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Learning-induced errors in the written English texts of hearing-impaired learners in primary school

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Abstract
This paper sought to identify and describe the learning-induced errors in the written English of hearing-impaired learners in primary schools. The paper also establishes if there are significant differences between the learning-induced errors made by the hearing-impaired pupils (HI) and those made by the hearing pupils (HP) in their written English texts. The study was based on data collected from the written texts of 30 hearing-impaired (HI) pupils and 30 hearing pupils in standard six, seven and eight. The hearing pupils in this study formed the comparison group. Thirty HI pupils and 30 hearing pupils were sampled from Ngala Special School and St Paul's Primary School, respectively. In both schools, stratified random sampling was used. The study then employed simple random sampling to select ten pupils per class in each school with equal gender representation. The researcher used a free composition, a picture story and a cloze passage for data elicitation. Corder's Error Analysis theory and Selinker's Interlanguage theory were used to guide the study. From the data analysed in this study, it is evident that both HI and HP make learning-induced errors. These errors, however, differ in quality and quantity. The HI made more Learning-induced errors than their hearing counterparts did. This implied that the HI group had not yet acquired grammatical and lexical competence. The findings of this study will not only add more knowledge to studies done in applied linguistics but will also be of pedagogical value to educationists, teachers and the Ministry of Education in general.

Key terms: Error analysis, hearing impaired pupils, hearing pupils, learning-induced errors, written English.

INTRODUCTION

English is the official language in Kenya. It is not only used as the medium of instruction in Kenyan schools from standard four to the university level, but it is also taught as a compulsory subject in Kenyan primary and secondary schools (KIE, 2006). The use of English as a medium of instruction dictates that students have a certain level of proficiency in English. It is important for the pupils to develop competence in the language (Mang'oka, 2009). This will help them to use English effectively and to understand the teacher in the classroom.

The English syllabus for primary education aims to help learners achieve communication competence at the end of standard eight (KIE, 2006). All pupils are required to have acquired a sufficient command of English in both spoken and written forms through the language skills of speaking, listening, writing and reading. This is supposed to enable them to communicate fluently, follow subject courses and textbooks, and read for pleasure and information. The hearing-impaired pupils are, however, disadvantaged in listening and speaking naturally (Ayoo, 2004). Although the partially hearing-impaired uses hearing aids, the profoundly hearing-impaired cannot use these aids. In spite of their disadvantages, the hearing-impaired pupils share the same syllabus and sit for the same national exam (KCPE) as the hearing pupils. It is against this background that this paper identifies and describes the learning-induced errors made by hearing-impaired pupils.

LITERATURE REVIEW

Significance of Error Analysis

Corder (1967) claims that errors are important to the learner, teacher and researcher. An analysis of errors provides insights into the learners' use of language. It also gives more information on the learning and teaching process. Corder (1974) shows that analysis of errors enables teachers to know how effective their teaching materials and techniques are:

"At the level of pragmatic classroom experience, Error Analysis will continue to provide one means by which the teacher assesses learning and teaching and determines priorities for future efforts" (Richards & Sampson, 1974: 15).

Errors are considered signs of developmental processes involved in the learning of language (Shekhzadeh & Gheichi, 2011). Selinker (1969), as quoted in Mang'oka (2009), indicates that error analysis is important in three aspects. Firstly, errors are significant to the language teacher because they show the learner's progress in language learning. Secondly, errors are also essential for the language researcher as they provide information on how language is learned. Lastly, errors are significant to language learners because they get involved in hypothesis testing.

The analysis of errors also provides useful information on common difficulties in language learning and will aid in teaching and the preparation of teaching materials. The investigation of errors can be, at the same time, prognostic and diagnostic. It is diagnostic because it can tell us the state of the language of the learner at a given point during the process of learning, and prognostic because it can tell course organisers to re-orient language learning materials based on the learners' current problems (Corder, 1967, as quoted in Mang'oka, 2009).

