

**COHESION IN THE WRITTEN ENGLISH TEXTS OF HEARING IMPAIRED
LEARNERS IN SELECTED HIGH SCHOOLS FOR THE DEAF IN KENYA**

ANTONY SOMBA MANG'OKA

**A Thesis Report Submitted to the Institute of Post Graduate Studies of Kabarak
University in Partial Fulfillment for the requirements for the Award of Degree of
Doctor of Philosophy Degree in English Language and Linguistics.**

KABARAK UNIVERSITY

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DECLARATION

This thesis is my own original work and to the best of my knowledge, it has not been presented for the award of a degree in any other university or college.

Signed _____ Date _____

Antony Somba Mang'oka

GDE/M/1285/09/11

RECOMMENDATION

To the Institute of Post Graduate Studies:

This research Thesis entitled “**Cohesion in the Written English Texts of Hearing Impaired Learners in Selected High Schools for the Deaf in Kenya**” and written by **Antony Somba Mang’oka** is presented to the Institute of Postgraduate Studies of Kabarak University. We have reviewed the Thesis report and recommended it to be accepted in partial fulfilment of the requirement for the award of the degree of Doctor of Philosophy in Language and Linguistics.

Sign_____

Date_____

Prof James Onyango Ogola
Department of Literary and Communication Studies
Laikipia University

Sign_____

Date_____

Dr Phylis Bartoo
Department of Literature, Language and Linguistics
Egerton University

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DEDICATION

To my dear wife, Anne Wachera, and my lovely daughters, Esther Mwikali and Eva Wanjiru. To my mother, Rose Mwikali and my late father, Matthews Mang'oka.

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ABSTRACT

Previous studies reveal that the hearing impaired learners face several challenges in their written English. These challenges affect their communication, which is likely to affect their education and career aspirations. This study investigated the use of cohesion in hearing-impaired learners' English written texts. It investigated ways by which hearing-impaired learners in Form Three have been able to achieve cohesion in their written texts as well as the errors related to the use of cohesion. The study was guided by the following objectives: identify the grammatical and lexical features that the hearing-impaired learners use in writing to achieve cohesion; describe the grammatical and lexical features that the hearing-impaired learners use in writing to achieve cohesion; determine the types of cohesion that are prominent in the writing of hearing-impaired learners; analyze the errors in the use of cohesive devices in the hearing-impaired learners' written texts; and investigate the grammatical errors related to use of cohesive devices in the written texts of hearing-impaired learners. The study is significant because it embraces the means by which hearing-impaired written texts are linguistically and logically connected. The study confined its investigation to the use of cohesion in the hearing-impaired learners' English written texts. The data for the study was collected from the written texts of Form Three hearing impaired students sampled from three secondary schools located in Nyeri County, Nakuru County, and Machakos County. The written texts were picked from written assignments from different subjects as well as from one free composition. The data from the class assignment captured normal English writing situation. The study was guided by Halliday and Hasan's theory of Cohesion to identify, describe and categorize cohesive devices in the texts. Corder's Error Analysis theory guided the research in identifying and categorizing the errors made by the hearing impaired learners in an attempt to write cohesively, while Selinker's Interlanguage theory was used to explain the learners' interlanguage and causes of the errors. The researcher found out that all the cohesive devices posited by Halliday and Hasan were present, but at varying frequency. In grammatical cohesion, reference had the highest frequency of occurrence and ellipsis the least. In lexical cohesion, reiteration was higher than collocation. The researcher also found out that the hearing-impaired learners had challenges in writing cohesively. There were several errors related to the use of cohesive devices as well as grammatical errors. The study concluded that the hearing impaired learners use cohesive devices though with challenges. It recommended further research in the writing of the hearing impaired and that teachers give a lot of emphasis in the teaching of parts of speech and grammatical categories. The findings of this study provide a theory-governed description of cohesive ties used by the hearing impaired learners in Kenya. The findings also contribute to the increasing body of knowledge in studies related to the writing and communication of deaf learners. The study is useful to teachers, researchers, the Kenya Institute of Curriculum Development and the Ministry of Education in the formulation of future educational policies regarding the education of the hearing-impaired learners in Kenya.

Keywords: Cohesion, cohesive devices, lexical-ties, errors, hearing-impaired learners

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LIST OF ABBREVIATIONS AND ACRONYMS

ASL	-	American Sign Language
CA	-	Contrastive Analysis
EA	-	Error Analysis
ESL	-	English as a Second Language
HI	-	Hearing Impaired
HP	-	Hearing Pupil
IL	-	Interlanguage
KSL	-	Kenyan Sign Language
KNEC	-	Kenya National Examination Council
LAD	-	Language Acquisition Device
L1	-	Language One
L2	-	Language Two
MT	-	Mother Tongue
SLA	-	Second Language Acquisition
TL	-	Target Language
UN	-	United Nations
UNESCO	-	United Nations Educational, Scientific and Cultural Organization

OPERATIONAL DEFINITION OF TERMS

Cohesion: Cohesion refers to relations of meaning that exist within a text (Halliday & Hasan, 2013) In this study, cohesion was used to refer to the property of a text whereby certain grammatical or lexical features of the sentences in the text connect them to other sentences in the text.

Error: An error refers to any word or phrase whose usage deviates from the norm (Ellis (2003). In this study, an error will be used as any word or phrase whose usage deviates Standard English usage.

Error analysis: The study and analysis of the errors made by Foreign and Second Language learners, (Ellis, 2003) for this study, errors made by the hearing impaired learners.

Hearing Impaired Person: This will refer to anyone who has hearing disorders and therefore needs/requires education by suitable methods. In this study, term will be used interchangeably with the term ‘deaf’ (Raga, 2014).

Kenyan Sign Language: A visual-gesture language used by the Kenyan deaf community for communication (Akachi, 1991). In this study, KSL is used as the first language of the deaf students.

Mistake- Non-systematic errors that learners produce. (Ellis (2003). In this study, it refers to the faulty use of a linguistic item caused by aspects of performance such as lack of attention, fatigue or carelessness.

Signing: Use of gestures /sign language (Akachi, 1991).

Text: This refers to any passage, spoken or written that forms a unified whole (Halliday & Hasan, 2013). In this study, ‘text’ will refer to the compositions written by the hearing impaired learners.

Tie: A pair of cohesively related items (Halliday & Hasan, 2013). In this study, it will refer to a pair of cohesively related items in the writing of the hearing impaired which realize a single instance of cohesion

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter looks at the general background to the present study followed by a statement of the problem, the purpose of the study, objectives of the study, research questions, justification of the study, the scope of the study, limitation of the study, and finally the assumptions of the study.

1.2 Background to the Study

Writing is one of the most difficult aspects of language skills (Faradhibah & Nur, 2017). It is difficult because writing relies on other skills of language such as grammar, vocabulary knowledge, and knowledge of the world around us. Otagburuagu et al. (2007) indicate that the writing process is complicated because it does not involve a single process. The nature and complexity of writing has been a concern to many researchers (Faradhibah & Nur, 2017; Negari, 2011; Hung, 2014). Writing is complex since the writer does not face his reader as a speaker faces his audience. Writers must, therefore, plan and construct their written texts carefully to secure their comprehensibility (Hadilu et al. 2016).

Since the mid-1960s, studies on the writing of second language learners have been the central issue in applied linguistics. According to Kadiri (2014) and Kadiri et al. (2016), writing is a crucial aspect of literacy and an indispensable repository of knowledge. Besides, writing is an important vehicle that writers use to express their feelings, needs, and ideas in a permanent form. However, studies indicate that learners have poor mastery of the English language and also lack good writing skills. This deficiency in writing has become a source of worry to teachers, employers, and the government (Kadiri, 2014).

Writers employ a repertory of lexical, grammatical and structural elements in their writing to express the relations between text components clearly and communicate to the readers (Hadilu et al. 2016). The use of lexical and grammatical elements forms unity that

linguists such as Halliday and Hasan (2013) refer to as cohesion. Cohesion is the relationship between one linguistic item to one another in a text. According to Halliday and Hasan (2013), this relationship is partly expressed through grammar and partly through vocabulary.

For the past decades, cohesion as a concept has received attention among linguists (Faradhibah & Nur, 2017). Cohesion was put forward by Halliday and Hasan (1976). There are, however, other linguists who have shown interest in cohesion (Fatimah & Yunus, 2014). They include Cook, Hoe, Dressler, and Schiffrin, among others. Many linguists have looked cohesion as sticking together of items within a text for comprehension and unity in writing. Several studies have been done related to cohesion in writing. These studies have concentrated on the written texts of ESL and EFL learners. The researchers agree that the way a learner organizes their writing determines how the reader will read and comprehend.

Hrastinski & Wilbur (2016) argue that adequate reading and writing skills play a significant role in academic success. This translates to professional and employment opportunities. Without competence in reading and writing skills, learners cannot fully participate in classroom activities. They risk academic failure that may affect their employment and social adjustment. According to Qi & Mitchell (2011), academic results indicate that deaf learners have significantly poorer literacy skills when compared to their hearing peers. Most of the deaf learners do not reach conversational proficiency in both spoken and written language.

The deaf students lack appropriate vocabulary size and sentence formation skills than their hearing peers possess (Qi & Mitchell, 2011). Hoffmeister & Caldwell-Harris (2014) argue that few deaf children read at age level. This is a result of the linguistic impediments from lack of natural language in early childhood. Hoffmeister & Caldwell-

Harris (2014) add that competence in written English is essential for success at work in the United States of America. The ability to express oneself in written English assures clear communication with the hearing people.

There is a scarcity of linguistic research examining the level of deaf written English skills (Knoors & Marschark, 2012). Most studies have concentrated on written English of normal hearing learners. Those studies done on the deaf learners have focused on academic achievement, comprehension skills, and performance rather than the grammatical aspects of their writing. According to Knoors & Marschark (2012), the way the hearing impaired learners write cohesively in English has not been fully exploited in research (Knoors & Marschark, 2012).

The present study intended to delve into the analysis of cohesion in English writing of the hearing impaired (HI) learners in Kenya. Related studies in cohesion in Kenya have focused on the English writing of normal hearing learners. Many of the studies on hearing-impaired have concentrated on their communication in Sign Language. A study on written English was therefore important due to the prominence the language is given in the Kenyan Education syllabus. English is an important language in Kenya and plays a big role in the Kenyan language scene (KIE, 2006). It is one of the three official languages, the others being Kiswahili and Kenya Sign Language. It is the language of instruction in the school system and also used in a large segment of the mass media. It is also the pre-eminent language of international communication (K.I.E, 2006). Those who master the English language well gain many academic, social, and professional benefits (Ahmed, 2010). For example, proficiency in the English language can make the learning of other subjects easier. This makes the proper teaching and learning of English imperative.

The English language syllabus for secondary education in Kenya aims at learners achieving communicative competence in both spoken and written English by the end of

Form Four (K.I.E, 2006). The syllabus retains the variety of English language acceptable in the commonwealth, which is derived from the British Standard English (K.I.E, 2006). All learners are required to have acquired 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. All the textbooks in Kenya except for Kiswahili and other Foreign Languages are written in English.

Sufficient command of the English language will also enable learners to interact with other students and to exercise their Linguistic Rights (UN and UNESCO Declaration of Linguistic Rights, 2006). There are, however, studies that show that both the normal hearing and the hearing impaired learners face problems in English (Ayoo, 2004; Mangóka, 2009). This is also reflected in the dismal performance of English Language in national exams (KNEC, 2013). KNEC reports for the year 2011 to 2015 show that the performance of English has been below average. The mean score for English language for the year 2011 was 36.42%; for 2012%, 37.88; for 2013%, 36.42%; for 2014%, 38.84%; and for 2015, 40.29 % (KNEC 2011; KNEC, 2012; KNEC, 2013; KNEC, 2014; KNEC, 2015). The dismal performance has been attributed to poor mastery of writing skills, poor grammar, poor word choice, poor spelling, and poor sentence construction. Poor writing skills can affect other subjects that require English background. KNEC (2013) relates poor performance in other subjects to poor writing skills among high school students.

Adequate exposure to the English language enables learners to internalize more rules of the English language (Ostovar-Namaghi & Norouzi, 2015). Learners are expected to acquire and to correctly use lexical items and grammatical structures in an appropriate context as their English language knowledge increases. Adequate exposure to the English language further enables them to acquire linguistic knowledge of lexical semantics and

grammatical rules which form the building blocks for writing (Grapragasem & Mansor, 2014; Chege, 1996). The learners are expected to acquire linguistic knowledge first and then apply this linguistic knowledge to writing (Ostovar-Namaghi & Norouzi, 2015).

Competence in both spoken and written English is essential for all learners regardless of their hearing ability. This is because the English subject is one of the major determining subjects in career choice. Ahmed (2010) claim that competence in the English Language, and specifically in writing skills, helps learners perform better in other academic programs. One has to score highly in English to pursue such courses as Medicine, Law, Engineering, Surgery, Architecture, and Pharmacy. Such courses lead to good careers which are assumed to translate to good living standards (Charise, 2007; Hrastinski & Wilbur (2016). For the hearing impaired to benefit from education, they too, like all the other Kenyans of sound hearing, need to be proficient in English. However, writing poses a great challenge to deaf learners (Hoffmeister & Caldwell-Harris, 2014).

It has been noted that most deaf learners lag behind their hearing counterparts in literacy skills (Kuntze, Golo, & Enns, 2014; Kyle & Harris, 2011). Results for the last four decades show that deaf learners have significantly poor literacy skills when compared to their hearing peers (Qi & Mitchell (2011). According to Kuntze, Golo, and Enns (2014), literacy is more than merely reading. It encompasses the acquisition of knowledge and the development of cognitive skills that one needs for thinking, comprehending, and communicating either through writing or speech. Other studies indicate that deaf learners find the learning of English quite difficult (Cannon & Kirby, 2013; Aura, Venville & Marais, 2016). They always lag behind their normal-hearing peers (Wilbur, 2000; Luckner & Handley, 2008; KNEC, 2013; Webster, 2017). Raga (2014) attributes the poor performance of hearing impaired learners in national exams to challenges of switching from KSL to written English. 20% of the hearing impaired leave school semi-literate

regardless of the communication approach used (Marschark, Lang & Albertini, 2002; Webster, 2017).

Ability to communicate in both speech and writing is important because it enables a learner to explore the environment, and in the process, acquire literacy (Aura, Venville & Marais, 2016; Kuntze, Golo, & Enns, 2014). Ability to communicate is also important in establishing friendship among individuals and creating cultural ties and economic friendship (Kilanya, 2016). The hearing impaired (HI) are disadvantaged because some are born of parents who are not deaf from whom they cannot learn the language or communicate with (Aura, Venville, & Marais, 2016). These deaf learners are in most cases surrounded by non-signers or signers who are not proficient; hence, they lack conversational language (Adoyo, 2002; Kimani, 2012; Hlatwayo & Muranda, 2015).

While their hearing counterparts acquire language spontaneously from their family members and community, the hearing impaired learners come to school without any structured language skills (KIE, 2012). They encounter literacy problems and deficiencies in writing because of their delayed language development (Antia, Reed & Kreimeyer, 2005). However, the HI learners who acquire sign language from birth are able to converse and access knowledge about their environment (Aura, Venville, & Marais, 2016). Acquiring sign language creates an avenue for the acquisition of other languages such as English.

Although several studies have shown that the English writing skills of deaf individuals are usually inferior to those of normal-hearing peers (Wamae, 2003; Ayoo, 2004; Mangóka, 2009; Antia, Reed & Kreimeyer, 2005; Kuntze, Golo, & Enns, 2014), there is a need for information on the exact nature of their difficulties and of the effects of different linguistic elements on writing success (Maxwell & Falick, 1992; Paul, 2010). A

study on how the hearing impaired learners compose their texts cohesively will add more knowledge to their language acquisition as well as use. In the current study, the researcher examined how the hearing impaired learners use cohesive devices in their writing.

Cohesion is concerned with the ways in which the components of a text are mutually connected within a sequence, and it is important in the identification of what does and does not constitute a text. According to Halliday & Hasan (2013:5), cohesion is expressed through the three stratal organization of language. These are semantics, grammar and vocabulary, and orthography. Meaning is realized or coded as forms, while the forms are realized as expressions. It is the set of semantic resources that link sentences with what has gone before. Since cohesion is a semantic relation between the elements in a text and some other elements that are important for interpretation, sentence boundary may not limit the cohesiveness in a text. Semantics, therefore, plays a significant role in cohesion. Halliday & Hasan (2013) further claim that it is through grammar and vocabulary that users of a language can write cohesively.

All learners studying English either as a second language or first language need to understand how to write cohesively. Knowledge of English grammar and vocabulary will play a significant role in understanding cohesion. Knowledge of how cohesive ties function to express semantic relations between elements within the English language is important for students. This will enable them to maintain unity within the text they write while at the same time, easing interpretation for the reader. Analysis of the cohesive devices used by the hearing-impaired learners enabled the researcher to determine the extent to which the learners have been able to achieve cohesion in their writing. It also revealed the challenges that hearing impaired learners experience in writing.

1.3 Statement of the Problem

It is important that the hearing-impaired write well so as to communicate effectively, excel in academics, and compete in the education system and later in their

chosen careers. An aspect of good writing is when the text flows smoothly. A text will flow smoothly when ideas are connected to each other throughout the text. An important way of connecting ideas in a piece of writing is through the use of cohesive devices. It is noteworthy that without a good command of the cohesive devices, one can never create a cohesive text. There has been dismal performance in English by both hearing impaired learners and normal hearing learners. There is, however, a dearth of information on how the hearing-impaired learners in Kenya use cohesive devices in their written English. There is no study known to the researcher that has analyzed how the hearing impaired learners in Kenya write cohesively. Previous studies have concentrated either on Sign Language use by the hearing-impaired or the writing of normal hearing learners. However, the challenges faced by the hearing-impaired learners in writing cohesively should be understood in order to inform policymakers on the requirements on the teaching of writing to the deaf and make policy changes in the education of writing to the deaf. This study, therefore, investigated the nature of cohesion in the written English of hearing-impaired learners.

1.4 Purpose of the study

The purpose of this study was to investigate the nature of cohesion in the texts written by hearing-impaired learners in Kenya.

1.5 Objectives of the Study

The study was guided by the following objectives:

- 1) Identify the grammatical features and lexical features that the hearing-impaired learners use in writing to achieve cohesion.
- 2) Describe the grammatical features and lexical features that the hearing-impaired learners use in writing to achieve cohesion.
- 3) Determine the types of cohesion that are prominent in the writing of hearing-impaired learners.

- 4) Analyze the errors in the use of cohesive devices in the hearing impaired written texts.
- 5) Investigate the grammatical errors related to the use of cohesive devices in the hearing impaired learners' written texts.

1.6 Research Questions

To achieve the objectives, the study sought to answer the following research questions:

- 1) Which grammatical features and lexical features are used by the hearing-impaired learners in their writing to achieve cohesion?
- 2) What is the nature of the grammatical features and lexical features that the hearing-impaired learners use in writing to achieve cohesion?
- 3) Which types of cohesion are prominent in the writing of hearing-impaired learners?
- 4) What are the errors in the use of cohesive devices in the hearing –impaired written texts?
- 5) Which grammatical errors are found in the hearing-impaired learners' use of cohesive devices?

1.7 Significance of the Study

The study is important because it embraces the means by which hearing-impaired written texts are linguistically and logically connected. The study has practical implications, theoretical significance, and pedagogical importance. The findings of the study will contribute to the unit of the writing of the hearing-impaired in school and outside school. Understanding how cohesion functions within the texts written by hearing-impaired learners to create semantic relations is beneficial to teachers teaching English as a Second Language. From such a study, teachers can understand the problems the hearing impaired face in the use of cohesive devices and design remedial measures.

The study also contributes to linguistic theory and in the creation of more knowledge about the hearing-impaired writing in Kenya. Future researchers could use it as a base on which they can develop their own studies. The findings will serve as input to curriculum developers to review the curriculum for learners with hearing impairedness. The study will, therefore, be useful to the Kenya Institute of Curriculum Development and the Ministry of Education in the formulation of future educational policies regarding the education of the hearing impaired learners in Kenya.

1.8 Scope of the Study

The study confined its investigation to the nature of cohesion in the hearing-impaired learners' English written texts. It investigated ways by which the hearing-impaired learners had acquired the use of cohesion in their written texts. The researcher identified and described the errors in the use of cohesive devices in the English written text of the hearing impaired learners. The researcher also investigated the grammatical errors related to the use of cohesion by the hearing impaired learners. The researcher was interested in the cohesive devices in written texts only. This is because, in written texts, learners are able to express themselves freely using whatever language items are at their disposal. Written language also lacks some of the advantages of oral speech such as pointing at some objects, questioning, requesting for help and using other para-linguistic features that aid communication. The data for the present study was collected from three hearing-impaired learners' secondary schools: Ngala Special Secondary school in Nakuru, Muhoro Secondary school in Nyeri, and Machakos School for the deaf in Machakos County.

1.9 Limitation of the Study

The study was conducted in three hearing-impaired schools only and was limited to texts written in the English Language only. The study did not examine the developmental process of acquisition of cohesive devices by the hearing impaired learners. It, therefore, did not investigate the longitudinal survey because this was beyond the scope of this study. The study was confined to Form Three students in the three schools for hearing impaired learners. These students were assumed to have acquired more English Language than the Form Ones and Twos. The Form Four class could not be used because it is a national examination class.

The study was also limited to studying writing as a product as opposed to writing as a process. Writing as a process majors on the cognitive process of writing that includes all stages of the writing process from planning to publishing or submission of the final process. It does not pay enough attention to the linguistic aspects of writing. The present study, therefore, delved into aspects of language in use only.

1.10 Assumptions of the Study

The study was carried out with the assumptions that the hearing impaired learners had acquired a reasonable level of written English and were able to use grammatical devices and lexical devices to achieve cohesion in their writing. The researcher also assumed that the cohesive devices used by the hearing impaired learners vary. The researcher also assumed that the hearing impaired learners were likely to make errors in their English texts as they attempt to write cohesively.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This Chapter puts the study into perspective against related works. It starts with a review of the education of the hearing impaired learners followed by a review of cohesion in text, general view of studies related to cohesion, and studies on the writing of the hearing impaired learners. Lastly, a theoretical framework in which this study was carried out is discussed.

2.2 Education of the Hearing Impaired Learners

This section will look at the nature of the education of hearing-impaired learners, strategies used in deaf education, the approaches used in teaching hearing impaired in Kenya, and finally strategies used in the teaching of writing to the hearing impaired learners.

2.2.1 The Nature of Education of the Deaf

The hearing-impaired learning needs to be given a lot of importance because education is a human right and an essential tool for achieving the goals of equality development and peace (Gatakaa, 2009). Article 3, sub-article 54 (1) b of the Kenya 2010 Constitution (The Republic of Kenya, 2010) provides that persons with disability are entitled to access educational institutions and facilities with persons with ability. Education ensures that persons with a disability such as the hearing impaired are able to compete favourably for whatever opportunity exists. As Mwenda (2010) observes, the hearing impaired follow the same curriculum with the sound in hearing hence, they sit for the same national examinations, Kenya Certificate of Secondary Education (KCSE) and compete with them for places in institutions of higher learning such as polytechnics, colleges, and universities. Deaf children follow the same course as their hearing peers with regard to early childhood literacy (Mayer, 2007). The hearing-impaired learners are expected to continue to develop literacy abilities proportionate with their normal-hearing

counterparts. Mayer (2007) adds that this has, however, not been the case because the hearing impaired learners have always trailed behind the normally hearing learners in national examinations. A survey done by the Ministry of Education indicates that there is a big gap in National Examination performance between deaf learners and their hearing counterparts (Kinuthia, 2017). There are also few deaf graduates in the country as compared to the hearing counterparts.

Learning for the deaf in Kenya is fraught with obstacles. Studies by Ayoo (2004) and Mangóka (2009) show that some hearing impaired learners have not acquired grammatical competence and therefore write incoherently. They have not mastered many of the basic grammar rules and parts of speech in English. Wolff (2011) claims that the hearing children's vocabulary is delayed and restricted. Field (2004) and William & Mayer (2015) observe that the deaf encounter literacy problems because they do not have a strong basis of spoken language. The hearing impaired writing is characterized by the use of a limited number of sentence structure and grammatical system. Their writing is also defective because of delayed language development compared to their hearing peers (Antia, Reed & Kreimeyer, 2005; Antia & Kreimeyer, 2015). The hearing impaired learners begin their formal school lacking the necessary language skills and general knowledge of normal language development among their age peers (Wilbur 2000; Toth 2002).

In Kenya, most of the hearing impaired learners are segregated from the normal children. They get their education in special boarding schools for the deaf, special units attached to regular schools, and in integrated settings (Kimani, 2012). There are about 200,000 deaf children across the country (Kibiwott, 2014) but only 12,000 deaf children in 118 Special Needs schools, from primary to tertiary level in Kenya (Omulo, 2018). Most of the secondary schools are nearly established from deaf units or primary schools. Omulo

(2018) and Kibiwott (2014) observe that most of these schools lack teachers and teaching aids. The scenario is made worse by the fact the Karen Technical College for the deaf is the only post-secondary institution for the deaf.

Very few deaf children go beyond standard eight because they lack the necessary communication ability to compete with their hearing counterparts (Omulo, 2018). Ngao (2005) further notes that the hearing impaired children often enter school later than their hearing counterparts and also spend more years than some of the hearing learners because they repeat several classes. Matthew (2014: 2) claims that ‘low literacy levels of graduates with hearing impairedness has been seen as an element of educational wastage.’ He adds that for a developing nation like Kenya, this is a significant loss.

Education for the deaf is further complicated by the fact that the teachers lack sufficient proficiency in Kenya Sign Language, which is the language of instruction. Kimani (2012) observes that the lack of enough teachers affects dialogue in teaching. Although learning and teaching take place in sign language, the hearing impaired learners are assessed through reading and writing in English. Kimani (2012) agrees with Marschark (1977) that it is fundamentally wrong to judge deaf children’s cognitive abilities based on the ability to read and write. Marschark (1977), as quoted in Mang’oka (2009), further observes that the hearing impaired learners have superior language production skills in sign language as compared to their skills in written English.

In spite of the fact that the hearing impaired share the same syllabus and have to compete for the same opportunities as the normal hearing learners, the hearing impaired face unique problems in their English written texts. Studies by Wilbur (1997); Quigley and Paul (1984); Wamae (2003); Ayoo (2004); and Mang’oka and Mutiti (2013) have highlighted the writing challenges faced by the hearing impaired learners albeit these studies have focused mainly on grammar and lexical aspects hence the need to explore

semantic aspects in order to understand the hearing impaired learners literacy levels. This will help the researchers to know if semantic aspects of writing are delayed in the same manner as in syntax, morphology, and phonology (Marshark, 1994). Such semantic aspects are like the ability to use cohesive features accurately and the ability to generalize semantic relations in writing.

2.2.2 Strategies Used in Deaf Education

According to the Kenya Society for Deaf Children (Kimani, 2012; Akachi, 2010; and Adoyo (2007), there are various approaches to deaf education that are currently applied in Kenya and other parts of the world. Firstly is the inclusion approach where the deaf learners are expected to learn alongside the normal hearing students. Secondly, we have the integration approach which advocates for the deaf learners to learn alongside the normal hearing learners. The deaf learners are trained to adapt to the class without changing the class's structure as inclusion method.

The third approach is mainstreaming, where the deaf learners learn with normal hearing students for part of the day, depending on their academic level, while the other part of the day is spent in special education classes. It is argued that the mainstreaming approach allows for individualized attention (Kimani, 2012). The fourth approach is segregation, where special needs students are taught separately from other students or in entirely separate special schools. Kimani (2012) observes that the first three methods have failed due to social and financial problems, insufficient training of teachers, and negative attitude from both parents and teachers in schools of normally hearing learners.

2.2.3 Approaches Used in Teaching the Hearing- Impaired in Kenya

Educationists involved with the hearing impaired learners in Kenya use different approaches to teaching. The hearing-impaired learners use Kenya Sign Language (KSL) as their first language (L.1). The Kenya 2010 Constitution (The Republic of Kenya, 2010) recognizes KSL as a language for the deaf, an indigenous language, official language, and one of the languages of parliament. According to Kimani (2012), K.S.L has two dialects; Kisumu dialect in Western Kenya, and Mombasa Dialect in Eastern Kenya. K.S.L also has a lot of influence from local spoken language as well as American Sign Language (A.S.L). The K.S.L manual alphabet is based on A.S.L. This section gives an overview of the various approaches to teaching the deaf that have been employed in Kenya.

One of the earlier approaches used in teaching the hearing-impaired is Simultaneous Communication or sign supported speech that was established in 1986 (Kimani, 2012). Simultaneous Communication (SIMCON) involves using both oral and manual coded languages such as English and Signed Exact English. Adoyo (2007) claims that this method is effective but can become confusing. It has however resulted in academic progress.

Another approach is the oral-aural method (Ayoo, 2004). This method concentrates on speech, speech (lip) reading and auditory training. It aims at making the deaf learners aware of environmental sounds as well as gives them cues of what is said. It, however, cannot be used by all deaf learners because the profoundly deaf cannot discriminate speech sounds accurately by hearing alone (Ayoo, 2004). The approach is also time-consuming for teachers and the hearing-impaired learners.

Total Communication, another approach to language teaching, was introduced by Michael Ndurumo, a deaf Kenyan educated in the United States of America. This method is a mixture of Oralism and Manualism. Total Communication incorporates the use of an

individual's specific vocabulary, sign language, fingerspelling, speech and lip-reading, manually coded language and other forms of communications. It was first experimented on by the Ministry of Education in Machakos School for the deaf (Kenya Institute of Education, 1993). The method was found to be effective because it accelerated both the coverage of the regular school curriculum and learning in children (Ayoo, 2004). Total Communication makes use of any and all means of communication by and with deaf children. The Kenyan government recommended the use of this method alongside sign language in deaf schools and classrooms (Kimani, 2012).

Signed Exact English (SEE) is another linguistic system used in schools. It was introduced to incorporate more exposure to English into deaf education and also help deaf learners become more proficient in English grammar. In this approach, the sentence structure of the English language is assigned visual signs of Sign Language. Each spoken word in correct English sentence is followed by one or more signs (Ayoo, 2004). According to Ramsey (1989), SEE assigns each English word and affix a sign in accordance with a set of principles. SEE is a manually coded language, also called a signed oral language. It is, however, not a natural language due to the fact that it did not evolve naturally. It lacks a distinct grammatical structure, and it is therefore considered a manual system. Most hearing –impaired learners prefer K.S.L (Kimani, 2012) because to most of them it is their first language. Unlike sign language, SEE is limited in the expression of changes in facial expressions that affect meaning. Its continuous use can, therefore, stunt the development of Kenya Sign Language.

2.2.4 Strategies Used in Teaching Writing to Hearing-Impaired Learners

Research indicates that early development of language enables a child to develop effective and orderly reasoning which is important in composition writing (Ogada et al. 2012). Ogada et al. (2012) claim that children with hearing impairment acquire language

in different ways, depending on the home environment. According to Adoyo (2008), these hearing impaired learners need a linguistically rich environment in order to acquire sign language. Studies indicate that 95% of hearing impaired learners have hearing parents who do not understand sign language which means impaired children have a delayed exposure to their first language, the Kenya Sign Language (Ogada et al. 2012; Kimani, 2012; Toth, 2002). Al-Zoubi (2018) argues that delayed exposure to the first language leads to a delay in language development. These children are language deprived until they start schooling (which may be delayed). Wilbur (2002) and Toth (2002) observe that the hearing impaired learners are disadvantaged because they begin their formal education lacking the necessary language skills.

Mayer (2010) argues that hearing impaired learners exhibit difficulties in the writing process. This can be attributed to constraints either inherent in deafness or brought by the context in which writing has been taught. Mayer argues further that the process involved in planning, organizing and revising what has been written is seen as not have been accomplished in the written composition of the hearing impaired learners. “Most hearing impaired learners have been learning to sign, speak and write more than one language concurrently; K.SL, English, and Kiswahili (Kimani, 2012:41). This creates more problems in the acquisition of writing skills.

A variety of methods have been suggested for the teaching of English composition writing. Hedge (2005) and Ogada et al. (2012) suggest the following methods: Shared teaching and learning which involves exchanging of letters; Cooperative teaching and learning which involves keeping a class journal, making a class magazine, working together on a project and sharing cultural information; Roleplay which involves newscasting and peer teaching. Other methods proposed by Gathumbi and Masembe (2005) include field trips, hands-on activities, songs, project work, group work,

storytelling, discussions, poems, debates, and presentations. The Kenya Ministry of Education recommends the use of role-play, use of pictures and charts, jumbled sentences, and guided writing as strategies for teaching English compositions. These methods have been suggested for teaching hearing learners. There is, however, no evidence of them being used with the hearing impaired learners.

A study done in Nyanza by Ogada et al. (2009) on the strategies used in teaching English composition to hearing-impaired learners found out that teachers relied more on traditional approaches such as guided writing, discussion, repetition, and questioning. The study also established that demonstration and story signing were only used to a small extent although the hearing impaired learners preferred story signing. The least used strategies were dramatisation, group work, and peer teaching. The researchers concluded that teachers sometimes choose strategies which were different from learners' preference contributing to low performance in learning English composition.

2.3 The Concept of Cohesion

This subsection explains what a text is and the concept of cohesion in text as covered by several linguists. It is necessary to understand what a 'text' is, before delving into the concept of cohesion.

2.3.1 Text in Linguistics

According to Halliday and Hasan (2013:1), a text refers to any passage, spoken or written, of whatever length, that forms a unified whole. Halliday and Hasan claim that the property of being a text is best expressed through the concept of texture. Mirzapour and Ahmadi, (2011) argue that a text has texture, and this is what distinguishes a text from something that is not a text (Kafes, 2012). It is the cohesive relations that are found in the text that provide texture (Halliday and Hasan, 2013:2).

