Orthographic Interference Errors from Afan Oromo to English: The Case of Selected Schools of East and West Hararge Zones, Grade Nine Students

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Abstract: The primary goal of the study was to analyze grade nine students' orthographic errors in English owing to Afan Oromo interlingual interference. Besides, pre-grade nine Afan Oromo medium students' errors of English, Amharic medium students' errors of English were utilized for comparison to identify the degree of the interference from Afan Oromo. Descriptive design and primary data sources were used in this study. Stratified sampling was employed to provide equal opportunities to students of various academic achievements, while purposive sampling was used to sample teachers. The data gathering tools used were dictation test, questionnaire and key informant interview. Ultimately, the data were qualitatively and quantitatively analyzed. Although it was found out that the extent of Afan Oromo orthographic interferences to English accounted for 21.1%, the orthographic errors in English created by Afan Oromo medium students surpassed those of Amharic medium students by 1.63%. This indicates that the extent of English orthographic errors created by Afan Oromo medium students were not meaningfully different from Amharic medium students as teachers were overstressing. Thus, learning both Afan Oromo and English languages' orthography independently and practicing misspelled words owing to Afan Oromo interference to English was recommended over presuming script similarities as a distinct cause of errors.

Keywords: Afan Oromo; English language; Interlingual interference; Orthographic interference; Orthography

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1. Introduction

The Ethiopian People Revolutionary Democratic Front led transitional government introduced a federal system of government and has made a functional reform in the use of different languages in education. To this effect, in Oromia National Regional State, Afan Oromo has been used as a medium of instruction from grade one to grade eight and as a subject course from grade one to grade twelve, whereas English language has been given as a subject course from grade one to twelve and as a medium of instruction from grade nine to twelve.

In providing these services, English language uses Latin script and Afan Oromo uses *Qubee*, an adopted orthography from Latin script for their writing purposes. Though it remains to be empirically outlined through research, script similarity according to grade nine teachers resulted in severe orthographic interference errors. Moreover, the teachers argue that errors created by pre-grade nine Afan Oromo medium students (herein after, Afan Oromo medium students abbreviated as AOMS) are by far higher compared to errors created by students whose medium of instruction at pre-ninth grades were Amharic (herein after, Amharic medium students abbreviated as AMS). Furthermore, it has been acknowledged, according to Wood (2017), that mother tongue (MT) has a significant influence in the difficulty of learning a second language. These and researchers' informal awareness of the problem instigated them to focus on the issue.

The works of Mamo (2016), and Olana, Zeleke and Jiregna (2015), which indicate Afan Oromo interference in English at different linguistic levels, are important springboards in addressing the issue under consideration. Different from these studies, however, the current study addressed the depth of AOMSs' orthographic interference in comparison with AMSs', as teachers argued. Moreover, the current study has addressed a detailed account of the instances, causes, and extent of the interference different from previous studies. Unless the instances, causes, and solutions are made available, the errors remain fossilized and teachers' argument misleads the established educational norm without empirical evidence.

Consequently, the researchers outlined general and specific objectives. The general objective of the study was to analyze orthographic errors of English that were committed by grade nine students due to interlingual interference from Afan Oromo. The specific objectives were: a) measuring the extent of orthographic errors committed by grade nine students in using English as a medium of instruction because of the interference from Afan Oromo; (b) identifying causes of orthographic interference errors created by Afan Oromo students in using English as a medium of instruction; (c) sorting out the instances where Afan Oromo orthography is used instead of English language orthography, causing an error, and (d) comparing the extent of errors committed by AOMSs against AMSs to trace its relational depth.

Errors are noticeable deviations from the established norm of a language due to lack of competence, different from mistakes that happen haphazardly in unpredictable environments for unknown reasons (Gass, Behney, and Plonsky, 2020). Errors can be systematically captured and corrected while mistakes are not. Errors are inevitable property in second language learning (Erdoğan, 2005) and are not necessary indication of failures. They can also indicate learners' activity in shaping their path towards success picking relevant information from the first language and from the established habit in the second language. Regarding this, Corder (1981: 121) states that errors "…are best not regarded as the persistence of the old habits, but rather as signs that the learner is investigating the system of the new language." In some instances however it persists and damages second language learning. Generally, error analysis gives teachers and linguists a platform to design better teaching strategy and teaching materials identifying areas of focus in second language learning (Erdoğan, 2005).

Orthographic errors are deviations from the orthographic norms of the language being learnt (Cunningsworth, 1995) either due to the nature of the language being learnt, the language learnt before, or nature of the students or strategies of learning. Interference is the negative transfer of one language while learning another language (Cunningsworth, 1995) different from positive transfer that facilitate language learning. Interlingual interference errors are errors that occur from the learners'

MT/first language to the second/target language (TL) (Corder, 1981; Littlewood and William, 1984). It is frequently termed as MT interference errors. MT interference errors are the system by which the established language norms, skills, and habits negatively influence the norms, skills, and habits in second language learning. Therefore, orthographic interference errors between the two local languages and English is categorized under interlingual interference errors by which students' MT or native or primary language interfere with the students' second or foreign language.

The theoretical foundations used in this study were contrastive analysis and error analysis which are important to categorize errors (Lekova, 2010). Contrastive analysis addresses language problems that emanate from the interaction between two languages. It focuses on the similarities and differences and the type of interactions that emanate from the type of the relationship the languages possess (Fisiak, 1981). Contrastive analysis had been used since 1960s as a method of explaining why some features of TLs were more difficult to acquire than others. It was a theory developed by behaviorists, based on the fundamental principle of behaviorist school of thought which believes 'language learning is about habit formation' that can be reinforced by the habit formed before.

According to this theory, similarity between the first and the second languages facilitates (positive transfer) second language learning, while differences become obstacles (negative transfer/interference) in the achievement of the second language. Regarding this, Lado (1957) argues that "elements which are similar to the learner's source language (SL) will be simple, and those elements that are different will be difficult." In substantiating this idea Gfeller (1998) states that the use of similar script by two languages creates confusion in writing (spelling) and reading (pronouncing) although less than in languages which use different scripts. This means, in learning two languages consecutively differences are more obstacle than similarities. Contrarily, Oller and Ziahosseiny (1970) argue that knowledge in writing system of a language can make difficult to learn another writing system particularly when the two languages have some common features.