Studies in Error Analysis

Mang'oka (2009) claims that several studies have been carried out on learners' errors in Kenya. These studies were concerned with the acquisition of English as a second language by normal hearing learners cutting across primary to university level. Some of the research undertaken on Language Two (L2) learner's errors in Kenya include those of Njoroge (1987), Maina (1991), Nyamasyo (1992), Simatwo (1993), Chege (1996) and Njoroge (1996).

Njoroge (1987) carried out a study on the acquisition of six morphosyntactic structures of the English of Kenyan children. He found out that the errors that were made in the process of language acquisition reflect the strategies and processes involved in L2 learning. He concluded that language acquisition was a developmental process. Similar observations on language acquisition as a developmental process were made by Maina (1991) and Nyamasyo (1992). Maina (1991) carried out a study on the grammatical errors in standard eight pupils' written English in four city

schools in Kenya. He found out that most errors were caused by overgeneralisation.

The role of overgeneralisation in learners' errors was also observed by Nyamasyo (1992). She studied the grammatical and lexical characteristics of the writing of Kenyan pre-university students. She found out that overgeneralisation was the main cause of the students' errors. Similarly, Njoroge (1996) observed that overgeneralisation was the main cause of errors. He examined the morphosyntactic errors in the written English of first-year undergraduate students in Kenya. He found out that verb-related errors were very common in students' written work. He concluded that over-generalisation was the main cause of errors.

Earlier studies on hearing pupils' lexico-semantic errors done in Kenya showed that learners have problems in vocabulary acquisition. Simatwo (1993) and Chege (1996) carried out a study on Lexico-semantic errors. Simatwo (1993) investigated the lexico-semantic errors of standard seven Nandi-speaking pupils in five primary schools in Uasin Gishu and Nandi Districts. His study aimed at investigating the nature and causes of errors. He classified errors into nine categories: Claques, malapropisms, ignorance, coinage, semantic contiguity, collocation, learning-induced, language switch and anglicisation.

The role of formal exposure to lexico-semantic competence was observed by Chege (1996). She did a study on lexico-semantic errors as indices of developing language competence among Kikuyu pupils in standard five, six and seven. Her study was based on the Error Analysis and Interlanguage approaches. She classified the lexico-semantic errors into the following categories: collocation, coinage, learning-induced, semantic contiguity, paraphrase, translation, (Language One) L1 phonologically induced, and other errors that were characterised by illogical use of lexical items. Her study concluded that:

1. Though the three groups made similar errors, the frequency with which they were made differed. Some errors were less frequent in advanced learners than among the less advanced.
2. The pupils with greater formal exposure to English tended to portray greater lexico-semantic competence than those who had a shorter period of exposure.
3. Though some error types like learning-induced, collocation and translation errors reduced with each higher level, there were other error types whose frequency was almost constant across the three levels.

Mutiti (2000) carried out research on the Second Language (SL) acquisition of English by speakers of Gikuyu's first language background. The research was aimed at the investigation of the factors related to the setting of the parameter of syntactic information packaging towards the acquisition of English by Gikuyu learners. The study proved that Chomsky's principles and parameters UG (Universal Grammar) are applicable in the acquisition of a SL. The research proved a developmental continuum in conformity with UG principles in Second Language Acquisition (SLA), although not in very strong terms. The 'back–to–UG' position to which a learner is said to regress in the UG model was challenged by the results.

Studies Related to the Writing of Hearing-Impaired Pupils

According to Mang'oka and Mutiti (2013), hearing-impaired learners are challenged as far as language acquisition is concerned. 'Their written English shows that a great majority of them had not acquired enough English to express themselves fully' (Mang'oka & Mutiti, 2013, p. 259). Other studies have confirmed that hearing-impaired learners are academically challenged. They trail behind their hearing counterparts in exams. Studies by Strong (1998), Wilbur (2000), Toth (2002), Ayoo (2004), and Mang'oka (2009) reveal differences in performance indicative of deaf subjects' English language deficiencies. Sentences written by the hearing–impaired tend to be shorter than those written by normal hearing controls of the same age and contain less conjoined and subordinated clauses. Hearing–impaired (HI) individuals also tend to reiterate words and phrases within a discourse and use more articles and nouns and fewer adverbs and conjunctions than

normally hearing individuals matched for age (Myklebust, 1964, in Mang'oka, 2009).