Other Linguists like Beaugrande (2011) and Beaugrande and Dressler (1983) look at a text as a communicative unit. For instance, Beaugrande (2011:290) considers a text as an empirical communicative event given through human communication rather than specified by a formal theory. Beaugrande and Dressler (1983:3) define a text as a communicative occurrence that meets the standards of textuality. Textuality is determined by factors which depend on the participants, the intended message and the setting of occurrence. They sum up these factors in seven standards of textuality in which can fulfil the communicative function of any text. These seven standards of textuality are referred to as “the constitutive principles defining the communicative purpose of a text” (Mikhchi, 2011:49). Beaugrande and Dressler outline the seven standards as follows:

Cohesion: It is the first standard of textuality; it is concerned with the ways in which the components of a text are mutually connected within a sequence.

Coherence: It concerns the ways in which the components of the textual world are mutually accessible and relevant. A coherent text is meaningful, unified, and gives the impression of hanging together.

Intentionality: It is the text producer’s attitude that the set of occurrences should constitute a cohesive and coherent text instrumental in fulfilling the producer’s intentions.

Acceptability: This concerns the text receivers’ attitude that the set of linguistic resources the text should provide the receiver with an ability to perceive any relevance of the text in question.

Informativity: This refers to the extent to which the presented information is known or not to the text receiver. A text is said to be informative, no matter its form and content.

Situationality: This refers to the factors that make up a text relevant to a situation of occurrence.

Intertextuality: This concerns the factors which make the use of one text dependent upon knowledge of one or more.

Cohesion is argued to be the most probably linguistic among the standards of textuality (Mikhchi, 2011:51). This is because cohesion has the function of syntactically and lexically attaching a text together to create a textual unity. The current study was interested in how the hearing impaired learners write cohesively. The other standards were, therefore, not part of the scope of the present study.

Widdowson (2007), as quoted in Mikhchi (2011:49), defines a text as “actual use of language, distinct from a sentence, which is an abstract unit of linguistic analysis.” According to Widdowson, it is only after a stretch of language is produced for a communicative purpose that it can be considered to be a text. A “text” is supposed to connect the reader to the text by transferring the author’s meaning and intentions. The reader will not realize the meaning of the text if the text doesn’t communicate clearly. A text, therefore, has to meet its communicative purpose for it to be understood by the reader.

2.3.2 Cohesion in Text

Focus on cohesion is particularly important to hearing-impaired learners coping with written language since, for those whose natural language is a sign language, cohesion is normally achieved by using the signing space (Bidoli et al 2008). Since this study is concerned with how cohesion is achieved in the writing of hearing-impaired learners, it is, therefore, important to discuss cohesion in text in regard to various approaches by different linguists.

Cohesion refers to the range of grammatical and lexical possibilities that exist for linking an element of language with what has gone before or what follows in a text (Halliday and Hasan, 2013). This linking is achieved through relations of meaning that

exist within and across clauses or sentences. It is the relationship between an element to another in a text. According to Halliday and Hasan, (2013), cohesion is a linguistic term that which examines the grammatical and lexical relationship within a text. Mirzapour and Ahmadi (2011) claim that cohesion is partly through grammar and partly through vocabulary, which Halliday and Hasan (2013:5) refer to grammatical cohesion and lexical cohesion. Halliday and Hasan further claim that grammatical cohesion is realized through reference, substitution, ellipsis, and conjunction while lexical cohesion is expressed through collocation and reiteration (Halliday and Hasan, 2013:6).

Halliday and Hasan (2013), treat cohesion as a semantic relation. “But like all components of the semantic system, it is realized through the lexicogrammatical system” (Halliday and Hasan, 2013:6). The concept of cohesion in a text is therefore related to the semantic ties or relations in meaning that exist within a text, and that defines it as a text. Cohesion occurs where the interpretation of some element in a text is dependent on that of another. The one presupposes the other, in the sense that it cannot be effectively decoded except by recourse to it (Halliday and Hasan, 2013:4). They further claim that cohesion is the continuity that exists between one text and another (pg 299). Cohesion is achieved through the use of cohesive devices which Halliday and Hasan (2013:3) refer to as “ties”. A tie is a single instance of cohesion, a term for one occurrence of a pair of cohesive devices.

Halliday and Hasan (2013) consider cohesive ties in terms of reference, substitution, ellipsis, conjunction and lexical items. Reference tie is used to presupposed and subsequent elements within the same text. They include personal references such as pronouns, demonstratives, and determiners. Substitution creates cohesion by replacing one item with another. A substitution tie within a text is used to replace one word for another, where the latter word in the text serves as the replacement and is used in lieu of repeating

the former word or clause in the text. Ellipsis ties maintain cohesion within a text by allowing a writer to omit an item, which Halliday and Hasan call substitution by “zero.”

A conjunction tie forms semantic relations by systematically connecting what is to follow with what has gone before. Conjunction ties include; additives, causal, adversative and temporal conjunctions. Lexical ties have two sub-domains: reiteration and collocation. Reiteration creates cohesion when an item is repeated later in the text as the same word, a synonym or a new synonym of the referent, superordinate or a general word. Collocation is the inclusion of two or more words that are likely to occur within the same context. It creates cohesion through the association of lexical items that regularly co-occur (Hellalet, 2013).

Halliday and Hasan’s (2013) subcategorized lexical cohesion into collocation and reiteration which was further revised by Hasan (1984) into general and instantial category. The general category consists of ties created by repetition, synonymy, antonymy, hyponymy, and metonymy while the instantial category has equivalence, naming, and semblance. An example, of naming, is like in the relationship between the words “cow” and “katune” in the sentence, “*The cow is called “Katune.”*”, where the two words refer to the same entity (Chege, 2009). Their relationship is that of naming.

Other linguists such as Cook (1989) recognize seven cohesion devices that create cohesion in English. These are lexical claims and repetition, referring expressions, substitution, ellipsis, conjunction parallelism and verb form. Beaugrande and Dressler, (1981 and 1983) claim that cohesion is concerned with the way in which the components of written and spoken texts are mutually connected within a sequence. They identify five categories that contribute to the unity of a text in English. These are recurrence, parallelism, paraphrase, proforms, and ellipsis. Other linguists like Philips and Hardy (2002) propose eight categories of cohesion: word repetition, synonyms, substitution,

ellipsis, superordinate and generals, opposite and related words, reference and connectives.

Hoey (1991) gives a further investigation into the area of cohesion by studying cohesive elements combine to form long stretches of a text. Hoey argues that all cohesive devices, except conjunction, have an aspect of repetition in common. He proposes repetition categories that can be used in the analysis of cohesion. These include simple lexical repetition, complex lexical repetition, simpler paraphrase, reference, substitution, and ellipsis, particular to general and complex paraphrase. This is an improvement of Halliday and Hasan (1976) theory of cohesion (English Language Essay, 2015).

2.3.3 Cohesive Errors in Students' Writing

Various studies have used Halliday and Hasan's Cohesion Taxonomy to identify, describe and classify the cohesive devices found in written EFL and ESL students' texts (Aldera, 2016; Alawdi, 2015; Hamed, 2014; Guna & Ngadiman, 2015). The Taxonomy has also been used in the identification and classification of the cohesive errors found in students' writing (Nasser, 2017; Kwan & Yunus, 2014). The researchers, therefore, define cohesive errors as the errors made under the five main categories in Halliday and Hasan (2013) Cohesion Taxonomy.

According to Halliday & Matthiessen (2014), there are four lexicogrammatical systems that help in achieving cohesion in English written texts. These systems are conjunctions, reference, ellipsis, and lexical organization. It is these four systems that a writer uses to make their writing cohesive. Halliday & Matthiessen (2014) and Nasser (2017) claim that some writers may find it challenging to use these four systems. It is as a result of this difficulty that the writers will commit cohesive errors in their writing.

Research in the area of cohesion has had two approaches, according to Nasser (2017). The first one is the performance approach analysis that focuses on the correct and

erroneous use of cohesive devices. In this approach, the research focuses on the features of cohesion regardless of whether they are correct or not. This was relevant in achieving the first objective of the current study that aims at identifying and describing the grammatical and lexical features that mark cohesion in the writing of the hearing impaired learners. The second one uses the approach of error analysis to investigate cohesion in learners' written texts. This approach emphasizes the problematic and erroneous manipulation of cohesion in writing. The second approach was relevant to the present study's second objective that aimed at identifying the errors in the use of grammatical and lexical cohesive devices.

Nasser (2017) did a study on the discourse errors found in the grammatical cohesive devices in argumentative essays written by Yemeni EFL learners. His research was conducted on twenty-four third-year language students at Aden University. He used qualitative procedures and quantitative procedures to describe and identify the most frequent errors in the texts written by the students, respectively. The research found out that the learners committed errors of reference, errors of substitution, errors of ellipsis, and errors of conjunctions. It was also revealed that reference errors were most frequent while errors of substitution were less frequent.

A study related to Nasser (2017) by Aldera (2016) investigated cohesion in the written texts by eight Arab EFL students in Najran University, Kingdom of Saudi Arabia. The researcher observed that the eight students committed a higher percentage of errors in the use of reference followed by errors of ellipsis. Errors of conjunction and errors of substitution were the least frequent. Nasser (2015) and Aldera (2016) studies were relevant to the current study in methodology, theory, and in the discussion of findings.

A study by Guna & Ngadiman (2015) agrees with Nasser (2015) findings. They carried out a study on the use of cohesive devices in the cause-effect essay written by twenty-nine students in Indonesia. They observed that the students used reference,

substitution, conjunction, and lexical cohesion to make their writing cohesive. The most frequent errors were found in the use of reference ties, followed by lexical cohesion, conjunction, and substitution respectively. Another study by Alawdi (2015) investigated the use of cohesive devices by ten third level students at the department of English, Aden University. He found out that the students used more conjunctions than reference. Alawdi's research findings differ from Nasser (2017) findings because, in his study, conjunctions accounted for more errors than reference tie.

An independent study on the use of conjunctions by Hamed (2014) revealed that Libyan students used conjunctions inappropriately in their argumentative essays. The Libyan EFL students had the most challenges in the use of adversative conjunctions, followed by additive and casual conjunctions. There was also no use of substitution and ellipsis in the writing of the students. The three studies concluded that the students had not yet fully acquired the necessary competence in the use of cohesive devices in their writing. Guna & Ngadiman (2015), Alawdi (2015), and Hamed (2014) studies were relevant to the current study in methodology.

Kwan & Yunus (2014) examined cohesive errors in the writing of English as a Second Language (ESL) pre-service teacher of differing language proficiency levels- Medium Level and High Level. Thirty pre-service teachers wrote 200-word narrative essays that were analyzed and the cohesive devices and cohesive errors described. The researchers found out that the Medium pre-service teachers made most errors in lexical cohesion, reference, and conjunction cohesion categories. The High-level group made more errors in lexical cohesion, ellipsis, and reference. Both groups were found to have insufficient mastery of cohesive writing. Kwan& Yunus (2014) guided the current study in methodology and discussion of findings.

2.4 Review of Studies Related to Cohesion

Different scholars have taken different approaches in the field of text linguistics. Brown and Yule (1983), Edmondson (1981), and Coulthard and Sinclair (1975) view a text as an interaction that exists between a producer, the text and the receiver of the text, and their knowledge of the world around them. Others such as Van Dijk (1977) are interested in the functional structure of text arguing that societal features determine the unity of texts.

Halliday and Hasan (1976), Hasan (1984), Hasan (1985), Hoey (1991) and Halliday and Hasan (2013), focus on the structuring of texts through lexical and grammatical units that operate beyond the sentence boundaries. This group is often referred to as text grammarians. The present study falls under text grammar because it focuses on how language operates beyond the sentence for the hearing impaired learners through analyzing how they utilize the cohesive devices in their written English text.

Cohesive devices operate beyond the sentence and are realized as lexical or grammatical features in a text (Halliday and Hasan 1976, 2013). The study, therefore, fits within text grammar. The structural relations between words within a sentence contribute to a sentence-internal cohesion, while semantic relations provide cohesion. And this, according to Halliday and Hasan (2013), is what makes a text function as a unit. In addition to recognizing cohesion as a property of texts, text linguists are interested in the role of cohesion in the texts.

A number of studies have looked at cohesion in learners written text with varied results (Connor (1984); McCulley (1985); Johnson (1992); Thiga (1997); Ambiyu (1999); Olateju (2006); Guthrie (2008); Chege, 2009; Majdeddin (2010); Huseyin (2012); Somba and Somba (2015a) ; and Somba and Somba (2015b). Olateju (2006) examined the extent to which English as Second Language (ESL) learners have achieved cohesion in their

written texts. He considered cohesive devices used by Nigerian high school students in their continuous writing sessions at school. The study found out that high school learners lacked competence in their use of cohesive devices despite the fact that they had been exposed to the intensive teaching of English for six years in school. Olateju (2006), as quoted in Ghasemi (2013:16) concluded that the learners used cohesive devices wrongly or insufficiently due to lack of sufficient exposure to the English language. Whereas Olateju's study was on normal hearing high school students, this study was keen to find out competence of the hearing impaired. Olateju's research, however, helped this study in methodology.

Guthrie (2008) did a study on the cohesion in young Latino-English Language learners English Narrative written texts in selected schools in the United States of America. The findings were that fifth-grade learners of the English language frequently used reference, conjunction, and lexical ties. Substitution, ellipsis ties, and exophoric references were least used to maintain cohesion. Another study by Majdeddin (2010) determined if training courses in writing can cause a change in the learners' use of cohesion in their writing in Iran. Sixty-eight students (32 male, 36 female) were given two compositions to write with a two-month interval. The subjects received overt instructions on cohesive ties after the first compositions. Several t-tests were done to compare the means in the cohesive ties in the two compositions. Results indicated that overt instruction is a predictor of success in the use of cohesive relations in writing. The study also found out that there was a significant improvement in the use of reference and superordinate words.

Akindele (2011) examined the cohesive devices in selected ESL academic papers in Nigeria. The analysis of the cohesive devices used in these academic papers revealed that for a text to be cohesive, it must be held together by some lexical and grammatical

linguistic devices (Akindele, 2011). The study used Halliday and Hasan (1976) cohesion theory as in the current study. Akindele's study is however different from this study because it was interested in the importance of cohesion in academic papers while this study investigated the nature of cohesion in the written work of hearing-impaired learners in secondary schools. The current study also identified the errors that the H.I learners make in their attempt to write cohesively. Akindele's study was relevant in methodology and theoretical framework.

Tsareva (2010) investigated the use of grammatical cohesion in argumentative essays by Norwegian and Russian learners. The study was based on Halliday and Hasan (1976) model of cohesion. The researcher used the International Corpus of Learner English (ICLE) to explore how Norwegian and Russian learners of English argumentative essays. The essays were analyzed to investigate how the various grammatical elements function as cohesive links for sentences and independent clauses. The four subcategories of grammatical cohesion were present in the learners writing. Reference and conjunction were the most common types of grammatical cohesion, whereas substitution and ellipsis are not represented widely. The learners used the three exponents of anaphoric reference, namely personal, possessive and demonstrative in their compositions. The findings indicate that determiners work together with lexical cohesion and that lexical cohesion was the most dominant cohesive device used. This study was relevant to the present study in formulating of the objectives, theoretical framework and in the discussion of the findings. The study, however, differs from the present study because it used normal hearing learners. The current study sample consisted of hearing impaired learners.

Another study related to cohesion was done by Shitu (2015). The researcher examined collocation errors in English as a second language. The researcher found out that learners had problems with collocation. The research concluded that inadequate

knowledge of collocation and language transfer as the main causes of collocation errors. This study agrees with an earlier study done by Panahifar (2013). The research analyzed collocation errors in 30 intermediate Iranian EFL learners oral production. The study aimed at identifying, categorizing and accounting for the inappropriate collocation produced. The findings revealed that preposition based collocation and verb-preposition collocations were the most challenging to the learners. The researcher attributed the collocation errors to negative transfer from L1 and intra-lingual transfer. Shitu (2015) and Panahifar (2013) methodology and theoretical framework were important in the present study. Their findings gave a theoretical base to discuss the findings of the present study. They, however, do not tell us how the hearing impaired learners write cohesively and the challenges they face.

Abusharkh (2012) considered how EFL learners write cohesively and coherently. His study was based on 60 Palestinian College students' written argumentative essays. The study found out that the learners preferred to use lexical ties but rarely used substitution and ellipsis. Reiteration was overused as a cohesive device. The learners had challenges in writing cohesively, which the researcher attributed to language transfer. Another study on cohesion by Kargozari et al. (2012) revealed that Iranian University students used more lexical devices than grammatical devices. The grammatical cohesive ties used were reference followed by conjunctions. The learners displayed challenges in writing cohesively. Some of the difficulties were misuse, overuse and wrong restriction of reference, conjunctions and lexical devices. Abusharkh (2012) and Kargozari et al. (2012) studies were based on Halliday and Hasan (1976) model of cohesion, which the present study adopted. The two studies were very relevant in the methodology and discussion of the findings of the present study.

There has been an attempt by earlier researchers to compare the cohesiveness of a text and quality. Though these studies are old, they availed adequate information that guided the current study. A study by Johnson (1992), as quoted in Ghasemi (2013), analyzed the use of cohesion in sixty essays. Twenty were written in L1 Malay, twenty in L1 English and twenty in Malay ESL. The findings revealed that there was no significant difference in the degree of cohesion or cohesive distance between the good and poor essays. The researcher also found out that the good L1 Malay essays contained more cohesive devices for repetition than the poor ones. The study concluded that writing quality correlated with the use of repetition in expository essays. It also found out that more tokens of referential ties and conjunctive ties were located in well-written native English essays. This suggested that there were differences in the use of cohesive devices with regard to specific types of the cohesive relations. Good and poor essays, according to Johnson (1992) research might be similar in terms of frequencies of cohesive devices but differ significantly in terms of specific types of cohesive devices they contained. Different findings by Liu and Braine (2005), who analyzed 50 argumentative writings of Chinese students, found a correlation between the frequency of cohesive devices used and the quality of writing. A similar study on the hearing impaired learners would help in determining the nature of cohesion in their written English texts.

Another researcher, McCulley (1995), investigated the connection between cohesion and writing quality in his analysis of 120 argumentative essays written by high school students. Each essay was analyzed using Halliday and Hasan's (1976) Taxonomy. Statistical analysis revealed that writing quality did not correlate with the total number of cohesive devices used in the essays. However, there was a positive correlation between writing quality and specific cohesive ties, including demonstratives, nominal substitution, ellipsis, repetition, synonymy, hyponymy, and collocation. Although the above research

used normal hearing subjects, it was relevant to the current study in terms of methodology and theoretical framework because this research like McCulley's was guided by Halliday and Hasan's model of cohesion.

Connor (1984) carried out a study on the differences in the cohesive density in argumentative essays composed by two English native speaking writers and two advanced ESL writers in the United Kingdom. The participants wrote two expository essays which were analyzed in terms of percentage of occurrences of cohesive devices they contained. The findings revealed that there was no significant difference in cohesive density in essays written by English native speakers student and the ESL students.

An earlier similar study but with findings contradicting Connor's (1984) was carried out by Witte and Faigley's (1981) in the University of Texas, in the United States of America. Their study showed that there was a difference in the frequency of grammatical cohesive devices in good versus poor essays. Connor (1984) argued that ESL essays lacked lexical variety and elaboration. They also had a high percentage of repetition and conjunction. The L1 English texts had greater lexical variety and a higher percentage of collocation and less repetition. Connor (1984) and Witte and Faigley (1981) studies differ from the present study in that they only examined cohesive devices in argumentative essays composed by hearing students. The present study used students' written work from different subjects in order to assess normal English writing situations.

Another study by Neuner (1987) analyzed twenty good essays versus twenty poor essays written by college freshmen in Europe. The learners were instructed on writing before composing the essays. Cohesion analysis was done on each essay, and a T-test used to analyze the statistical distinction between good and poor essays in terms of cohesive devices, cohesive distance and chain length. The findings revealed that the frequency or percentage of cohesive ties did not correlate with writing quality. There was also no

significant difference in cohesive distance between good and poor essays. Although this study is related to the present study in terms of examining cohesive devices, it doesn't reveal or describe the grammatical errors that the hearing impaired learners make in an attempt to use cohesive devices in their writing.

There has also been an attempt to compare English and another language's use of cohesive devices. Mirzapour and Ahmadi (2011) did a study on lexical cohesion in English and Persian research articles written by university students. The study analyzed 60 research articles (80 articles in each language) in terms of sub-types of lexical cohesion. The study revealed that in the English data, there was a tendency towards the use of repetition and collocation. The Persian data showed a general tendency towards the use of repetition and synonymy.

Thiga (1997) studied cohesion and compactness in compositions written by Kenyan urban primary school children. The study revealed the occurrence of the five cohesive devices as earlier posited by Halliday and Hasan (1976). However, reference had the highest frequency of occurrence and substitution the least. It was also observed that the pupils had problems in using some of the devices. The data analysis was based on Halliday and Hasan's model, which forms the theoretical framework for the current study.

Ambiyo (1999) compared cohesion in academic and newspaper texts in Nairobi. The analysis revealed the occurrence of all the five types of cohesion devices mentioned by Halliday and Hasan (1976). The study also found out that substitution and ellipsis categories were less frequent compared to the other cohesive devices. This observation was similar to Thiga (1997). Ambiyo (1999) and Thiga (1997) studies are relevant to the present study because they are based on Halliday and Hasan's model of cohesion, which forms the theoretical framework of the present study. In both studies, the cohesive ties were grouped using Halliday and Hasan's (1976) model of cohesion.

In a more recent study, Somba and Somba (2015a) and Somba and Somba (2015b) identified and categorized the linguistic features that help in achieving cohesion in selected Gikuyu texts. The texts selected were those written in continuous prose and were from the literary and the reportage text categories. Somba and Somba (2015a) found out that affixes, words, phrases, clauses and syntactic gaps have created cohesion in Gikuyu texts. The Gikuyu texts analyzed showed evidence of the five categories of cohesion proposed in the Halliday and Hasan's model of cohesion (Somba and Somba, 2015b). The categories were reference, lexical organization, conjunction, ellipsis, and substitution. The data showed evidence of only one sub-category of substitution as a cohesive device. This is a kind of verbal substitution known as verbal reference. Nominal and clausal substitutions did not occur at all in the data (Somba & Somba, 2015b). Although both studies did not analyze texts written by students, they were relevant in guiding the present study in the theoretical framework and methodology.

2.5 Studies on the Writing of the Hearing Impaired Learners

It is important to understand the hearing-impaired learners and their level of impairment in order to understand most of the problems they face in education. According to Ayoo (2004), there are three major types of hearing impaired people. There are pre-lingually deaf learners who are born deaf. English is their second language, and Kenyan Sign Language is the first language. They do not have a written or spoken language on which to base their second language learning since sign language is entirely visual. Then there are the partially hearing impaired learners who have hearing disorders but their language development, even if retarded, follow the normal pattern. They, however, require facilities such as hearing aids for education. Lastly are the profoundly hearing impaired learners that have great hearing disorders to the extent that they cannot benefit from hearing aids. They depend on vision as the main channel of communication (Bishop & Mogford, 1993; Kihingi, 2008).

Early studies of the language of hearing-impaired people were either descriptive or aimed to evaluate the level of language achieved at various stages in development (Bishop and Mogford, 1993). Researchers wanted to know if the development of language in prelingually hearing-impaired children was similar in nature to the hearing child. It was believed that the hearing-impaired were deprived of sound stimulation during the critical period of development (Bishop & Mogford 1993:115). Research on animals has shown that early sensory deprivation can critically impair auditory processing abilities. Luria (1973), as quoted in Mang'oka 2009), suggested that the functional organization of the brain develops differently if one sensory modality is absent. The difficulties experienced by the HI in developing intelligible speech indicate that in hearing children, the development of phonology and phonetic accuracy of articulated segments are achieved primarily through auditory means, though the visual perception of speech movements also plays a part in the acquisition of speech patterns in hearing children. Other studies on vocabulary (Bishop & Mogford, 1993) indicate that the HI children's vocabulary is delayed and restricted. The above studies were necessary for understanding the effect of hearing disability in language acquisition and learning. They have however not addressed how the hearing impaired learners write cohesively and the challenges that they face.

Researchers in the writing of the hearing-impaired learners have repeatedly pointed out the persistence of the difficulties that the hearing-impaired learners face in their use of written English (Wilbur, 1977; Quigley & Paul, 1984; Wamae, 2003; Ayoo, 2004; and Mang'oka, 2009). Quigley and Paul (1984) argue that the written language of hearing-impaired children, compared to that of the normal hearing children, contains shorter and simpler sentences. It also displays the different distribution of the parts of speech, appears rigid and more stereotyped, and exhibits numerous errors or deviations from Standard English use. Quigley and Paul (1984) in Strong (1988), show that function words and

morphology pose considerable difficulty for the hearing-impaired. These components of grammar constitute major obstacles to the successful acquisition of written English and attainment in proficiency in the hearing-impaired population. These studies were relevant in the discussion of the findings of the current study. They have, however not addressed the grammatical and cohesive devices used by the hearing impaired learners in their written texts in English.

Wilbur (1977) observed that the hearing impaired children's difficulties with spontaneous written expression were pragmatic rather than syntactic. For example, she noted that the problem with determiners in their written language was not the placement of a determiner before a noun but rather the distinction of definite from indefinite, indicating an inability to use determiners to distinguish new from old information. The two studies were relevant in explaining the occurrence of errors in the use of reference as a cohesive device in the present study.

Kretschmer and Kretschmer, (1978) as cited in Mang'oka (2009), found that older hearing-impaired children's semantic fields are not as extensive or differentiated as those of normal hearing subjects employed. Although the hearing-impaired children seem to understand the meaning of words, they do not appreciate the interrelationships among words that can allow them to properly place words into large conceptual categories. The two studies do not explain how hearing impaired learners write cohesively. Kretschmer and Kretschmer (1978) study gave an in-depth understanding of how hearing impaired learners have challenges in lexicogrammatical competence. They were, however, relevant to the present study in discussing the findings related to errors in the use of grammatical and lexical cohesive devices.

Recent studies done in Kenya show that the hearing impaired learners have not yet acquired important English structures in order to communicate effectively (Mang'oka and

Somba (2016); Wamae (2003) and Ayoo (2004). Mang'oka and Somba investigated the learning-induced errors in the written English texts of hearing-impaired learners. The study found out that hearing impaired learners had not yet acquired enough grammatical competence to communicate in English. The learners had challenges in using the correct grammatical categories such as tense, number and person. Another study by Wamae (2003) found out that the hearing-impaired students had not acquired affixes in their vocabulary studies. They were also found to be disadvantaged in the learning process due to their impairment. Ayoo (2004) investigated the morphosyntactic errors in written English of standard eight hearing-impaired pupils. The study found out that the hearing-impaired pupils had not learnt or acquired parts of speech and grammatical rules. Ayoo (2004) concluded that hearing-impaired students had not mastered many of the basic grammar rules in English. The hearing-impaired were also found to be trailing their hearing counterparts in lexico-semantic competence (Mang'oka, 2009). They also made errors that did not have any relation to developmental patterns or follow any laid down patterns of language development.

2.6 Theoretical Framework

The analysis of cohesive devices used by the hearing impaired learners, and the errors they make in their attempt to write cohesively is based on a framework that has been designed for studies in second language acquisition. Part of the theoretical framework of the current study was based on the seminal work of Halliday and Hasan (1976), which led to the development of Halliday and Hasan (1976) model of cohesion. The study was, therefore, based on three theories: Halliday and Hasan Cohesion Model, the Error Analysis (EA) Theory by Corder, and Interlanguage theory by Selinker.

2.6.1 Halliday and Hasan Cohesion Model

The chief tenet of cohesion, as argued by Halliday and Hasan (1976 & 2013) is the way the elements within a text depend on each other for their interpretation. The present study focused on the way cohesion creates text in learners' writing. Halliday and Hasan's (2013) model of cohesion was used in the present study. This model perceives a text as having reference, substitution, ellipsis, conjunction, and lexical organization devices through which cohesion is realized. Accordingly, a single instance of cohesion is marked by the occurrence of a pair of cohesively related items, which, it is argued, form a tie. A detailed discussion of the cohesive relations developed in this model is explained and illustrated below:

2.6.1.1 Reference

Reference items refer to other items for their interpretation (Halliday & Hasan 2013:31). Reference is, therefore, the dependence of one linguistic item on another for its interpretation. In English, reference items are personal pronouns, demonstratives, and comparatives.

Personal pronouns: this is reference by means of the function in the speech situation, through the category of person (Halliday & Hasan 2013:37).

Example:

(1) The man called. He said that he will come.

In this example "He" refers to "The man".

(2) He bought two cows yesterday. The man bought them to pay dowry.

In this example, "He" refers to "The man", while "them" refers back to "two cows."

Demonstratives: this is reference by means of location on a scale of proximity (Halliday and Hasan, 1976:37).

(3) Beware of snakes and crawling insects. These are poisonous animals

(4) Somali is a good place to invest. There, you can do all sorts of business.

In example (3), “these” refers to “snakes and crawling insects”, while in (4), “there” refers back to Somali. They are both demonstrative pronouns.

Comparatives

The comparative category of reference includes an indirect reference by means of identity or similarity (Halliday and Hasan, 2013:37). Example:

(5) He will join politics. My father has the “same idea”.

In example (5), same idea is semantically related to ‘join politics’ through similarity.

Halliday and Hasan (2013) put reference into two types: Situational and textual. Situational or exophoric reference relies on the context of the situation. Example:

(6) Look at that.

“That” refers to an entity that is identifiable in the situation of an utterance. The reference is outside the text.

The textual or endophoric reference refers to something within a text. Example:

(7) Where is the money? Don’t tell me you don’t have it!

“It” refers back to “money” mentioned earlier and this establishes cohesion. Its interpretation depends on the text, not on the context of the situation. Endophoric is further classified into anaphoric and cataphoric. The reference in example (1, 3 & 7) is anaphoric,

since the reference item points backward, for its interpretation. The forward-pointing reference items are said to be cataphoric, as in examples (2).

2.6.1.2 Substitution

The second cohesive device in this model is substitution. This is the replacement of one item by another (Halliday & Hasan 2013). In substitution, the substitute always replaces an item of the same word class and grammatical function as itself. In English, the substitute may have the function of a noun, a verb, or a clause. Thus, there are three kinds of substitution namely, clausal, nominal, and verbal. Examples:

Nominal substitution:

(8) She bought a new car and Peter bought an old one.

The substitute one above replaces the noun car.

Verbal substitution:

(9) He told me to call, and I did.

The substitute did, in example (9) replaces the verb call.

Clausal substitution:

(10) She didn't steal, although her mother doesn't believe so.

The substitute so replaces a whole clause; She didn't steal.

2.6.1.3 Ellipsis

According to Halliday and Hasan (2013:142), ellipsis can simply be said to be “substitution by zero”. An elliptical item is one which leaves specific structural slots to be filled from elsewhere in the text. Ellipsis, just like substitution, can be nominal, verbal or clausal. The sign Ø has been used in this study to mark an empty syntactic slot. Examples:

Nominal ellipsis:

(11) He brought two sweets. I ate one Ø, and she ate the other Ø.

The noun sweet is presupposed after both the pronouns one and other.

Verbal ellipsis:

(12) He bought two sweets. I ate one and she Ø the other.

The verb ate has been presupposed after the second occurrence of she in example (12). It is supplied by the verb ate in the same sentence.

Clausal ellipsis:

(13) Did you call the doctor? – Yes.

In the response, the clause, did you call the doctor, is presupposed from the preceding question.

2.6.1.4 Conjunction

The conjunction is a semantic relation specifying the way in which what is to follow is systematically connected to what has gone before. Halliday and Hasan (2013:238) propose four categories of conjunctions namely, additives, adversatives, causal, and temporal conjunctions. Below are examples of each.

Additive conjunctions:

(14) King Solomon was very wise. Moreover, he possessed a lot of wealth.

Additive conjunctions signal that the following clause adds more information to what the preceding one had offered.

Adversative conjunctions:

(15) She worked very hard. However, she failed.

However, is the adversative conjunction in example (15). Adversative conjunctions signal that the following clause provides information that contrasts with that of the preceding clause.

Causal conjunctions:

(16) She worked very hard. Consequently, she passed very well.

Consequently is the causal conjunction in example (16). As the word causal implies, these conjunctions signal that what follows is caused by the preceding clause or vice versa.

Temporal conjunctions:

(17) At first, she had a small Kiosk. Later, she started a big supermarket.

The conjunction later is temporal. It shows relations of time.

2.6.1.5 Lexical Organization

The last cohesive device as outlined in the cohesive model is lexical cohesion which is achieved by the selection of vocabulary (Halliday & Hasan, 2013:274). This category is divided into two broad categories namely, collocation, and reiteration. Reiteration is in turn sub-categorized into four sub-categories as outlined below:

(a) **The same word:** This refers to a repetition of the same word in a passage.

Example:

(18) I bought this car in Mombasa. It is a good car.

(b) A synonym or near – synonym. Example:

(19) Let the lorry pull the car up the slope. The incline will be easier.

(c) A super-ordinate term

Example:

(20) AIDS has killed many people. The disease is incurable.

(d) A general noun.

Example:

(21) Esther is a good swimmer. The girl is really good at it.

The girl is a general term referring to Esther in the example above.

Halliday and Hasan (1976, 2013) classify all lexical cohesion that is not covered by reiteration under the general heading of collocation. This is cohesion that is achieved through association of lexical items that regularly co-occur (Hellalet,2013).