Error analysis deals with errors related to learners' wrong interpretations of the rule of the new language. It was developed to fill the gap that could not be addressed by contrastive error analysis. Basically, it incorporates errors emanating from three dimensions: overgeneralization, application of incomplete rules, and hypothesizing of false concepts in the TL. These three factors, according to Littlewood and William (1984), have a stake in learners' second language development. In error analysis, error is not considered a persistence of a first language habit that affects second language learning; rather it is considered a learner's process of mastering a second language, different from the behaviorist contrastive view.

The most crucial step in error analysis is getting the right techniques for the identification and description of errors. The right techniques in error analysis can be developed from predetermined categories and or errors obtained from the data at a time (Norrish, 1983). Since both approaches provide a chance to develop error descriptions that fit the nature of errors found in students' text, they were used in this study. Therefore, the combination of models of error analysis used by Belda (2010), Corder (1981), Ellis (1997), and Kedida (1989) were adapted and used in a way that fits the orthographic interference errors in the study.

2. Research Methods

2.1. Description of the Study Areas

The study was conducted at four secondary schools found in the East and West Haraghe zones of Oromia National Regional State, namely Gursum, Gurawa, Hirna, and Charchar secondary schools. Gursum and Gurawa are found in the East Hararghe zone, whereas Hirna and Charchar are located in the West Hararghe zone. Gursum is the capital of the district located to the east of Harar town. When this fieldwork was conducted in April 2017, the school had 516 and 36 grade nine students and teachers, respectively. Of the total students, 348 were male and 168 were female. Similarly, of the total 36 teachers, 33 were male and 3 were female. Gurawa Senior Secondary School is located in the Gurawa district. At the time the data were collected in 2017, the school enrolled 722 students, of

which 519 were male and 203 were female. There were also 44 teachers, of which 36 were male and 8 were female. Hirna Secondary School is located in Hirna, the capital of the Tullo district. The number of students who joined Hirna grade nine in the 2016/2017 academic year was 913, of which 632 were male and 281 were female. The number of teachers engaged in teaching these students was 24 (17 male and 7 female). Charchar Comprehensive Secondary School is found in Chiro town. In April 2017, the school had 935 grade nine students, of which 563 were male and 372 were female. There were a total of 70 teachers (52 male and 18 female) in the school during the same time.

2.2. Research Design

Based on the general framework, descriptive design was employed in this study. Describing the prevalence, the extent, the instances and the causes necessitated the implementation of descriptive research design. Based on this, a mixed method was employed. The main motivations behind using mixed method were to collect quantitative data that were reasonably generalized, and to collect qualitative data to linguistically describe the instances and identify the causes to provide a clear picture of the interlingual interference. In line with the dual purpose of mixed method, Creswell and Creswell (2018) stated that a mixed method is used to generate generalizable data to the larger population and to create a holistic and detailed account of the problem or issue under the study. From mixed designs, convergent design was used for data gathering, processing, and analysis. Accordingly, both qualitative and quantitative data were collected simultaneously, cross-sectionally (at one point in time) and were triangulated based on the themes developed out of the data based on the research questions as it has been stated by Creswell and Creswell (2018). The intent to compare or validate quantitative with qualitative responses pushed the researchers to use convergent design. According to Creswell and Clark (2018), convergent design is used to compare qualitative and quantitative data.

2.3. Data Sources

This study relied on primary data sources. A dictation test, a questionnaire, and a key informant interview were used to collect data from the sources.

2.4. Sample Size and Sampling Techniques

2.4.1. Site sampling

For the purpose of this study, Gurawa, Gursum, Hirna, and Charchar grade nine were purposefully selected. The selection of the schools found far apart was made to incorporate differences for the generalizability of the data. Grade nine is the class in which the use of Afan Oromo and Amharic as a medium of instruction is substituted by the English language. Thus, it was believed where potential interference errors were likely to happen in terms of type and extent, and the comparison of the two groups became possible to evaluate teachers' arguments. Grade nine students and teachers of the said schools were used as the population of the study.

2.4.2. Participant sampling

2.4.2.1. The students

The total population of Gurawa, Gursum, Hirna, and Charchar grade nine students was 3086 in 2016/2017 academic year. From 3086 students, 180 AOMSs and 180 AMSs were selected and used to elicit data through dictation. From each school, 45 students were sampled based on stratified sampling. The number of participants was dictated by the type of information collected through dictation. Since the data gathered through dictation was linguistic that demanded the explanation of both macro and micro linguistic elements in each word, taking more samples reduces the quality of the data and defies the process of data analysis instead of adding value to it. Stratified sampling was employed to give equal chances to the students with different academic achievements. The sampled students comprised one-third-best performers, one-third average performers, and one-third least

performers. The students were stratified based on their first semester grade nine performances. Then, the pre-determined numbers were selected from the strata using simple random sampling.

2.4.2.2. The teachers

The total number of teachers in the four schools was 174 in 2016/2017 academic year. From the total population, apart from Afan Oromo and Amharic languages teachers, 144 teachers were purposively selected to take part in different data gathering tools. Because this number was manageable to participate in the questionnaire, all 144 teachers were considered in the study. For the purpose of the key informant interview, 28 teachers, seven from each school were selected using availability sampling at a time. Apart from Afan Oromo and Amharic languages teachers, all the teachers were given equal opportunity based on their availability at a time until the data saturates. Data saturation was used to limit the number of key informant interview participants to 28.

2.5. Data Gathering Methods

2.5.1. Dictation test

A dictation test was used to elicit linguistic data. Different from independent paragraph writing, dictation was selected to avoid students from searching for words they already know and to introduce them to words of various natures. Accordingly, seventy-five (75) words were collected from grade nine English textbook. Familiar, less familiar, and unfamiliar words, as well as simple, moderate, and difficult words were integrated based on pedagogical reasons. According to Ehri and Rosenthal (2007), and Ehri (2014), word spellings are linked to their pronunciations and meanings in memory. Pronunciation and meaning in memory of words depend on the recurrence of words in students' academic experience. Word recurrence in students' academic experience was used in selecting words with different familiarity levels. In doing so, the researchers consulted lower grade English subject teachers. The selection of words with different orthographic complexity levels was made based on linguistic parameters, phoneme-phonetic-grapheme relationships.