The hearing impaired learners in Kenya have not acquired as much language as the normal hearing pupils have (Ayoo, 2004; Mang'oka, 2009). Teachers' lack of proficiency in the instruction language has been found to be one of the major obstacles to their academic development. Other studies claim that the hearing impaired children begin their formal school lacking the necessary language skills and general knowledge for normal language development among their age peers (Wilbur, 2000; Toth, 2002).

Other studies done in Kenya indicate that HI learners have not yet acquired important English structures in order to communicate effectively. Such studies are those done by Wamae (2003) and Ayoo (2004). Wamae (2003) did a study on the effects of the sign language mode of instruction on the acquisition of English suffixes by hearing impaired two learners of English in Butere–Mumias District. Learners in the two schools were made to write down the sentences that their teachers were given to sign for them (that is, use sign language). The sentences contained word affixes such as 'ed' ',-ly', and '-s'. The findings indicate that less than 50 per cent of the learners got the affixes under investigation right. Hearing-impaired students had not acquired affixes in their vocabulary studies.

The hearing-impaired pupils were also found to be disadvantaged in the learning process due to their impairment. Ayoo (2004) studied the morphosyntactic errors in the written English of standard eight hearing-impaired pupils. She found out that 78 per cent of the data collected from standard eight hearing-impaired pupils could not be described as English structures. Hearing–impaired pupils have not learned or acquired parts of speech and grammatical rules. They had errors related to parts of speech, omission, redundant, concordial (agreement), word order, choice of word used, double use of words, punctuation errors and expression errors. She concluded that hearing-impaired students had not mastered many of the basic grammar rules in English.

Akachi (1991) studied sentence types of Kenyan Sign Language (KSL). He worked on the assumption that KSL has declarative, interrogative and imperative sentences, as found in many spoken languages. He investigated how these types of sentences were formally differentiated in Kenya Sign Language (KSL) grammar. He claimed that declarative sentences such as "You are deaf" are expressed as "DEAF YOU," while interrogative sentences such as "Are you deaf," are expressed as "DEAF YOU" (Akachi, 1991, p. 10). It is good to note that the words in capitals are ordinary English, representing word signs in KSL. He explained that in sign language, the above two sentence types could be distinguished because they are accompanied by the use of 'non-manual signals or behaviour'. These non-manual signs are carried out simultaneously with the manual signs in the sentences. The head and shoulders being moved forward and eyebrows lifted accompany the interrogative sentence.

According to Akachi (1991), an imperative sentence (request, command) such as "pick up the Book" is expressed as "BOOK PICK". It is accompanied by compressed eyebrows and constant eye contact with the addressee while the head and the shoulder remain in the forward position. Akachi (1991) argued that sign language is the native language of the hearing-impaired created by them for purposes of communication among themselves and with others. Sign Language has a structure which is independent of spoken language.

There is no international Sign Language (Adoyo, 2002). There are different national Sign languages because signs are culturally determined. There are several Sign Languages, such as Kenyan Sign Language, German Sign Language, American Sign Language, Zambian Sign Language, Ugandan Sign Language, Israel Sign Language, and many others. Similarly, regional variations have manifested in the Kenyan Sign Language lexicon due to the several spoken languages that we have in Kenya. However, these variations have been able to converge into a standard variety because of sociolinguistic factors (see Okombo and Akachi, 1997). Studies by Akachi (1991), Okombo (1994), and Adoyo (1995) show that, like other Sign Languages, KSL is a formal, socially agreed-on, rule-governed

symbol system that is generative in nature. Though different in the modes of expression, Kenyan Sign Language and other spoken languages are equivalent in their communicative potentials.