Example:

(22) We saw the bees and we knew that honey was nearby.

Bees and honey are collocates in this sense because they tend to occur in the same environment in different contexts. Other words that co-occur include King and crown; candle and flame; and cloud and rain (Halliday and Hasan, 2013:286).

2.6.2 Error Analysis

Error analysis (EA) is a type of linguistic analysis that focuses on the errors learners make. It was with Corder's article entitled *The significance of Learner Errors* (1967) that EA took a new turn. He presented a completely different point of view from that of Contrastive Analysis (CA). Other articles written by Corder (1971; 1974; 1981) helped to give the study of errors a new direction. According to Corder, errors are

indispensable since the making of errors can be regarded as a device the learner uses in order to learn. According to Subedi (2005:210), Error analysis enables the Language Two (L2) learners to be aware of committing errors while still learning the target language.

EA saw errors as indicators of the learners' current underlying knowledge of the second language, or as clues to the hypothesis (or strategies) that a learner may be testing about the second language (Richards, 1974; Taylor, 1975; Dulay & Burt, 1974). Like a child struggling to acquire Language One (L1), the L2 learner also tries out successive hypothesis about the nature of the (Target Language) TL. In this sense, errors provide us with insights into the language system that L2 learners are acquiring and using at a particular period. Such an L2 system is called interlanguage.

Corder (1967; 1974; 1981) claimed that EA could be used as a primary pedagogical tool because:

- (i) EA does not suffer from the inherent limitations of CA: restriction to errors caused by the interlingual transfer. EA brings to light many other types of errors.
- (ii) EA, unlike Contrastive Analysis (CA), provides data attested problems and not hypothetical problems and therefore, forms a more efficient and economical basis for designing pedagogical strategies.
- (iii) EA is not confronted with the complex theoretical problems encountered by CA; for example, of equating difference = difficulty and difficulty= error.

EA was, therefore, appropriate for the current study because it has an explicit methodology for identifying, categorizing and analyzing errors. According to Saville-Troike (2006), Corder came up with a methodology of error analysis that has the following steps.

1. Collection of data: A corpus of language is selected, for example, through composition.
2. Identification of errors in the data: At this stage, there is a need to differentiate errors from mistakes. The errors are labelled with the exact nature of deviation from the standard form.
3. Classification of the errors identified: A grammatical description is assigned to each error; for example, errors of articles and errors of verb forms. Ellis (2003) says that errors can be classified into grammatical categories such as errors of omission, substitution and disordering of grammatical items.
4. Explanation of possible causes of errors: Attempts are made to identify the psycholinguistic cause of the errors. For example, Richards (1974) identifies the following strategies associated with developmental or intralingual errors. These are overgeneralization, ignorance of rule restrictions, incomplete application of rules, and false hypothesis of concept. These may be some of the causes of grammatical errors related to the use of cohesive devices.
5. Evaluation and pedagogic implication: The seriousness of each error is assessed to make principled teaching decisions.

The Error Analysis theory was therefore used in the identification and description of the cohesive related errors in the English writing of hearing-impaired learners. The above five steps were followed in the identification, categorization and analysis of errors in this study.

2.6.3. Interlanguage Theory

The term “interlanguage” (IL) was coined by Selinker (1972) to refer to what McLaughlin (1987:60) calls ‘interim grammar’ constructed by second language learners on their way to the Target Language (TL). Selinker uses the term to suggest the immediate

stages between the Native Language (NL) and the Target Language (TL). This language produced by learners is seen as a system in its own right, obeying own rules, and as a dynamic system evolving over time. IL postulates that learners pass through a number of stages with the goal of achieving target language proficiency. Nemser (1971) called these stages ‘approximative systems’, and Corder (1971) called them ‘idiosyncratic dialects and transitional competence.’

According to Selinker (1994), Second language learners pass through a stage of Interlanguage in which systematic errors of various kinds occur in the Second language of learner’s production. He adds that these errors are systematic and could enable a researcher to relate the English as a second language abstract cohesion deficiency to the systematic problems which have not been addressed by applied research.

The IL is thought to be distinct from both the learners’ first language and the Target Language. Nemser (1971:116) states clearly the assumptions underlying IL as:

At any given time the approximative system is distinct from the L1 and the L2; The approximative systems form an evolving series; and that in any given contact situation, the approximative systems of learners at the same stage of proficiency roughly coincide.

The hearing impaired second language learner acquires some grammar that is neither accurate form of the target language nor the typical form of the first language. This language created by these learners is what Selinker refers to as interlanguage. This learner language can be described based on its own internal consistency. This can also imply that the textual cohesion creation system used by the second language learners can also be characterized based on its own internal consistency which may be independent of the target language.

Ellis (1994:114) asserts that IL theory has been dominant in second language acquisition. He further says that IL can refer to both the internal system that a learner has constructed at a single point in time and the series of interlocking systems which form what Corder (1967) called the learner's 'built-in syllabus' (i.e. the Interlanguage continuum).

Selinker (1972) explains IL as the result of the learner's creativity as he processes the input data of the TL. It is the learner's creativity that makes interlanguage a system in its own right as the learner's creativity deviates from the learner's mother tongue and from the target language. This creativity accounts for the structures that are referred to as errors in the current study.

The learner's creativity is aided by some latent psycholinguistic structures that are activated when one attempts to learn a second language. The L2 learners attempt to produce meanings that they already have in the second language that they are in the process of learning. Selinker (1972) argues that the IL is the product of five central processes involved in second language learning. These processes include:

1. Language transfer, which is defined as interlanguage performance that is because of the mother tongue.
2. Transfer of training, which shows features of training procedures.
3. Strategies of second language learning, which are as a result of an identifiable approach by the learner to the material being learnt.
4. Strategies of second language communication, which deal with an identifiable approach by the learner to communicate in the target language.
5. Overgeneralization of TL linguistic materials, which involves overgeneralising TL rules.

The grammatical errors and the errors related to the use of cohesive devices by the hearing impaired learners could occur as a result of these five processes. The five processes together constitute the ways in which the learner tries to internalize the Second Language system. Ellis (1985:48) says that the above five processes are the means by which the learner tries to reduce the learning burden to manageable proportions. Widdowson (1975b) as quoted in Ellis (1985:48) refers to it as a concept of 'simplification'. The L2 learner cannot cope with the complexity of a language system and therefore limits the number of hypotheses he tests at any one point in time.

However, according to Selinker (1972), about 95% of L2 learners fail to reach Target Language (TL) competence. They stop learning when their interlanguage contains at least some rules different from those of the TL system. He refers to this process as fossilization. Fossilization occurs in most language learners and cannot be remedied by further instruction. The learners tend to keep in their interlanguage productive performance no matter the age of the learner or the amount of the instruction they receive in the TL. The fossilization mechanism accounts for the phenomenon of the regular re-appearance of interlanguage forms which are thought to have been learnt in earlier stages. The learners' interlanguage ceases to develop, however long they are exposed to relevant data in the TL (Selinker 1992).

Interlanguage was, therefore, appropriate in analyzing errors that focus on second language users. However, the Interlanguage theory does not have a clearly laid down procedure on how to identify and analyze errors. Although Selinker proposes the five central processes that he claims to be the main causes of errors, he does not show how errors can be identified and classified. EA was therefore used in the identification and description of errors. Adjemian (1976), as quoted in Mang'oka (2009), suggests that Error Analysis approach can be first used before inferring the psycholinguistic mechanisms at

play in the production of a given erroneous structure. Both EA and IL complemented each other in the analysis of data in the current study.

The three theories were used in order to give an exhaustive analysis of the data collected from the hearing impaired learners. Halliday and Hasan's Theory of Cohesion was appropriate in identifying and categorizing both lexical and grammatical cohesion within the hearing impaired learners' written text. Halliday and Hasan model of cohesion has the ability to analyze the texts delicately. Error Analysis theory was appropriate in the identification and categorization of grammatical errors while Interlanguage theory was appropriate in inferring the psycholinguistic mechanisms that were at play in the production of grammatical errors related to second language users. The Error Analysis theory and the Interlanguage theory also placed the study within the general framework of second language acquisition. The literature review was helpful in highlighting the knowledge gap, methodology and in the discussion of the research findings.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter consists of the research design, population and location of the study, sampling procedures, instruments for data collection, reliability, data analysis and ethical consideration.

3.2 Research Design

This study adopted a descriptive research design. Descriptive research design establishes the existence of phenomena by explicitly describing them (Babbie, 2008; 2010; Dawson, 2002; Given, 2008). The design involves a systematic collection of data to give a clear picture of a certain situation or determine the status of the phenomenon under study. Data was collected from the written texts of hearing-impaired learners in Form Three. Halliday and Hasan model of Cohesion was used in identifying, describing and categorizing the cohesive devices used by the learners while the five steps of Corder's Error Analysis Theory were used to analyze the grammatical errors, and errors related to the use of cohesive devices. Selinker's Interlanguage theory was used to infer the psycholinguistic mechanism at play in the production of the erroneous grammatical structures. Descriptive statistics were used to determine the frequency and percentage of the errors.

3.2.1 Research Philosophy

Research philosophy is the belief about the way in which data about a phenomenon should be gathered, analyzed and used (Creswell (2015). According to Saunders et al. (2015), a research philosophy refers to a system of beliefs and assumptions about the development of knowledge. The assumptions include epistemology, ontology and axiology (Saunders et al., 2015). The authors argue that epistemology concerns

assumptions about knowledge, what constitutes acceptable, valid and legitimate knowledge, and how we can communicate knowledge to others, while ontology refers to assumptions about the nature of reality. Axiology refers to the role of values and ethics within the research process. Creswell (2015) says that a well thought assumption must constitute a credible research philosophy which determines methodology choice, data collection, and research strategies.

Creswell (2015) identifies two major research philosophies, namely positivist and interpretivist philosophies. Positivists' research philosophy believe that reality is stable and can be observed and described from an objective point of view (Hall, 2012). Positivism studies are objective in nature and aim at formulating laws or theories, thus creating a basis for prediction and generalization (Creswell, 2009). The philosophy relies on the principle that scientific research is deterministic, has a methodology and deals with empiricism. Interpretivism philosophy, on the other hand, involves researchers to interpret elements of the study.

The researchers using positivism philosophy observe that only through subjective interpretation of and intervention, in reality, can that reality be freely understood (Blaxter, 2010). Interpretivism research philosophy is, therefore, subjective in nature and may lead to bias. Saunders et al. (2015) argue that the primary data in Interpretivism cannot be generalized since the data depends on the opinion and values of the researcher. This can affect the reliability of the data. The present study adopted a positivist philosophy of research because of its objectivity and ability to allow generalization of research findings.

3.3 Location of the Study

This study was conducted in three schools located in three counties, namely; Ngala Special Secondary school in Nakuru, Muhoro Secondary school in Nyeri and Machakos School for the deaf in Machakos County. Purposive sampling was used to choose the three

schools. The three schools were chosen because they were well established and well equipped with academic resources. Although there are seventeen others, they did not meet the purpose of the study as they were very recent and did not have students who had been learning English long enough.

3.4 Population of the study

The target population was all high school hearing-impaired learners in Kenya. The target population was too large, and therefore, the researcher used the accessible population of Form Three learners in hearing impaired secondary schools in Kenya. Purposive sampling was used to select the schools with hearing impaired Form Three classes with not less than 20 students. Form three students were chosen because they had been exposed to eight years of English in Primary school and two years in secondary school. It was therefore assumed that they had a reasonable level of written English. They had also extensively covered most topics in grammatical skills required in writing as per their syllabus.

3.5 Sampling Procedures and Sample Size

This subsection explains the sampling procedures and how the sample size was arrived at.

3.5.1 Sampling Procedure

Only Schools that had the required subjects for data collection were considered for sampling. Purposive sampling was used to sample the three schools for the deaf. Purposive sampling method was used on the basis that the subject of the study conforms to certain stipulated criteria. For this study, the researcher was interested in hearing impaired learners in secondary schools. Purposive sampling is also used when the sample population is low, and when the main objective is to choose cases that are informative to the research topic selected (Dawson, 2002). Purposive sampling is also important in the

initial stages of a descriptive study. The researcher targeted all Form Three students in the selected schools.

3.5.2 Sample Size

The three schools from where the study was conducted had a total of 100 students as indicated in table 1. The first step was to determine how many students would be selected. Using Krejcie & Morgan (1970) sampling tables, 80 students would be required for the study. Krejcie & Morgan (1970) recommends for a proper sample size. If N (*the population size*) is 100, then n (*the sample size*) is 80.

The simple random sampling technique was employed to select a total of 80 students from the three schools. The researcher used raffle design or lottery design to do a simple random sampling method in each school. This gave each learner the same probability or an equal chance of inclusion in the sample. In sampling students from Ngala, the researcher folded 35 papers of equal size and wrote ‘yes’ on 28 and ‘no’ on the remaining papers. Students who picked papers written ‘yes’ were included in the sample.

Table 1: Sample size

School	Number of Students	Sample size
Ngala Special school	35	28
Machakos school for the deaf	28	22
Muhoro School for the deaf	37	30
Total	100	80

The same procedure was repeated in the other two schools. This sample size was adequate for the study because linguistic data is largely homogeneous and therefore too

much of it is repetitive (Milroy, 1987). The sample size, therefore, included 80 students in the three schools, as indicated in Table 1.

3.6 Instrumentation

A free composition (see Appendix 1) was given to each of the 80 students in the three selected schools. The researcher also picked two written essays per student from their earlier written composition assignments in order to capture normal English writing situations. The analysis of the students' assignments was done within the school to avoid carrying students work from the school, which the school administrators were against. Also, these assignments were written in their exercise books, and it could have inconvenienced student because it is the same books that they were using to write notes and do other assignments. Only the assignments that were written in essay form or continuous prose were analyzed. Teachers of English in the selected schools were requested to help in administering the free composition. The purpose of using the teachers was to make the students more relaxed to treat the writing as a normal serious composition writing exercise.

3.6.1 Pilot Study

A pilot study was done at Kambui School for the deaf in Kiambu to enhance the reliability of the research instruments. 26 hearing impaired learners from the school wrote a free composition. The researcher also analyzed assignments from History and Biology subjects. The researcher found out that the hearing impaired learners write cohesively even though with grammatical challenges. The five cohesive devices posted by Halliday and Hasan were present in the hearing impaired learners writing.

3.6.2 Validity of the Instrument

Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concepts under consideration (Babbie, 2010). It is the degree to which

results obtained from data analysis represent the phenomenon under study. If a test measures what it is supposed to measure, it has validity (Mugenda & Mugenda, 2003). According to Babbie (2008) and Marczy (2005), validity is the soundness of the research design being used, with high validity typically producing more accurate and meaningful results.

To ensure the validity of the data collected, the researcher discussed the research instruments (the free composition) with research experts, peers and supervisors. Denzin and Lincoln (2011) claim that establishing validity in qualitative research can be less precise. A participant in the research or peer evaluation can be done to establish validity.

3.6.3 Reliability of the Instrument

Mugenda and Mugenda (2003) define reliability as the measure to which a research instrument yields consistent results or data after repeated trials. Reliability ensures that the findings arrived at would correspond to those done by another researcher using the same procedures (Mills, 2007). The reliability of the research instruments was tested during the pilot study.

Reliability was also enhanced by ensuring that the administration of the measurement instrument was consistent across all participants that took part in the study. In addition, the researcher ensured that the participants understood the instructions and content of the instrument by using the teachers in the school to give instructions to the students.

3.7 Data Collection Procedure

The researcher got an introduction letter from the Director Institute of Postgraduate Studies that enabled him to seek research authorization and permit from the National Council of Science and Technology (NACOSTI). The NACOSTI permit was used to get

approvals from the county governments, county directors of education, and the principals of the three schools before commencing of data collection (see appendix 3).

The researcher also visited the three schools where data was to be collected to plan for a convenient time with the school administration to collect the data. On the day of data collection, the principals of the three schools gave the researcher a teacher competent in Kenya Sign Language to assist the researcher with the administration of the research instrument (the free composition). The researcher also requested earlier assignments from the respondents for analysis.

3.8 Data Analysis

The analysis of data in this study entailed the following: identification and description of the grammatical and lexical features; determination of the prominent types of cohesion; analyze of the errors related to the use of cohesive devices and investigate the grammatical errors related to the cohesive devices in the hearing-impaired learners' written texts

For identification and description of the grammatical and lexical features, the researcher read the two categories of data; free compositions and students' assignments written by the hearing impaired learners. All the sentences that contained cohesion ties were selected and coded according to the source. Sentences from the free composition category were coded as FCC while the students' assignments were coded as SAC. For example, a sentence FCC: 1 means sentence one drawn from Free Composition Category while SAC: 2 is an example drawn from the Students' Assignments Category. The researcher indicated the number of cohesive devices contained in each of the selected sentences. The cohesive item and type of cohesion involved in each tie were specified, and the analysis was presented in table 2.

Table 2: Sample of Analysis of Free Composition

Sentence Number	Number of ties	Cohesive item	Type of Cohesion	Presupposed item
4	1	He	Reference	Teacher
8	2	She	Reference	Friend
		Other	Substitution	day

The researcher analyzed the two categories of data as outlined in table 2. The grammatical and lexical features used by the hearing impaired learners in the two categories of data were described using examples derived from the two categories. The frequency and percentage of each cohesive tie were recorded in order to determine the type of cohesive devices that were prominent in the hearing impaired writing. This was captured as in tables 3 and 4.

Table 3: Grammatical Cohesive Devices

Cohesive Devices	Category		Total	%
	FCC	SAC		
Reference	30	44	74	43.03
Conjunction	33	39	72	41.86
Substitution	7	10	17	9.88
Ellipsis	4	5	9	5.23
Total	74	98	172	100%

The tables indicate the numeric result of the Hearing impaired grammatical and lexical cohesion. The percentage of each device is given in comparison with others. A comparison of the subtypes of each cohesive type was done.

The researcher used the five steps of Corder's Error Analysis to identify the grammatical errors related to the use of cohesion in the hearing impaired written texts. Firstly, the researcher read the written text to identify the grammatical errors related to

cohesion. Secondly, the researcher classified the errors. Any explanation of possible causes of error was given. Finally, an evaluation of the pedagogical implication of the errors identified was done. Interlanguage theory was used to infer the psycholinguistic mechanism at play in the production of the erroneous grammatical structures. The findings were discussed in relation to the objectives of the study.

Table 4: Lexical Cohesive Devices

Sub category	SAC	FCC	TOTAL	
A. Reiteration				
Same word	96	72	168	(35.82%)
Synonymy	16	26	42	(8.96%)
Superordinate Term	10	9	19	(4.05%)
General Term	8	12	20	(4.26%)
B. Collocation	100	120	220	(46.91%)
Total	230	239	469	100%

3.9 Ethical Consideration

The NACOSTI permit, research authorization from county governments, county directors of education, and the principals of the three schools enabled the researcher to collect data. The students were informed that the data being collected was intended for research only. The researcher assured the students of confidentiality through anonymity. They did not write their names in the free compositions. The researcher ensured the voluntary participation of the students and also encouraged them not to plagiarize so that the data collected can reflect the true nature of their writing. A teacher teaching in each of the schools was requested to communicate in Kenya Sign Language to the students as the researcher explained the importance of the study. These were qualified instructors employed by the Teachers Service Commission to teach in the schools for the deaf. The researcher kept the data collected under confidentiality. The data will be destroyed by burning after three years to assure the students of the ethical aspects.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter presents the research findings of this study. The chapter is organized into six sections. The first section identifies the grammatical features and lexical features that create cohesion in the hearing impaired learners written text. The second section describes the grammatical features and lexical features that the hearing-impaired learners use to mark cohesion, while the third describes the types of cohesive devices that are prominent in the writing of hearing-impaired learners. The fourth section describes the errors in the use of the cohesive devices, and the fifth investigates the grammatical errors related to the use of cohesive devices.

4.2 General and Demographic Information

This section gives general information and demographic information in relation to the present study.

4.2.1 General Information

The researcher, with the help of a teacher in each school, administered a free composition to 28 students in Ngala Special School for the deaf, 22 students in Machakos School for the Deaf, and 30 students in Muhuro School for the deaf. This totalled to 100 free compositions. All the 100 students submitted their compositions after the 60 minutes they had been given to write. This gives a response rate of 100 percent. From each of these 100 students, the researcher expected to collect two class assignments from two subjects written in continuous prose. Out of the expected 200 assignments, the researcher was able to get only 164. The response rate for the class assignment was 82 percent. Some of the data collected in the form of free composition or class assignment were not comprehensible enough for analysis.

4.2.2 Demographic Data

The present study targeted form three students from three schools for the deaf. Out of a total of 100 students in the three schools, a total of 80 students were sampled to participate in the study (see table 1). The teachers were not part of the present study. All the students had gone through similar exposure to the English language having gone through primary school and two years in high school. The age of the students was between 17 and 20. However, age and gender were not variables in the present study. Most hearing impaired learners join school a bit late due to language challenges or lack of placement to a special school (Wolff, 2011).

4.3 Identification of Grammatical Features and Lexical Features That Mark Cohesion

This section identifies the grammatical features and lexical features that the hearing-impaired learners used in their writing to achieve cohesion. The basic concept used in the analysis of a text for cohesive devices is the tie. The tie includes both the cohesive element and the item that the cohesive element presupposes. Halliday and Hasan (2013) describe a tie as a relation between two elements. It is worth noting that some sentences may have more than one tie as in the examples given in the present study. In some other cases, the presupposed item may not be in the preceding sentence but in the sentence in a distant past. It is also possible that the presupposed item may itself be cohesive, presupposing another item as observed in other studies (Aldera, 2016; Ahmed, 2010; and Majdeddin, 2010).

Several extracts from the hearing impaired learners' class assignments (SAC) and free compositions have been given as examples in the analysis. Most of the written texts from both categories were incoherent or incomprehensible. Those that were analyzed had a varying degree of coherence coupled with very many grammatical and structural errors. This section will identify the possible lexical features and grammatical features used by

the hearing impaired learners to mark cohesion in their writing. Below are examples from the students' written texts. Example 1 is an extract from the hearing impaired assignment (SAC).

(1)

SAC 1

*The **water** and **mineral salts** which drop from root and soils.¹The **concencent salt** by leave had a water from temperature and **carbon (iv) oxide**.² Then water had a **salts** from **mineral** drop move to roots from by **leaves** had a salt higher.³ The roots had a tree from **leaves** had a **water** seals and **carbon (iv) oxide** of **conernation**.⁴ **To know** how to do make of seals move to the root later crop from mineral and leave then **crop** had a **leave** temperature which by salt of the air.⁵ When **move** to the **water** had a drop from **mineral later** crop **roots** had a power of the **tree** and **root** than weakness.⁶ The grow had a **air** from **leave** of **the branch** and **stem later** crop to **move roots** up to **water** from drop mineral.⁷ **That is why because** had a **water drop mineral**.⁸ **That is why because** had a water drop a lot then **roots** be become big later **crop** of the leave from salts move to air.⁹ The **leave** had a **air** of the **water** move to **roots** from **mineral** get of **the salt concernation higher**.¹⁰ The **water drop** of **the roots** there is **soil** a lot use of root with water from **mineral** out of the **salts** from get salt it.¹¹ **to know** how to make by **salts** from the **roots** is **power** from soil and leaves.¹² **The grow** from **mineral** example how you know tree is tall from down search get **mineral** from **slats**.¹³ The **water** search get of **salt** how to **crop** from root of the **air** which by **carbon (iv) oxide**. The **water** had a **temperature** on the **leave salts** with water and **air**.¹⁴ **The branch** of the **leave crop** of **roots** had a **strong** from **mineral** get how to do search salts a lot from roots. The eassy mean that **salt** move to **water** of root get **mineral** search had a find salt **higher**.*

The sentences in the above Biology assignment hardly make sense. None of them is grammatically correct. The learner lacks competence in the use of grammatical structures to construct meaningful sentences. The hearing impaired learners were supposed to answer the question 'Describe how water and mineral salts move from the roots to the

leaves'. As a result of their grammatical incompetence, the hearing impaired learner repeated the keywords in the question. The keywords such as *mineral*, *water*, *roots*, *leaves*, *move* and *roots* have been repeated in almost every sentence, hence raising their frequency in the text significantly. The above text, therefore, has a high frequency of reiteration. Reiteration is a type of lexical cohesion that is characterized by the repetition of lexical items, use of general terms, use of synonym, near-synonym or use of superordinate words (Halliday & Hasan 2013:278). Lexical cohesion is achieved through the use of vocabulary. When similar or related words are used in successive sentences, a connection in both far and near positions is created (Halliday & Hasan, 2013). This repetition is given the term reiteration by Halliday and Hasan (2013). Reiteration achieves cohesion when one word refers back to another to which it is related by having a common referent.

Similar words have been repeated, in example (1). There is same word repetition of the word *water* in SAC 1, sentence 2, 3,4,7,8, 9 and 16. This same word repetition creates lexical cohesion in the text. Other forms of same word repetition are in the repetition of the words; *salts* (sentences- 3, 4,5,8,10,11,12,13,14,16); *higher* (9) *crop* (5,6,7,8,13,15); *move* (6,7,9,16); *Know* (sentence-12); *mineral* (sentences 3,5,6,7,9,10,12,15,16); *temperature* (sentences- 5,14) and *drop* (sentences-3,4,6,8). The word *root* has been repeated in sentences-3,6,7,8,9,11,12,13,15,16 while *leaves* has been repeated in sentences 2,3,4,5,9,14,15 of text SAC1. *Carbon (IV) oxide* has been repeated in sentences 4 and 13 to create cohesion within the text. The word *concernment*, which the learner may have wanted to mean “concentration” (sentence 9) has been repeated in the text. This enhances cohesion in the text.

The hearing impaired learners also used words that co-occur in the text to create lexical cohesion. The use of co-occurring words is called collocation. Collocation,

according to Halliday & Hasan (2013), describes the relationship between words that appear in a similar context or words that tend to co-occur. They refer to it as a cover term for cohesion that results from the co-occurrence of lexical items that are in some way typically associated with one another because they tend to occur in a similar environment (Halliday & Hasan, 2013:287). The collocations, in example 1, are in most cases, only applicable in the context in which the words have been used. *Leave* collocates with *trees* and *roots* in sentences 4 and 5. *Crop* collocates with *tree*, *leaves*, and *roots* in sentence 5. *Branch* and *stem* collocate with *leave*, and *tree* in sentence 7. *Air* collocates with *temperature* as used in the context of the text in sentence 6. The verb *drop* collocates with the word *move* in sentence 6 and 10. The noun *stem* collocates with *root*, *leaves* and *tree* in sentence 7. *Soil* collocates with *roots*, *air*, and *leaves* in the context they have been used in sentence 10.

Another lexical feature that enhances lexical cohesion in example 1 is the use of superordinate term and synonym. A Superordinate term is a name for a more general class. It is a cohesive tie between elements by pointing to the original referent with a different lexical term while expressing the same or expanded meaning (Halliday & Hasan, 2013). The word *salt* has been repeated to presuppose *mineral salts* in sentence three. *Salt* is a superordinate of *mineral salts*. Another use of the superordinate term is in the word *mineral* in the third sentence to presuppose *mineral salts*. Synonym, on the other hand, is a word that means exactly or nearly the same as another word. The word *strong* is a synonym of the word *power* in sentence 16.

Present in SAC 1 is the use of words that create grammatical features that enhance cohesion. A good example is the use of pronouns that create reference ties in the text. According to Halliday & Hasan (1976; 2013), grammatical cohesion includes the use of reference ties, conjunction ties, ellipsis, and substitution. The student has used the

demonstrative reference **the roots** in sentence 4, 5(SAC 1:4-5). The use of a definite article before a noun establishes cohesion in a text by reference. The definite article connects the identity of reference with something mentioned before. The noun **roots** refer to the word **roots** used in the previous sentence hence creating cohesion. The use of the definite article **the** before the noun **water** in sentence 6,10, 11, 13 and 15; and before **leave** in sentence 9, and before branch in sentence 15 help in creating cohesion because the nouns point backwards to a lexical item mentioned earlier. The demonstrative pronoun **then** in the third sentence does not create a cohesive tie because it lacks a presupposed item. It is, therefore erroneously used.

Another grammatical cohesive tie, in example 1 (SAC 1) is the use of conjunctions. Some of the conjunctions have erroneously been used. For example, **then** in sentence 3 and **later** in sentence 5 and 7 do not have a presupposed item. The same case applies to **when** in sentence 6. The phrase **that is why because** (sentence 8) has been misused as temporal conjunction, though it functions as causative conjunction. The presupposed item is sentence number 7, though not clear. All these conjunctions have been used erroneously. Example 2 gives another text written by the hearing impaired learner.

(2)

SAC 3

¹The mineral salt move to roots. ²How to grow about same water mineral salt. ³Transport absorption of water and mineral salts cell sap of hair roots different between the cell sap in the water and mineral salt pressure down root hairs. ⁴The water molecules arcross the cell wall and cell membrane into the root same tree by the leave making less it. ⁵Because have not water and mineral salt They are pressure osmotic force by the absorbing cell. ⁶The root hair to osmotic same move water from the mineral salt by the leaves. ⁷Due to osmotic gradient water move from the roots to the leave. ⁸ Because of pressure down roots grow by the leave which is the soil water and mineral salt plants for their growth and cell sap in the

root hairs is greater than that in the soil. ⁹Transpiration is the process by which plant lose water and mineral salt with the vapour into the air from the plant.

Example 2 is derived from the students' Biology assignment. Just like in example 1, the same words pertinent to the topic have been repeated raising lexical features considerably. The words do not combine to form a meaningful unit. This agrees with the view that the presence and frequency of cohesive ties is not an indication of good writing in all cases as observed in other studies such as Wolff (2011). The hearing impaired learners have not acquired enough grammatical structures to write coherently. The learners, however, demonstrate a greater understanding of the topic, thus a greater variety of related words increasing collocation ties and other forms of lexical cohesion. There are several lexical cohesive ties and few grammatical cohesive devices in example 2.

Among the markers of cohesion, in example 2, are words that create lexical collocation. Similar to example 1, several keywords collocate in example 2. The word *transport* collocates with *mineral salts*, *roots* and *water* in sentence 3, and *move* in sentence 3. *The water molecules* collocate with *cell sap*, and *water* in sentence 4. *Cell membrane* collocates with the word *cell wall* and *cell sap* in the same sentence. *Tree* collocates with *root*, and *cell sap* while *leave* collocates with *root* in sentence 4. The word *absorbing* in sentence 5 collocates with *absorption* in the same sentence. *Cell* collocates with *cell wall* and *cell membrane* in sentence 5. *Leaves* collocate with *root* in sentence 6. Other examples of collocation are in sentence 7; *osmotic gradient* and *osmotic force*, *roots* and *leaves*; sentence 8; *soil* and *root*, *plants* and *root*, *growth* and *grow*; sentence 9; *transpiration* and *leave absorption*, *plant* and *roots*, and *vapour* and *water*. The above examples are a clear indication that lexical items have a tendency of co-occurring. It is this co-occurrence that creates cohesion. For example, the occurrence of *cell* and *cell wall* in sentence 5 creates cohesion.

Several words have also been repeated in example 2 to create lexical cohesion. There is the same word repetition of the word **water** in sentences 3, 5, 6, 7, 8, and 9. Other forms of same word repetition are: **mineral salts** (sentences-3, 4, 5, 6, 8, 9); **root** (sentences 4, 8,); **pressure** (sentence -5, 8); **root hair** (sentence 6, 8); **osmotic** (sentence 6) **move** (sentence 5); and **grow** (8). The learner begins sentence seven and sentence eight with causal conjunction **due to** and **because** respectively creating cohesion within the sentence but not in the text. It is worth noting that despite all the above lexical ties, the text is not grammatical. The learner's grammatical incompetence is evident in the use of the word **osmotic** without a noun. It should be used with a noun as a premodifier.

(3)

FCC 1

¹Our principal, teacher and my followed student good afternoon, I wanted to write to this happiest day in school have problem. ²First one some students were noticed a lot because the food were poor same waste time of money. ³Our class 3N have just one P.E for sports some teachers were lazy to teach us the time lessons. ⁴Many students want school uniform suffered and they steal to each other.

⁵Other things about the dinning hall that some student complained the group tables are poor because students come late same the food are few small and very poor.

⁶Many students are very sadness and hungry because they want the shopping in school and possible we pay it. ⁷Other students in the dormitory some are lazy to do your duty and ignored all he perfect to call his or her students. ⁸Some they steal their money from student dormitory and they suffered a lot. ⁹The class lesson assignment have more and students feel sad or tired during the teacher come late all the time accepted to tell you during the teacher come late all the time accepted to tell you that the bell rings some student were staying outside with permission on teacher duty feel sadness.

¹⁰Our girls dormitory some students waste time of water they not using their buckets, they just waste all time 10:00 pm at night they ignored. ¹¹We accepted to obey our school programmes and in Saturday night that we free true but on Sunday some student sad and angry because they want to watched television at

night. ¹²*Some student dormitory steal the school uniform everytime because I suffered a lot because we waste of time and their parent pay school fees and not find it.* ¹³*Thankful for writing this topic of my happiest day in our school*

Example 3(FCC 1) is derived from the students' free composition. The free composition gave the learners an opportunity to write freely. The students were supposed to write a composition on the topic: *My Happiest Day in School*. Most of the free compositions were incoherent. The level of incoherence was very high in some text. The researcher could therefore not trace any links between them apart from the occasional repetition of the same word in several sentences. The above example is among the few that were slightly coherent but with many grammatical mistakes.