Then, the selected words were dictated to both AOMSs and AMSs within the sentences to avoid the problem of homophones. The sentences were dictated three or more times based on students' demand, to avoid temporal confusion.

2.5.2. Questionnaire

The questionnaire was prepared to identify grade nine teachers' view regarding English orthographic errors committed by AOMSs. The questionnaire focused on issues like direction, intensity, AOMSs orthographic problems compared to AMSs and what has to be done. Accordingly, close-ended and open-ended questions were prepared to triangulate the data obtained through dictation. Open-ended questions were added to enable the teachers to express their views in a relatively free and extended way on the answers they provided to the close-ended ones.

2.5.3. Key informant interview

A one-on-one key informant interview was conducted with grade nine teachers to triangulate the data that were obtained through dictation test and questionnaire. The key informant interview questions were almost a replica of the questionnaire. Semi-structured questions were prepared to help the smooth administration of the key informant interview. Audio recording was used to help the interviewers and interviewees focus on the interview process at a time and to help the researchers to easily reach the data during the analysis and interpretation.

2.6. Methods of Data Analysis

Data obtained from different data sources were analyzed qualitatively and quantitatively. Orthographic errors in the students' text were collected manually, classified, statistically computed, and then the causes and the instances of the interference were described linguistically. Orthographic

errors obtained from both AOMSs and AMSs were compared to trace the causes and the depth of AOMSs orthographic interference with English. Descriptive statistics such as percentage and frequency distribution were used to analyze quantitative data. Percentage was used to analyze information obtained through dictation test and questionnaire while frequency distribution of the errors was used to analyze data obtained through dictation test. Data obtained through open-ended questions and key informant interviews were analyzed qualitatively using content analysis. In doing so, qualitative data were transcribed, tabulated, and the common ideas of the respondents were taken to substantiate and refute the data obtained through other tools.

3. Results and Discussion

3.1. Extent, Causes and Instances of Orthographic Interference Errors

Errors obtained from dictation were divided into systematic and non-systematic (asymmetric) errors. Concerning AOMSs, systematic errors were categorized either under SL or TL related causes or both. Asymmetric errors were categorized neither under SL nor TL related causes. In the case of AMSs, errors were categorized based on the classification made for Afan Oromo. Errors which do not fall into these classifications were categorized under asymmetric errors. So, for AMSs, asymmetric errors possess errors specific to Amharic language-related orthographic interference into the TL.

3.1.1. The extent of errors unique to Afan Oromo orthographic interference to English

From the total 3858 errors committed by AOMSs, 3616 (93.7%) errors accounted for systematic errors and 242 (6.3%) accounted for asymmetric errors. Of 3638 (26.9%) total errors made by AMSs, 2761 (75.9%) accounted for systematic errors and 877 (24.1%) accounted for asymmetric errors. The systematic error difference committed by AOMSs and AMSs was 813 (21.1%). This number indicates AOMS' exclusive orthographic interference into English orthography. From the total errors created by AOMSs, substitution errors accounted for 1653 (42.8%) of which 1463 (37.7%) were specific to TL causes and 190 (4.91%) were specific to SL orthographic interference. Errors of analogy with the orthography of the TL accounted for 425 (11%) errors created by AOMSs. The cause of this error was peculiar to TL orthography. From the total orthographic errors, errors of analogy with the orthography of the SL accounted for 763 (19.77%) out of which 633 (16.41%) were unique to SL orthographic interference errors and 130 (3.56%) were the results of TL.

Table 1. Dictation test results

Error type		Afan Oromo		Amharic		Differences of error count (AO-AM)	
		Error count	%	Error count	%	Difference count	%
Omission	Omission of one of the double consonant graphemes	235	6.09	213	5.85	22	0.57
	Silent consonant omission	268	6.95	240	6.6	28	0.73
	Silent final vowel omission	272	7.05	332	9.13	-60	-1.56
	Total	775	20.1	785	21.58	-10	-0.26
Substitution	Vowel substitution for the closest phoneme	545	14.1	465	12.8	80	2.07
	Consonant phoneme phonetic substitution	445	11.5	408	11.21	37	0.96
	Vowel phoneme phonetic substitution	313	8.11	275	7.56	38	0.98
	Phonetic substitution of a vowel phoneme for double vowel	115	2.98	115	3.16		
	Phonetic substitution of a vowel phoneme for vowel clusters	235	6.08	200	5.5	35	0.9
	Total	1653	42.8	1463	40.23	190	4.91
Analogy with TL orthography	Consonant substitution based on TL orthographic pattern	160	4.15	145	3.99		
	<e> vowel insertion at word-final	125	3.24	88	2.42		
	Diphthong substitution for a vowel based on phoneme phonetic pattern	30	0.78	60	1.65		
	Homophone substitution	110	2.85	90	2.47		
	Total	425	11	383	10.53		
Analogy with SL orthography	Word initial vowel insertion	198	5.12	10	0.27	188	4.87
	Word medial vowel insertion	230	5.96	66	1.81	164	4.25
	Word final vowel insertion	55	1.43	8	0.22	47	1.22
	Vowel lengthening (doubling existing vowel)	280	7.26	46	1.26	234	6.07
	Total	763	19.77	130	3.56	633	16.41
Total systematic errors (SL plus TL)		3616	93.7	2761	75.9	813	21.1
Asymmetric errors		242	6.3	877	24.1	-635	-16.5
Total errors		3858	100	3638	100	220	5.71

Although Afan Oromo specific interference into English orthography was 21.1%, the total error difference between AOMSs and AMSs was small. AOMSs surpassed AMSs by 220 (1.63%) errors from the total 13500 words produced. Moreover, of the total 75 words dictated, on average, AOMSs and AMSs produced approximately 21 and 20 incorrect words, respectively. From these insignificant

differences, it can be said that orthographies can interfere with one another in languages with the same script a bit higher than in languages with different scripts. The finding refutes both Lado's (1957) and Gfeller's (1998) and Oller and Ziahosseiny's (1970) arguments. Lado and Gfeller argue that similarities between languages make second language learning easier compared to differences, while Oller and Ziahosseiny argue similarities between languages challenge TL learning through interference. Because the error difference obtained from AOMSs and AMSs was insignificant, it did not provide reasonable ground to support both views. This finding reasonably suggests that orthographic errors among learners of English under similar conditions are approximately the same, even under circumstances where students are exposed to different native languages using different or similar scripts with the TL.