METHODOLOGY

The study was based on data collected from the written texts of 30 hearing-impaired (HI) pupils and 30 hearing pupils in standard six, seven and eight. The hearing pupils in this study formed the comparison group. 30 HI pupils and 30 hearing pupils were sampled from Ngala Special School and St Paul's primary school respectively. In both schools, stratified random sampling was used. The pupils in standard six, seven and eight were split into two groups: Boys and girls. The study then employed simple random sampling to select ten pupils per class in each school with equal gender representation. This totalled to 30 students per school.

Three tests were given to all the students. These were a free composition, a picture story, and a cloze passage. The three different modes of testing were helpful in getting a broader spectrum of the learners' lexical competence. Corder (1974:126) says that "we should be aware that different types of written material may produce a different distribution of error or a different set of error types".

The three tests done by the pupils were read, and the five steps of Error Analysis were used to analyse the learning-induced errors:

a) To identify the errors, the three tests done by the two groups under study were read, and the learning-induced errors were underlined and counted.
b) The identified errors were categorised into error types.
c) Possible cause of the errors was established using Selinker's five central processes of Interlanguage.
d) Evaluation of the learning-induced errors was done to determine which learning-induced errors affected the learner's performance most.

The percentage of each error type was calculated in every pupil and in every group. The SPSS computer package (Statistical Package for Social Science) was used to compute means, frequencies, standard deviation, t-tests, and analyses of variance. Analysis of variance and T-test are statistical techniques or tests for continuous data and are used to compare means.

RESULTS AND FINDINGS

Identification of Learning-Induced Errors

The study found that both groups made several learning-induced errors. These are errors that show improper learning or inadequate learning of the rules of the second language. Some of these errors were because of an over-generalisation, incomplete application of rules, ignorance of rule restrictions, system simplification, and exploiting redundancy. There were 3133 Learning-induced errors made by the two groups under study. The HI made 1851(59%), while the HP group made 1282(41%) learning-induced errors. Both learners created deviant lexical items based on their experience of the lexical items and the structures in the target language (English). Most of these errors were as a result of the learner reducing their linguistic burden.

Some errors were characterised by omission of semantic features such as tense, person, number and gender. Semantic features form the basic components of the meaning of words. Although they are grammatical categories, they determine the semantic component of words in English. These learning-induced errors were characterised by failure to mark the various aspects of grammar in lexical words.

In the written texts of both groups, there was an omission of tense, though more prevalent in the writing of the hearing-impaired learners. Tense is a semantic feature, and it is marked by the inflexion of the verb (Lyons, 1977:386, as quoted in Mang'oka & Mutiti, 2013). He says that tense, number, mood and gender are associated with particular kinds of semantic functions. All the above grammatical categories rely on the lexemes or lexical items to mark such features. Failure to mark the categories correctly results in not only the wrong lexical meaning but also the wrong sentence meaning. The HI group under

study had problems with marking gender by using the correct choice of lexical items.

Examples of Learning induced Errors from Hearing Pupils (HP)

1) My father get out and sit outside so that she can rest.
   (My father got out and sat outside so that he could rest.)

In example 1, the hearing pupil (HP) did not use the correct tense and the correct gender. The pupil should have used the past tense of the word *get* to show that the action took place in the past. Similarly, the masculine gender (*He*) should have been used because it refers to the subject of the sentence (My *father*), which is in the masculine gender.

2) The pharmacist gave the man drugs and show her how he would using them.
   (The pharmacist gave the man some drugs and showed him how he would be using /use them)

Example 2 has omission of the past tense morpheme –**ed**; wrong choice of pronoun (used ***her*** instead of ***him*** to mark masculine gender); and failure to use the verb *be* before *using* to mark an action that will be taking place in the future. In example 3 and 4, the pupils marked the past tense twice: ***didn't baked*** and ***didn't knew*** instead of ***didn't bake*** and ***didn't know.*** In both examples, tense was marked in both the auxiliary verbs and the main verbs.