Several words that create cohesion are present in FCC1. One of the cohesive devices utilized is the use of words that collocate. As earlier mentioned, the use of collocation in data analyzed was not an indication of quality writing because the hearing-impaired learners repeatedly used the same words. A good example of repetition is in sentence 2 where the noun phrase *some students* collocates with the noun *students*. These two words are collocating because they share semantic relations. Collocation can occur in two ways. First, there is the bound collocation which involves constituents that cannot be separated such as *lost* and *found*. Secondly, there is semantic cohesion collocations which are mutually selective (Panahifar, 2013). In sentence 4, *school uniform* collocates with *students* while in sentence 6, *school* collocates with *principal, teacher and students*. Other forms of collocation are *dormitory* and *school* (sentence 7); *prefects* with *school* or *students*; *lesson* and *school, students*; *bell* and *lesson, school, students*; *teacher* and *students* (sentence 9); *girls' dormitory* and *dormitory* (sentence 10); *sad and angry*; *sad* and *suffer*; (sentence 12) *school fees* and *students, same student* and *student* in sentence 12.

The hearing-impaired learner has used reiteration in example 3. There is the same word repetition in the text. The word *teacher* has been repeated in sentences 2, and 9. The phrase *some students* has been repeatedly used in sentence 5 and 10. There is a repetition of the phrase *many students* in sentence 6. Other forms of same word repetition are in the repetition of the words *student* (sentence 5, 7); *perfect* (the learner meant perfect) in sentence 10; *steal, school uniform, suffered, waste* (sentence 12); and school in sentence 13. The hearing impaired learner has also used antonyms which Halliday and Hasan (2013:285) classify under reiteration. The words *sad* and *happiest* are in opposition. Antonyms are related by a particular type of opposition; hence they contribute to the structure of a text. Halliday and Hasan (2013:285) claim that there is a possibility of cohesion between any pair of lexical items which are in some way associated with each other in language. Reiteration is a subcategory of lexical cohesion. This helps in creating cohesion in the text.

The hearing-impaired learner has used several grammatical cohesive devices in example 3(FCC 1). Sentence two begins with the temporal conjunction *first one*. This has a similar meaning with the phrase *to begin with*. This links the earlier statement in sentence one with sentence number two. The causative conjunction, *because*, links the clauses in sentences 2 and 11 in example 3, hence creating cohesion within the sentences but not within the text. Other conjunctions used to create cohesion within the same sentence are *and* and *but*.

FCC 1:2 ²*First one some students were noticed a lot because the food were poor same waste time of money*

FCC 1:11
¹¹*We accepted to obey our school programmes and in Saturday night that we free true but on Sunday some student sad and angry because they want to watched television at night*

(We decided to adhere to our school programme and on Saturday night we were free but on Sunday some students were sad and angry because they wanted to watch television at night).

There is an error in the use of the additive conjunction **and** to link the two clauses in sentence 8- '*Some they steal their money from student dormitory and they suffered a lot*'.

The learner should have used a causative conjunction **because** to link the two clauses- *Some stole money from students in the dormitory because they suffered a lot*'. The learner may have wanted to give the reason why the student stole money from others.

There is the comparative reference in example 3(FCC 1). Comparative reference involves a comparison with regard to identity, similarity, difference, quality or quantity. The comparative **other things** (another thing) in sentence five presupposes the preceding paragraph. The phrase **other students** and phrase **some students** have been used as comparative references in sentences 7 and 10, respectively. **Other students** presuppose **some students** while **some students** in sentence 10 presuppose **students**. There is only one personal reference **we** in sentence 11 which presupposes the speaker and the fellow students. There is also use of ellipsis in sentence 8. ⁸*Some they steal their money from student dormitory and they suffered a lot*. This is the nominal ellipsis of the word **students** which can be recovered from the previous sentence.

(4)

FCC 5

¹*This school is fine and also best but problem with food and tourism, uniform for school miss a lot tell something about food have a lot dirty with stone small thing, miss tourism buy are a lot money.* ²*They are not happy in school please our principal some teacher are lazy to teach but miss lesson, able next time must be to best way teach a lot.* ³*They are not focus to student about education but teacher think about clothe why not education and please stop next using learning never*

force about clothe best using learning never force about clothe best way education your meaning making our school. ⁴They are marking happy a lot improve education. ⁵They are teacher to teach very poor sign language to teach but not understand from tell about subject also best way sign language know who best making student understand fast from subject. ⁶May be our school next time change feeling in school control follow about it.

Example (4), FCC 5, is not coherent but has a few lexical items that create cohesion. There is an erroneous use of the personal reference **they** in sentence two. The personal pronoun has no presupposed item, hence not cohesive. There is, however, good use of personal reference **they** in sentence 3 and 5. The pronoun **they** in both sentences presupposes **teachers**, hence creating cohesion within the text. The rest of the cohesive devices are in the form of collocation and reiteration. Several words have been repeated in the text, generally creating cohesion within the text. Some examples are the repetition of the word **school** in sentence number 2 and sentence number 6, and **teacher** in sentence number 5. Collocation occurs in sentence two where both **teacher** and **lesson** collocates with **school**; in sentence 3 where the words **student**, **education** and **learning** collocate with **teachers** and **school**; and finally in sentence 5 where **subject** and **student** collocate with **learning** and **teacher** respectively.

(5)

FCC 17

¹They were not happy because was assignment work lesson waste? ²The lesson my class lesson waste on assignment lesson. ³They other class P.E two any other P.E one game why we are all not happy. ⁴The class same free two P.E day but oppress one my class only PE games day not good. ⁵It was perfect asked teacher is not good, my class lesson assignment waste is time subject all not same last. ⁶The class form 3 other deaf school. ⁷The teacher said is patient was student all but I am small happy but go to dining hall time waste last service wait of in back class soon bell in here last same continue food but then because fast in the class my class

wanted must be teacher is Sign language is like tortoise do not understand teaching everything must sign well all know must subject today please, let obey teacher same student.

⁸The student were all happy some small please you teacher same student value action show discipline was smart. ⁹They were my happy nice is reaching action improved but wanted help teacher. ¹⁰The principal good development building and committee but must be school revision action principal form 3 give to student exam my class try good her or his target life to achieve action. ¹¹The class lesson assignment very boring. ¹²It was student are not happy why we all play in the class not sure read same, I do me know but some pretend student your fool teacher but I know about some boy clever pleasure e.g. happy because was not sure reading education please kick lesson assignment I do not wanted lesson assignment revision boring but. ¹³The dormitory was waste duty and students were force finding for very dirty in the boy dormitory please own work clean always. ¹⁴They some miss traveling learn form 3 trip of student all form 3 only not happy for please obey by the principal we allowed if you what do you treat agreement first student interviews. ¹⁵The principal thank you a lot happy but you are teacher lazy because like math only form 3 poor but student were exam fail not happy same. ¹⁶The principal thank you obey allowed working hand teacher must be equal all student allowed please. The principal thank you a lot...

The above text, example (5) FCC 17, is poorly written with many grammatical errors. It should be noted that the hearing impaired learners have not acquired enough grammatical structures to write cohesively and coherently. There is a high frequency of repetition and collocation. Very few grammatical ties are used in the above text. This may be due to the inability of the hearing learners to manipulate grammatical structures to achieve cohesion. The learners lack a basic grasp of English syntax. The high frequency of the same word occurring more than once in the same sentence is an indication that the hearing impaired learners have a deficiency in vocabulary.

Several words used in example (5) FCC 17 collocate. The word *class* collocates with the word *lesson* in sentence three, and *subject* in sentence five. The noun phrase *the class* collocates with the word *class* in sentence four. The word *teacher* collocates with the word *lesson*, while the word *assignment* collocates with *lesson* in sentence five. The noun *student* collocates with the noun *teacher*, while the noun phrase *sign language* collocates with the noun *deaf* in sentence number 7. Other examples of collocation have been used in sentence 9 (*reading* and *student*); sentence 10 (*principal* and *school*; *form three* and *class*; *exam* and *school*; *class* and *school*); and in sentence 11(*lesson* and *class*; *assignment* and *class*). These collocation ties play an important role in creating cohesion in the text, though there are many grammatical errors. As mentioned earlier, the occurrences of lexical items that belong to the same semantic field create cohesion. For example, the presence of *lesson*, *assignment*, and *teacher* presuppose *lesson and* are therefore cohesive. *Sign language* and *deaf* when used in close proximity create cohesion since the two words co-occur.

The other highly used cohesive tie in example (5) FCC 17 is same word repetition. The words *lesson* and *waste* have been repeated in sentence two while the noun phrases *the class*, *the teacher*, and the noun phrase *the student* have been repeated in sentence 6, 7 and 8 respectively. The word *teacher* has also been repeated in sentence 7, 8, and 9. Other same word repetitions occur in sentence 10(*school*, *student*); sentence 11(*class*); sentence 12(*student*, *teacher*, *read*, *education*, *assignment*, *lesson* and *revision*). The repetitive use of these words creates cohesion in the sentences as well as in the text in general.

(6)

SAC 30

¹Many youths leave their land with old people. ²Where old people cannot cultivate shamba. ³Young people stronger than old people. ⁴Youth get more harvest if they cultivate shamba. ⁵The same shamba feed everyone. ⁶More food for everyone. ⁷The youth need go back home because crime in city.

SAC 30 was extracted from short answer questions in a History assignment. The learner has repeated several words in their writing. There is the same word repetition of the verb *cultivate* and the noun *shamba* in sentence two and sentence four. This makes the text cohesive. The word *more* has been repeated in sentence four and six while *everyone* has been repeated in sentence five and six. Repetition has also taken the form of synonyms. The Noun phrases *many youths* and *young people* are synonymous with the word *youth*. There is also use of the conjunction *because* in sentence 7 that links the first clause with the second clause. This creates cohesion within the sentence. Comparative reference has been used in sentence three and four. These cohesive ties contribute to creating of cohesion in the text.

(7)

FCC 19

¹*It was on Monday morning when my parents broke the news to me and told me that I was expected to report in school the following day which was on a Tuesday.*
²As *I hard that I was happy as a king even tears of joy started rolling down my shubby cheeks.*

³After *my father had told me that, I started prepering myself by washing clothes, polishing my shoes and washing my bag.* ⁴I also *neat my bedroom so that mother would not have much to do.* ⁵ *I started imagining about life in anew school with new friends, teachers and a new class.* ⁶*It sounds very enjoyable as I compared with that life in primary school high school sound more enjoyable than ever been.*

⁷That night *I hardly slept a wink I kept on tossing myself on my bed praying that morning to approch faster so that I can go to a new school wearing new school uniform and new black shoes.* ⁸After *sometimes I was carried away and slept without knowing it.*

⁹As *morning approach I woke up early than usuall and I rushed to take a shawer, I took my towel and run out my bedroom without noticing that it was around 4:30am.* ¹⁰**My mother** *hard me rushing from there to the other room, she*

woke up too.¹¹ “oh! “my dear, it’s very early now” she said. ¹²I assumed and go on with my business, at about twenty seconds I had finished to have a shower I rushed back to **my bedroom** and opened my **wardrobe** and I took out **my school uniform** and I put on. ¹³Then I moved near where the mirror was and I started admiring myself I looked pretty.

¹⁴As I was still looking myself on a mirror, I heard mother calling me to go and have my breakfast. ¹⁵So I just moved and worked out of my room walking as proud as a peacock.

¹⁶After having our tea then me and my father went out of the house and left mother alone. ¹⁷We started our journey at five thirty am. ¹⁸We arrived early enough I was able to see everything and I really felt very happy, **the school** was clean **teachers** were friendly and loss students were very happy when they saw me.

¹⁹I was admitted in form one and I enjoyed that day **because** I found my old school girls who welcomed me as a prodigal son. ²⁰I felt loved, cared and I had no worries. ²¹I **this, school** what I like most is when **teachers** came in **our class** and teach as different things in every days **lessons**. ²²Am always proud of **my teachers** because they always motivate us and guide us in a good way.

²³**From when I was in form one upto now** what I have learnt is very important in my daily life am now in form 3 but I never fail to respect **my teachers**. ²⁴I will always respect **them** in all my life because if it was not hem I would have not succeed upto to hear am. ²⁵I will love **my school** and **teachers** for ever in my life. Never forget my **school** and **teachers**.

Example 7(FCC 19) is the best written composition among the compositions collected. It, however, has some grammatical errors. The learner tackled the subject of the composition well. Several cohesive devices are evident in the above text. The learner used several conjunctions to enhance cohesion in the text. Several temporal conjunctions have been used. The conjunction **as** has been used in sentence 2 and it presupposes the preceding sentence. The third sentence begins with the temporal conjunction **after** which presupposes the preceding sentence. ³After my father had told me that, I started prepering myself by washing clothes, polishing my shoes and washing my bag. Though there a few

spelling mistakes (e.g. *preparing, hard, approach, business, shawer*), they do not affect the cohesive link in this sentence. Other temporal conjunctions used in FCC 19 are *after* (sentence 8); *then* (sentence 13) *as* (sentence 14); *after having tea* (sentence 16); and the clause from *when I was in form one* (sentence 23). These temporary conjunctions presuppose the preceding sentences. The clause *from when I was in form one* functions as a temporal conjunction because it shows when the writer learnt the importance of respecting teachers. There was only one casual conjunction used in this text (*so* in sentence 15) which presupposes the preceding sentence. *Also* has been used as an additive conjunction in sentence 4. It links what has been said to what had been mentioned earlier in the previous sentence, hence creating cohesion.

Another grammatical feature creating cohesion in FCC 19 is the use of pronouns. The pronoun *it* in sentence 3 presupposes *life in a new school*. This is a personal reference used as a cataphoric reference because it points forward in the sentence for its interpretation. Another pronoun is used in sentence seven (*that night*) to presuppose *when my parents told me that I was expected to report to school the following day*. The personal pronoun *we* has been used in sentences 17 and 18 to presuppose *the writer, mother and father*. It creates cohesion within the text. Another personal reference is the pronoun *them* used in sentence 24 to presuppose the noun *my teachers* mentioned in a previous sentence.

²¹*I this school what I like most is when teachers came in our class and teach as different things in every days lessons.*

The demonstrative pronoun *this* used in sentence 21 presupposes *school*. This is an example demonstrative reference that helps in identifying the referent by verbal pointing.

There are several lexical features in example 7(FCC 19) that enhance lexical cohesion in the text. Lexical cohesion utilizes vocabulary to create cohesion (Halliday & Hasan, 2013). The lexical features in example 7(FCC 19) are words that are repeatedly

used and other words that co-occur in the same semantic field. There is the same word repetition of the nouns *school, teachers, my teachers,* and *class* throughout the text (sentences 5, 18, 21, 22, 25, and 26). Other words that have been repeated are *father, mother, my father, my bedroom* (sentence 12, 16, 18, 21).

Several words collocate in the context of example 7(FCC 19). The words *high school, primary school* (sentence 6), and *new school, new school uniform, my school uniform* collocate with the word *school* (sentence 6). Other collocating words are *my bedroom, my towel, my shoes* (sentence 8); *mother, my mother* (sentence 16); and *our class, our lesson, school* (sentence 21). Collocation helps a text to achieve cohesion when lexical items co-occur. The lexical items share a semantic field.

From the above analysis of texts, several grammatical and lexical features were found to help in creating cohesion in the current study. These features took the form of words, phrases and in a few cases clauses. There were a total of 579 words, 52 phrases and 10 clauses that created cohesion in the writing of the hearing impaired learners. The presence of these features did not translate to quality writing. Some texts did not make sense. The high frequency of these words was as a result of repetition of keywords in the text. For example, the students who had a biology assignment “*Describe how water and mineral salts move from the roots to the leaves*’ repeated the words water, mineral, salts, move, roots, and leaves without constructing comprehensible sentences. These findings agree with earlier studies on the writing of the hearing impaired learners (Ayoo, 2004; Albertini & Kincheleo, 2015). The hearing impaired learners have problems expressing themselves in English.

4.4 Description of Grammatical Features and Lexical Features Creating Cohesion

This section describes the grammatical features and lexical features that have been identified in the study. The section is divided into two sub-sections, which are further subdivided based on the grammatical features and lexical features identified. Halliday and

Hasan (2013) model of cohesion was used to describe and classify the cohesive devices in the data collected for this study. A summary of the classification and frequency of the cohesive devices has been given in table 5. Further summaries are given after each cohesive subcategory described.

Table 5: A summary of cohesive devices used by Hearing Impaired Learners

Cohesive Devices	Category		Total	%
	FCC	SAC		
Grammatical Cohesion	74	98	172	26.83
Lexical Cohesion	230	239	469	73.17
Total	304	337	641	100%

4.4.1 Grammatical Features That Mark Cohesion

The five cohesive devices posited by Halliday and Hasan (2013) were present in the writing of the hearing impaired learners. These devices varied depending on the text category. It was observed that most of the sentences in both free composition and assignment were not grammatical and therefore they could not make sense. There were more referencing ties followed by conjunction, substitution and ellipsis. Though the learners used these cohesive devices, there were very many grammatical errors in their writing. The grammatical cohesive devices have been tabulated in table 6.

Table 6 indicates that the four subcategories of grammatical cohesion are used by the hearing impaired learners in the current study. From the table, it is evident that reference cohesive devices accounted for 43.03% of the total number of grammatical cohesive devices used. This was closely followed by conjunctions with 41.86%, substitution 9.88% and finally, ellipsis with 5.23%.

The high frequency of reference in both categories of data is possibly because of the nature of writing. Several events and people are mentioned in the writing, hence the need for reference to refer to these nouns. A similar observation was made in the students'

assignments that are basically derived from textbooks, class notes and students' experience. The use of reference in the student assignments might have been affected by such a scenario where students use textbooks or class notes to do assignments.

Table 6: Frequency of Grammatical Cohesion

Cohesive Devices	Category		Total	%
	FCC	SAC		
Reference	30	44	74	43.03
Conjunction	33	39	72	41.86
Substitution	7	10	17	9.88
Ellipsis	4	5	9	5.23
Total	74	98	172	100%

4.4.1.1 Reference Cohesive Devices

Reference cohesive devices had the highest frequency of occurrence in the data analyzed. There were a total of 74 reference ties accounting for 43.03% of the total number of grammatical cohesive devices used by the hearing impaired learners in the free compositions and assignments. The students' assignment had more reference ties than in the free composition.

According to Halliday & Hasan (2013), a reference item is one whose interpretation relies on some other features in a text. Reference achieves cohesion by virtue of linguistic items depending on each other for their interpretation. Halliday & Hasan point out that reference can occur in three ways: personal, demonstrative and comparative. Referential cohesion is important in the creation of cohesive ties between the element that can be difficult or even impossible to interpret if a single sentence is taken out of context. It enables a reader to read a text with ease. Two types of reference are considered by Halliday and Hasan (2013): endophoric reference and exophoric reference.

In the case of endophoric reference, a reader retrieves information from within a given text. Exophoric reference directs the reader outside the text and interprets the information from the context of the situation (Halliday and Hasan, 1976:18).

The current study focused on endophoric reference only because it is an important aspect of written language. Two types of endophoric reference are considered: anaphoric and cataphoric. Anaphoric reference points readers back to what is previously mentioned while cataphoric reference points forward in the text in order to identify the element the reference refers to. Halliday and Hasan consider three items in language through which reference is realized. These are personal pronouns, demonstrative pronouns and comparatives.

Personal reference identifies items, objects or things that are named at some point in the text. In the current study, the hearing impaired used more of anaphoric reference. Demonstratives reference makes use of adverbs and determiners. The definite article is classified together with demonstratives and possessives. The definite article creates a link between the sentence in which it occurs and the referential information. It helps in signalling definite (Halliday and Hasan 2013:74).

Comparatives reference is expressed through the use of adjectives and adverbs. It serves to compare things or items within a text in terms of identity or similarity. Halliday and Hasan (2013) consider two types of comparatives: general and particular comparative. General comparatives express likeness between things in the form of identity, similarity, likeness or unlikeness or difference. Words such as *same*, *similar*, *these* were used by the hearing impaired learners in the current study. On the other hand, particular comparative reference expresses compatibility between things. This is normally comparison in respect to quality and quantity. This type of comparison was used by the hearing impaired learners in the current study.

Analysis of the written tests revealed that there were more demonstrative references followed by personal reference and finally, comparative reference. The use of the definite article may have contributed to this high frequency of demonstrative ties. There were 40 demonstrative ties accounting for 54.05% of all reference cohesive devices used. The personal references were 26 (35.14) while the comparative references were 8 (10.81%).

Table 7: Frequency of Reference Ties

Sub category	SAC	FCC	TOTAL	%
Demonstrative reference	23	17	40	54.05 %
Personal reference	10	16	26	35.14 %
Comparative reference	4	4	8	10.81 %
Total	37	37	74	

(8)

SAC 2:1-2

Transpiration is the process by which lose through their stomata of leaves. It is waste and minerals salts move to the roots whereby the transport in plants and minerals salts.

SAC 2: 8-10

Then the stem is stored water and food in transport and plant used for gaseous exchange at lenticels. They allow water and mineral salts to pass thorough xylem. At least they would make to grew itself to leave.

The above two extracts in example 8 are from student Biology assignment 2, sentence one and two, and sentence eight to ten. (SAC 4:1-2, and 8 to 10). Although the two extracts are not grammatical, the student made use of personal reference *it*. The pronoun *it* presupposes *transpiration*. The personal reference creates cohesion between sentence one and sentence two. Sentence nine has the personal pronoun *they* presupposing the word *lenticels*, hence creating cohesion between the eighth and the ninth sentence.

They in sentence ten could be described as a referring item presupposing *itself*. The pronoun **they** is however used erroneously instead of the pronoun reference *it*.

(9)

SAC 4:6-7

The cortex tissues protect inner tissues infection. They transport water and dissolve minerals from the root up.

(The cortex tissues protect the inner tissues from infection. They transport water and dissolve mineral from the root to the top of the tree.)

SAC 4:11-14

Cell specialization means that they have structure. They take water to roots, stem and leaves. Leaves get light and produce energy. They have green pigment.

(10)

FCC 4: 1-7

Jilo is small. He very intelligent. He come home to my birthday party. Here he sing music. My birthday party. Very happy. Glad he come.

(Jilo is small. He is very intelligent. He came home for my birthday party. Here he sang music at my birthday party. I was Very happy. I am glad he came.)

The hearing impaired used anaphoric reference and cataphoric reference in their writing. There were, however, more anaphoric references than cataphoric references. Out of the 74 references, 66(89.19%) were anaphoric and 8(10.81%) cataphoric. The learners found it easier to use anaphoric reference than the cataphoric reference. Examples 9 (FAC4:6-7) and example 10 (FCC4:1-7) have an anaphoric reference. The pronoun **they** in the FAC: 7 is an example of anaphoric reference. Anaphoric reference occurs when a reference item refers back to the preceding text. In this case, the pronoun **they** refers back to the noun phrase *the cortex tissues* in the previous sentence, hence creating cohesion within the text.

Similarly, the pronoun *he* in FCC 4 sentences 2, 3, and 4 refer back to the proper noun *Jilo* in the first sentence. The adverb *here* in sentence 4 is used as a demonstrative pronoun, and it presupposes *home* in sentence 3. All these are examples of anaphoric reference that help in creating cohesion within the text. A potential cohesive device would have been the use of the possessive pronoun *my*. It is however used in a noun phrase but not in a sentence. It can therefore not create cohesion.

The pronoun *they* in SAC 4:11-14 presupposes the word *cell* through it should be in the third person singular (*it*). This shows the learner had difficulties with grammatical categories. The second pronoun *they* points back to *leaves in sentence 13*.

(11)

FCC 3: 1-6

¹*It was my happy happy day.* ²*My birthday Christmas day very beautiful.*
Good day celebrate and family. ³*Dad mother bought presents many*
brothers cousin present. ⁴*After church birthday celebrate birthday party.*
⁵*Good music food and dance.* ⁶*Very happy happy day.*

(It was my happiest day. My birthday was on a Christmas day and it was very beautiful. It was a good day to celebrate with my family. My dad and my mother bought many presents and so did my brothers and cousin. After church, we celebrated a birthday party. There was good music, food and dance. It was a very happy day)

(12)

FCC 7: 6-7

We prayed at party. We ate danced. We happy happy.

(We prayed at the party. We ate and danced. We were very happy)

Cataphoric reference was used in extract FCC 3:1-6 (example 11). The cataphoric reference occurs when the reference item refers to the following text. It is forward pointing (Halliday and Hasan, 2013). The pronoun *it*, which is the subject of the first sentence, can only be understood with reference to the following text. *It* points forward to the noun

phrase *my birthday*. There was potential use of cataphoric reference in some of the hearing impaired texts but they used nominal repetition instead as seen in example 12.

(13)

FCC 6: 6-8

Candidates should be gives all that they need. They need water and food. Exam need energy make them perform well.

(Candidates should be given all that they need. They need water and food. One needs energy during the examination to make them perform well.)

The pronoun *they* in sentence seven presupposes the noun *candidates*. *They* in the first sentences will not be classified as a cohesive device because it is within one sentence. It, however, creates cohesion within the sentence. The pronoun *them* in the eighth sentence presupposes *candidates*. These are instances of anaphoric reference. The pronouns *they* and *them* in sentence seven and sentence eight respectively cannot be interpreted without referring back to the noun *candidate* in sentence one. This enhances cohesion within the text. Other examples of anaphoric reference have been given below.

(14)

SAC 31:1-8

¹*He taught use parables.* ²*One example the prodigal son.* ³*The boy asked father his wealth.* ⁴*He spend the wealth far away and money ended.* ⁵*He faced many problem.* ⁶*Ate with pig but decide to come back home.* ⁷*Father forgive him.* ⁸*Jesus want us learn from parable.*

(He taught using parables. One example is the parable of the prodigal son. The boy asked his father his wealth. He spent the wealth far away, and money got finished. He faced many problems. He ate with pigs but decided to come back home. His father forgave him. Jesus wants us to learn from parable).

The above extract is from a Christian Religious Education assignment. The learners were supposed to explain how Jesus Christ taught people on forgiveness. The student began the text with the pronoun *he* (sentence 1) that points forward to Jesus in the last sentence. This is a cataphoric reference, and it enhances cohesion within the text. There is the use of personal reference *he* (sentence 4 and 5) and *him* in sentence 7. These personal references are used anaphorically. They point back to the noun phrase *the boy*, hence creating cohesion in the text.

(15)

FCC 8

Parents have party. Grandfather like ceremony. The party good. He village go after party.

(My parents had a party. My grandfather likes the ceremony. The party is good. He will go to the village after the party)

The pronoun *he* presupposes *grandfather*, hence creating cohesion between the two sentences. The definite article *the* used with the noun *party* also contributes towards the creation of cohesion. The use of the definite article before the noun *party* establishes cohesion in the text by reference. The definite article, according to Halliday & Hasan (2013) connects the identity of a reference with something that is mentioned before. In example eight, *the party* refers to *the party* mentioned in the previous sentence.

(16)

SAC 8

Blood vessels are used to transport many substances. These vessels are artery, vein, capillary. Fat bad them.

Blood vessels are used to transport many substances. These vessels are artery, vein, and capillary. Fat is bad for them.

The pronoun *them* presupposes *blood vessels*. This is anaphoric reference usage where an item refers back to another item mentioned earlier. This establishes cohesion within the text. The pronoun *them* refers back to the *blood vessels* or *these vessels*.

(16)

SAC 11 :

When one is arrested, the arresting officers need to explain why. They should produce one in prison.

(When one is arrested, the officer arresting needs to give reasons for the arrest. They should produce one in prison. The police arrest them)

They refers back to the *officers* mentioned in the first sentence and this establishes cohesion. *Them* refers back to the persons arrested. This is another anaphoric usage of referring items.

(17)

SAC 24:1-3

It had natural harbours. The city good climate. Zanzibar centrally positioned for trades.

(It had natural harbours. The city has a good climate. Zanzibar is centrally positioned for trade)

SAC 28:

It has tail. It helps it more forward. Sperm fertilize ova. Sperms are many.

(It has tail. It helps it more forward. The sperm fertilizes the ova. Sperms are many.)

The above two texts in example 17 are extracted from the students' assignment. The pronoun *it* in the first sentence presupposes noun phrase *the city or Zanzibar*. It is a forward pointing reference. The second extract in example 17 (SAC 28) has used *it* as a forward pointing reference. From the context of the three sentences in SAC 28, the

pronoun *it* in sentence one presupposes *sperm*. The pronoun *it* in the second sentence is used anaphorically to refer back to *tail*. The use of the pronoun *it* in both sentences creates cohesion between the two sentences.

(18)

SAC 29

Many youths leave their land with old people. Where old people cannot cultivate shamba. Young people stronger than old people. Youth get more harvest if they cultivate shamba. The same shamba feed everyone. More food for everyone.

The words *stronger than* and *more* are comparative references. They both express particular comparative reference. They show comparison by quality and therefore create cohesion in the text.

(19)

SAC 11

White rulers killed. African president do not same.

(White rulers killed. African president does not do the same).

SAC 31

First student caned. The other slapped.

(The first student was caned. The other was slapped).

The use of the pronoun *same* gives a comparative reference between the *white rulers* in the first sentence and *African president* in the second. It compares *white rulers* and the *African rulers* (president). The pronoun *same* is used anaphorically to point to what had been said before. It, therefore, creates cohesion within the text. Similarly, in extract SAC 31, *the other* is used as a general comparative reference which expresses comparison in terms of deference by means of *the other*. The use of the above comparatives reference has a cohesive effect in the text.

4.4.1.2 Conjunction Cohesive Devices

Conjunctive elements are cohesive not in themselves but indirectly, by virtue of their specific meaning (Halliday & Hasan 2013:226). They achieve cohesion by expressing certain meanings which presuppose the presence of another component in writing. According to Halliday and Hasan (2013), a conjunction tie can be defined as a specific way in which what is to follow is systematically connected to what has gone before and vice-versa. The cohesive function of conjunctive elements is used to relate linguistic elements that occur in succession but are not related by other structural means.

Table 8: Frequency of Conjunction Ties

Sub category	SAC	FCC	TOTAL
Adversative conjunction	8	6	14 (19.44%)
Additive conjunction	12	10	22 (30.56%)
Causal conjunction	9	8	17 (23.61%)
Temporal conjunction	10	9	19 (26.39%)
Total	39	33	72

According to Halliday & Hasan's model of cohesion, the conjunctive elements do not consist of pure conjunction only but also include any semantic relation which is conjunctive. Halliday & Hasan classified conjunction into four subcategories. These are additive conjunctions, temporal conjunction, causal conjunctions, and adversative conjunctions. Table 8 summarizes the frequency of conjunction ties in the current study.

There were a total of 72 conjunction cohesive devices in the study. This makes 41.86% of all grammatical cohesive devices used in both students assignment and in the free composition. Additive conjunction had the highest frequency followed by temporal conjunctions, causal conjunction and lastly, adversative conjunction. A discussion of each of the above categories of conjunction has been done below.

1. Additive conjunction

Additive conjunctions are items that signal that whatever information that follows is being added to already what has been given. This type of conjunction include words such as; *and or also, furthermore, nor, in addition, and besides*, among others. These additive conjunctions formed 30.56% of the cohesive conjunction ties found in the data. Several examples have been given and discussed below.

(20)

SAC 5

Osmosis overcome the water retaining power in the soil. And water drawn into the root hair cells dilutes the cell sap making it less concentrated than the adjacent cells context cell of the root.

(Osmosis overcomes the water retaining power in the soil. And the water is drawn into the root hair cells. It dilutes the cell sap making it less concentrated than the adjacent cells context cell of the root).

There is the use of conjunction *and* which gives additional information in SAC 5. This links what had been said earlier in the first sentence to what follows in the second sentence, hence creating conjunction.

(21)

SAC 32

Rich countries and improved transport. And Transport and capital help country because countries have enough capital.

(Rich countries have improved transport. And this transport and capital help a country because it has enough capital)

The first additive conjunction *and* in the first sentence is erroneously used instead of the auxiliary verb *have*. The conjunction *and* in sentence two is correctly used to link the first sentence and the second sentence, hence achieving cohesion in the text.

(22)

FCC 19:14-22

¹⁴*As I was still looking myself on a mirror, I heard mother calling me to go **and** have my breakfast. ¹⁵So I just moved **and** worked out of my room walking as proud as a peacock.*

¹⁶*After having our tea then me **and** my father went out of the house and left mother alone. ¹⁷We started our journey at five thirty am. ¹⁸We arrived early enough I was able to see everything **and** I really felt very happy, the school was clean teachers were friendly **and** the students were very happy when they saw me.*

¹⁹*I was admitted in form one **and** I enjoyed that day **because** I found my old school girls who welcomed me as a prodigal son. ²⁰I felt loved, cared **and** I had no worries. ²¹In this, school what I like most is when teachers came in our class **and** teach as different things in every day's lessons. ²²Am always proud of my teachers **because** they always motivate us **and** guide us in a good way.*

In the above text, the additive conjunction **and** has been used to link several clauses. It is used in the complex sentences 13 and 14 to coordinate the independent clauses hence creating cohesion within the text. In sentence 15, the additive conjunction gives additional information- what the writer did after moving. It has been used twice to connect three clauses in sentence 18.

*We arrived early enough I was able to see everything **and** I really felt very happy, the school was clean teachers were friendly **and** the students were very happy when they saw me.*

Similarly, the conjunction **and** has been used in the complex sentence 19 to join the clauses: *I was admitted in form one* and *I enjoyed that day*. The writer demonstrated adequate competence in the use of the additive conjunction. However, there are other additive conjunctions that could have been used such as *in addition*, and *as well as*.

(23)

SAC 24

Third world country is used to refer to developing countries in Africa, Asia and South America. And these countries are poor.

(“Third world” country is used to refer to developing countries in Africa, Asia and South America. In addition, these countries are poor).