3.1.2. Causes and instances of orthographic errors of English

3.1.2.1. Omission

Omission errors are missing a grapheme in a predictable environment from graphemes used to denote a word. The error of omission accounted for 775 (20.1%) and 785 (21.58%) errors created by AOMSs and AMSs, respectively. Based on their nature, errors of omission are classified into three sub-categories.

The first is the omission of one of the double consonant graphemes. This error represents 235 (6.09%) of omission errors created by AOMSs and 240 (6.6%) of omission errors created by AMSs. Removal of one of the double consonants as in ***cabage*** for *cabbage /kæbɪdʒ/, catle* for cattle/*kætl*/, and *mamal* for mammal /*mæml*/ resulted from either the SL or the TL orthographic nature. In English language, the relationship between phonemes and graphemes is not one-to-one. This makes English writing system haphazard that cannot easily be captured and internalized (Carney, 2012; Cook, 2016). In phonemic/phonetic writing systems like Afan Oromo, double consonant grapheme stands for geminated consonant phoneme (Geshe, 2010; Tasammaa and Waqwayyaa, 1993; Waaqoo, 1993). But in English words like cabbage, cattle and mammal, the occurrence of double consonant graphemes has no connection with the phoneme in the environment. Therefore, the causes of this error can be traced to both Afan Oromo and English language orthographies for AOMSs.

In Amharic syllabic writing system, whether a sound is geminated or non-geminated, it is represented by a grapheme representing a syllable. There was no evidence that Amharic writing system has a stake in errors of omission of one of the double consonant graphemes committed by AMSs. More importantly, from the error difference of 22 (0.57%) between AOMSs and AMSs, it can be deduced that the haphazard orthography of the TL has a major stake in the errors committed by both groups of students.

The second type of error identified under the omission was the omission of silent consonant graphemes. It accounted for 268 (6.95%) and 240 (6.6%) of the errors that were created by AOMSs and AMSs, respectively. Under this sub-category, students omitted consonant grapheme <t> as in *lisen* for listen /*lɪsn*/, *wach* for watch /*wɒtʃ*/ and *mach* for match /*mætʃ*/ and consonant grapheme <d> as in *ajective* for adjective /*ædʒɪktɪv*/. The concept of silent phoneme representations in a word is not known in Afan Oromo and Amharic orthographies. Only consonant phonemes that appear in words are represented by graphemes. In addition to the non-systematic nature of the orthography of the TL, SLs orthographies have a stake in the omission of graphemes standing for non-existing consonant phonemes in the TL. Moreover, 28 (0.76%) error differences show that both the SLs and the TL have a share in this error.

The third sub-category of omission error was that of silent final vowel omission. From the total errors created by AOMSs and AMSs, it accounted for 273 (7.05%) and 332 (9.13%) errors, respectively. The omission of word-final vowels accounted for the majority of the omission errors. Although it was not phonemic, the data implied that vowel grapheme <e> appeared at the end of many TL words. Under the omission of silent final vowels, students were found writing *cultivat* for cultivate /*kʌltɪveɪt*/, *mixtur* for mixture /*mɪkstʃər*/, *receiv* for receive /*rɪsiːv*/ and *separat* for separate

/*seprət*/. The omission of vowel <e> at word-final where it is not pronounced (see their phonetic representations) happened based on the phonetic paradigm of both sources and TLs.

Generally, a minor error difference was created between AOMSs and AMSs, AOMSs exceeding AMSs by 10 (0.26%). Linguistic evidence discussed also illustrated that omission was a common problem of both groups of learners of English. Thus, the causes of omission errors were attributed to the SLs and the TL, TL taking the common figure and SL taking the difference. Accordingly, the majority of the causes of omission errors were attributed to the TL.

3.1.2.2. Substitution

Substitution is the use of a grapheme on behalf of another grapheme in a word, either based on phonetic or non-phonetic patterns. It accounted for 1653 (42.8%) and 1463 (40.23%) errors created by AOMSs and AMSs, respectively. Error of substitution has five sub-divisions.

Among substitution sub-types, vowel substitution for the closest phoneme accounted for 545 (14.1%) and 465 (12.8%) from errors committed by AOMSs and AMSs, respectively. Most of the substitutions were made for vowel phonemes that do not have representation in the alphabet of the TL. In this regard, the substitutions of <a> for < u, o, e, i >, and <e> for <u, a> vowel graphemes were observed. In the words where the substitution errors happened, both the substituted and the removed graphemes do not represent the phonemes in the environment. In *darty* for dirty /*dɜːrti*/ and *jamp* for jump /*dʒɜːmp*/ grapheme <a> is substituted for <i> and <u> which stand for phoneme /*ɜː*/. In the substitution of *lanch* for lunch /*lʌntʃ*/, *hangry* for hungry /*hʌŋgri*/, *caltivate* for cultivate /*kʌltɪveɪt*/, and *brather* for brother /*brʌðər*/ vowel grapheme <a> was substituted for vowel graphemes <u> and <o> which stand for phoneme /ʌ/. In the substitution of vowel <e> for <u> in *mixtere* for mixture /*mɪkstʃər*/, vowel <u> stands for phoneme /ə/. Variation of graphemes representing phonemes, such as /ɜː/, /ʌ/ and /ə/ and absence of phonemes' symbolic representation in the alphabet of the TL were the main sources of errors committed by the students. Moreover, the absence of /ɜː/, /ʌ/, and/ə/ phonemes in Afan Oromo has contributed to the production of more errors among AOMSs than AMSs. Generally, from the data discussed so far, it can be inferred that phoneme /ɜː/, /ʌ/ and /ə/ having approximately the same color and denoted by graphemes, such as <i>, <u> and <o> in different words, invited students to substitute them with either <a> or <e> vowel graphemes based on their distribution in words.

The second sub-type of error occurred under substitution was consonant phoneme phonetic substitution. This error accounted for 445 (11.5%) and 408 (11.21%) errors created by AOMSs and AMSs, respectively. Substitution of <k> for <c> as in *diskession* for discussion /*dɪˈskʌʃn*/, <j> for <g> as in *cabbaje* for cabbage /*kæbɪdʒ*/, and <s> for <c> as in *reseive* for receive /*rɪˈsiːv*/ are some of the examples captured. In phonetic substitution of consonant phonemes, the graphemes representing a phoneme in writing were varied. Thus, the students switched to the phonetic representation of the phonemes in the TL or SL Afan Oromo than the graphemes inconsistently representing a phoneme in the TL writing. Both groups of students contributed to the emergence of this error, with AOMSs outnumbering AMSs by about 1%, suggesting that the cause was more TL related.