3) My mother didn't baked a cake for my birth day.
   (My mother didn't bake a cake for my birthday).
4) He didn't knew where he was.
   (He didn't know where he was)
5) She praid and the party started.
   (She prayed and the party started).

In example 5, the pupil thought that all verbs that end in ***–ay*** should have the ***y*** changed into ***i***, then add ***–d*** to mark past tense as in the word ***pay***, whose past tense is ***paid.*** The pupil overgeneralised this rule for marking past tense in some irregular verbs, and applied it on the verb ***pray,*** which is a regular verb.

6) You don't have no malaria, said the doctor
   ("You don't have malaria," said the doctor).

In example 6, negation was marked twice by using *don't* (***do not)*** and ***no.*** Although example 6 is American English and is appropriate in some native dialects, it is an error because the Kenya Primary Syllabus advocates the use of the British English as the standard variety. "It is wrong in standard English to include more than one word in a sentence, clause, or verb phrase that negates that element" Princeton Language Institute (1993:96).

Examples of Learning Induced Errors from the Hearing Impaired Pupils (HI)

Although in both groups, there was an omission of lexical items that mark certain semantic features, this was highly prominent in HI learners' writing. Such errors of omission are characteristic of language two learners in their early stages of language acquisition (Dulay et al., 1982). Overgeneralisation, incomplete application of rules, ignorance of rule restrictions, system simplification and exploiting redundancy may have played a role in the HI learners' errors. Richards (1974:174) says that overgeneralisation is associated with redundancy reduction. It covers instances where the learner constructs a deviant structure based on his familiarity with other structures in the target language. It might be the outcome of the learner easing his language burden. For example:

Yesterday mother bake cake to my birthday
(My mother baked a cake for my birthday).

The HI learner failed to mark tense in ***'bake'*** because of the adverb of time ***'yesterday'*** and, therefore, reducing his linguistic burden.

Teacher thank also all mens
The teacher *thanked all the men)*

The HI learner in the above example was operating on the rule that the plural ***s*** is used with all nouns. Other causes for the learning-induced errors in this category may be ignorance of rule restrictions or incomplete application of rules.

In example 7 below, the HI pupil may have wanted to mean 'one child or some children had no gifts' but used '**one children**… and **no any'.** The lexical item **one**

precedes a singular countable noun when used as a determiner. **No**, and **any** are both central determiners and cannot be used together as they lead to redundancy in meaning (Quirk & Greenbarm, 1973). Failure to use these lexical items correctly is an indication that the HI pupils did not know their usage and meaning.

7) One children had no any gifts.
(One child did not have a gift OR some children did not have any gift(s))

Overgeneralisation of –**ed** morpheme for marking past tense was observed in the writing of the HI pupils, as in example 8. Where the HI pupils marked tense in verbs, they used **–ed** regardless of whether the verb was regular or irregular. However, there were few such cases because the HI pupils did not mark tense in most of their work, as in examples 10 and 11. They used the bare form of the verb. In example 9, the HI learner may not have been aware that the verb **cut** is an irregular verb. The HI learners did not use conjunctions in their writing, as in example 9.

8) We sleeped under a tree.
(We slept under a tree).
9) Kamau cake cuted clap children
(Kamau cut the cake and the children clapped)
10) Mother car break down
(My Mother's car broke down)
11) Peter mango eat.
(Peter ate a mango)

The HI learners did not use determiners such as possessive pronouns, demonstrative pronouns and articles as in example 10 and 11. They omitted the determiner **my** to mark possession in the lexical item, **Mother**. The placement of the indefinite article **a** was omitted as in example 11.

12) …just in case the snake is poisoning.
(…just in case the snake is poisonous).