The conjunction **and** in the first sentence (example 23) gives additional information, hence creating unity within the sentence. It, however, does not contribute to general cohesion within the text. It used in the second sentence to give additional information to the first sentence, though, the most appropriate would have been the conjunction, **in addition**. This use is cohesive and it, therefore, contributes to cohesion within the text.

(24)

SAC 24

*One can work weekend or on Friday. **Also** the employer will pay more money **because** one work on Friday. **Furthermore** no jobs.*

*(One can work over the weekend or on Friday. **Also**, the employer will pay more money **because** one work on Friday. **Furthermore**, there are no jobs.)*

The text in example 24 has grammatical errors. However, the conjunctions **also**, **because**, and **furthermore** create cohesion within the text. **Because** is a causative conjunction which helps to give the reason why the employer pays more money. It also contributes to cohesion within the text.

(25)

FCC 3

It was my happiest day. I danced and ate food good and I was happy. Then parent surprised me but happy. He gave new jacket.

(It was my happiest day. I danced and ate good food, and I was happy.
Then my parent surprised me, but I was happy. He gave me a new jacket).

The conjunctions **and**, **then** and **but** create cohesion within the two sentences. Halliday and Hasan (2013) classify **then** as a temporal conjunction and **but** as adversative. The conjunction **then** indicates relations of time while the adversative conjunction **but** signals that the following clause provides information that contrasts with that of the preceding clause.

(26)

SAC 3

*The tissues protect the inner tissues infection. They transport water and
absolve minerals from the root up. They also protect trees.*

(The tissues protect the inner tissues from infection. They transport water
and absolve minerals from the root. They also protect trees).

The use of the additive conjunction **also** gives additional information on the functions of the **tissues**. It, therefore, creates cohesion within the text. The additive conjunction **and** creates cohesion or unity within the second sentence.

(27)

SAC 9

*Cell structure has several parts. These parts different functions. Also they
are different. For instance one store food. So this is specialization.*

(Cell structure has several parts. These parts have different functions. Also,
they are different. For instance, one stores food. So this is specialization.)

In example 27, the additive conjunction **also** creates cohesion within the text by giving additional information about the different parts of a cell. Notably is the phrase **for instance**

that Halliday and Hasan (2013:242) classify as an additive conjunction. This exemplifies the different functions of the different parts of a cell.

(28)

FCC 30

The city good climate. Zanzibar centrally positioned for trade because of this, many traders go there. In addition good politics.

(The city has a good climate. Zanzibar is centrally positioned for trade. Because of this, many traders go there. In addition, there is good politics)

The additive conjunction *in addition* gives additional information as to why many traders go there. The use of this additive conjunction enhances cohesion in the text despite the grammatical errors. It is good to note that the learners over utilised the additive conjunction *and* in their writing. It seems like they were comfortable with this conjunction. This is an indication that they had not fully achieved competence in the use of these types of additive conjunctions.

2. Causal Conjunctions

According to Halliday & Hasan (2013), causal conjunctions express specific meaning such as *result*, *reason* and *purpose*. They argue that these specific meanings are not distinguished in the simplest form of an expression (Halliday & Hasan 2013:257). For example, “so” may mean, “*for this reason*” or “*for this purpose*” in the English language. The causal meaning is expressed by *as*, *so*, *hence*, *therefore*, *then*, and *consequently* among others. To be cohesive, conjunctive devices must conjoin two independence clauses (Halliday and Hasan, 2013). Out of the total number of conjunctions ties, causal conjunctions devices occupied 23:61%. Examples of texts with clausal conjunctions in the previous section are; in SAC 24, FCC 19:22, and FCC 19.

(29)

SAC 24

*One can work weekend or on Friday. Also the employer will pay more money **because** one work on Friday. Furthermore no jobs.*

(One can work over the weekend or on Friday. Also, the employer will pay more money **because** one works on Friday. Furthermore, there are no jobs)

FCC 19:22 *Am always proud of my teachers **because** they always motivate us and guide us in a good way*

(I am always proud of my teachers **because** they always motivate us and guide us in a good way)

The two extracts in example 29 have the causative conjunction *because* which helps in creating a link between the first sentence and the second sentence as explained earlier. *Because* in SAC 24 gives the reason why the employee pays more money. The casual conjunction *because* in FCC 19 gives a reason as to why traders frequent Zanzibar.

(30)

FCC1

I sleep late I wake up late therefore I was late church service.

The casual conjunction used in this text is, *therefore*. This conjunction indicates that the reason why the writer was late for church is that *he had slept late and woken up late*. It links the first clause to the second clause in the sentence.

(31)

FCC 2:6-7

Friends sing and eat cake I was happy so friends give presents

(My friends sang and ate cake. I was happy when my friends gave me presents)

(My friends sang and ate cake. I was so happy that my friends gave me presents)

The two sentences are not grammatical and so is the use of the conjunction *so* in the second sentence. The casual conjunction *so* indicates reason. The most appropriate

conjunction would have been *when*, to indicate time. However, the learner may have intended to mean that he was *he was so happy that his friends gave him presents*.

(32)

FCC 19

¹⁹*I was admitted in form one and I enjoyed that day because I found my old school girls who welcomed me as a prodigal son*

²²*Am always proud of my teachers because they always motivate us and guide us in a good way.*

The casual conjunction '*because*' gives the reason why the writer enjoyed their first day in school. They found their old school girls who welcome them. Similarly, in sentence 22, the casual conjunction is used to explain why the writer was proud of their teachers. The use of this casual conjunction creates cohesion in the text.

(33)

FCC 5

It was my birthday I was happy. so my parents bought presents

(It was my birthday. I was happy. So my dad bought for me presents)

The causal conjunction used is *so*. *So* indicates that the father bought many presents to the writer because it was her birthday and that she was happy.

3. Temporal Conjunctions

Temporal conjunctions express a sequence of succession in time using words such as *then, next soon, after, and before*. Particularly phrases such as *after that, next time, until then, at once, and at the same time* are used to create conjunctive ties in English. The temporal conjunctions in the current study were 19, translating to 26.39% of all conjunctions ties in the data. Examples of temporal conjunctions have been given below.

(34)

SAC I: 5-6

The water moved to the roots and makes salts the water then move to the leaves then leaves make food using light. When move to the tree had a water drop from mineral water crop roots have power.

(The water moved to the roots and to make salt. The water *later* moves to the leaves, (*and*) *then* the leaves make food using light. Where there is more water the tree roots become stronger)

SAC 2:2

First soil to root water mineral then move stem to stem to leave. Share leaves move some force them movement root move to force.

The temporal conjunctions used in the SAC 1 are *later* and *then*. The two temporal conjunctions indicate a sequence of events. They indicate the movement of water from the roots, to the leaves and finally, the leaves make food using light. *Then* is used as a temporal conjunction to indicate time in the sentence. *Later* appears in the main clause and it indicates the frequency of events leading to the strengthening of the roots. However, the learner did not have adequate grammatical resources to write well. One can only guess what the learner is communicating from the question that they had been given. Similarly, example SAC 2:2 does not make sense. However, the temporal conjunction *first* and *then* have been used to indicate a sequence of events. The learner had not yet mastered how to use vocabulary to construct a grammatical sentence. The conjunctions, however, make the text to be cohesive.

(35)

FCC 4:4-10

We woke up and went school. After school we went for party. Then teacher buy cake. Sing after eat cake after sing we eat cake. The pastor pray preach then we eat. Soon teacher take photos

(We woke up and went to school. After school, we went for a party. The teacher then bought a cake. We sang and ate the cake. The pastor prayed and preached, then we ate the cake. Soon, the teacher took photos).

The temporal conjunctions used in FCC 4:4-7 are *after* and *then*. The first *after* indicates the time when they went to the party. The second temporal conjunction *after* in sentence 7 indicates that they sang after the teacher had bought the cake, while the third one indicates that they ate the cake after singing. *Then* indicates the sequence of events; *they sang and ate*. In sentence 9, *then* is used as a temporal conjunction to indicate the sequence of activities; eating took place after the pastor had prayed and preached. This helps to create cohesion in the above text.

4. Adversative Conjunctions

According to Halliday and Hasan (2013) model of cohesion, adversative conjunctions act to indicate 'contrary to the expectation'. Adversative conjunctions include, 'but', 'yet' 'though' and 'instead' among others. There were 14 adversative conjunctions in the data analyzed in the current study. This represented 19.44% of all conjunctive ties in the current study. Several adversative conjunctions were used as given in the examples below.

(36)

SAC 8: 6

It get dark. But mother return not market.

(It was getting dark but mother had not returned from market)

SAC 21:3-5

People many pay tax. Tax however stolen. roads no but bad roads.

(Many people pay tax. The tax is however stolen. There are no good roads but bad roads.)

The adversative conjunction **but** in SAC 8:6 contracts the first clause with the second clause. It creates cohesion within the compound sentence. **But** in SAC 21:5 plays a similar role of creating cohesion within the sentence. Text SAC 21:3-5 is not grammatical. There is, however, the use of conjunction **however** and **but**. The learners by simplification avoid the use of the definite article before *tax*, the use of the copular verb **is** and use of **there are** before the negative adverb **no**. **However** contrasts the first and the second sentence, hence creating cohesion.

(37)

FCC 5:10-12

Friends present gave. I open and I happy but still dad present I want.

(Friends gave me presents. I opened them and I was happy but I still wanted my dad's present).

The adversative conjunction **but** expresses the contrast between the content of the first clause in sentences 12 with that of the second clause. The conjunction presupposes the reader has to encounter sentence 11 so that they can draw the contrast. The contrastive relation cohesively binds the two sentences.

(38)

FCC 6:12:14

Teachers award student good, however noise makers punish. But don't receive many canes

(The teachers awarded the good students. However, noisemakers were punished. But they didn't receive many canes.)

Both **however** and **but** are used contrastively. The conjunction **however** indicates what the good students and the noisemakers got. **But** indicates that *though the students were punished, they didn't receive many canes*. Though the sentences are missing vital grammatical elements, the text is still cohesive. The contrastive relation cohesively binds the sentences.

4.4.1.3 Substitution

Substitution is the replacement of one item by another. According to Halliday and Hasan (2013), a substitute always replaces an item of the same word class and grammatical function as used. There are three ways in which a substitute can occur in a sentence; nominal, verbal, and clausal. The nominal substitution had a higher frequency than the verbal and the clausal substitution in the current study. There were 13 nominal substitution ties which accounted for 76.47%. There were only 3 verbal substitution ties and 1 clausal substitution tie, accounting for 17.64% and 5.89% respectively. There were 17 substitution ties in total, in the data for the current study. This accounted for 10.2 % of the total grammatical cohesive devices used. There were more substitution ties in the students' assignment category (SAC) than in the free composition (FCC). The learners used more nominal substitution than the other two subcategories as seen in table 9.

Table 9: Frequency of Substitution Ties

Sub category	SAC	FCC	TOTAL
Nominal Substitution	8	5	13 (76.47%)
Verbal Substitution	2	1	3 (17.64%)
Clausal Substitution	0	1	1 (5.89%)
Total	10	7	17

(39)

FCC 10:12-18

Some trade items become bad because slow means of transport people carried their back. The ones that went bad dropped. Traders left with few. Traders get small money because transport bad. Business people transport complain. Governors hear transport improve. Governor do so.

(Some trade goods (items) went bad because of the slow means of transport. The traders carried the goods on their backs. The ones that went bad were dropped. The traders were left with few items. The traders got little money because of the bad transport. The business people complained

about the transport. The governors should know about the transport and improve. The governor did so).

The word *ones* substitute the phrase *trade items* that is used in the first sentence. The word ‘*so*’ replaces *improved transport*. This is a clausal substitution and the only example that was identified in the students’ writing. Either the students avoided the use of clausal substitution or they had not developed enough grammatical and lexical competence to replace clauses with a lexical item.

(39)

FCC 14:5-9

Classmates speak in class. Teacher punish the ones talking. Friend lucky. The other not lucky. Happiest day.

(My Classmates spoke in class. The teacher punished the ones who were talking. My friend was lucky. The others were not lucky)

The substitute *one* above substitutes *classmates*. This is a nominal substitution. From the writing of the hearing impaired learners, it was evident that they had not acquired enough grammatical resources to use substitution ties in their writing. Substitution requires grammatical and lexical competence. According to Pangaribuan, Haddina, and Manik (2018), students should first understand grammar before constructing sentences. By understanding grammatical rules, the students will be able to construct grammatical sentences.

4.4.1.4 Ellipsis

Halliday and Hasan (2013) define ellipsis as ‘substitution by zero’. They claim that an elliptical item is one which leaves specific structural slots to be filled from elsewhere in the text. Whatever is left out is understood from the context. Ellipsis, therefore, requires retrieving the omitted information from the preceding text. Halliday and Hasan’s (2013) model of Cohesion identifies three types of ellipsis: nominal, verbal and clausal. There

were a total of 9 ellipsis ties from the hearing impaired learners' writing. These ellipsis ties accounted for 1.8% of the total grammatical cohesive devices identified in the current study.

Table 10: Frequency of Ellipsis Ties

Sub category	SAC	FCC	TOTAL
Nominal Ellipsis	2	3	5 (55.56%)
Clausal Ellipsis	2	1	3 (33.33%)
Verbal Ellipsis	0	1	1 (11.11%)
Total	4	5	9

(39)

FCC 31:12-16

Classmates speak in class. Teacher punish the ones talking. Friend lucky. The other not lucky. Happiest day.

FCC 10:12-18

Some trade items become bad because slow means of transport people carried their back. The ones that went bad dropped. Traders left with few. Traders get small money because transport bad. Business people transport complain. Governors hear transport improve. Governor do so.

The learner omitted the word *classmates* after *other* in the FCC 31:15 (the fourth sentence). This is a nominal ellipsis. Another nominal ellipsis is the omission of the word *items* after 'few' *Traders left with few items/goods*.

(40)

SAC 31

First student caned. The other slapped.

(First student was caned. The other was slapped)

There is omission of the noun *student* after *other* in the second sentence. The missing information can be retrieved from the previous sentence. A similar observation was made in the use of ellipsis as observed in the use of substitution. It was evident that

the hearing impaired learners had not yet acquired enough grammatical structures to use substitution.

From the above findings, it is clear that grammatical cohesion was present in the writing of the hearing-impaired learners but at varying frequency. The hearing-impaired learners used more referential devices followed by conjunction devices. There were a total of 172 grammatical cohesive devices. The major grammatical cohesive devices used by the hearing impaired learners were reference and conjunctions with 74(43.03%) and 72 (41.86%) respectively. The other types of grammatical cohesive devices were substitution with 17 (9.88%) and ellipsis, 9(5.23%). The present study differs with other studies such as Nasser (2017), Alawdi (2015), where learners under study used more conjunctions than reference cohesive devices.

Reference cohesive devices represented those items that are not interpreted semantically on their own right but rather make reference to something else for their interpretation (Halliday & Hasan, 2013:31). The interpretation of reference items relies on some other features in a text. As seen earlier, personal reference is expressed by personal pronouns such as *he, she, him, her, I, me, we, us, and they*. Possessive pronouns such as *her, his, us, theirs, mine and yours* are used to create personal references.

Demonstrative references include the pronouns *this, these, were, that, those, these* and the definite article '*the*'. Comparatives on the other hand use general comparison and particular comparisons. Words such as *other, less, than, stronger and higher* are used to create comparative cohesion. Out of the 74 references used, there were 40 demonstrative ties, 26 personal reference ties, and 8 comparative ties. Among the personal references ties, the hearing impaired learners used pronouns; *it, they, ours, he, she, her and them*.

Table 11: Summary of Grammatical Ties

Grammatical Ties	Total	Percentage
Reference	74	43.03
Conjunction	72	9.88
Substitution	17	41.86
Ellipsis	9	5.23
Total	172	100%

The party good. It end midnight students sleep. Happy day. My happiest day.

(The party was good. It ended at midnight when the students slept. It was my happiest day)

In the above example, the pronoun *it* is used to presuppose the phrase *the party*, which is the subject of the first clause. The meaning of ‘*it*’ is therefore recoverable from the earlier clause.

(41)

FCC 5: 1- 5

¹*This school is fine and also best but problem with food and tourism, uniform for school miss a lot tell something about food have a lot dirty with stone small thing, miss tourism buy are a lot money.* ²*They are not happy in school please our principal some teacher are lazy to teach but miss lesson, able next time must be to best way teach a lot.* ³*They are not focus to student about education but teacher think about clothe why not education and please stop next using learning never force about clothe best using learning never force about clothe best way education your meaning making our school.* ⁴*They are not happy a lot improve education.* ⁵*They are teacher to teach very poor sign language to teach but not understand from tell about subject also best way sign language know who best making student*

understand fast from subject. ⁶May be our school next time change feeling in school control follow about it.

In FCC 5:4 the pronoun **they** refers back to **students** mentioned in the previous sentence though not very clear. In FCC: 5: 3 the pronoun **they** points back to **teachers** who are being accused by the writer of not teaching well.

(42)

FCC6

They were not happy because was assignment work lesson waste. The lesson my class lesson waste assignment lesson. She teach other class P.E two any other P.E one game why we are all not happy. Which class free two P.E day but oppress one my class only PE games day not good. It was perfect asked teacher is not good, my class lesson assignment waste is time subject all not same last. The class form 3 other deaf schools. The teacher said is patient was student all but I am small happy but go to dinning hall time waste last service wait of in back class soon bell in here last same continue food but then because fast in the class my class wanted must be teacher is Sign language is like tortoise do not understand teaching everything must sign well all know must subject today please, let obey teacher same student.

In FCC 6: 2 the pronoun **she** has no antecedent and was therefore classified as an error. Similar errors were observed in FCC 5:2 where **they** has no presupposed item. FCC6:3 begins with a relative pronoun **which** that should presuppose something. It is not clear what it presupposes in this context. The text, therefore, becomes incoherent.

FCC 11

Night very dark. Student use their torched walk in dorm because electricity out.

(The night was very dark. The students used their torches to walk to the dorm because there was no electricity.)

Their is a possessive determiner that marks ownership. As presented earlier, demonstrative references had the highest frequency among the three types of reference, followed by personal references, and finally the comparative. Demonstrative references had the highest percentage because of use of the definite article **the, this, these**. Halliday & Hasan (2013:71) classify the definite Article with demonstratives and possessives. The definite serves a cohesive function through dependence on something else. Other demonstratives used were **here** and **there** as demonstrated in the examples below.

(43)

SAC 34

*Traders like town. Many people buy goods **here**. Many customers and shops. Good business.*

(Traders like this town there are many people to buy goods here. There are many customers and shops. This is good business)

*Teacher teach history. Students like history sad colonial masters mistreat Africans.
That is bad.*

(The teacher teaches history. The students like history. It was sad when colonial masters mistreat Africans. That was bad).

That is a demonstrative pronoun referring back to the act of colonial masters mistreating Africans. This reference links the third sentence to the first sentence. It creates cohesion in the text.

Our school good. And our teachers good. They teach subjects students like. Exam time good students like. Our exams students do well.

(Our school is good and so are our teachers. They teach subjects that the students like. Students like exam time. The students perform well in our exams)

The possessive determiner *our* and the personal pronoun *they* play a role in making the text to be cohesive, though the text has several grammatical errors. These were references used in the hearing-impaired texts. As indicated earlier, comparative references are realized through the use of adjective and adverbs. Words such as *less*, *than*, *other same* and *higher* were used.

(44)

FCC 36

Students shout teacher give them break. Teacher stay in class long. Students hungry. Other students more hungry..

(Students shouted at the teacher to give them a break. The teacher had stayed in class for a long time. The students were hungry. Other students were very angry).

The word “other” has been used as a comparative reference which falls under general comparative use. This is, therefore, an erroneous use.

Several conjunctions used by the hearing impaired learners were identified and described. The four subcategories of conjunctions as classified by Halliday and Hasan were present in the written texts of the hearing impaired learners. In addition to the four conjunctions under Halliday and Hasan model of cohesion, there was one use of the item *now*. This is common in spoken discourse. Halliday and Hasan (2013:268) classify it as a ‘continuant.’ They claim that items such as *now*, *surely*, *anyway*, *after all*, *of course*, and *well* are used with a cohesive force in a text. There was only one instance in the use of the item *now*, and it was classified under conjunction.

(44)

FCC 38

Bus late because heavy rain. Now students sing class. Teacher come and stop singing go bus.

(The bus was late because of the heavy rain. Now, students were singing in class. The teacher come and stopped the singing and we went to the bus)

There were a total of 72 conjunctions in the data collected from the hearing impaired learners. Additive conjunctions were the highest with 22(30.56%) followed by temporal conjunctions with 19(26.39%). Third in rank was causal conjunctions with 17(23.61%), and lastly, adversative conjunctions, 14(19.44%). Similar observations were made by Pangaribuan et al. (2018). However, in the current study, there was an overuse of the additive conjunction *and*. The learner demonstrated more competence in the use of the additive conjunctions *and*, though, there were errors in some of the texts.

The learners used the conjunctions- *and, because, furthermore, but, also, in addition, later, therefore, then, as, since, after, and however*. Some of these conjunctions were used correctly but others were used erroneously. Some did not have a presupposing item. Others were used in the same simple sentence; therefore, they did not contribute to the cohesion of the text. Halliday and Hasan (2013) state that for conjunctions to be cohesive, they must conjoin two independent clauses. Some of the learners understood how these conjunctions were used while others had no clue. They sometimes used conjunctions at the beginning of the first sentence in the introductory paragraph.

Substitution was not widely used in comparison to reference and conjunction. There were 17 substitution ties in total, in the data for the current study. This accounted for 10.2 % of the total grammatical cohesive devices used. The three subcategories of substitution were used in the data collected for the study. Nominal substitution in the

current study had a higher frequency than the verbal and the clausal substitution. There were 13 nominal substitution ties which accounted for 76.47%. The hearing impaired learners used only 3 verbal substitution ties and 1 clausal substitution tie, accounting for 17.64% and 5.89% respectively.

The learners demonstrated a lack of knowledge in the use of substitutes. This may be the reason why there was a high frequency of collocation and same word repetition. Substitution requires both grammatical competence and lexical competence for the learner to be able to replace a phrase or a lexical item with another. Where this replacement is not possible, learners tend to repeat words or phrases. The students avoided the use of clausal substitution, and that may explain why there were no errors in this subcategory. Avoidance is one of the weaknesses of the Error Analysis Theory. Learners avoid what they are not familiar with (Pangaribuan, Haddina & Manik (2018).

This may be because they had not yet developed enough grammatical and lexical competence to replace clauses with a lexical item. It was evident that the hearing impaired learners in the current study had not acquired enough grammatical resources to use substitution ties. As mentioned earlier, students should first understand grammar before constructing sentences (Pangaribuan, Haddina, and Manik, 2018). By understanding grammatical rules, the hearing impaired learners will be able to use substitutes correctly.

There were a total of 9 ellipsis ties from the H.I learners' writing. These ellipsis ties accounted for 1.8% of the total grammatical cohesive devices identified in the current study. A similar observation was made in the use of ellipsis as observed in the use of substitution. It was evident that the hearing impaired learners had not acquired enough grammatical structures to use both substitution and ellipsis. Their use requires an understanding of grammar and lexical relations in a sentence.

From the findings, it is clear that the hearing impaired students write texts that have both lexical and grammatical cohesive devices. These cohesive devices vary in frequency. There are more lexical devices than the grammatical devices. The most prominent cohesive device was lexical cohesion. This was in the subcategory collocation, followed by reiteration. This is because of extensive repetition of similar words and words that co-occur. It was however observed that the text written by the hearing impaired learners were incoherent and incomprehensible, apart from a few that made sense. In their attempt to write cohesively, the hearing impaired learners committed several errors in the use of the cohesive devices. There are also many grammatical errors.

The researcher analyzed those grammatical errors that affect the use of cohesive devices. There were, however, more errors in the writing of the hearing impaired students. These errors reflect the learners' interlanguage as they move towards achieving competence in the target language.

4.4.2 Lexical features that Mark Cohesion

Lexical cohesion is achieved by selection of vocabulary. Halliday and Hasan's model of cohesion gives two categories of lexical cohesion or lexical organization. These are reiteration and collocation. Reiteration involves the repetition of a lexical item, the use of synonyms or near-synonyms, the use of the superordinate term, and the use of a general word to refer to a lexical item. Collocation is the cohesive force that is contracted by any pair of lexical items whose meaning are related or association of lexical items that regularly co-occur.

There were a total of 469 lexical cohesive devices used in both student assignments and free composition. The table below summaries the frequency of different types of lexical cohesion. There was more use of reiteration than collocation.

Table 12: Frequency of Lexical Ties

Sub category	SAC	FCC	TOTAL
A. Reiteration			
Same word	96	72	168 (35.82%)
Synonymy	16	26	42 (8.96%)
Superordinate Term	10	9	19 (4.05%)
General Term	8	12	20 (4.26%)
B. Collocation	100	120	220 (46.91%)
Total	230	239	469

From table 12, it is clear that the most frequent subcategory of lexical cohesion is collocation subcategory with 220 same word ties. This represents 46.91% of all lexical cohesion ties in the current study. Second in rank was the same word repetition with 168 ties representing 35.82%. The synonymy subcategory had 42 ties, representing 8.96% of all lexical cohesion ties in this study. The general term subcategory ranked fourth followed by the superordinate term subcategory with 20(4.26%) ties and 19(4.05%) ties respectively.

(45)

FCC 4

¹Happiest day my life.² Friday party day good and Saturday no lesson. ³All students happy. ⁴We woke up and went school. ⁵After school we went for party. ⁶Then teacher buy cake. ⁷Pastor come school motorcycle new. ⁸Sing after eat cake after sing we eat cake. ⁹The pastor pray preach then we eat. ¹⁰Soon teacher take photos. ¹¹Students happy when music play students and dance. ¹² Students dancing good music. ¹³My happiest day was good.

FCC4 is from a free composition. The learner wrote a brief composition using short sentences. The sentences, however, lack grammatical functional words. There are several lexical cohesive ties that the hearing impaired learner has used in example 44.

There is a repetition of the word *party* in sentence two and five; *school* in sentence *four* and *five*; *eat* sentence *seven* and *eight*; *teach* in sentence *six* and *nine*; and *students* in sentence eleven. The noun phrase *happiest day* has been repeated in the first and in the last sentence. These repeated words create lexical cohesion within the text. There are also collocating words such as *party* and *dance*; *cake* and *party*; *pastor* and *pray*; *music* and *dance*; and *students* and *school*. The learner has also used the temporal conjunctions *then* and *after* to mark the sequence of events in the text. The use of repetition and collocation make the text to be cohesive. Same word repetition creates cohesive links within the text.

4.4.2.1 Same Word Repetition

Repetition refers to the use of the same word in a text repetitively. The hearing impaired learners frequently employed repetition in both the assignment and the in the free composition. The cause of the high frequency of same word repetition was probably because of lack of substitute lexical items that could be used to replace words. Examples of repetition subcategory usage have been given below.

(45)

SAC 17

The water and mineral salts which by drop from root and soils. The concerncent salt by leave had a water from temperature and carbon (iv) oxide. Then water had a salt from mineral drop move to the roots from by leaves had salt higher. The roots had a tree by leaves had a water salts and carbon (iv) oxide of concernation. To know how to do make salts move to the root later crop from mineral and leave then crop had a leave temperature which by salt of the air.

Lexical ties are predominantly possible because the hearing impaired learners have not acquired or mastered other structures such as proforms, pronouns, conjunction and

adverbs that would enable them to use other types of cohesive devices such as reference, conjunction and substitution and ellipsis.

As said earlier, most of the sentences written by the hearing impaired learners hardly make sense. The question given to the learners was “*describe how water and mineral salts move from the roots to the leaves.*” Several keywords are used repetitively in example 45. These words are *water, salts, move, roots, carbon (iv) oxide, root, leaves* and *concernment (concentration)*. These words have been repeated in every other sentence raising their frequency in the text significantly. These words were found repeated in all the text that the hearing impaired learners wrote. The repetition of the keywords in the topic in question in basically every sentence may be as a result of insufficient vocabulary or even misapprehension.

(46)

FCC 36

*First one, some **students** were noticed a lot because the food were poor same waste time of money. Our class 3N have just one P.E for sports. Some **teachers** were lazy to teach us the same lessons. Many **students** want school uniform suffered and they steal to each other. Other things the dining hall that some **student** complained the group tables are poor because students were come late same food are few small and very poor. Many **students** are very sadness and hungry because they want the shopping in school and possible we pay for it. Other **students** in dormitory some are lazy to do your duty and ignored all the prefect to call his or her **students**. Some they steal their money from the **student** dormitory and they suffered a lot.*

The following words have been repeated in above extract: *student, teacher, many students, dormitory*. The word *student* may have been repeated to give emphasis because

the topic of the extract is about students. The word **teacher** has also been repeated either for emphasis or for lack of a substitute.

(47)

FCC 36

*Our school is feel smart but one thing much take **teacher** think cloth only way encourage education. **Principal** go places have and **teacher** busy help **teacher** you lazy student only talk with take hope teach more not than **teacher** have much. **Principal** for you student yes obey true but **teacher** problem have which deaf for force who hear. **Student** shout much time long yes about give you miss information. Our **school** come here **teacher** time later for take think body rule feel a bad big much class my miss light make want mechain **teacher** come new here enter class teach sign language do not know true change deaf shoot feel unlike can have. Dining hall problem big have time save not. Because hope eat very bad very unlike food crown much out **teacher** see their feel good nothing true have. **Principal** any student sick have say ignore why student feel good not have think escape can think nothing have I will see **principal** with student go tourism do obey must be at place. Education encourage want can but teach good not feel unlike.*

Although the above text is incoherent, the hearing impaired learner has repeated the same words in their writing. Too much same word repetition may be monotonous especially if the sentences are not well structured. This may be because the learner has not achieved enough lexico-semantic competence to use substitutes. Some of the words repeated such as *principal*, *teacher*, and *school*, help in creating cohesion in the text. The student in example 47 (FCC 36) repeated the same pronoun in three sentences. This is nominal repetition which is common when learners are not able to use cataphoric reference. This nominal repetition creates cohesive links in the text.

(48)

FCC 7: 5-7

We prayed at party. We ate danced. We happy happy.

(We prayed at the party. We ate and danced. We were very happy)

4.4.2.2 Synonymy and Near Synonyms

Synonyms are words with identical meaning (Halliday and Hasan, 2013). Near synonyms are words with meanings that are very closely related to the extent that they can refer to the same entity. When a synonym or near-synonym set are used in separate sentences, a cohesive relation is created. There were 16 and 26 synonyms in the student assignment and free composition respectively. This totals to 42, which translates to 8.96 % of the total lexical ties. Examples of cohesive ties are given below.

(49)

FCC 10

My happiest day in life. It was a joyful day. Teachers did not come to class. Students listen music phone. We danced a lot because teacher was in office. She did not see phone at inspection. We eat bread and fruits. Students ate avocado and one loaf alone. We was happy.

Happiest and *joyful* have a similar meaning. The student made use of his lexical knowledge to avoid repetition.

(50)

SAC 31

My happiest day I met a friend. She come from another school at drama festival. Jane is a very beautiful and friendly girl. My friend say this girl is pretty. She do KCSE exam this year.

Beautiful and *pretty* are synonyms and their use creates cohesion in the text.

(51)

FCC 23

*When the osmosis is the water **move up** to the leaves and their functions of their plant soil. We learnt that the beginning of the xylem –**transports** water and mineral salts while phloem transports dissolved food substances. The soil water contains dissolved mineral salts which plants require for their growth and proper functioning. The concentration of the cell sap in the root hairs is greater than that in the soil. **Active transport** is involve substances known carrier. The mineral salts and water are **carried up** the stem into the leaves by a combination of cell processes which include osmosis, diffusion, root pressure, transpiration, cohesive force and capillary attraction.*

The words ***move up**, **transport**, **carried up*** and ***active transport*** are near synonyms. They express the same expanded meaning. This helps in enhancing cohesion within the text, despite the many grammatical errors present in the text.

4.4.2.3 General Term

The class of general term is a small set of nouns that have a generalized reference. Some of the words used were *humans* to represent *man, female*; *plants* to cover words like *trees*; *girl* to represent *Jane* as in example 52. There were a total of 20 lexical items used as general terms. This represents 4.26% of the total lexical cohesive ties in the current study. Some appear in the examples below.

(52)

FCC 31:8-10

Jane is a very beautiful and friendly girl. My friend say this girl is pretty. She do KCSE exam this year.

The word ***girl*** is a general term referring to ***Jane*** in example 47, while ***plant*** is a general term for ***a tree***. The general noun triggers a cohesive relationship between the two sentences in each of the above examples.

4.4.2.4 Superordinate Term

A superordinate term is a name for a more general class. A superordinate includes the meaning of other words. For example, *bird* is a superordinate term of *hen*, *weaver birds*, and *parrot* among other birds. These words are more specific. A superordinate term and a more specific member of a superordinate class are closely related in meaning. This relation is what brings about a cohesive tie when a superordinate term appears in a particular sentence, and a more specific member of the superordinate term appears in a particular sentence, and a more specific member of the superordinate class occurs in the surrounding sentences. Consider the following examples from the students' free composition and assignment.

(53)

FCC 8:1-5

It was my birthday. I was very happy. Students in class were happy. The boys and girls sing happy birthday to me. I thank the students and they give me presents.

Boys and girls refer to the classmates of the writer. The word *student* is superordinate for *boy* and *girl*. This relationship creates cohesion within the text.

(54)

SAC 35

Kenya, Uganda and Tanzania are friendly. These countries have trade. Good exchange in Kenya and Uganda. Business is good in East Africa. The countries are in East Africa.

Kenya, Uganda and Tanzania are countries. The word **country** is a superordinate term for the three names. This lexical relationship enhances cohesion in the text.