The third sub-category of substitution error was vowel phoneme phonetic substitution in the environment where vowel graphemes represent a phoneme contrary to their phonetic representation. From the total errors, AOMSs produced 313 (8.11%) and AMSs produced 275 (7.56%) errors related to vowel phoneme phonetic substitution. Substituting vowel <i> for <e> as in *rivision* for revision /*rɪvɪʒn*/ and *riceive* for receive /*rɪsiːv*/ and vowel <i> for <u> as in *bisy* for busy /*bɪzi*/ and *bisiness* for business /*bɪznəs*/ are some examples to mention. The data conveyed that vowel phonemes that were represented by non-phonetic symbols were substituted by phonetic symbols that led to errors. Both groups of students made this error, with AOMSs outperforming AMSs by around 1%, suggesting the TL was the fundamental cause.

Phonetic substitution of a vowel phoneme for a double vowel grapheme was the fourth sub-category of error committed by the students under substitution error. From the total errors, 115 (2.98%) and

115 (3.16%) errors were committed by AOMSs and AMSs, respectively. In circumstances where students replaced double vowel graphemes with single ones in the TL, double vowel graphemes represented no vowel phonemes in the environment; they simply visually represented words. The students then substituted the phoneme in the environment with the appropriate grapheme based on phoneme-phonetic representation. Substitutions of *cuk* for cook /*kʊk*/, *classrum* for classroom /*klaːsrum*/, *buk* for book /*buːk*/ and *futball* for football */futboːl*/ are some of the errors committed by students. The one-to-one phoneme-grapheme relationship that led students to commit this orthographic error in the TL is not known in Amharic orthography. The orthographic rule in Afan Oromo and the nature of English orthography, however, can be the sources of this problem. Contrary to this fact, however, AMSs created more errors than AOMSs. Since Amharic cannot be the cause, instead of taking the difference, it was found rational to ascribe all the causes of the errors to the TL.

The fifth sub-type of substitution errors found was phonetic substitution of a vowel phoneme for vowel clusters. The vowels in the clusters did not provide diphthong service; they were simply inserted to represent the phoneme they did not phonetically or graphemically match. This accounted for 235 (6.08%) and 200 (5.5%) errors encountered by AOMSs and AMSs, respectively. Substitutions of vowels such as vowel <i> for <ei> as in *recive* for receive /*rɪˈsiːv*/, *protin* for protein /*prəʊtiːn*/, vowel <i> for <ea> as in *repit* for repeat/*rɪˈpiːt*/, vowel <i> for <ie> as in *chif* for chief /*ʧiːf*/, *belive* for believe /*bɪˈliːv*/ and vowel <uu> for <ou> as in *yuuth* for youth /*juːθ*/ were some of the errors committed by the students. In this scenario, AOMSs outperformed AMSs by around1% errors, indicating that TL was the primary causes.

In all the substitutions, in addition to the TL orthographic knowledge, the one-to-one phoneme-grapheme relationship in Afan Oromo (Belda, 2010) has a stake in looking for phonetic substitution of phonemes in the TL. From the data generated from both groups of students, it has been inferred that the causes of the errors were Afan Oromo and English for AOMSs and English for AMSs. Unlike in Amharic, phonetic representations of sounds students have been familiar with in Afan Oromo and English have become the causes of the errors. The 4.91% error difference was caused by the overlapping effect of Afan Oromo and English orthographic similarities, than the one between Amharic and English. So, the 4.91% difference is attributed to Afan Oromo orthographic interference with English, whereas the remaining (40.23%) is attributed to the TL for both AOMSs and AMSs.

3.1.2.3. The analogy with the TL orthography

This is intralanguage interference errors which happen as the result of the influence of pre-established language habits in the TL itself (Erdoğan, 2005; Lekova, 2010). It is wrongly using learnt habits for different items in the same language, causing errors. From the total errors, error of analogy with the orthography of the TL created by AOMSs and AMSs accounted for 425 (11%) and 383 (10.53%) errors, respectively. Error of analogy is an error that is exclusive to the TL and has nothing to do with both SLs orthographies. For instance, substituting consonant diagraph <ph> for <gh> as in *rouphly* for roughly /*rʌfli*/ is distinctive to the TL. Phoneme /f/ is represented by different graphemes like <gh> as in roughly, <ph> as in photo, and <f> as in father. So, in the word roughly, substituting <ph> for <gh> is the confusion emanated from the nature of the TL, in which one phoneme is represented by different graphemes. Regarding the confusing nature of the TL orthography, Mudd (1994) and Crystal (1987) stipulate the inconsistent phoneme-grapheme relationship in English as the main source of learners' difficulty in clearly spelling words in English. The problem has emanated from students' challenge in internalizing inconsistent orthography of the TL.

Under the analogy of the TL orthography, four distinct sub-types of errors were identified. The first of these four sub-types is consonant substitution based on the TL orthographic pattern. From the total errors created by AOMSs and AMSs, it accounted for 160 (4.15%) and 145 (3.99%) errors, respectively. Substitution of consonant grapheme <c> for <ck> that stands for phoneme /k/ as in *stic* for stick /*stɪk*/, <t> for <ss> that stands for phoneme /ʃ/ as in *discution* for discussion /*dɪˈskʌʃn*/ and <th> for <s> that stands for phoneme /z/ as in *buthness* for business /ˈ*bɪznəs*/, and grapheme <q> for

<c> that stands for phoneme /k/ as *cliniq* for clinic /ˈklɪnɪk/ were some of the errors identified. Where grapheme <c> is substituted for <ck> that stands for phoneme /k/ in the word stick, the phoneme is phonetically represented by <k> grapheme. However, due to the representation of phoneme /k/ in the language by different graphemes such as <c> as in cat /*kæt*/, <k> as in keep /*kiːp*/, <ck> as in kick /*kɪk*/, <q> as in square /*skweə(r)*/, and <ch> as in character /ˈ*kærəktə(r)*/ confusion arose about what grapheme to use when phoneme /k/ appeared in different word environments. This confusion led the students to use graphemes <c, ck, k, q, ch> interchangeably in the environment where phoneme /k/ appeared.

