsuit, Philippinas for a Philippines, *tisyo* paper (tissue paper), etc. Moreover, the result showed a drawback in cross-linguistic interaction, which is expected from multilingual spellers who have started to develop an awareness of languages acquired or learned.

Filipino and Binisayang-Sinugboanon had significantly higher morphologically-based errors than the English code, which implies that multilingual fourth graders need to develop knowledge of the morphological structures of these languages compared to the English code.

Though Filipino and Binisayang-Sinugboanon have significant similarities besides being, in a sense, phonemic, and baseword errors are higher in Binisayang-Sinugboanon than in Filipino. This finding implies that though deemed as their mother tongue, multilingual spellers need to be exposed to the Binisayang-Sinugboanon text or print to create a visual representation of the phonological structures of the language used in daily conversation. Unlike the Binisayang-Sinugboanon, various references and texts in Filipino are accessible in school and in any multi-media context, which gives them exposure and familiarity with the words with fixed orthographic rules. Thus, Binisayang-Sinugboanon has more errors tallied in both its orthographical and morphological features compared to Filipino.

5. Conclusions and recommendations

The spelling performance of the selected young multilingual spellers focusing on the three language codes was found to vary significantly on the three linguistic features concerning phonology, orthography, and morphology. The qualitative analyses provided an in-depth understanding of the triple word-form theory and cross-linguistic interference among the three languages used. The results of this research have transparent instructional implications for teaching spelling and theoretical implications for multilingualism concerning literacy development, which are relevant in crafting the output of this research.

Instructional implications are imperative and should pave the way to research-based intervention, placing great emphasis on the orthographical-phonological-morphological inter-relatedness to improve spelling performance as used in context rather than simple rote memorization. Since English is a non-phonetic language compared to Filipino and Binisayang-Sinugboanon, teaching spelling should be pedagogically different from these two linguistic codes. The practical difference is evident, implying severe implications in literacy instruction that should also vary considering their effects on multilingual learners.

There were some limitations in the study. First, the scope and the number of students participating in the assessment were narrow and insufficient. Hence, results cannot be generalized or considered representations of multilingual fourth graders in the area under study. Second, consulting with only one independent rater per language code purposely chosen to ensure reliability was not sufficient. Thirdly, utilizing the expository mode of writing can affect vocabulary usage, which impacts the spelling execution of the participants. Hence, future researchers may consider using other types of genres in writing as an instrument for data analysis. Narrative and descriptive modes of paragraph development may be used, so a significant number of real and descriptive words will be used and can be elicited for analysis. Another research environment with other linguistic influences or language interference, such as dialect variations, may also be considered to delve into understanding how multilingualism works and affects literacy instruction.

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