(55)

SAC 32

We eat bread and fruits. Students ate avocado and one loaf alone. We was happy.

In the above text, *fruit* is a superordinate term for *avocado*. This relationship enhances cohesion in the text.

(56)

SAC 5

The Maasai have cows, sheep and goats. They don't fear lion. They take cattle to the forest. There are leopards in the forest. They can eat the cattle. Any cow lost cannot be found. The animals kill them.

(The Maasai have cows, sheep and goats. They don't fear the lion. They take their cattle to the forest. There are leopards in the forest. They can eat the cattle. Any cow lost cannot be found. The animals kill them)

The superordinate term used is *animals* and *cattle*. The word *animals* refers to wild animals that can eat the *cows*, *sheep* and *goats*. These are the lions and leopards. The noun *animal* is, therefore, a superordinate term for *lion* and *leopards* because they are all animals. The most appropriate term would have been *wild animals*. Similarly, the collective noun *cattle* is a superordinate term for *cows*, *goats* and *sheep*. The meaning relations between the above superordinate terms and the specific terms can be interpreted as belonging together.

4.4.2.5 Collocation

Collocation is defined by Halliday and Hasan (2013:285) as a lexical relationship 'between any part of lexical items that stand to each other in some recognizable lexico-semantic relation.' Collocation, therefore, takes place through the association of lexical items that regularly co-occur. There were 220 collocation ties in the data analyzed in the current study, translating to 46.91% of the total lexical cohesive devices. In example three above, the word *lost* and *found* collocates - *Any cow lost cannot be found*. Other examples are given below.

(57)

SAC 9:11-13

*Trees need water and minerals. The mineral move from the soil to the root.
The root carries the water to the stem and to the leaves.*

The words *trees, roots, stem, and leaves* collocate. Roots are part of a *tree* and so do *stem* and *leaves*. The use of words that co-occur create cohesive links in the text.

(58)

FCC 6

*We place our books and pens on the table and ran to the dining hall.
Dining hall plates and spoon were given. The food was sweet. We enjoyed
delicious meal. Form one ate more food.*

In the above example, the word *spoon* and *plate, books and pens, and food and meat* collocate. The collocating words create cohesive links in the text.

We have seen that Lexical cohesion is achieved by the choice of words that a writer or a speaker uses. According to Halliday and Hasan (2013), lexical cohesion occurs when two lexical items in a text are related in meaning. Halliday and Hassan classified lexical cohesion into two types, reiteration and collocation. The following is a discussion of the findings on lexical cohesion.

As mentioned earlier in the findings, reiteration is a sub-category of lexical cohesion characterized by repetition, synonym, superordinate and general word (Halliday & Hassan 2013:279). In reiteration, the repeated word or lexical item shares a common referent with the original. Collocation, on the other hand, describes the relationship between words that co-occur or tend to co-occur. As discussed earlier, these two types of lexical cohesion were present in the hearing impaired data.

Several subcategories of reiteration were identified in the data collected from the hearing impaired learners. The frequency of occurrence varied from one subcategory to

another. Same word reiteration had the highest frequency with 168 cohesive ties. Synonymy, superordinate term and the general term had 42, 19 and 20 respectively.

The hearing impaired learners used the same word or lexical item in a sentence and across sentences. Same word repetition is classified as complex lexical repetition or simple lexical repetition by Hoey (1991). The hearing impaired learners displayed both types of same word repetition as exemplified below. Simple lexical repetition involves the reiteration of the same word across sentences. The complex lexical repetition involves the use of two lexical items that are not identical but share a lexical morpheme.

(59)

SAC 2

More water drawn into the root hair cells dilutes the cell sap making it less concentrated than that in the adjacent cell cortex cell of the root. Root take water stem leaves.

The government raise tax workers for government develop

(The government raises tax for workers in order to develop)

Though the sentence is not grammatical, the learner has repeatedly used the word “root “in the sentences. The word **government** has been repeated too. The learner should have used a pronoun to substitute the word **government**. There was a high frequency of same word repetition in all the hearing impaired texts. The overuse of same word repetition may be as a result of the learners’ lack of competence in the lexico-semantic relations. They didn’t have a different word to substitute. The learners’ lack of lexico-grammatical competence may have contributed to the high frequency of same word repetition. They lacked other words to use as substitutes as mentioned earlier.

Some of the ‘same word’ repetition was not classified under reiteration. This is because the hearing impaired learners carelessly repeated similar words immediately after

another, forming strings of words that didn't make sense. The hearing impaired also repeated the same word in some cases due to the effect of Kenya sign language. Earlier studies indicate that in Kenya Sign Language, words are reduplicated to either mark plural or for emphasis (Mang'oka and Mutiti, 2013; Ayoo, 2004; Akachi, 1991). Mang'oka (2009) found out that the hearing impaired learners do not mark number in nouns. Instead, they repeat the same lexical item to indicate plural or emphasis. This reduplication of the same word is as a result of the lack of good mastery of lexical meaning. The reduplication enables the hearing impaired learners to express emphasis and plurality (Mang'oka, 2009:112).

Another reason for the high frequency of word reduplication may be as a result of lack of proper use of language mechanics. It was difficult to know where a sentence began and where it ended because some of the learners did not use full stops or commas. These findings agree with Kwan & Yunus (2014) who found out that learner of English as a second language learner faced a big challenge in lexical cohesion, especially in reiteration and collocation. Their study concluded that the hearing impaired learners had not yet mastered lexical cohesion. Other forms of reiteration were the use of "general term" superordinate term". A total of 20 general terms and 19 superordinate terms were used in the writing and the hearing impaired learners. Halliday and Hasan (2013) define the general term as "superordinate members of major lexical sets which operate anaphorically as a type of synonym (2013; 275). They argue that the general term in most cases has a determiner in a similar way to are reference item.

It should also be noted that some repetition took the forms of derivation; for example, *teach* and *teacher*, *run* and *runner*, *speak* and *speaker*, and *talk* and *talks* were found to be cohesive. These were taken as inflected forms of the same word, and therefore classified under repetition. These derivation elements were found to be cohesive. They

created an extra-dimension of cohesion. There were a few examples of these types of cohesion as discussed earlier. Learners repeated these words extensively in their writing which ended up making some of the texts redundant and incomprehensible.

Other words used as general term in this study were *human/man*; *plant/trees*; and *girl/Jane*. Superordinate terms were also used as potential cohesive devices under repetition. A superordinate term includes the meaning of other words. In this study ‘*fruit*’ was used as a superordinate term for “*avocado*”, *cattle for cows*, and *sheep and goats*. As mentioned earlier, there were several repetition errors as a result of the learners’ lack of knowledge in lexical meaning. These led to meaning duplication errors where learners overused the same word in a sentence.

Another type of lexical cohesion was the use of synonyms or near synonyms. Synonyms are words with identical meaning while near synonyms are words with meaning that are closely related to the extent that they can refer to the same thing. The hearing impaired learners used a total of 42 synonyms in their writing. Some of the synonyms used are words such as *strong/power*, *flaw/move*, *vessels/capillary*, *stream/water column*, *water pushed up/conduct water up*, *Transport /conduct water up* and *Food/meal*. The few learners who used the synonyms demonstrated an understanding of the relationship between words. However, most of the hearing impaired learners were unable to demonstrate a basic understanding of lexical –semantic competence.

Wolff (2011) claims that synonyms are more difficult than repetition. This is because synonyms are used in order to avoid unnecessary repetition of same words, or overusing of repetition. As a result of the hearing impaired learners’ lack of adequate competence in meaning relationship, several of the words that they attempted using as synonyms were erroneous. The learners used words that had a similar meaning, but they did not know that it is not in all contexts that synonyms can be interchanged. Examples of

words that are similar in meaning but differ in different linguistic environment are *run* and *moved*, *eat* and *swallow*, *large* and *big*.

(60)

FCC 6: 11-13

After party students run field. In field students move two rounds. Teacher rewarded student good.

(After the party, the students run to the field. The students ran two rounds in the field. The teacher rewarded the best student.)

From the above examples, it is clear that the hearing impaired learners were not aware that “*move*” and “*run*” are not always synonyms in all contexts. There are words that share a general meaning and may be interchangeable in a limited number of contexts. Only true synonyms are interchangeable in their entire environment. The word “*large*” and “*big*” are interchangeable in certain environment only, but not as used in the examples below by the hearing impaired learners.

(61)

FCC 23

Teachers mark examination and tell students large improvement.

Teacher happy student reward.

The last subcategory of lexical cohesion is collocation. According to Halliday and Hasan (2013), collocations are “problematic part of Lexical cohesion (pg 284). They define collocation as cohesion that is achieved through the association of lexical items that regular co-occur. The hearing impaired learners used several collocating words and phrases in their writing to create cohesion. In this study, several words combinations that had high frequency were considered as well-formed collocation. For example, words like “*solution/water*” *dilutes/water/stem/roots*; *plants/cells*; *dance/happy*; *water vapor/water* and *eat/drink* were found to be collocative. Collocation ties were the highest among the

lexical cohesion. There were a total of 220 collocation ties in the writing of the hearing impaired learners. It is worth noting that the high frequency of collocation did not translate to quality writing. In fact, the sentences in most of the text were ungrammatical and poorly constructed.

The use of words that co-occur in the current study did not translate to good composition on writing. There were, however, several collocation errors in the hearing impaired learners writing. These errors were as a result of several factors. Firstly, the learners had not properly mastered the use of certain prepositions. For, example some hearing impaired learners used preposition expressing time, manner, space and instrument wrongly.

Teacher who shouted? Students refuse answer, student afraid by punishment.

(The teacher asked, “Who shouted the students refused to answer. The student was afraid of punishment)

Instead of the learner using *afraid of*, they used *afraid by*, which is not grammatical.

All students about class happy.happy birthday.happiest day.

(All the students about class were happy. Happy birthday. It was my happiest day).

Instead of using *students in the class*, the learners used “*students about class* which is not grammatically correct. Secondly, the hearing impaired learners overlooked co-occurrence restrictions of certain words. According to Panahifar (2013; 55), there is bound collocation, that involves constituents that cannot be separated. The hearing impaired learners, in this case, used *saw* and *lost* instead of *found* and *cost*. These findings agree with earlier studies by Panahifar (2013) and Shitu (2015). For example, Shitu (2015) observed that learners, in both English as Second Language (ESL) and English as a Foreign Learners (EFL), face problems in collocation due to inadequate collocation knowledge and language. Apel & Masterson (2015) observed that the hearing impaired

learners had delayed vocabulary acquisition. Other studies like Ghasemi, Behjat, & Kargar, (2013) and Olateju (2016) argue that learners use cohesive devices wrongly due to inadequate exposure to the English language. This may explain why the hearing learners had problems with the use of cohesive devices. The hearing impaired learners in the current study had not yet achieved lexico-semantic competence. Their hearing loss may have contributed to the poor spelling observed in this study (Apel & Masterson, 2015).

Due to their hearing impairment, the hearing impaired learners are prevented from accessing phonological information provided by speech, which is a key component for spelling. The findings of the current study differ from the above studies in the way the hearing impaired learners repeatedly used keywords in the same sentence. This is an indication of their lack of knowledge in lexical semantic relations in words. Their late exposure to both English and Sign Language might have contributed to the erroneous use of words and grammar in general.

4.5 Prominent Cohesive Devices Used by the Hearing Impaired Learners

The third objective was to determine the types of cohesion devices that are prominent in the writing of hearing impaired learners. There were 172 (27%) grammatical cohesive devices and 469 (73%) lexical cohesive devices (see table 13). Of the two main types of cohesion as per Halliday and Hasan(1976) Cohesion Model, lexical cohesion was the most prominent category.

The findings agree earlier studies done by with Tsareva(2010), Abusharkh (2012), and Kargozari et al. (2012). In their studies, lexical cohesion was the most frequent in writing of their subjects. The hearing impaired learners were more comfortable with use of lexical cohesion though this did not translate to quality composition due to the numerous repetition of lexical items in their writing. They repeated words that did not form any meaningful unit. Despite the many lexical ties used by the hearing impaired learners, the

texts were not grammatical. The learners were yet to acquire competence in the use of lexical items to form meaning sentences and phrases.

Table 13: Summary of Cohesive Devices

Cohesive Devices	Category		Total	%
	FCC	SAC		
Reference	30	44	74	11.54
Conjunction	33	39	72	11.23
Substitution	7	10	17	2.65
Ellipsis	4	5	9	1.40
Same word	96	72	168	26.21
Synonymy	16	26	42	6.55
Superordinate Term	10	9	19	2.96
General Term	8	12	20	3.12
Collocation	100	120	220	34.32
Total	304	337	641	100%

Among the lexical cohesive devices, collocation had the highest frequency with 220 (46.91%) followed by same word repetition with 168 (35.82%). Synonyms, general term and the superordinate term were 42, 20, and 19 respectively. Collocation was, therefore, the most prominently used lexical cohesive device followed by same word repetition, and reference.

Reference ties were the most prominent in the grammatical cohesive category. It led with an occurrence of 74(43.03%), followed by conjunction ties with 72 (41.86%). Substitution ties and ellipsis ties were not very frequent in the study. There were 17 substitution ties and 9 ellipsis ties. The findings of the present study agree with Williams & Mayer(2015), Akindele(2011), Thiga(1997), and Ambiy(1999). The hearing impaired learners were not able to use substitution and ellipsis because their use requires grammatical and lexical competencies.

4.6 Errors in the Use of Grammatical Cohesion Devices

The fourth objective of the research was to investigate the errors related to the use of cohesive devices in the hearing – impaired learners’ written texts. The errors in the use of grammatical cohesive devices were identified and analyzed both qualitatively and quantitatively. The quantitative analysis used descriptive statistics with frequency and percentages. Qualitative analysis was used to describe and categorize the errors in the use of grammatical cohesive devices. The errors were classified and assigned to their categories using Halliday and Hasan’s taxonomy of cohesion. It should be noted that most of the sentences in the hearing – impaired texts were not well formed and had multiple grammatical and spelling errors. Since the focus of this study was to identify the cohesive errors only, some unrelated grammatical errors were overlooked and discounted. These errors will be covered in the next section. The errors in the use of cohesion errors were tabulated in table 14.

There were errors in the use of conjunctions ties and in the use of reference ties. There were no errors in the use of ellipsis and substitution ties. This may be because the learners had not achieved enough grammatical and lexical competence to use the two cohesive subcategories.

4.6.1 Reference Errors

Halliday and Hasan (2013:309) claim that a reference item can be interpreted by being identified with the referent in question or through being compared with the referent explicitly not identified with it. The two types of interpretation - explicit and implicit-were evident in the writing of the hearing –impaired learners. The H.I committed several reference errors in their attempt to write cohesively. The reference errors in the H.I learners’ written texts were as a result of the following: omission of reference items, inappropriate use of reference item, or unspecified reference. Reference errors had the

highest frequency with 94 errors. There were only two categories of reference errors: personal reference and demonstratives. The personal reference category led with 82, and demonstratives with 12 errors.

Table 14: Errors in the use of Grammatical Cohesive Devices

Cohesion Category	Number of Errors	Percentage of Errors	Cohesion Subcategory	Number of Errors	Percentage of Errors
Reference	94	85.45	Personal	70	74.47
			Demonstrative	16	17.02
			Comparative	8	8.51
Substitution	0	0	Nominal	0	0
			Verbal	0	0
			Clausal	0	0
Ellipsis	0	0	Nominal	0	0
			Verbal	0	0
			Clausal	0	0
Conjunction	13	11.82	Additive	8	61.54
			Adversative	3	23.08
			Causative	2	15.38
			Temporal	0	0
Total	110			110	

4.6.1.1 Omission of Reference Items

The H.I learners omitted personal pronouns and demonstrative pronouns in most of their writing as seen in the examples below.

(62)

SAC 11

Sign law president likes. Parliament arrive president sign law when

(President signs the law he likes. When he arrives in parliament, the president will sign the law).

(63)

SAC 16

Roots take water plants. Transport water osmosis

(Roots transport water to plants. They transport by osmosis)

In SAC 11, the learner omitted the personal pronoun *he* before the verb *likes*. Notably is the missing definite article *the* before the word *president*. The pronoun *he* is also omitted in the second sentence after the word *when*. The personal pronoun *they* in SAC 16, is missing in the above example. The hearing impaired learners seem to be utilizing content words only omitting functional words like pronouns, articles and prepositions. This is because they have not yet acquired or mastered enough grammatical structures to write coherently and cohesively.

(64)

SAC 36:3-4

Missionaries died malaria. No hospital Africa for.

(The missionaries died of malaria. There were no hospitals for them)

(65)

SAC 7:11-10

Trees need oxygen for grow. Oxygen help to grow.

(Trees need oxygen to grow. Oxygen helps them to grow)

(66)

SAC 6:9-14

Classmates do his assignment. Give teacher assignment mark

(Classmates did their assignments. They gave the teacher to mark)

The proposition *for* in example 63 needs an object in form of either the noun “*Missionaries*” or the pronoun “*them*” for completion. This omission makes the second sentence incomplete. The use of “*them*” would have referred back to “*missionaries*” which

had been mentioned in the earlier sentence. The referring item *them* has been omitted in the above example.

The learner omitted the pronoun *they* in the second sentence that presupposes *students* mentioned in the earlier sentence. The first sentence has an inappropriate use of the pronoun *his*. The correct pronoun is *their*. This is a result of the students' lack of knowledge of grammatical category such as the use of number.

(66)

FCC 11

Brother happy day. Girlfriend buy cake. My brother very happy

(My brother had a happy day. His girlfriend bought him a cake. My brother was very happy)

There is a missing referencing item *him* in the second sentence. This is supposed to be the indirect subject of the second clause in example 66. Demonstrative pronouns were also omitted in several sentences as shown in the example below.

(67)

FCC 21

My brothers see me school. I tell teacher are my brother. Teacher asks school. Brothers say Mukurueni boys.

(My brothers came to see me in school. I told the teacher that these are my brothers. The teachers asked them where they schooled. My brothers say they schooled at Mukurueni boys).

The above three sentences lack the correct grammatical structures that make the text to be coherent and cohesive. The demonstrative pronoun *these* has been omitted. The pronoun *these* presupposes the noun phrase, *my brothers*, that had been mentioned in the first sentence.

4.6.1.2 Unspecified Reference Items

The hearing impaired learners used reference items that had no antecedents. These reference items are potentially cohesive but lack grammatical resources. This leads to a text that is incoherent to an extent because these reference items cannot be interpreted. This inappropriate usage of refereeing items was found in the hearing impaired learners' assignments and free composition as shown in the following examples.

(68)

They are teacher to teach very poor sign language to teach but not understand from all about subject also best way sign language know who best making student understand fast from subject.

She start good come holiday family one steal in school girl how you finding tree

Which start in the begging take day see include good time are start look amount big many happies day brother welcome begging what is girl.

In example 68, the pronoun **they** has no antecedent. It is not clear what it refers to. The sentence is also not grammatical. The pronoun **she** has no clear antecedent. It may be referring to the noun **girl**. However, there are no grammatical resources to link it to the noun **girl**. The last sentence begins with the relative pronoun **which** that should presuppose something but in this context, it is not clear what is presupposed. The text is therefore incoherent.

(70)

FCC1:4-6

School time use good brother. School exam girls poor. You will going him how happiest out study man take you give names Amos since dirty in the girls and come see how student. That younging try out to include some bone report some welcome look kilometer day

The pronoun *him*, which is potentially cohesive, is used in example 4FCC 1:4-6. However, due to the incoherence of the preceding text, it is not clear whether it presupposes the earlier mention of the noun *brother* in the first sentence or whether it refers to another person. The third sentence begins with the second pronoun *you*. Again, due to incoherence, it is not clear whether it is used for indefinite reference or even exophoric reference- referring to someone outside the text. There is also vague reference in the fourth sentence. As a result of coherence that is provided by grammatically correct structures, it is not readily evident how some sentences are linked to the surrounding sentences. A case in point is example 62 (FCC 5) that appears to be a collection of unrelated words which are also linked to the surrounding sentence.

(71)

FCC5:4-6

Thy is this your where mother house problem dress give zero share but tell house later okay deaf I want how mother house waiting always. These is mother okay

FCC5:8-9

Student clean class. Those are clean Tuesday sing nicely anthem.

Notable in example 70, there is the presence of demonstrative reference items that are potentially cohesive but the text has no presupposed item. This could only mean that though the learners are aware of demonstratives, they have no knowledge of how to use them. Alternatively, due to incoherence in the text, the intended meaning is not brought out clearly and as a result. Even the relations between demonstrative and what they presuppose is also not well articulated.

4.6.2 Conjunction Errors

Knowledge of conjunctions is a very important aspect in the writing of all learners. Pangaribuan, Haddina & Manik (2018) argue that students need to understand grammatical rules in order to write cohesive sentences. They claim that “grammar should be understood before being able to construct sentences. By understanding the grammatical rules, the sentence can be arranged to produce the desired meaning’ (Pangaribuan, Haddina & Manik, 2018:91). The hearing impaired learners made several conjunction errors in their writing. The learners confused or misused some conjunctions as seen in the examples below.

Conjunction errors were the second highest in the grammatical cohesion errors identified in the current study. There were 14 conjunction errors that were distributed as follows: Additive 8, Adversative 3 and causative 3 errors. Just like in reference errors, the hearing impaired learners used potentially cohesive conjunctions but there was no presupposed item in the text. Sometimes, the conjunctions used made no sense at all because the text was incoherent. The hearing impaired learners omitted some conjunctions while in other cases, they used the conjunctions inappropriately as seen in the examples below.

(72)

SAC 1:7-12

The grow had a air from leave of branch and stem later crop to the move roots up to water from drop mineral. That is why because had a water drop a lot then roots be become big later crop of the leave from salts move to air. The leave had a air of the water move to roots from mineral get of the salt concernation higher. The water drop of the roots there is soil a lot use

*of root with water from mineral out of the salts from get get salt it. To know
how to do make by salts from the roots is power from soil and leave.*

In the above text, ***That is why because*** is used incorrectly as a temporal conjunction though it is clearly a causal conjunction presupposing the previous sentence despite the fact that the presupposed does not add up. It is not clear how what follows the conjunction is caused by the preceding sentence. Similarly, the to-infinitive clause - *To know how to do make by salts-* has been used to indicate sequence thus acting as a temporal conjunction. It is however not clear how what comes before the conjunction is logically connected to what comes after the conjunction.

(73)

SAC 9

The water and mineral salts from the soil so the presence by osmosis of the concentration. The water and mineral salt staying in the soil. The soil can be to solution concentration. Due the soil solution can be wetting and absorption of mineral salts. The water and mineral salts move from high concentration region to lowly concentration region. The roots absorption of the water and mineral salts move from the high concentration to low concentration. Due to leave and stem want to grow and big of the leave.

The grow had a air from leave of the branch and stem later crop to move roots up to water from drop mineral. That is why because had a water drop mineral. That is why because had a water drop a lot then roots be become big later crop of the leave from salts move to air.

To know how to make by salts from the roots is power from soil and leaves. The grow from mineral example how you know tree is tall from down search get mineral from slats

In example 72, *due*, a causative conjunction, has twice been used erroneously with a causative relationship. The conjunction *because* was used as a temporal conjunction. This is erroneous use since the conjunction *because* is clearly a causal conjunction presupposing the previous sentence, though the presupposition does not add up. It is not clear from the context of the text how what follows the conjunction is caused by the preceding similar sentence. This is an indication of how the hearing impaired learners have not mastered proper grammatical and lexico-semantic competence to write cohesively.

(73)

SAC 9

To know how to make by salts from the roots is power from soil and leaves. The grow from mineral example how you know tree is tall from down search get mineral from slats

The to-infinite was used to indicate sequence, thus acting as a temporal conjunction. It is, however not clear how what comes before the conjunction is logically connected to what comes after the conjunction. The hearing impaired learners also started their first sentence with additive conjunctions. For example in SAC 11, the learner used *also* at the beginning of the first sentence, and therefore there was no presupposing element. Similarly, additive conjunctions have been used five times to begin the first sentence in the first paragraph.

(74)

*In addition the party good.
And water transport minerals
More the students sing song.*

More, and, and in addition were erroneously used. There was also a temporal conjunction that was not correctly used as seen in FAC 6. *When the osmosis is the water move up to the leaves and their functions of their plant soil.* The temporal conjunction ‘when’ is not clear what it presupposes from the surrounding sentences in the text. The errors in the use of conjunctions were as a result of the learners’ lack of competence in grammar. They were not familiar with the meaning expressed by some types of conjunctions.

From the hearing-impaired learners’ written work, several errors related to use of references were observed. The hearing-impaired students committed 94 reference errors. Personal reference errors dominated by 70 (74.47%) followed by demonstrative references errors 16(17.02%), and lastly comparative reference with 8(8.51%). The hearing-impaired learners omitted references in their writing. This omission may be linked to the learner’s first language, Kenya Sign Language (KSL). Kenya Sign Language does not utilize pronouns in communication. The learners use signs or gestures to mark reference. The hearing-impaired learners may have transferred this phenomenon into written English. The writing also lacked the definite article in some sentences. Earlier studies indicated that the hearing-impaired learners have difficulties in marking possession, gender and number (National Institute of the deaf, 2014); Matei, 2010; Williams & Mayer, 2015; and Webster, 2017). KSL emphasizes a lot on content words than function words (Mang’oka & Somba (2016).; Mang’oka & Mutiti, 2013; Akachi, 1991). This may explain why in some cases there were omissions of the definite article and demonstrative pronouns in their writing.

Demonstrative pronouns and articles were omitted in most of their writing. This observation agrees with other findings by Albertini, & Kincheloe (2015); Mang’oka & Somba (2016) findings. The studies claim that the problem with determiners in the hearing impaired written language was not the placement of a determiner before a noun, but rather

the distinction of definite from indefinite, indicating an inability to use determiners to distinguish new from old information.

4.7 Errors in the Use of Lexical Cohesion Devices

Collocation was the most frequently used lexical cohesive device and therefore had more errors. Some of the texts had many words that could potentially collocate but were haphazardly arranged in sentences that did not make any sense. The researcher classified these misuse of words as collocation errors because the sentence made no sense at all.

Example 75 is extracted from both SAC and FCC

(75)

Osmotic pressure water dilute water molecules.

Teacher tell prefect ring call.

Happy happiest day school sing.

Table 15: Summary of Lexical Cohesive Errors

Subcategory	SAC	FCC	TOTAL
Reiteration	134	102	236(49.58%)
Collocation	153	87	240(50.42%)
Total	287	189	476

Other collocation errors were as a result of the learner's lack of knowledge of collocation patterns. According to Halliday and Hasan (2013), collocation is observed between lexical items in the structure of a text. It is the meaning relationship between individual words and the ones that habitually co-occur with them in language. A good example is the learners' lack of competence in the use of presupposition.

(76)

It was my birthday. I was born on 2000.
(It was my birthday. I was born in 2000)

The tree as strong like stem

(The tree is as strong as a stem).
The students were afraid by teacher cane.
(The students were afraid of the teacher's cane.)

Students on class sing and gift.
(Students in our class sang and gave me gifts)

The teacher cut cake and knife.
(The teacher cut the cake with a knife)

The learners confused the use of *as...as* but instead used *as...like*. The tree can also not be *as strong as a stem*. The stem is part of the tree.

The hearing impaired learners lacked competence in the use of prepositions that collocate with certain expressions such as instrument and place. They had also not mastered how certain prepositions are used with certain adjectives. The hearing impaired learners were also not familiar with co-occurrence restriction of certain words. For example, the word *found* collocates with the word *lost* as in: *lost and found items*. Some of the learners used “*saw* instead of *found* as in “*Father saw money lost*.” This demonstrates the hearing impaired learners’ lack of lexical competence to enable them to write cohesively.

One of the causes of collocation errors is the use of words or structures that share close or similar semantic meaning to satisfy the need of expressing the desired meaning. *For example: Teacher throw sweats student to hold them*. The correct sentence should be: *The teacher threw sweats to students to catch them*. The learner used *hold* instead of “catch”. There was also confusion on which verb to use in *Prefect spoke students keep quiet*. The learner used *spoke* instead of *told*. The correct sentence is: *The prefects told the students to keep quiet*. Panahifar (2013) argues that learners may be unaware of the structure of collocation. Other learners may overgeneralise. The hearing impaired learners understudy may have had similar linguistic challenges in their writing.

Apart from collocation errors, there was an excessive repetition of similar words in sentences. This made some sentences to be redundant in meaning. The learners seemed not to have a clue about what they were writing. This was an indication of lack of lexicosemantic competence as well as grammatical competence to use the words in their right form in sentences. Several words were repeated in most of the examples given. This is similar to the structure of KSL where words are repeated to create emphasis.

4.8 Grammatical Errors Related to the use of Cohesive Devices

This section will tackle the fifth objective of the study, which was to investigate the grammatical errors related to the use of cohesive devices. To achieve this objective, the researcher read the hearing impaired learners' texts and identified, classified and described the grammatical errors. The five steps of Error Analysis theory were followed in identification, classification and description of the grammatical errors in the texts written by hearing-impaired learners. The five steps of Error Analysis theory are as follows; a collection of data, identification of errors, classification of errors, explanation of possible causes of errors, and pedagogic evaluation of the errors. Some of the texts written by the hearing impaired learners were incomprehensible and were therefore not included in the analysis.

The researcher classified the grammatical errors in the hearing-impaired texts into the following types; verb errors, agreement errors, omission errors, determiner errors and learning-induced errors. Other errors related to the use of cohesive devices have been discussed in the previous section (cf 4.4).

4.8.1 Verb Errors

The hearing-impaired learners used several verbs inappropriately. Most of the verbs were not marked for tense. This may be a result of the hearing-impaired learners' failure to master the English tense. Another reason may be as a result of the lack of an appropriate

tense structure in Kenya sign language. The tense errors made by the hearing-impaired learners were sub-classified into the following: substitution of wrong tense, failure to mark tense and inappropriate use of tense. Substitution was the most common type of the verb errors identified. The students substituted the wrong tense in their writing.

(77)

Peter give present student yesterday

(Peter gave students presents yesterday)

Jane like Bible

(Jane liked the Bible)

In example 77, the students substituted the present tense for the past tense. The student was not aware that *give* changes to ‘*gave*’ in the past tense. A similar case was observed in the failure to use *liked* or *likes* in the second example. The hearing-impaired learners might have relied on their knowledge of Kenya sign language. They transferred grammatical rules from KSL to the target language (English). These different grammatical rules have varying effects on how the hearing-impaired learners use English language (Kilanya, 2016). This also indicates that the hearing impaired learners have not acquired enough grammatical competence to use grammatical categories like tense appropriately.

(78)

FCC1:1

Our principal, teacher and followed students good afternoon, I wanted to write this happiest day in school have problem.

(Our principal, teachers and fellow students, I want to write about my happiest day in school that has a problem)

In example 78 extracted from sentence one of the free composition category (FCC 1:1), the learners substituted the present tense for the past tense. The student used *wanted*

instead of *want*. The use of *want* with the to-infinitive (*to write*) indicates an action that is in the near future. The use of the past tense is unusual because the hearing-impaired learners hardly marked tense in the free composition category. The learners may have acquired the use of the past tense morpheme *-ed*, in this case, but misused it.

(79)

FCC1:4

Many students want school uniform suffered and they steal to each other.

(Many students who wanted uniform suffered and *stole* from each other).

The hearing-impaired learner used the present tense *steal* instead *stole*. The verb *steal* is irregular and might have posed problems to the hearing impaired learners. There is a misused preposition in the second clause. The learner used the preposition *to* instead of *from*. The verb *steal* co-occurs with the preposition *from*, but not *to*. A similar verb error is repeated in sentence eight of extract FCC1: *Some steal their money from student dormitory and they suffered a lot.* (Some stole money from students in the dormitory because they suffered a lot).

Other tense errors from extract FCC1 are found in sentence eleven (use of *want* instead of *wanted*).” The learner marked the to-infinitive (*to watch*) with the past tense morpheme instead of marking the main verb- *want*. Infinitives are not marked for tense (Berry, 2018).

(80)

FCC1:11

We accepted to obey our school programmes and in Saturday night that we free true but on Sunday some student sad and angry because they want to watched television at night.

(We agreed to obey our school program and on Saturday night we were free but on Sunday, some students were sad and angry because they wanted to watch television at night).

According to Error Analysis theory, the above errors are indicators of the learners' current underlying knowledge of the second language. The learners are using several strategies in their attempt to learn English as a second language. Some of these strategies are overgeneralization and simplification.

Another verb related error was found in the use of *aspect*. Aspect is a grammatical category that refers to the way that the time of a situation is reviewed by the speaker or writer. In the English language, aspect is marked by a combination of auxiliary and verb form (Palmer, 2014; Garner, 2016). The perfect aspect of a verb combines a form of the auxiliary *have* with the *-ed participle* of that verb. For example *-has eaten; have slept*. The perfect aspect has two forms; the present (*has, have*) and the past form (*had*). The other type of aspect is the progressive aspect which combines a form of the auxiliary 'be' with the *-ing participle*. There are two progressive aspects: the present progressive and the past progressive. These present progressive aspect and the past progressive aspect use the auxiliary *is/are* and *was/were* followed by the *-ing* participle of the verb respectively. The hearing-impaired learners in the current study misused both types of aspects and their sub-categories. Examples of inappropriate use of the progressive aspect were as follows:

(81)

Students sad because teacher teach now.

(The students were sad because the teacher *was teaching*)

Pastor preached while student talk

(The pastor preached while the students were talking)

Mother cake bake dad arrive.

(My mother was baking a cake when my dad arrived)

(My mother had baked a cake when my dad arrived)

In example 81, the hearing-impaired learners misused the progressive aspect. Instead of using *teaching*, *talking* and *baking*, the learners used *teach*, *talk* and *bake* respectively. This was an indication that the hearing-impaired learners had not yet mastered how to use the progressive aspect. The reason may be that in KSL, the progressive aspect is expressed through the use of signs (Breadmore, Krott, & Olson, 2014).