The addition of vowel grapheme <e> at word-final position was the other error happened due to the nature of the TL. From the total errors committed by AOMSs and AMSs, it accounted for 125 (3.24%) and 88 (2.47%) errors, respectively. It was found out that vowel grapheme <e> was inserted at word-final of the word repeat /*rɪˈpiːt*/ as *repeate*, sheet /*ʃiːt*/ as *sheete*, revision /*rɪˈvɪʒn*/ as *revisione*, peak /*piːk*/ as *peake*, and lunch /*lʌntʃ*/ as *lunche*.

In most cases, the presence of vowels at the end of words is not phonemic in the English language. They only appear to distinguish words in their written forms. This invited students to insert vowel <e> at word-final positions where phoneme /e/ or grapheme <e> does not exist. To bring the vowel at the right place based on the existing spelling norm regardless of its phonemic presence demands visual capturing and memorization of each word's orthographic pattern (Kwok, 2014), and studying commonly misspelled words (Ehri, 1989). Failure to do these leads to the addition and omission errors of vowel graphemes.

Although small in number, diphthong substitution for a vowel based on a phoneme-phonetic relationship was seen in the orthographic errors of the students. It is a phenomenon of substituting a diphthong grapheme for a vowel grapheme standing for a phoneme it does not phonetically represent. It represented 30 (0.78%) and 60 (1.65%) of errors committed by AOMSs and AMSs, respectively. The concept of the diphthong is not known in the SL. In the SL, distinct vowel phonemes do not appear consequently (Geshe, 2010; Tasammaa and Waqwayyaa, 1993; Waaqoo, 1993). So, the phonetic substitution of a diphthong for a phoneme in the environment has nothing to do with the orthography of Afan Oromo. Phoneme phonetic substitution of vowel <iu> for <u> as in *niutrient* for nutrient /*njuːtriənt*/, vowel <ai> for <i> as in *raight* for right /*raɪt*/ and as in *desaign* for design /*dɪˈzaɪn*/ were some of the orthographic errors created based on this pattern.

Within the category of the analogy with the TL orthography, homophone substitution accounted for 110 (2.85%) and 90 (2.47%) of the total errors committed by AOMSs and AMSs, respectively. Due to the irregularity of English language orthography, words with similar pronunciation and different meanings are represented by the combination of different graphemes (Josiah, 2009). Homophone confusion in the dictation test, overwhelming students' understanding of the context, led them to replace a word with other words having different meanings and grapheme representations but similar in pronunciation. Homophone substitution of *shit* for *sheet*, *meet* for *meat*, *live* for *leave*, and *write* for *rite* and *right* were some of the errors taken from the data of the study.

Generally, in the error of analogy with the orthography of the TL, SLs do not have a stake. Instances attributed to this error have no basis in either of the SLs. Thus, the causes of all 425 (11%) errors created by AOMSs were attributed to the TL.

3.1.2.4. The analogy with the Afan Oromo orthography

Unlike errors emanated from the analogy with the TL orthography, errors emanated from the analogy with SL were not exclusive to the SL. The reason this category was classified under the SL analogy is that, unlike the other categories of errors, high numbers of errors were attributed to AOMSs than to AMSs. Moreover, errors in the analogy with the SL were much more familiar with Afan Oromo than with English language orthography.

The analogy with the orthography of the SL represented 763 (19.77%) and 130 (3.56%) errors of the total errors committed by AOMSs and AMSs, respectively. In the analogy with SL orthography, four

sub-categories of errors were identified. These are vowel additions at the beginning, middle and end of words, and vowel lengthening.

Word-initial vowel insertion errors emanated from the analogy with the spelling pattern of Afan Oromo. Based on the phoneme pattern, two and more consonant clusters are not allowed at the beginning of Afan Oromo words (Geshe, 2010; Tasammaa and Waqwayyaa, 1993; Waaqoo, 1993). Unlike the TL phonotactics , AOMSs inserted vowel grapheme <i> at the beginning of words having consonant clusters. From the total errors created by AOMSs and AMSs, word-initial vowel insertion accounted for 198 (5.12%) and 10 (0.27%) errors, respectively. In this sub-type, AOMSs committed higher number of errors than AMSs. The insertion of vowel <i> word-initially was the only error identified in this regard. The insertion of vowel <i> in *isweet* for sweet /*swiːt*/, *istrategies* for strategies /*strætədʒi*/, and *istring* for string /*strɪŋ*/ were some instances to mention. Although it is premature to conclude, the insertion of vowel <i> at the beginning of words began with <st> consonant clusters were prevalent.

Word-medial vowel insertion accounted for 230 (3.11%) and 19 (0.52%) of the total errors created by AOMSs and AMSs, respectively. Here too, compared to errors created by AOMSs, errors created by AMSs are minor. The data obtained indicated that predominantly vowel grapheme <i> is inserted between consonant clusters at the beginning and at the end of words where it was not phonemic. Students were spelling brother /*brʌðə(r)*/ as *birother*, pronunciation /*prəˌnʌnsiˈeɪʃn*/ as *pironunciation*, friend /*frend*/ as *firienid* and artist /*aːtɪst*/ as *artisit*. As a result of Afan Oromo orthographic rule prohibiting two or more consonant clusters at the beginning and end of words, students committed word-medial vowel insertion errors in the TL.

The other sub-category of SL related orthographic errors was the insertion of vowels at word-final position. Although its magnitude is small, it is worthwhile to note SL related errors students were making. It represents 55 (1.43%) and 8 (0.22%) errors from the overall errors AOMSs and AMSs created, respectively. The addition of vowel <i> at the end of words like friend /*frend*/ as *friendi*, difficult /*dɪfɪkəlt*/ as *difficulti*, and artist /*aːtɪst*/ as *artisti* were some of the instances of errors students committed in this regard. The insertion was made based on an impermissible consonant cluster at the end of words in the SL.