Example 12 was derived from the cloze passage. The HI pupil was supposed to fill in the blank using an adjective formed from the noun poison.

13) School good for you.
(Schooling is good for you /the school is good for you)
14) My birthday my happiest day
(My birthday is my happiest day)
15) I happy to saw many things.
(I was happy to see many things)

The HI pupils rarely used copula verbs in both present and past tenses as in examples 13-15. The verbs, **is,** and its past tense forms were omitted in the above examples. Either, the HI pupils thought they had communicated enough by using content words only (simplification), or they were ignorant in the use of the copula verbs with other verbs to mark tense.

Hearing impaired (HI) and hearing pupils learning induced errors differed in several ways. Although in both groups there was omission of lexical items that mark certain semantic features, this was more witnessed in the HI errors. The sentences of the HI had multiple errors ranging from missing articles, prepositions, conjunctions, pronouns, inflexion and derivational suffixes. In other cases, the HI used content words only, such as in example 9 below.

(9) Kamau cake cuted clap children.
(Kamau cut the cake and the children clapped)

It can be concluded that the HI group under study had not yet learned well the meaning and usage of some function words such as prepositions, pronouns and verb auxiliaries. In most cases, they used the bare form of the verb, as in the example below, emanating from the hearing-impaired pupils' data.

16) I was go Nairobi.
(I went to Nairobi / I was going to Nairobi).
17) Yesterday mother bake cake to my birthday
(My mother baked a cake for my birthday).

The pupil may have failed to mark tense in 'bake' because of the adverb of time 'yesterday' and, therefore reducing his linguistic burden.

18) Teacher thank also all mens
(The teacher thanked all the men)

The learner in the above example was operating under the rule that the plural **s** is used with all nouns. HI learners' writing portrayed ignorance of rule restrictions or incomplete application of rules, as in example 10 given earlier.

Mother car break down
(My Mother's car broke down)

In this example, the learner did not know how to mark possession. The word **break** in the phrase **break down** was not marked for tense by the use of –**ed**.

19) I feel sleep but had to open my eyes
(I felt sleepy but I had to keep my eyes open)

In example 19, the learner did not mark tense in the verb **feel** (**felt**). He also used the noun **sleep** as an adjective instead of **sleepy**.

20) Man ask have problem
(The man asked, "Do you have a problem?")

In example 20, the learner failed to use the article **'the'** to mark known and unknown information. Most of the HI learners did not use direct and indirect speech correctly. For example, it is impossible to know who asked the question or who was asked the question in example 20. The HI learners did not use conjunctions in their writing, as in example 9.

Kamau cake cuted clap children
(Kamau cut the cake and the children clapped)

The HI learners' learning-induced errors related to tense and omission might be a result of the pupils mapping their written language in KSL (Kenya Sign Language) syntactic base, similar to other children who are simultaneously acquiring two languages (Bishop & Mogford, 1993 as quoted in Mang'oka, 2009). Learners acquiring two languages seem to go through a stage of language mixing, as argued by Bishop and Mogford (ibid).

Another cause of learning-induced errors in this study may be language transfer. Akachi (1991) says that in KSL, the past tense is marked at the beginning of a sentence. The rest of the manual word signs in a sentence are in their present tense form. Past tense is marked by a flat hand configuration moving from the front of the head. On paper, the past tense is represented as [PST] at the beginning of a sentence.

[PST] MAN STEAL BOOK
"The man stole the book"

In written English, the above sentence would be mal-formed because of the omission of the definite article **"the"** before "**man**" and before "**book**" and the failure to mark tense on the verb "**stole**". This explains why the HI failed to mark tense on lexical verbs. It is also an explanation as to why they omitted determiners such as the definite and the indefinite articles. The learners used the bare form of the verb as in the example below:

I was go Nairobi.
(I went to Nairobi / I was going to Nairobi).