The hearing impaired learners' written texts also had errors in the use of the present perfect aspect and past perfect aspect. According to Nelson & Greenbaum (2015), the present perfect aspect refers to a situation set in some indefinite period that leads to the present. In some texts, the hearing-impaired use of verbs did not distinguish whether a situation had ended or whether the situation was still in progress.

(82)

The lesson ended when bell ring.

(The lesson had ended when the bell rang)

The principal punish student. The student cry.

(The principal has punished the student. The student is crying)

In the above examples, the learners substituted *ended* for *had ended* which is a grammatical error. In the same example, the learner substitutes *ring* for *rang*. The learner had not fully acquired the use of tense and aspect in their writing. Their use of the wrong lexical items (verbs) affects grammar. Earlier studies on the deaf indicate that their grammatical development is dependent on lexical development to the extent that a critical mass of words in the lexicon is a prerequisite for grammatical development (Takahashi, Isaka, Yamamoto, & Nakamura, 2016). These findings agree with other studies that indicate that the hearing-impaired learners have problems in the use of verbs. They do not

mark tense and aspect in their writing. This is an aspect that makes their writing to be incoherent (Mang’oka 2009; Somba & Somba (2016); Mang’oka & Mutiti (2013); Geers & Hayes (2011), and Kilanya, 2016). The findings in these studies reveal that the performance of the hearing-impaired learners is significantly below that of the hearing peers.

4.8.2 Omission Errors

The hearing impaired learners writing in this study was characterized by the omission of lexical items that marked particular grammatical functions. The learners omitted several lexical words that marked semantic features. It was clear from their writing that the learners had a deficiency in lexical items such as pronouns determiners and prepositions that would have assisted them in writing cohesively. There was a low frequency in the use of these functional words in the writing of the hearing impaired learners. This may indicate that they had not yet fully acquired these words.

There was the omission of pronouns in the writing of the hearing impaired learners. The learners preferred to use content words only. This is demonstrated in the examples below.

(83)

FCC14

Best happiest day party day. Party start sing dance. Friends give gifts. Sing happy birthday to me. Thank God. Happy happy day. Food good everybody eat.

(My happiest day is when I had a party. The party started with singing and dancing. My friends gave me gifts. They sang ‘happy birthday to me’. I thank God. It was a very happy day. There was good food for everybody to eat.)

The above short extract is from the student free composition writing. There is the omission of the possessive pronoun *my* before the noun *friends*. There is also an omission of *me*, which should have been the object of the verb in the second clause. The use of the possession pronoun *my* in the second sentence could have linked that sentence with the next sentence, hence creating cohesion. Another potential cohesive device would have been the use of *they* in the third sentence to presuppose *my friends*. This was however omitted by the learner. The first person pronoun *I* has also been omitted in the fourth sentence, making it subjectless. Most probably, the hearing impaired learners might have signed instead of writing the personal pronoun *I*. This omission of personal pronoun was evident in most of the hearing impaired learners' writing.

(84)

FCC 33

¹Dad pick me school. ² Park new car outside. ³ Friends like car new say. ⁴ Talk principal teacher duty. ⁵ Teacher duty come class call me. ⁶ Very happy pick books outside greet dad. ⁷ Sister inside car smile greet me. ⁸ Wave friends bye dad drive car me happy. ⁹ Stop hotel eat best food. ¹⁰ Talk my sister. ¹¹ School good drama music competition dorm their school. ¹² presents given best dorm. ¹³ sister happy too.

(My dad picked me up from school. He packed his new car outside. My friends liked the new car. He spoke/ talked to the principal and the teacher on duty. The teacher on duty came to class to call me. I was very happy as I picked my books and went outside to greet my dad. My sister was inside the car. She smiled at me and greeted me. I waved bye to my friend. My dad drove the car and I was very happy. We stopped at a hotel and ate very good food. I talked to my sister. Her

school had drama and music competition for their dormitories presents were given to the best dorm. My sister was happy too).

Extract FCC 33 would have been more cohesive if the hearing impaired learners had not omitted personal pronouns in their writing. The use of my before dad in sentence one and he in sentence two would have created a cohesive link between the two sentences. Other pronouns that were omitted were in: sentence three “*he talked to the principal and teacher on duty*” sentence four *I* and *my*; sentence five *my*; sentence six *I, my*; sentence seven *we* sentence seven *I*, sentence eight, *her*. These omission errors were as a result of the hearing impaired learners’ lack of knowledge and competence in the use of pronouns and determiners. Had the learners used the above pronouns in their writing, the text would have been more cohesive. The use of the pronouns would have contributed to both references and lexical reiteration. Lexical reiteration is a subcategory of lexical cohesion while reference is a sub-category of grammatical cohesion. The hearing impaired learners’ omission errors may have been caused by simplification. The learners thought that they had communicated enough by using content words only. They were also ignorant of the use of pronouns.

Apart from the omission of pronouns, there was also the omission of prepositions as seen in extract FCC 14 and extract FCC 33. Prepositions were extensively omitted in almost every text analyzed in this study. The preposition *with* and *to* have been omitted in sentence one and sentence two respectively in FCC 14. There is also the omission of the prepositions *to* and *fro* in sentence six. This is a clear indication that the hearing impaired learners lack mastery of prepositions and their use.

Similarly, there is the omission of prepositions in example 84: FCC 33. After the verb *talk*, there is a need to use the preposition *to*. This has been omitted in the text. The

correct subject for sentence number four would have been *the teacher on duty*, not *teacher duty*. The preposition *to* has also been omitted in sentence 4.

I was very happy as I picked my books and went outside to great my dad.

Or

(I was very happy as I picked my books. I went outside and greeted my dad)

The use of additive conjunction in the second clause makes the compound-complex sentence to be divided into two sentences as seen above. Another omission of prepositions is in sentences 7 (*wave to*); sentences 8 (*stopped at*); Sentence 9 (*talked to/with*); and sentence 11 (*given to*). These are prepositions that co-occur with particular verbs. Failure to use them correctly can lead to a collocation error.

Notably is also the omission error in the use of the definite and indefinite articles. The hearing impaired learners rarely used these articles in their free composition. The articles were, however, present in the class assignments. The definite articles “*the*” was omitted before nouns that had been mentioned before. For example, in FCC 4, the definite article would have been used before the noun *party (the party)*. The noun had been used in the earlier sentences, hence the need to have the definite article *the* before the noun to create a specific reference. According to Halliday and Hasan (2013), the definite article creates cohesion by referring to some specific entity. The definite article has also been omitted in FCC 33 (*the new car; the principal; the teacher on duty; inside the car; the best dormitory*).

4.8.1 Determiners Errors

Determiners are words other than adjectives that are placed before a noun to specify what the noun refers to (Garner, 2016). These words are not only important in writing but also help the reader in the interpretation of a text. Determiners are used to introduce noun phrases. Some of the words that functions as determiners are articles (*the*,

a); demonstratives (this, that); possessives (**my, our**); interrogatives (**what, which**); relatives (**whose**); indefinites (**some, every**); cardinals (**three, two**); and ordinal numbers (**first, second**). The omission of some of these words has been discussed early.

The hearing impaired in the current study used several types of determiners in their writing. There were more determiners in the class assignments than in the free compositions. This may be as a result of the effect of their teachers' notes or textbooks notes. The most commonly used determiners were the definite articles and the possessives. There were, however, errors in the use of these determiners in the writing of hearing impaired learners texts. Possessive pronouns, demonstrative pronouns were omitted in some of the writing. A good example is in FCC14.

(85)

FCC14

Best happiest day party day. Party start sing dance. Friends give gifts. Sing happy birthday to me. Thank God. Happy happy day. Food good everybody eat.

(My happiest day was on a party day. The party started with singing and dancing. My friends gave me gifts. They sang happy birthday to me. I thanked God. It was a very happy day. The food was good for everybody eat).

(86)

FCC 8 *Parents have party, grandfather like ceremony, the party good, he village go after party*

(My parents have a party. My grandfather liked the ceremony. The party was good. He went to the village go after party).

The learners were expected to write an essay entitled "My Happiest Day In School". FCC14 starts with "**best happiest day party day**". The learner may have meant

My happiest day is when I had a party. The superlative adjective *best* is inappropriate because *happiest* is already in the superlative form. A determiner would have been more appropriate in this context. The learner omitted the determiner *my* to mark possession in the word *happiest*. Another determiner omitted is the indefinite article *a* before the noun *party*.

Another omission of a determiner is in extract FCC 14:2 (Sentence two of FCC 14) where the definite article has been omitted. The noun *party* had already been mentioned in the previous sentence, hence the need for a definite article to refer to a specific noun, or given information (known information). The second sentence should, therefore, read *The party started with singing and dancing*. Use of the definite article before the noun *party* creates cohesion between the first and the second sentence. Halliday and Hassan (2013) classify definite articles under demonstratives reference. The third sentence begins with the noun *Friends*. A determiner, in this case, the possessive determiner *my* is missing. The learner should have used *my friends gave me gifts*.

Another example of omission of articles is in extract FCC 8. There is a good use of the definite article before the word *party* in the third sentence. The learner, however, has omitted the possessive pronoun *my* before the noun *parents* and the indefinite pronoun *a* before the noun *party* in the first sentence. Another omission of the definite article before the word ‘*ceremony*’ in sentence two, and before the word ‘*party*’ in the last sentence. The hearing impaired learner may not have been sure when to use the determiners hence the inconsistent use of determiners.

There are several omissions of determiners in Extract FCC 33(see example 84). The possessive determiner ‘*my*’ has been omitted in sentence one (*My dad...*); sentence three (*My friend...*); sentence seven (*my sister...*); sentence eight (*my dad...*) and sentence twelve (*my sister*). Among the determiners omitted in FCC 33 is the use of a definite

article. There is the omission of the definite article before the noun ‘principal’ (sentence four); and the noun phrase *teacher on duty*; in both sentence four and five.

The definite article has also been omitted in sentence eight (before the car); sentence nine (before the superlative *best*); and in sentence twelve (before the superlative *best*). The hearing impaired learners were not aware that the definite article is used before superlative. Sentence nine should have read *we stopped at a hotel and ate the best food there* or *we stopped at a hotel and ate very good food*. The hearing impaired learners omitted the indefinite article **a** before the noun *hotel*. It is evident from the above extracts that the hearing impaired learners had not yet mastered the use of both definite and indefinite articles. They could not use the definite article to mark known and unknown information.

Using the definite article creates a shared meaning between the writer and the reader. The reader is able to identify what is being referred to by the definite article. The problem with the definite article may be an inability to distinguish known from unknown information (Breadmore, Krott, & Olson (2014). These may be the cause of the errors in the use of determiners.

Both lexical verbs and auxiliary verbs were omitted in the writing of hearing-impaired learners. However, this was not as extensive as in the omission of determiners, pronouns and preposition. Several lexical verbs and auxiliary verbs have been omitted in the earlier example given (FCC14; FCC33 & FCC1). For example, FCC 14: *Happy happy day* is a phrase with double adjectives. From the students writing, it is supposed to be a sentence. It, however, has no verb. The sentence should read *it was a very happy day*. The repetition of *happy* is used for emphasis. Hearing impaired learners’ sometimes repeat the same word to either emphasize the number, quality or to which extend to which a lexical

item has a specific characteristic (Mutiti & Mang’oka, (2013); Somba & Somba (2016); Geers & Hayes (2011).

Another reason given for the repetition of the same lexical item immediately after another is the hearing impaired learners’ inability to decide on the most appropriate word to convey the intended meaning. The learners, therefore, end up using the same word. This is an error because it leads to redundancy or meaning duplication that makes the sentence ungrammatical (Somba & Somba, 2016; Williams & Mayer, 2015; Webster, 2017).

4.8.2 Agreement Errors

Agreement errors occur when the subject of the clause or sentence does not agree with the verb in number and person (in the case of pronouns). The verb is supposed to agree with its subject in both number and person. This agreement applies whenever the verb displays distinction in person and number (Nelson & Greenbaum, 2015). Nelson & Greenbaum (2015) argue that for all verbs, except the verb “to be”, the distinctions are found in the present tense. The third person singular has the *-s* form while the third person plural, the first and second persons have the base form of the verb. The auxiliary verb “*be*” on the other hand can take the form *am* with the singular 1st person; *are* with the second person singular and plural, and *is* the third person singular. The auxiliary verb *be* changes in the past tense to *was* in the 1st person and 3rd person singular, and *were* in the 2nd person singular and plural. The 1st person and 3rd person plural take *were*.

The hearing impaired learners committed subject-verb agreement errors as demonstrated in the example given below.

(87)

Water move roots to stem leaves

(Water moves from the roots to the stems and leaves)

Mineral salt move roots to leaves

(Mineral salt moves from the roots to the leaves)

These developments creates a pull or suction force that pull a stream of water from the xylem vessels

(These developments creates a pull or suction force that pulls a stream of water from the xylem vessels).

Pastor pray every day students pass K.C.S.E exam

(The pastor prays every day for students to pass in the K.C.S.E exam)

The hearing impaired learners were not able to use the correct verb to mark the subject-verb agreement. Instead of using *moves* with the subject *water*, the learners used *move*. The learners were not aware that mass nouns and uncountable nouns are treated as singular in reference to subject-verb agreement. The learners might have also overgeneralized the rule that *if the subject is in the plural, the verb should also be in the plural* (Palmer, 2014). However, when a singular noun phrase is linked to the following noun phrase by a preposition *with*, the subject is treated as singular. The correct verb in the above example should, therefore, have taken the singular form.

(88)

Dad with two sisters were present.

(My dad, with his two sisters, was present) or (My dad, with my two sisters, was present)

The noun '*mineral salt*' is used by the hearing impaired learner as plural subject, hence the use of the verb '*move*'. It is, however, a singular noun, that should have been used with the singular verb '*moves*'. The learners might also have had challenges in using the word *development*. Development can be both singular and plural depending on the context in which it is used. The learner used the singular third person pronoun *it* with the plural demonstrative pronoun *these* as if it were in the plural. If the learner was referring

to different types of development or a collection of developments, then the best verb would have been “*create*” but not “*creates*”.

In several instances, the hearing impaired learners used the base forms of the verb where the subject of the sentence was a pronoun. This is illustrated below.

She bake cake every Sunday

(She bakes a cake every Sunday)

It make friend bad

(It makes my friend feel bad)

The hearing impaired learners’ subject agreement errors may be as a result of ignorance of grammatical rules, overgeneralization or lack of competence of grammatical categories such as number. The findings of this study as far as subject-verb agreement is concerned, agree with earlier studies by Breadmore, Krott & Olson (2014); Paul (2010); and Wolff (2011). Breadmore, Krott & Olson (2014) argue that sign language has its own rules for number agreement different from English. The number marking the sign language is far less regular and more complex than in English. Breadmore, Krott & Olson (2014) report that number on nouns can be represented by changing the whole sign, repeating or adding a quantifier before or after or within the sign (pg 476).

On the other hand, number marking on verbs can be indicated by sign movements, by using a pronoun, or through repetition. Some verbs in sign language do not require agreement at all. This may be the reason why the hearing impaired learners in the current study marked agreement in some verbs and failed to mark agreement in others. Other studies indicate that the deaf learners face difficulties in the use of subject-verb agreement, not only in English but also in other spoken languages (Breadmore, Krott & Olson (2014); and Takahashi, Isaka, Yamamoto& Nakamura, 2016; Hlatywayo & Muranda (2015).

4.8.3 Learning Induced Errors

Learning-induced errors are errors related to learners' improper learning or inadequate learning of the rules of the second language. In the current study, the learners used wrong syntactic structures, wrong use of parts of speech, wrong spelling and wrong grammatical categories such as tense, aspect and voice. All the errors discussed in the current study can be classified under learning-induced errors because there was a clear indication that the hearing impaired learners had learned adequately the use of lexicogrammatical resources to write cohesively. Earlier studies attributed these errors to overgeneralization, incomplete application of rules, and ignorance of rule restrictions, and system simplification. The hearing impaired learners in the current study used deviant lexical items based on their experience of the lexical items and the structures in the target language (English). They relied on their interlanguage to construct structures closer to their target English. Other errors may be as a result of the learner reducing their linguistic burden. A good example is extract FCC 33 where the learner failed to mark tense in the verbs.

FCC 89

¹Dad pick me school. ² Park new car outside. ³ Friends like car new say. ⁴ Talk principal teacher duty. ⁵ Teacher duty come class call me. ⁶ Very happy pick books outside greet dad. ⁷ Sister inside car smile greet me. ⁸ Wave friends bye dad drive car me happy. ⁹ Stop hotel eat best food. ¹⁰ Talk my sister. ¹¹ School good drama music competition dorm their school. ¹² presents given best dorm. ¹³ sister happy too.

Missing in the same extract is the use of determiners, prepositions and other functional words. Akachi, (1991) claim that not all lexical items in a sentence are written or signed. This may explain the missing lexical items. The omission of grammatical features is characteristic of language two learners in their early stages of languages

acquisition (Dulay et al 1982). Studies show that delayed exposure to language can affect language acquisition (Lieberman, Borovsky, Hatrak & Mayberry, 2015). The hearing impaired learners do not have access to the acquisition of a first language early enough due to their parents' inability to communicate with them in a natural language. Such children reach school with poor or no linguistic preparation at all. The hearing impaired learners, therefore, lack the necessary language skills and general knowledge for normal language development.

In some texts, the students misspelt keywords in their writing hence coming up with words that do not exist in the target in English. A good example is extract SAC 1 where the student used the word *concencent* twice. The researcher could only guess from the context that the word meant concentration. A study by Hayes, Treiman & Geers, (2014) confirms that hearing impaired learners have problems with spelling because of their inability to physically sense phonetically.

SAC 1

The water and mineral salts which drop from root and soils.¹The concencent salt by leave had a water from temperature and carbon (iv) oxide.² Then water had a salts from mineral drop move to roots from by leaves had a salt higher.³ The roots had a tree from leaves had a water seals and carbon (iv) oxide of conernation

Other spelling mistakes are in FCC 19 below used in example 7 (e.g. *peparing, hard, approch, bisiness, shawer*).

²*As I hard that I was happy as a king even tears of joy started rolling down my shubby cheeks.*

⁷*That night I hardly slept a wink I kept on tossing myself on my bed praying that morning to approch faster so that I can go to a new school wearing new school uniform and new black shoes.*

⁹*As morning approach I woke up early than usuall and I rushed to take a shower, I took my towel and run out my bedroom without noticing that it was around 4:30am.*

¹²*I assumed and go on with my business, at about twenty seconds I had finished to have a shower I rushed back to my bedroom and opened my wardrobe and I took out my school uniform and I put on..*

Interlingual transfer is a source of most of the L2 learner problems. Panahifar, F. (2013) argue that negative transfer is one of the 5 central processes that exist in a latent psychological structure which is activated in order to learn another language after the end of the critical period for language acquisition. There are studies that indicate that learners who have not exposed the target language during the Critical Language Hypothesis lag behind their peers in language acquisition (Marshark & Knoors, 2012; Leigh, Newall, & Newall, 2010).

The hearing impaired grammatical errors can occur where the first language does not correspond to the second language in terms of grammar rules. The syntactical pattern of the sentences written in by the hearing impaired learners was inclined towards KSL word order. The L1 for the subject under study is Kenya Sign Language. The KSL sentence structure is written in capitals as explained by Raga (2014), Wamae (2003) and Akachi (1991). The KSL sentence structure is written in capital letters and it ignores the use of auxiliaries and other functional words that form the basis of English language framework as shown below borrowed from Raga (2014:18).

____?
KSL: PEOPLE GREET HOW//
ENGLISH: How do people greet?

KSL: MILK CAT DRINK
ENGLISH: A cat drank the milk.

Akachi (1991) says that in KSL, 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, past tense is represented as [PST] at the beginning of a sentence. For instance, the sentence *The man stole the book* is signed as:

[PST] MAN STEAL BOOK

In written English, the above sentence would be mal-formed because of omission of the definite article “*The*” before “*man*” and before “*book*,” and 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 to why they omitted determiners such as the definite and the indefinite articles.

The sentences written by the hearing impaired learners lacked auxiliary verbs, prefixes, and suffixes that are found in written English language structure (Raga, 2014), Wamae, 2003) and Akachi, 1991). The missing lexical items and omission errors are as a result of the influence of the KSL structure. The learners in the current study may have faced challenges because of the above differences between their L1 and L2. This may be the cause of the learning-induced errors in the writing of the hearing impaired learners.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the current study by reviewing the study's objectives, giving concluding remarks, and recommendations for further research. The objectives of the current study were to:

- 1) Identify the grammatical features and lexical features that the hearing-impaired learners use in writing to achieve cohesion.
- 2) Describe the grammatical features and lexical features that the hearing-impaired learners use in writing to achieve cohesion.
- 3) Determine the types of cohesion that are prominent in the writing of hearing-impaired learners.
- 4) Analyze the grammatical cohesive errors and lexical cohesive errors found in the hearing –impaired written texts.
- 5) Investigate the grammatical errors related to the use of cohesive devices in the hearing-impaired learners' written texts.

This section examines every objective in light of the findings and assesses how far the research objectives have been met. This chapter also identifies areas that need further research, and finally, there are conclusions of the study.

5.2 Summary

5.2.1 Identification of the Grammatical Features and Lexical Features

The data collected from the hearing impaired learners was read and the grammatical and lexical features responsible for cohesion within the text identified. There were a total of 641 cohesive ties identified in the written text of the hearing impaired learners. There were more cohesive devices in the hearing impaired learners' class

assignments than in the free composition. The class assignment texts had 337 cohesive ties while the free composition texts had 304 cohesive ties.

Different words created cohesion in the hearing impaired learners writing by various means. The most common means is by being repeated from sentence to sentence. This caused the concerned sentences to be interpreted as belonging together. Words also created cohesion in the current study data when their meanings are related or closely related. When these words with related meanings are in separate sentences, the sentences were perceived as being related. In addition, there are words which are basically referential, and they created cohesion by referring to other words in the surrounding sentences. Other words regularly co-occurred in the texts. Finally, there are words that are connective in nature and are cohesive when they serve to connect separate sentences. Words that are found to be cohesive in the current study fall in the noun, verb, conjunction, pronoun, adverb, and adjective categories.

Phrases that are cohesive in the current study are noun phrases, adverb phrases, and adjective phrases. These phrases create cohesion in three ways: there are those that refer to information in the surrounding sentences; there are those that are connective in nature and therefore connect sentences to surrounding sentences; and finally, there are those phrases that create cohesion by simply being repeated across the texts. The few clauses that are cohesive in this study achieve a cohesive effect by being related in meaning to other parts of the texts in which they occur.

5.2.2 Description of the Grammatical Features and Lexical Features

The five cohesive devices posited by Halliday and Hasan (2013) were used by the hearing impaired learners but at varying frequency. From the data analyzed in the current study, the following cohesive ties were described at length and illustrations given from the

written texts: reference, conjunction, substitution, ellipsis, and reiteration. These were grouped into grammatical and lexical cohesion. The lexical category had repetition and collocation. Repetition was realized as same word repetition, synonymy, superordinate term, and general term. The occurrences of both grammatical and lexical cohesive devices are summarized below.

Table 16: Number of Cohesive Devices used by H.I Learners

Cohesive Devices	Category		Total	%
	FCC	SAC		
Reference	30	44	74	11.54
Conjunction	33	39	72	11.23
Substitution	7	10	17	2.65
Ellipsis	4	5	9	1.40
Same word	96	72	168	26.21
Synonymy	16	26	42	6.55
Superordinate Term	10	9	19	2.96
General Term	8	12	20	3.12
Collocation	100	120	220	34.32
Total	304	337	641	100%

5.2.3 Prominent Cohesive Devices Used by the H.I Learners

The third objective was to determine the types of cohesion devices that are prominent in the writing of hearing impaired learners. There were 172 grammatical cohesive devices and 469 lexical cohesive devices. Among the grammatical cohesive devices used, reference ties led with 74(43.03%), followed by conjunction ties with 72 (41.86%). Substitution ties and ellipsis ties were not very frequent in the study. There were

17 substitution ties and 9 ellipsis ties. Among the lexical cohesive devices, collocation had the highest with 220 (46.91%) followed by same word repetition with 168 (35.82%). Synonyms, general term and the superordinate term were 42, 20, and 19 respectively. The most prominently used cohesive tie was, therefore, collocation followed by same word repetition, and reference.

5.2.4 Errors in the Use of Cohesive Devices

The fourth objective was to analyze the grammatical cohesive errors and lexical cohesive errors found in the hearing –impaired written texts. Using Error Analysis and the Halliday and Hassan Model of Cohesion, several errors in the use of cohesive devices were identified. These errors were classified as per Halliday and Hasan model of cohesion. There were errors related to each cohesion category except in ellipsis. There were reference cohesive errors, conjunction cohesive errors, substitution cohesive errors, collocation cohesive errors and repetition cohesive errors. These errors reflected the learners' incompetence in the use of grammatical rules.

5.2.5 Grammatical Errors Related To the Use of Cohesive Devices

The fifth objective was to investigate the grammatical errors related to the use of cohesive devices in the hearing-impaired learners' written texts. The hearing impaired learners' texts were not grammatical. Some of the texts were not included in the study because the research could not make sense of what the learner was writing or communicating. The grammatical errors were identified and classified using the Error Analysis Theory. The errors were classified into errors involving grammatical categories such as tense, voice, subject-verb agreement errors, collocation errors, learning-induced errors, spelling errors, and syntactic errors. Selinker's Interlanguage theory was used to give a possible explanation of the grammatical errors. These grammatical errors may be

the result of over-generalization, incomplete application of rules, ignorance of rules restriction and language transfer (from KSL).

Table 17: Errors in the use of Grammatical Cohesive Devices

Cohesion Category	Number of Errors	Percentage of Errors	Cohesion Subcategory	Number of Errors	Percentage of Errors
Reference	94	85.45	Personal	70	74.47
			Demonstrative	16	17.02
			Comparative	8	8.51
Substitution	3	2.73	Nominal	2	66.67
			Verbal	1	33.33
			Clausal	0	0
Ellipsis	0	0	Nominal	0	0
			Verbal	0	0
			Clausal	0	0
Conjunction	13	11.82	Additive	8	61.54
			Adversative	3	23.08
			Causative	2	15.38
			Temporal	0	
Total	110			110	

There were more reference related errors followed by conjunction errors. There were no ellipsis errors because they were less frequently used.

5.3 Conclusion

From the analysis of the data, this study has established that the hearing impaired use various cohesive devices. The study has also established that all the five categories of cohesion as posited by Halliday and Hasan (1976) occur in the hearing impaired written text. However, the hearing impaired learners used a lot of repetition and collocation causing the frequency of lexical ties to be extremely high (469, equivalent to 73.2%). The other ties posed a great challenge to the students. The study also established that the hearing impaired learners make numerous errors in the use of cohesive devices. It was evident from their writing that they had not acquired enough grammatical structures to write cohesively.

5.4 Recommendations

5.4.1 Policy Recommendations

- i. The study recommends a change in the way the hearing impaired learners are taught English. The study recommends total communication approach to be used in the teaching of English to avoid learner's transfer of written Kenya Sign Language to written English as observed in the data analyzed in this study.
- ii. The study recommends early detection of hearing impairedness to enable hearing challenged learners to be exposed to their first language, Kenya Sign Language, early enough. Early exposure to language not only contributes positively in the learning of a second language but also in the achievement of grammatical competence.
- iii. The study recommends that teachers teaching the hearing impaired learners the English language to give a lot of emphasis on parts of speech, and grammatical categories. This is as a result of the many grammatical errors found in the hearing impaired written text. Once the students have learned how to use parts of speech,

they should be taught how to write good sentences, followed by the construction of well linked and cohesive sentences in paragraphs.

- iv. The study recommends a review on how the hearing impaired learners are assessed in English subject.

5.4.2 Recommendations for Further Research

- i. This study has established that the hearing impaired learners write texts that contain a high density of lexical cohesive devices though this did not determine the quality of the composition they wrote. This raises the question that how far cohesion contributes to coherence. It appears from the text analyzed in the current study, that cohesive devices, lexical devices, in particular, may not be an indicator of coherence. Future researchers can look into hearing impaired language to establish whether lexical cohesion is an indicator of coherence in hearing impaired texts.
- ii. A comparative study of cohesion in the written texts of hearing impaired learners and normal hearing learners can be done to determine if there is a significant difference between the use of cohesion by the two groups.
- iii. Written data collected from the English texts written by hearing impaired learners demonstrate a lack or low frequency of functional words such as pronouns, conjunctions, prepositions, articles, and auxiliary verbs. Most of these words were either omitted or misused. Future researchers could collect more data from the hearing impaired to investigate the extent to which this category of writers in English uses functional words.
- iv. Further research can be done to provide more knowledge into the cohesion and coherence in the writing of the hearing impaired learners by considering factors such as the level of hearing loss, mode of instruction, gender, and the literacy levels of the teachers in relation to KSL.