Vowel grapheme <e> was also found inserted where more than two consonant clusters appeared word-medially and more than one consonant clusters appeared word-initially and finally. These have happened based on Afan Oromo phonotactics that prohibit consonant clusters in the environment, according to Geshe (2010), Tasammaa and Waqwayyaa (1993), and Waaqoo (1993). Spelling cattle /*kætl*/ as *cattele*, photographs /*fəʊtəgraːf*/ as *photographes*, hungry /*hʌŋgri*/ as *hungrey*, and nutrients /*njuːtriənts*/ as *nutrientes* were some of the examples captured.

From the insertion at all positions of the words of the TL, it has been identified that the inserted vowels were not phonemic in the environments. It was the phoneme-grapheme rule in the SL that affects the spelling norm in the TL. In Afan Oromo, such impermissible consonant clusters do not happen in normal circumstances. They happen during word derivation and inflection through morpheme epenthesis (Geshe, 2010). At that moment, it is the insertion of the vowel <i> that brings the impermissible consonant clusters to the permissive norm.

Vowel grapheme lengthening is one of the SL caused orthographic errors. It is doubling vowel grapheme where vowel phoneme is perceived to be long (Belda, 2010). English language orthography cannot be governed by this rule. So, the knowledge of using double grapheme where the phoneme is perceived long is derived from SL orthographic rules. Vowel lengthening error accounted for 280 (7.26%) and 46 (1.26%) errors committed by AOMSs and AMSs, respectively. Lengthening related errors were common among English words familiar in the SL through borrowing, and code-switching. Students' familiarity with the spelling of borrowed words in the SL created opportunities to misspell them in the TL. Accordingly, students wrote *maalaariyaa* for malaria, *pirootiinii* for protein, *kiliniikii* for clinic, and *biizinasii* for business.

Generally, the analogy with the orthography of the SL has 763 (19.77%) stake in English orthographic errors committed by AOMSs. There are no TL related reasons for vowel insertion errors since they did not occur after the phoneme in the environment. However, the irregularities of the TL did encourage the occurrence of the insertion errors. More dominantly, the insertion happened based on the orthographic rule of Afan Oromo that does not permit the existence of consonant clusters in the environment. Students, based on the SL phonotactics, were inserting vowels between consonants irrespective of the phoneme in the environment, as in *isweet* or *siweet* for sweet. In the word sweet, phonetically transcribed as /*swiːt*/ neither phoneme /i/ nor grapheme <i> does exist before <s> or between <s> and <w>.

Moreover, minor errors created by AMSs compared to AOMSs witnesses that this error was Afan Oromo-driven. Out of 763 (19.77%) errors, 130 (3.56%) occurred due to English language non-systematic orthographic rules and AMSs exposure to Afan Oromo as a subject course at lower grades. Thus, of the total 763 (19.77%) errors of analogy with the SL orthography committed by AOMSs, 633 (16.41%) errors were exclusive to Afan Oromo interference with the English Language.

3.1.3. Asymmetric errors

Asymmetric errors are errors that are neither linked to the SLs nor the TL causes, nor are they predictable by nature. Different asymmetric errors like substitution and omission of vowels and consonants, and insertion of vowels were identified in an unpredictable environment and pattern. This error accounted for 242 (6.3%) and 877 (24.1%) errors from the total errors created by AOMSs and AMSs, respectively.

3.2. Direction and Intensity of Orthographic Errors and Possible Way-out

After this, teachers' responses to the questionnaire and the key informant interview were discussed. The two data gathering tools were prepared to triangulate linguistic data.

3.2.1. Direction and intensity of orthographic errors

Table 2. Direction and intensity of orthographic errors

No.	Items	Options	Teachers		
			Legible respondents	Response in no.	Response in %
1	Have you ever encountered AOMSs' orthographic interference from Afan Oromo to English?	a. Yes	144	113	78.5
		b. No		31	21.5
4	Have you ever encountered AMSs' violating English orthographic rule?	a. Yes	144	92	63.9
		b. No		52	36.1
5	Who is more dominant in committing English orthographic errors?	a. AOMSs	144	79	54.9
		b. AMSs		35	24.3
		c. No significant difference		30	20.8

In Table 2 item one, teachers were asked if they have ever encountered students' orthographic interference from Afan Oromo to English? From the total 144 teachers, 113 (78.5%) teachers said yes we have encountered whereas the remaining 31 (21.5%) teachers said no we have not. The data

obtained from the respondents support the idea that Afan Oromo orthographic interference with English was common among AOMSs.

Based on item one, teachers were asked two open-ended questions. The same questions were presented to the key informant interview participant teachers. The questions demanded if the respondents were able to identify the context and the pattern of the interference from Afan Oromo to English. According to their suggestion, AOMSs overtly use a script which stands for a sound in Afan Oromo for a similar sound in English which has to be represented by a different script. In instances where the phoneme-grapheme relationship is inconsistent in English, instead of recalling a grapheme standing for a phoneme in a specific place, students look for a phoneme that matches the grapheme based on the phoneme-grapheme relationship they are accustomed to in Afan Oromo. Examples from the data include writing *folse* for false, *tiru* for true, *inglish* for English, and *buuk* for book. The same data obtained from the teachers in the meantime reveals errors of 'vowel phoneme phonetic substitution' obtained from students' texts. Moreover, errors of 'consonant phoneme phonetic substitution' obtained from students' text were also identified by teachers as in writing *kat* for cat, *kemikal* for chemical and *soket* for socket.

Word initial, medial, and final vowel insertion errors, identified from students' texts as Afan Oromo unique orthographic interference to English were also instances and patterns identified by the teachers as in writing *istokiyometrii* for stoichiometry, *extira* for extra, and *ispeak* for speak.

Omitting silent vowels and consonants based on the rules established in Afan Oromo as in writing *nife* for knife and *nowledge* for knowledge were also cases reported by the teachers. In Afan Oromo, these patterns are not allowed and students depending on Afan Oromo orthographic rule try to correct the norm in English causing interference errors.

Item four in Table 2 asks if the teachers have ever encountered AMSs violating English orthographic rules. From the total 144 teachers, 92 (63.9%) and 52 (36.1%) teachers said yes and no, respectively. The majority of the teachers, 92 (63.9%), witnessed that AMSs commit orthographic errors when writing in English. A similar question to item four was also presented to key informant interview participants. The interviewees palpably acknowledged that AMSs create English orthographic errors.