Akachi (1991:65) says that "what is regular in spoken language may not be regular in sign language". This may have influenced the HI learners not to differentiate irregular verbs from regular verbs and, therefore, used the same marker for past tense. Irregular verbs such as ***put***, ***sleep***, ***cut***, and ***tell*** were used with –***ed***. This affected the meaning of the lexical item and the sentence in which the lexical item appeared because tense is a semantic feature.

Quigley and Paul (1984) noted that the HI people have difficulties with inflexions. This may explain why the HI failed to mark some semantic features in their writing. In most cases, they used the bare form of the verb, as in the example below, emanating from the hearing-impaired pupils' data.

The doctor write in paper
(The doctor wrote on a paper)

In summary, learning-induced errors made by the HI group were characterised by the following:

i. Omission of lexical items that marked certain semantic features.

Examples: *My father get out and sit outside so that she can rest.*
My birthday my happiest day

ii. Omission of tense and omission of copular verb.

Examples: *He is smile*
The man go the hospital

The patient taking medicine and water
Teacher thank also all mens

iii. Omission of determiners.
Examples: *Sick man go home*
Teacher thank also all mens

iv. Overgeneralisation of tense-marking morphemes.
Examples: *We sleeped under a tree.*
Kamau cake cuted clap children

v. Failure to mark possession, gender and number.
Examples: *Mother car break down*
One children had no any gifts

vi. Wrong use of preposition, pronouns, adjectives, adverbs, and verb auxiliaries as seen in the examples given below:
After for two weeks the patient was fine he was healthy.
He is must go to work
From the that day the patient ate and drank the medicine
Got going to at home
…just in case the snake is poisoning.

Table 1: A Summary of Learning-Induced Errors

A. Semantic features omitted in lexical items	**Hearing Pupils**	**Hearing Impaired pupils**	**Total**
1. Tense	273	635	908
2. Possession	49	50	99
3. Gender	54	63	117
5. Number	52	111	163
B. Lexical items omitted			
1. Determiners	97	329	426
2. Conjunctions	31	201	232
3. Copular verbs	53	137	190
4. Main verb	0	34	34
5. Prepositions	12	70	82
C. Double marking of semantic features			
1. Double negation	220	1	221
2. Double marking of tense	188	1	189
D. Wrong lexical form			
1. Derivational errors	76	71	147
2. Verb forms errors	52	100	152
3. Adjectival form errors	57	19	76
4. Adverb form errors	68	29	97
Totals	**1282**	**1851**	**3133**

Significant difference between the HI Pupils' Learning Induced Errors and the HP learning-induced Errors

The computation of tests was done in order to compare the mean of learning-induced errors made by the HP and HI learners. This was to establish

whether there was a significant difference between the learning-induced errors made by the two groups. The group statistics for the learning-induced errors indicate that the HI made more errors than the HP (Hearing pupils). The mean for the HI was 61.70, and for HP was 42.73. The Standard deviation (SD) for the HP group was 15.503, and for the HI group, 7.853. This indicates that the HP learners were the more varied group (heterogenous group). The learners in the HP group might have performed differently, some with very many errors and others with very few errors.

Table 2: A Summary of Group Statistics for the Learning-Induced Errors Made by HP and HI Learners

	Hearing ability	N	Mean	Std. Deviation	Std. Error Mean
Learning induced	Hearing pupil	30	42.73	15.503	2.830
	Hearing impaired	30	61.70	7.853	1.434

The computation of the t-test for the learning-induced errors made by the two groups under study yielded a p-value of 0.001. When compared to the 0.05 significant level, it was found to be significant. There is, therefore, a significant difference between the HP and the HI learning-induced errors.

Table 1: T-Test Table for the Learning Induced Errors Made by HP and HI Learners

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2 tailed)	Mean difference	Std. Error Difference	95% confidence interval of the difference	
									Lower	Upper
Learning induced errors	Equal variances assumed	16.799	.000	-5.978	58	.000	-18.97	.3.173	.-25.318	-12.616
	Equal variances not assumed			-5.978	42.962	.000	-18.97	3.173	-25.365	-12.568

Analysis of Variance

Analysis of Variance for HI Learning-Induced Errors

The computation for ANOVA for the total number of learning-induced errors made by the HI pupils in the three classes yielded a p-value of 0.001. When compared to the 0.05 significant level, it was found to be very significant (see Table 4). There was, therefore, a significant difference in the learning-induced errors made by the three classes. The means for the HI Learning-induced errors decreased from class six to class eight. This shows that as the HI pupils advanced to a higher class, they gained more grammatical competence (by making fewer errors). Language exposure played a role in grammatical competence.

Table 4: A Summary of Group Statistics for the HI Learners' Learning-Induced Errors

	N	Mean	Std. Deviation	Minimum	Maximum
CLASS 6	10	69.20	7.146	60	81

CLASS 7	10	60.60	4.169	51	65
CLASS 8	10	55.30	4.572	49	62
Total	30	61.70	7.853	49	81

The mean for the HI learners' learning-induced errors was 0.69.20 for class six, 60.60 for class seven, and 55.30 for class eight. The standard deviation (SD) for class six was 7.146, class seven was 4.169, and class eight was 4.572. (See Table 5). Class six had the highest variability; therefore, it was the most heterogeneous class in performance. Some of the HI pupils in class six made many errors, while others made few errors. The HI pupils' Learning-induced errors varied within the classes.

Table 5: ANOVA Table for the HI Learners' Learning-Induced Errors

	Sum of Squares	df	Mean Square	Fcalc.	P-value
Between Groups	984.200	2	492.100	16.524	.0001
Within Groups	804.100	27	29.781		
Total	1788.300	29			

Analysis of Variance for HI Learning-Induced Errors

Analysis of variance (ANOVA) was done for the HI Learning Induced Errors made in the three classes to see if there was a substantial difference among the three classes' Learning Induced Errors. The computation for ANOVA for the total number of learning-induced errors made by the three HP classes yielded a p-value of 0.036. When compared to the significant level of 0.05, it was found to be significant (see table 6). There was, therefore, a significant difference in the means of the learning-induced errors made by the three HP classes.

Table 6: A Summary of Group Statistics for the HP Learning-Induced Errors

	N	Mean	Std. Deviation	Minimum	Maximum
Class 6	10	44.10	15.779	22	71
Class 7	10	50.70	13.622	28	66
Class 8	10	33.40	13.057	17	53
Total	30	42.73	15.503	17	71

Class seven had the highest number of learning-induced errors. The mean for the HP learners' Learning-induced errors was 44.10 for class six, 50.70 for class seven, and 33.40 for class eight. The SD for class six was 15.77; for class seven, 13.62; and for class eight, 13.057 (See table 7). Class 6 had the highest variability; therefore, it was the most heterogeneous class in performance. The HP pupils' Learning-induced errors varied within the classes.

Table 7: ANOVA Table for the HP Learning-Induced Errors

	Sum of Squares	df	Mean Square	Fcalc.	P-value
Between Groups	1524.467	2	762.233	3.779	.036
Within Groups	5445.400	27	201.681		
Total	6969.867	29			

CONCLUSION

From the three tests administered to the two groups of learners, the researcher found out that the two groups of learners made various learning-induced errors, as captured in Table 1. From the data analysed in this study, it is evident that both HI and HP make learning-induced errors. These errors, however, differ in quality and quantity. The HI made more learning-induced errors than their hearing counterparts did. This implied that the HI group had not yet acquired grammatical and lexical competence. The HI may have been exposed to language late because of their impairment, hence poor acquisition of grammatical and lexical competence. Early exposure to language is important in the acquisition of grammatical competence. The HI written English shows that a great majority of them have not acquired enough English language in order to express themselves. They hardly understand the meaning of many of the lexical items they use. They also do not understand semantic and grammatical relations between words. The written English of many of the HI could not be understood.

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