On item five, Table 2, participants were asked to identify the more dominant in committing English language orthographic errors, from the two groups (AOMSs and AMSs). From the total 144 teachers, 79 (54.9%) responded AOMSs commit more, 35 (24.3%) said AMSs commit more and 30 (20.8%) said no significant difference. The data obtained from the respondents showed that AOMSs created more orthographic errors in English than AMSs. For similar question, interviewees confirmed that AOMSs commit more orthographic errors in English than AMSs.

Following item five, an open-ended question, which demands the participants to justify their preference, was presented. Respondents who said AOMSs commit more English language orthographic errors than AMSs provided script similarity as an opportunity to interfere Afan Oromo with English, similar to the argument of Oller and Ziahosseiny (1970). Similar to Gfeller (1998) and Lado (1957), those who argue AMSs commit more orthographic errors assert that script differences between the two languages eliminate students' opportunity to become familiar with the letters of the alphabet in order to extend their knowledge of the first language into TL learning. Those who supported the view that there was no significant difference in intensity between the errors committed by the two groups asserted that the similarities or differences in the script did not make a significant difference in the students' mastery of the orthography of the TL. According to them, teachers' and students' commitment and devotion, teachers' efficiency and teaching methods employed are important factors. Similar to this group, linguistic comparison of errors committed by AOMSs and AMSs showed that both groups of students commit approximately similar numbers of errors.

3.2.2. Possible way-out

Table 3. Solutions forwarded to tackle the interference

No.	Item	Options	Teachers		
			Legible respondents	Response in no.	Response in %
7	If you believe students' orthographic interference from Afan Oromo to English affects students' English orthography, what do you think could be the solution to minimize the problem? You can give more than one answers	a. Learning only in Afan Oromo throughout academic life	144	0	0
		b. Learning only in English throughout academic life	144	7	4.86
		c. Mastering the orthography of both languages separately based on their ground principles	144	131	91
		d. Writing Afan Oromo in Sabean (Ge'ez) letter of alphabet	144	13	9.03
		e. others, if any			

The teachers were asked to propose solutions for the orthographic inference from Afan Oromo to English. From the total of 144 teachers, none proposed learning in Afan Oromo throughout academic life as a way out to tackle the problem. Quite a few, i.e., 7 (4.86%) teachers proposed learning in English language throughout academic life as a solution to avoid the orthographic confusion emanating from using different languages in academic settings that affects students' achievements and performances. Out of 144 eligible respondents, 131 (91%) teachers proposed mastering the orthography of both languages separately based on their specific principles without mixing them. Again, 13 (9.03%) teachers proposed writing Afan Oromo in Sabean script to avoid orthographic interferences that happen due to the use of similar scripts. From the overall responses, it can be presumed that the solution to minimize Afan Oromo orthographic interference with English is to learn to manage the orthography of both languages separately and independently. The remaining options were not much supported by the respondents as a possible way-out.

The majority of the key informant interview participants also witnessed the same. According to them, the solution to minimize interference is to set a strategy of learning the orthography of both languages independently, and to use Afan Oromo interference as an opportunity to learn the arbitrary orthography of English language. According to Lekova (2010), learning independently enables students to develop command of both languages' linguistic habits and skills separately. To substantiate their argument, the respondents forwarded that there were students who learned in Afan Oromo in pre-ninth grades but had a good command of English orthography, and there were students whose MT and language of instruction in pre-ninth grades were Amharic but made similar errors. They argue that rather than blaming the similarity of graphemes between Afan Oromo and English as an exceptional cause of the problem in English orthographic, it is better to learn from those good orthographic performers of AOMSs and extend their strategy to the majority.

Giving attention to the areas of interlingual orthographic interference errors, practicing misspelled words, and incorporating areas of orthographic interference into the second language curriculum and syllabus were some of the recommendations made based on the linguistic data. In contemporary pedagogy for teaching second languages, interference errors have been used as a productive methodological approach (Lekova, 2010). Erdoğan (2005: 262) also stated that errors "can be

impeded through realizing the errors and operating on them according to the feedbacks given". If first language interference persists in learning a second language, taking the content of the first language and the cultural background of the students into account is vital. First language interference into a second language can therefore be considered in both languages' curriculum, syllabus, and textbook preparation or revision, so that the problem can be minimized (Lekova, 2010). Referring to Richards, Platt, and Platt (1992), Erdoğan (2005: 266) argues that error analysis is important to "obtain information on common difficulties in language learning as an aid to teaching or in development of teaching materials. Students' errors have always been of interest and significance to teachers, syllabus designers and test developers." Second language teachers are therefore required to possess good command and knowledge of the first language in the areas of interference to equip second language learners with the necessary pedagogical and linguistic information to minimize interlanguage challenges.

4. Conclusions and Recommendations

The extent of errors committed by AOMSs and AMSs were almost the same irrespective of their causes. This indicated using similar script by Afan Oromo and English did not provide a special opportunity for the English orthographic problems AOMSs committed. After the overall analysis, the error difference between AOMSs and AMSs was 220 (1.63%) of the total 13500 words produced by the students. This number is insignificant to conclude that Afan Oromo interference into English is destructive compared to Amharic. Generally, compared to AMSs, AOMSs did not commit high number of errors, as has been agued by high school teachers.

Afan Oromo specific phonotactic rules played a role in creating Afan Oromo specific orthographic interference with English. In Afan Oromo, two or more consonant clusters at the beginning and end of words and more than two consonant clusters in the middle of words are impermissible. Contrary to the norm in the TL, based on this paradigm, more than AMSs AOMSs were found inserting vowels where such impermissible consonant clusters happened in the TL. Errors of lengthening English words familiar in Afan Oromo were also among the errors committed due to interference. Though not as significant as errors of analogy with the SL orthography, omission and substitution errors contributed 4.9% of the errors to the 21.1% of AOMS related orthographic errors in English.

Since TL orthographic error difference emanated from AOMSs and AMSs is not significant, instead of assuming similarity of script between Afan Oromo and English as an exceptional cause of orthographic errors, it is recommended to look for better strategies to tackle the identified problems to maintain the advantage of MT in education without hampering the overall system. Accordingly, managing the orthography of both the Afan Oromo and English languages independently, giving attention to the areas of interlingual orthographic interference, practicing misspelled words due to interlingual orthographic interference, and incorporating areas of orthographic interference into TL curriculum and syllabus are recommendations made based on the finding of the study.

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