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APPENDIX 2: Sample Analysis of Class Assignments: SAC

SC1: 1

Sen- ten- ce num- ber	Num- ber of ties	Cohesive item	Type of cohesion	Presuppose d item
2	3	Salt Leave Water	Lexical: superordinate term Lexical: collocation Lexical: same repetition	Mineral Salts Root soils Water
3	8	Then Water Salts Minerals Drop Roots Leaves Salt	Reference: demonstrative Lexical: same word Lexical: superordinate term Lexical: same word Lexical: same word Lexical: same word Lexical: same word	None Water Salt Mineral Salts Drop Root Leaves Salt
4	7	The roots Tree Leaves Water Salts Carbon (iv) oxide Concentration	Reference: demonstrative Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Root Leaves, root Water Salt Carbon iv oxide Concentrate
5	10	To know (a to- infinitive indicating sequence) Salts The root Later Crop	Conjunction: temporal Lexical: same word Reference: demonstrative Conjunction: temporal Lexical: collocation	None Salt Root none Tree, leaves, root
		Mineral Leave Air Temperature	Lexical: same word Lexical: same word repetition Lexical: collocation Lexical: same word	Mineral Leaves Tree, roots, soil mineral salts Temperature
6	9	When Move The water Drop	Conjunction: temporal Lexical: same word Reference: demonstrative Lexical; same word	None Move Water Mineral

		Later Crops The tree	Conjunction: temperature Lexical: same word Lexical: same word	None Crop Root
7		Air Leave Branch Stem Later Crop Move Roots Water Drop Mineral	Lexical; same word Lexical: same word Lexical: collocation Lexical: collocation Conjunction: temp Lexical: same word Lexical: same word Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Air Leave Leave, tree, root Leave, tree, root None Crop Move Roots Water drop Mineral
8	10	That is why because Water Drop Then Root Leaves	Conjunction: causative Lexical: same word Lexical: same word Ref: demonstrative Lexical: same word Lexical: same word	Sentence 7 Water Drop None Roots leaves
		Crop Leave Salts Move Air	Lexical: same word Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Crop Leave Salt Move Air
9	9	The leave Air Water Move Root Mineral The salt Conservation Higher	Reference: demonstrative Lexical: same word Lexical: same word Lexical: same word Lexical: same word Reference: demonstrative Lexical: same word Lexical: same word Lexical: Antonym	Leaves Air Water Move Roots Mineral Salt Concentration Drop
10	6	The water Drop Roots Soil Mineral Salts	Reference: demonstration Lexical: same word Lexical: demonstrative Lexical: collocation Lexical: same word Lexical: same word	Water Move Roots Air, roots, leaves Mineral Salts
11	4	To know Salts Roots Power	Conjunction: temporal Lexical: same word Lexical: same word Antonym	None Salts Roots Power Weakness

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
12	5	The grow Mineral Know Tree Salts	Reference: demonstrative Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Grow Mineral Know Tree Salts
13	6	The water Salt Crop Air Carbon iv oxide	Reference: Demonstrative Lexical: same word Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Water Salt Crop Rot Air Carbon iv oxide
14	5	The water Temperature Leave Salts Air	Ref. Demonstrative Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Water Temperature Leaves Salts Air
15	6	The branch Leave Crop Roots Strong Mineral	Reference: Demonstrative Lexical: same word Lexical: same word Lexical: same word Lexical: synonym Lexical: same word	Branch Leave Crop Roots Power Mineral
16		Salt Move Water Root Mineral Higher	Lexical: same word Lexical: same word Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Salt Move Water Root Mineral Higher

SAC 2

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	7	First Soil Root Water Mineral Plant Growth	Conjunction, temporal Lexical: collocation Lexical: collocation Lexical: same word Lexical: collocation Lexical: collocation Lexical: collocation	Sentence 1 Salt, water, Salt, soil Water Salt Soil, salt, water, plant
3	3	Root Water Mineral	Lexical: same word Lexical: same word Lexical: same word	Root Water Mineral

4	2	Water Salt	Lexical: same word Lexical: same word	Water Salt
5	4	The roots Leaves Flow Xylem tissues	Reference: Demonstration Lexical: same collocation Lexical: synonymy Lexical: collocation	Roots Roots, soil Move Roots, leaves, soil
6	8	As Water Evaporates Plant Absorbed Soil Roots Stem	Conjunction: Temporal Lexical: same word Lexical: collocation Lexical: collocation Lexical: collocation Lexical: same word Lexical: collocation Lexical: collocation	Sentence 5 Water Water Roots, leaves evaporate Roots, water plant Roots Plant, leaves, roots
7	8	Transpiration Stream Woody plant Growth	Lexical: collocation Lexical: collocation Lexical: collocation Lexical: collocation	Plant Water Evaporation plant
8	7	Other area Tissues Leave Evaporates Forest Water Mineral	Reference: comparative Lexical: collocation Lexical: collocation Lexical: collocation Lexical: collocation Lexical: collocation Lexical: collocation	Not clear Plant Water Evaporation Roots Leaves Move

SAC 3

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	3	Grow Water Mineral salt	Lexical: collocation Lexical: collocation Lexical: same word	Mineral salt Roots Roots Mineral salt
3	6	Transport Absorption Water Mineral salts Cell sap Hair roots	Lexical: collocation Lexical: collocation Lexical: same word Lexical: collocation Lexical: collocation Lexical: collocation	Mineral salts, roots Water Water, mineral salts Water Mineral salts Root, absorption
4	6	The water makes	Lexical: collocation Lexical: collocation	Cell sap Water

		Cell wall Cell membrane Root Tree Leave	Lexical: collocation Lexical: same word Lexical: same word Lexical: collocation	Absorption Cell sap Cell sap Root, cell sap
5	6	Because Water Mineral salts Pressure Absorbing Cell	Conjunction: causal Lexical: same word Lexical: same word Lexical: same word Lexical: collocation Lexical: collocation	None Water Mineral salt Pressure Absorption cell wall, membrane sap
6	6	Root hair Osmotic Move Water Mineral salt Leaves	Lexical: same word Lexical: same word Lexical: collocation Lexical: same word Lexical: collocation Lexical: collocation	Hair root Osmotic Transport Water Mineral salt Root, membrane wall, cell sap
7	5	Due to Osmotic gradient Water Move Roots Leave	Conjunction: causative Lexical: collocation Lexical: same word Lexical: same word Lexical: collocation Lexical: collocation	Create cohesion within sentence Osmotic force Water Move Leave, cell Roots, cell
8	11	Pressure Roots Grow Leave Soil Water Mineral salt Plants Growth Cell sap Root hair	Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Same word	Pressure Roots Grow Leave Soil Water Mineral salt Plants Growth Cell sap Root hair
9		Transpiration Plant Water Mineral salt Vapor	Lexical: Collocation Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Collocation	Leave absorption water root, cell wall, sap Water Mineral salt, Water

SAC 4

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	6	Thus Soils Growth Mineral Water Roots	reference: demonstrative Lexical: same word Lexical: same word Lexical: collocation Lexical: collocation Lexical: Collocation	Sentence 1 Soils Plant Soul Water Plant/soil
3	6	This continuous flow Surface Plant Salt Water Stream	reference: demonstrative Lexical: same word Lexical: same word Lexical: Collocation Lexical: Same word Lexical: Same word	Continuous stream of water flowing Surface Plant, Mineral Water Stream
4	7	Transpiration Stream Water Salt Solution Root Leaves	Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation	Evaporation Stream Continuous flow Water Salt Water, Root Root
5	4	Transpiration Respiration Solution Plant	Lexical: same word Lexical same word Lexical: same word Lexical: same word	Transpiration Respiration Solution Plant
6	5	Flow Xylem tissue Respiration Water Roots hairs	lexical: Same word Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Collocation	Flow Root, leaves Respiration Water Root, leaves, xylem, tissue
7	3	This continuous flow of water, Capillary Root	reference: demonstrative Lexical: Collocation Lexical: Same word	Continuous stream of H ₂ O, Root, water, absorbed Root
8		These forces Respiration Leave Growth	reference: demonstrative Lexical: Same word Lexical: Same word Lexical: Same word	Cohesive and adhesive forces Respiration Leave Growth
9	7	Transpiration Root Water Vaporize Resphyll cell	Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation	Transpiration Root Water Water Plant, leave

		Sub-stomata Cells	Lexical: Collocation Lexical: Collocation	Plant
10		This change Pressure The spongy mesophyll Cells	reference: demonstrative Lexical: Same word reference: demonstrative Lexical: Same word	Sentence 9 Pressure Spongy Mesophyll Cell
11	2	Vessels Leaf	Lexical: synonym Lexical: Collocation	Capillary Root, cell
12		These development Pull or suction Stream of water Xylem vessels Stem Roots Pressure	reference: demonstrative Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: Same word Lexical: Same word	Sentence 11, 12 these forces Stream carries H ₂ O capillary Root, leaves Root Pressure

SAC 5

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	2	Osmosis Water	Lexical: same word Lexical: same word	Osmosis Water
3	3	And water Root hair cells Cell sap	Conjunction: additive Lexical: Same word Lexical: Collocation	Sentence 2 Root hair cell Root hair cell
4	5	The soil water Dissolved Plant Mineral salt	Lexical same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	The soil water Solution, Concentration Soil, Soil/plant
5		The process Mineral salts	reference: demonstrative Lexical : same word	Sentence 4 Mineral salts

SAC 6

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	6	Thus exerts	Reference: demonstrative	Sentence 1

		Osmotic pressure Water mole cells Cell wall Cell membrane Root hair cell	Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Same word	Osmotic forces Water Root hair cells Root hair cells Root hair cells
3	3	These xylem vessels Root Water Stem Leaves	Reference: demonstrative Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Collocation	None Root hair cells Water Root, cell .. Root cell ...

SAC 7

Sentence number	Number of ties	Cohesive device	Type of cohesion	Presupposed item
3	1	Plant cell	Lexical: Collocation	Photosynthesis
5		Photosynthesis	Lexical: Same word	Photosynthesis
6		Plants	Lexical: Collocation	Photosynthesis Plant cell

SACS 8

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	3	Water Also Capillary	lexical: same word Conjunction: Additive Lexical: synonym	Water Sentence Water moves a continuous
3	2	Water Soil	Lexical: Same word Lexical: Collocation	Water Leaves, xylem
4	4	Water Cell wall Root hair cells Osmosis	Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	Water Xylem, leaves Leaves, stem Stem Water, root hair cells
5	4	Continuous column of water Roots	Lexical: Collocation Lexical: Same word	Capillarity Roots

		Leaves stream	Lexical: Same word Lexical: Collocation	Leaves Continuous column of water
6	3	Water Vaporizes Cell	Lexical: Same word Lexical: Collocation Lexical: Collocation	Water Water Stem, leaves
7	4	Stream Xylem vessel Stem	Lexical: synonym Lexical: Collocation Lexical: Collocation Lexical: Collocation	Water column Root hair cells Root leaves Root leaves
8	3	Water Dilutes Cell sap	Lexical: Same word Lexical: Collocation Lexical: Collocation	Water Xylem, root, stem, Leaves Stem, leaves, roots
Sen- ten- ce num- ber	Num- ber of ties	Cohesive item	Type of cohesion	Presuppose d item
9	5	Root Conduct water Leaves	Lexical: Collocation Lexical: Synonymy Lexical: Collocation Lexical: Same word	Root hair cells Capillarity Leaves Leaves
10	3	Cell sap Solution Soil	Lexical: Collocation Lexical: Collocation Lexical: Collocation	Xylem, root, stem, leaves Water Stem, leaves, roots
SAC 9				
Sen- ten- ce num- ber	Num- ber of ties	Cohesive item	Type of cohesion	Presupposed item
2	3	Water Mineral salt Soil	Lexical: Same word Lexical: Same word Lexical: Same word	Water Mineral salts Soil
3	3	Soil Solution Concentration	Lexical: Same word Lexical: Collocation Lexical: Collocation	Soil Water Osmosis
4	5	Soil Solution Absorption Mineral salts Due	Lexical: Same word Lexical: Same word Lexical: Collation Lexical: Same word Conjunction: causative	Soil Solution Solution Mineral salts None

5	3	Water Mineral salt Concentration	Lexical: Same word Lexical: Same word Lexical: Same word	Water Mineral salt Concentration
6	5	Roots Absorption Water Mineral salts High concentration	Lexical: Collocation Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: antonym	Soil Soil, minerals Water Mineral salt Low concentration
7	3	Due Leave Stem	Conjunction: causative Lexical: Collocation Lexical: collocation	none Soil, mineral Soil, mineral

SAC 10

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	4	Root xylem Water Stem Leaves	Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Collocation	Soil particles Water Toot, soil Leaves
3	4	Water, pushed up Stem Root Xylem vessels	Lexical: Synonymy Lexical: Same word Lexical: Same word Lexical: Same word	Soil particles Water Root, soil Leaves
4	4	Water Also Rise Capillarity	Lexical: Same word Conjunction: additive Lexical: Same word Lexical: synonymy	Water Preceding sentences Rise Conduct water up
5	6	As Water Vaporizes Spongy mesophyll cell Absorption	Conjunction: temporal Lexical: same word Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: collocation	preceding sentence water water roots, xylem leaves water

				soil
6	4	transport water mineral salt xylem	Lexical: synonymy Lexical: synonymy Lexical: synonymy Lexical: synonymy	conduct water up water mineral salts xylem
SAC 11				
Senten ce numbe r	Num ber of ties	Cohesive item	Type of cohesion	Presupposed item
1	1	also	Conjunction: additive	Sentence 1
2		concentration roots cell sap	Lexical: collocation Lexical: collocation Lexical: collocation	mineral salts plants root plant
3	1	these	Reference: demonstrative	Not clear
4	1	Water vapor	Lexical: Collocation	water
SEC 13				
Senten ce numbe r	Num ber of ties	Cohesive item	Type of cohesion	Presupposed item
2	2	Dissolved CELL SAP	Lexical: Collocation Lexical: collocation	Water Hair cell roots
3	3	Concentration Vacuole roots	Lexical: collocation Lexical: collocation Lexical: collocation	dissolves mineral cell roots
4	2	Osmotic force Absorbing	Lexical: Collocation Lexical: Collocation	Concentration dissolved
5	4	More (incorrect) Water Root hair cell Dilutes	Conjunction: Additive Lexical: Same word Lexical: Collocation Lexical: Collocation	Not clear Water Hair cell Dissolved
6	2	Osmotic gradient Water	Lexical: Collocation Lexical: Same word	Osmotic force Water
7	2	Water cortex	Lexical: same word Lexical: Collocation	Water Root hair cells Cell sap, roots
8		Xylem vessels Root	Lexical: Collocation Lexical: Same word	Water Root hair cells Cell sap, roots

SAC 14				
Sentence number	Number of ties	Cohesive device	Type of cohesion	Presupposed item
2	2	Water Root	Lexical: Same word Lexical: Collocation	Water Soil
3	2	Water Stem	Lexical: Same word Lexical: Collocation	Water Root
4	2	Adhesion force Molecules	Lexical: Collocation Lexical: Collocation	Cohesion Water molecules
5	2	Root pressure Root endodermis	Lexical: Collocation Lexical: Collocation	Forces, Stem Endodermis
6	4	Transpiration Evaporates Leaf Absorbed	Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: Collocation	Stem, root Water Root, stem Water
7	2	Xylem Capillary	Lexical: Collocation	Xylem vessels Water is conducted up
8	4	Them Water Leave cells Osmosis The xylem	Conjunctive: Temporal Same word Lexical: Collocation Lexical: Collocation Reference: Demonstrative	Not clear Water Root, stem Water is conducted Xylem
9		Water Vapor Diffuses Stomata	Lexical: Collocation Lexical: Collocation Lexical: Collocation	Water Osmosis Xylem.
SAC 15				
Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	4	It Roots Transport Plants	Reference: personal Lexical: Collocation Lexical: Collocation Lexical: Collocation	Transpiration Leaves Transpiration Leaves
3	4	Roots Soil Absorption Water	Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Same word	Leaves Root Plant Water, mineral, salt Water
4	6	When	Conjunction: Temporal	Not clear

		Osmosis Water Leaves Plant Soil	Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word	Stomata, roots, leaves Water Leaves Plant Soil
5	5	Xylem Transport Water Mineral Dissolved	Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Collocation	Plant Transport water mineral Water
6	6	Soil Water Dissolved Mineral salts Plants Growth	Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word	Soil Water Dissolved Mineral salts Plants Growth
7	4	Concentration Cell S soup Root... Soil	Lexical: Collation Lexical: Collation Lexical: Collation	Osmosis Plant stomata Root
8	1	Transport	Same word	Transport
9		The mineral salts Water Carried up Stem Leaves Cells Osmosis Diffusion Root pressure Transportation Cohesive Force Capillary	Ref: Demonstrative Same word Synonymy Collocation Lexical: Same word Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Synonymy	Preceding text Water Transport Leaves Root plant Cell sap Osmosis Root transportation Adhesive force Water more up
SAC 16				
Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	2	Cell hair Solution	Lexical: Collocation Lexical: Collocation	Root hair cell Water, Dissolved
3	4	Osmosis Sap The soil Water	Lexical: same word Lexical: collocation Ref: Demonstrative Lexical: Same word	Osmosis Solution Soil water

4	4	The water molecule The cell wall Cell membrane	Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: collocation	Osmosis Root hair cell Root hair cell Root hair cell
5	3	Osmotic gradient Water Cortex cell	Lexical: Collocation Lexical: Same word Lexical: Collocation	Cell membrane Root More water
6	3	The xylem vessel The root Conduct water up	Lexical: Collocation Reference: demonstrative Lexical: synonym	Cell membrane Root Move water
7	6	The soil Water Dissolved Mineral salt Plant Growth	Reference: demonstrative Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	Soil Water Dissolved Osmosis, root, stem Osmosis, root, stem Osmosis, root, stem
8	3	The mineral The root hair concentration gradient	Lexical: Collocation Lexical: Collocation Lexical: Collocation	Mineral salt The root hair cell Osmotic gradient

SAC 17

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	6	Vascular system Xylem and phloem Transport Water Mineral salts Dissolved	Lexical: same word Lexical: collocation Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	Vascular system Plant, active transport Transport Diffusion, osmosis Diffusion, osmosis
3	7	Then Stem Water Food Transport Plant Lenticles	Conjunction- temporal Collocation Same word Same word Same word Same word Collocation	The preceding sentence Plant, xylem, plant Water Food –

				- Xylem phloem, leaf, plant, stem
4		They Water Mineral salts Xylem	Reference: Personal Lexical: Same word Lexical: Same word Lexical: Same word	Lenticles Water Mineral salts Xylem
5		Grew Leave	Lexical: Collocation Lexical: Collocation	Plant Plant
SAC 18				
Sen- ten- ce num- ber	Num- ber of ties	Cohesive item	Type of cohesion	Presupposed item
2	2	Mineral salt Soil Salt Water	Lexical: same word Lexical: same word Lexical: same word Lexical: same word	Mineral salt Soil Salt water
3	2	Salt Water	Lexical: same word Lexical: same word	Salt Water
4	2	Water molecule Plant	Lexical: General term Lexical: Same word	Water Plant
SAC 19				
Sen- ten- ce num- ber	Num- ber of ties	Cohesive item	Type of cohesion	Presupposed item
2	1	Tissue	Lexical: Same word	Tissue
3	5	They Stem Leave Root Photosynthesis	Reference: Personal Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	Tissues Stem Stem Stem Stem
4	4	Cell sap Mineral salt Root Plants	Lexical: Collocation Lexical: Collocation Lexical: Same word Lexical: Collocation	Cell Mineral Root Root system
SAC 20				
Sen- ten- ce num- ber	Num- ber of ties	Cohesive item	Type of cohesion	Presupposed item
2	5	The concentration Soil Water molecules	Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: Collocation	Water Soil particle Water Cell sap

		Cell wall Cell membrane	Lexical: Collocation	Cell membrane
3	5	Water molecules Endodermis Active transport Xylem vessels Root	Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation Lexical: Same word	Water molecules Root hair cells Osmosis Cell wall Root
4	4	Root xylem Conduct water up Stem Leaves	Lexical: General word Synonym Lexical: Collocation Lexical: Collocation	Xylem vessels Water molecules Move across Root root
5	4	water Capillary Stem Xylem vessels	Lexical: Collocation Lexical: Synonymy Lexical: Same word Lexical: Same word	Water molecule Conduct water up Stem Xylem vessels
6		Water Pushed up	Lexical: Same word Lexical: Synonymy	water Capillary
7		Water Xylem vessels Stem Leaves	Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word	Water Xylem vessels Stem Leaves

FCC1

Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
2	2	First one (to begin with) Some students	Conjunction: Temporal Lexical: Collocation	Sentence 1 Students
3	2	Our Class Teachers	Lexical: Collocation Lexical: Same word	Principle teacher Teacher
4	2	Many students School uniform	Lexical: Collocation Lexical: Collocation	Some students Students
5	3	Other things (another thing) Some students Students	reference: Comparative Lexical: Same word Lexical: Same word	Preceding paragraph Some students Students
6	2	Many students	Lexical: Same word	Some students

		School	Lexical: Collocation	Students
7	3	Other students Dormitory (Dorm) Perfect (prefect)	Reference: Comparative Collocation Collocation	Some students School, teacher, class School, student, teacher
8		Some Student dormitory	Ellipsis: Nominal Lexical: Collocation	Students Dormitory
9	7	The class Lesson Assignment Students Teacher Bell Sadness	reference: demonstrative Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	Our class School, Students School, Students Students students School, Students Suffered
10	3	Girls dormitory Some students Perfect (prefect)	Lexical: Collocation Reference: Comparative Same word repetition	Dormitory Student Perfect (perfect)
11	3	We School Sad and angry	Reference: Personal Lexical: Same word Lexical: Collocation	Our (speaker) School Sadness, suffer
12	6	Some student Steal School uniform Suffered Waste School fees	Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Collocation	Students Steal Student, School Suffered Water School, Student, teacher
13		Happiest School	Lexical: Autonym Lexical: Same word	Sadness School

FCC 2				
Sentence number	Number of ties	Cohesive item	Type of cohesion	Presupposed item
3	3	School Parent Student	Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Same word	Education School Student Student
FCC 3				
3	1	Student	Collocation	Teacher, School
4		Some of the students	Reference: Comparative Lexical: Same word	Students School
5	2	They Food	Reference: Personal Lexical: Near synonym	Some of students Meal
6	5	Some of them Food Education School Fruits	Reference: Comparative Lexical: Same word Lexical: Collocation Lexical: Same word Lexical: General noun	Students Food School Food
7	1	Some of the students	Reference: Comparative	Students
8	1	They	Reference: Personal	Students

APPENDIX 3: Sample Analysis of Free Compositions: FCC

FCC1

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	2	First one (to begin with) Some students	Conjunction: Temporal Lexical: collocation	Sentence 1 students
3	2	Our class Teachers	Lexical: Collocation Lexical: Same word	Principal, teacher teacher
4	2	Many students School uniform	Lexical: Collocation Lexical: Collocation	Some students Students
5	3	Other things (another thing) Some students Students	Reference: comparative Lexical: Same word Lexical: Same word	preceding paragraph some students students
6	2	Many students School	Lexical: Same word Lexical: Collocation	Many students Principal, teacher students
7	3	Other students Dormitory (dorm) Perfect (prefect)	Reference: comparative Lexical: Collocation Lexical: collocation	Some students School, teacher, class School, student, teacher
8		Some ∅ Student dormitory	Ellipsis: nominal Collocation	Students Dormitory
9	7	The class Lesson Assignment Students Teacher Bell Sadness	Ref: demonstrative Lexical: collocation Lexical: collocation Lexical: same word Lexical: same word Lexical: collocation Lexical: collocation	Our class School, students School students Students teacher School, students suffered
10	3	Girls dormitory Some students Perfect (prefect)	Lexical: Collocation Reference: comparative Lexical: Same word	Dormitory Students Perfect (prefect)
11	3	We School Sad and angry	Reference: personal Lexical: Same word Lexical: Collocation	Our (speaker) School Sadness, suffer
12	6	Some student Steal School uniform Suffered Waste School fees	Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word Lexical: collocation	Student Steal Student, school Suffered Waste School, student, teacher
13		Happiest School	Lexical: Autonym Lexical: Same word	Sadness school

FCC2

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
3	3	school parent student	Lexical: Collocation Lexical: Same word Lexical: Collocation Lexical: Same word	education school student student

FCC3

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
3	1	Student	Lexical: Collocation	Teacher, school
4		Some of the students School	Reference: comparative Lexical: Same word	Students School
5	2	They Food	Reference: personal Lexical: near synonym	Some of students Meal
6	5	Some of them Food Education School Fruits	Reference: comparative Lexical: Same word Lexical: Collocation Lexical: Same word Lexical: general noun	Students Food School School Food
7	1	Some of the students	Reference: comparative	Students
8	1	They	Reference: personal	Students

FFC4

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	2	Principal Teacher	Lexical: Collocation Lexical: Same word	School, teacher, education Teacher
3	3	Principal Student Teacher	Lexical: Same word Lexical: Collocation Lexical: Same word	Principal School, teacher, principal Teacher
4		Student	Lexical: Same word	Student
5	3	Our school Teacher	Lexical: Same word Lexical: Same word	Our school Teacher
6		Class Teacher	Lexical: Collocation Lexical: Same word	School principal teacher Teacher
7		Teacher	Lexical: Same word	Teacher
8		Principal student	Lexical: Same word Lexical: Same word	principal student
9		principal	Lexical: Same word	principal student

		student	Lexical: Same word	
10		Education Teacher	Lexical: Same word Lexical: Collocation	Education Teach

FCC5

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	4	They School Teacher Lesson	Reference: personal Lexical: Same word Lexical: collocation Lexical: collocation	None School School School
3	4	They Student Education Learning	Reference: personal Lexical: collocation Lexical: collocation Lexical: collocation	Teachers Teachers Teachers, school Teacher, school
4	4	They Teacher Subject Student	Reference: personal Lexical: same word Lexical: collocation Collocation	Teachers Teachers Learning Teacher
5	1	School	Lexical: same word	School

FCC6

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	2	She Family	Reference: personal Collocation	None My brother
3	2	Which Brother	Reference: demonstrative Collocation	None My brother
4	3	Him You Student	Reference: Personal Reference: personal Lexical: Collocation	Vague Vague School
5	1	My father	Lexical: Collocation	Family, my brother
6	2	My father School	Lexical: same word Lexical: Same word	My father School
7	1	That young girl	Reference: Demonstrative	Vague
8	1	Parents school	Lexical: Collocation Lexical: Same word	family, father, brother school
9	1	school	Lexical: Same word	school

FCC7

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
5	1	I	Lexical: reiteration	I
7	1	Good future	Lexical: Collocation	My future

8	1	My brown	Lexical: Collocation	I
9	1	Teacher	Lexical: Collocation	School
10	1	Education	Lexical: Same word	Education
11	1	Happy	Lexical: Collocation	Good future
12	1	School So	Lexical: Same word Conjunction: causal	School Preceding sentence
13	2	Because School	Conjunction: causal Lexical: Same word	Preceding sentence School
14	2	School Education	Lexical: Same word Lexical: Collocation	School School
16	3	School Principal Student	Lexical: Same word Lexical: Collocation Lexical: Collocation	School School School
17	1	Teacher	Lexical: Collocation	School
18		Teacher Clothes	Lexical: Same word Lexical: Same word	Teacher Clothes
19		Education Teacher	Lexical: Collocation Lexical: Same word	School Teacher

FCC8

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	1	Happiest day	Collocation	Today
3	2	School Principal	Same word Collocation	School School
4	1	School	Same word	School
5	1	School	Same word	School
6	1	School	Same word	School
7	4	Our school	Reference: possessive	School
9		So Student Teacher	Conjunction: causal Collocation Collocation	School Preceding sentence School
10		School Principal Student	Lexical: same word Collocation Same word	School School Student
11	12	School Principal	Same word Collocation	School School
12		Teacher	Collocation	School
13		School	Same word	School

FCC9

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	4	Smart Education Teacher Lesson	Lexical: same word Lexical: collocation Lexical: collocation Lexical: collocation	Smart School School School
3	1	Teacher	Lexical: Collocation	School

4	1	School	Lexical: Same word	School
6	1	School	Lexical: Same word	School
7	2	School Education	Lexical: Same word Lexical: Collocation	School School
8	1	Principal	Lexical: Collocation	School

FCC 10

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	1	Building	Lexical: same word	Building
3	2	Students Building	Lexical: Collocation Lexical: Same word	School Building
4	1	Student	Lexical: Same word	Student
6	4	She Principal Build Our school	Reference: personal Lexical: Collocation Lexical: Collocation Lexical: Collocation	Vague School Building School
7	1	Teacher	Lexical: Collocation	School
8	1	Teacher	Lexical: Same word	Teacher
9	2	Student Education	Lexical: Collocation Lexical: Collocation	Teacher Teacher
10	2	Education Teacher	Lexical: Same word Lexical: Collocation	Education Education
11	2	The student Teacher	Lexical: Collocation Lexical: Same word	Student Teacher
13	1	Dormitory	Lexical: Collocation	School
14	1	Form three	Lexical: Collocation	School
15	2	Student Dining hall room	Lexical: Collocation Lexical: Collocation	School School
16	1	Education	Lexical: Collocation	School
17		School Build	Lexical: same word Lexical: Same word	School Build
18		The student	Lexical: Same word	Student
19		Student Teacher	Lexical: Same word Lexical: Same word	Student Teacher

FCC 11

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	1	The teacher	Lexical: collocation	School
4	1	School	Lexical: Same word	School
5	2	Teacher Student	Lexical: Collocation Lexical: Collocation	School School
6	1	Teacher	Lexical: Same word	Teacher
7	1	Student	Lexical: Same word	Student
8	1	School	Lexical: Same word	School
10	2	Field School	Lexical: Collocation Lexical: Same word	School School
11	1	Student	Lexical: Collocation	School
12	2	The teacher Student	Lexical: Collocation Lexical: Collocation	Teacher School
13	2	Student Exams	Lexical: Same word Lexical: Collocation	Student School, teacher
15	1	Teacher	Lexical: Collocation	Student
16	2	Lesson Assignment	Lexical: Collocation Lexical: Collocation	School School
17	2	Lesson Assignment	Lexical: Same word Lexical: Same word	Lesson Assignment
18		The school	Lexical: Same word	School

FCC 12

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	3	But Teachers Students	Conjunction adversative Lexical: Same word Lexical: Collocation	Sentence 1 Teachers Teachers
3	2	Teachers Education	Lexical: Same word Lexical: Collocation	Teachers Teachers
4	6	Students School School Students Learn Education	Lexical: Same word Lexical: Collocation Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation	Students Teachers School Students Student teachers school

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
5	4	the school students learn education	Lexical: Same word Lexical: Same word Lexical: Same word Lexical: Same word	school students learn education
6	1	school	Lexical: Same word	school
7	1	dorm	Lexical: Collocation	school
8	1	problem	Lexical: Same word	problem
9	1	food	Lexical: Same word	food

10	3	so food school	Conjunction: causative Lexical: Same word S Lexical: same word	preceding sentence food school
11		education school	Lexical: Collocation Lexical: Same word	school school

FCC 13

Sente nce Numb er	Num ber of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	1	dormitory	Lexical: Collocation	school student
3	1	problem	Lexical: Collocation	rude
4		dormitory	Lexical: Same word	dormitory
5	1	principle	Lexical: Collocation	school
6	1	student	Lexical: Collocation	school
7	2	form 3 student mother house	Lexical: Collocation Lexical: Same word	student mother house
8	1	uniform	Lexical: Collocation	school
9	1	dress	Lexical: Collocation	uniform
10	1	motherhouse	Lexical: Same word	mother house
11	1	fruit	Lexical: superordinate term	food
12	3	school building student	Lexical: Same word Lexical: Collocation Lexical: Collocation	school mother house school

FCC14

Senten ce Numb er	Num ber of ties	Cohesive Device	Type of Cohesion	Presupposed Item
3	1	boarding and day school	Collocation	school
4	2	classroom school	Lexical: Collocation Lexical: Same word	school school
5	1	education	Lexical: Collocation	school
6	1	student	Lexical: Collocation	school
7	1	school	Lexical: Same word	school
8	1	hearing impaired	Lexical: synonym	special student
9	2	principal school	Lexical: Collocation Lexical: Same word	school school
12	1	principal	Lexical: Same word	principal
13	2	teacher educate	Lexical: Collocation Lexical: Collocation	principal school principal student
15		students school	Lexical: Same word Lexical: Same word	student school
16	1	grade	Lexical: Collocation	school students

17	1	students	Lexical: Same word	students
20	2	student education	Lexical: Same word Lexical: Collocation	student school

FCC15

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	1	teacher in school	Lexical: reiteration	teacher in school
3	1	student	Lexical: Same word	student
4	1	school	Lexical: Same word	school
5	1	teacher	Lexical: Collocation	teacher in school
6	1	school	Lexical: Same word	school
7	1	students	Lexical: Same word	student
8	1	teacher	Lexical: Same word	teacher
9	1	school	Lexical: Same word	teacher
10	2	teacher student	Lexical: Same word Lexical: Same word	school school
11	1	dining hall	Lexical: Collocation	school
13	2	school teacher	Lexical: Same word Lexical: Same word	school school
14	3	student grade principal	Lexical: same word Lexical: Collocation Lexical: Collocation	student school school
15		teacher student principal dormitory dining hall	Lexical: Same word Lexical: Same word Lexical: Collocation Lexical: Collocation Lexical: Collocation	teacher student student student school student school
17		school	Lexical: Same word	school

FCC16

Sentence Number	Number of ties	Cohesive Device	Type of Cohesion	Presupposed Item
2	1	our school	Lexical: Same word	our school
3	3	my school education student	Lexical: Collocation Lexical: Collocation Lexical: Collocation	our school school school
4	2	teacher school rules	Lexical: Collocation Lexical: Collocation	school school
5	1	education	Lexical: Collocation	school
6	2	teacher school	Lexical: Same word Lexical: Same word	teacher school
7		school	Lexical: Same word	school
8	2	our school dormitory	Lexical: Collocation Lexical: Collocation	school school
9	3	school student	Lexical: Same word Lexical: Collocation	school school

		education	Lexical: Collocation	school
10	2	student teacher	Lexical: Same word Lexical: Same word	student teacher
11	1	our school	Lexical: Same word	our school
12	2	student school	Lexical: Same word Lexical: Same word	student school
13	2	school principle	Lexical: same word Lexical: Collocation	school school
14	2	our school teacher	Lexical: Same word Lexical: Same word	our school teacher
15		teacher student deaf	Lexical: Same word Lexical: Same word Lexical: Collocation	teacher teacher hearing
16		sign Language school	Lexical: Same word	school

FCC 22

Sentence Number	Number of ties	COHESIVE DEVICE	TYPE OF COHESION	PRESUPPOSED ITEM
2	1	School	Lexical: Same word	school
3	1	Form three	Lexical: Collocation	school
4	1	School	Lexical: Same word	School
5	1	School	Lexical: Same word	School
6	Sentences 5 & 6 are identical			
7	2	Because School	Causative conjoin same word	Preceding sentence school
8	3	Development dormitory sp classroom	Lexical: Same word Lexical: Collocation Lexical: collocation	Development School School
9	2	Happiest day School	Lexical: Collocation Lexical: Collocation	Enjoy a lot School
10	1	Today	Temporal Conjunction	Preceding text
11	2	Happy day Good Environment	Lexical: Collocation Lexical: Collocation	Happiest Enjoy a lot
12	2	Happy day School	Lexical: Collocation Lexical: Same word	Happiest/enjoy school
13	2	Happy day School	Lexical: Collocation Lexical: Same word	Happy School
14	1	Teacher	Lexical: Collocation	Teacher
15	3	Because Teacher Student	Causal conjunction	Preceding sentence
16	2	Student happy	Lexical: Same word Lexical: Same word	Student happy
17	1	Teacher	Lexical: Collocation	Teacher
18	1	Teacher	Lexical: Same word	Teacher
20	2	School	Lexical: Same word	School

		Exam	Lexical: collocation	School
21	3	Student Happiest School	Lexical: Same word Lexical: Same word Lexical: same word	Student Happiest school
22	2	Enjoy School	Lexical: Same word Lexical: Same word	School enjoy
23	1	Game, dance &club	Lexical: Collocation	Enjoy/happiest
24	1	Education	Lexical: Collocation	School
25	4	School Teacher Student learn	Lexical: Same word Lexical: Same word Lexical: Same word Lexical: collocation	School Teacher Student student
26	1	happy	Lexical: Same word	happy
27	2	School Develop	Lexical: Same word Lexical: collocation	School Development
28	1	Today	Temporal conjunction Lexical: Same word	Preceding Sentences
29	1	Our School	Lexical: Same word	Our School
FCC 24				
Sentence Number	Number of Ties	Cohesive Item	Type of Cohesion	Presupposed Item
2	1	it	Reference; personal	day
3	1	Because	Conjunction: causative	Preceding sentence
5	2	Right result	Lexical: Collocation Lexical: Same word	Day result
6	1	Primary school	Lexical: collocation	Exam
7	2	And Primary School	Conjunction: additive Lexical: Same word	Preceding Sentence Primary School
8	2	As soon as Primary school	Temporal conjunction	Preceding Sentence Primary School
9	4	As soon as Exam KCPE Class	Temporal conjunction Lexical: Same word Lexical: Collocation Lexical: collocation	Preceding Exam Exam School
11	2	When KCPE	Temporal conjunction Lexical: Same word	Preceding Sentence
12	2	Class right Exam	Lexical: Collocation Lexical: Collocation	KCPE School
13	1	Sec School	Lexical: Collocation	Primary School

15	1	Sec School	Lexical: Collocation	Primary School
16	1	But	Adversative Conjunction	Preceding Sentence
17	2	And Fee	Additive conjunction Preceding Sentence Collocation	Preceding
18		As soon as sec School Principle*	Temporal conjunction Lexical: Same word	Preceding sentence secondary school
19		That Principle sp	Demonstrative reference	Principle *
20		Principle sp student	Lexical: Same Word	Principle student
21	1	Secondary School	Lexical: Same word	Secondary School
22	2	When Secondary School	Temporal conjunction Lexical: Same word	Preceding sentence secondary school
23	1	School	Lexical: Same word	school
24		And Secondary School	Additive conjunction Lexical: Collocation	Preceding sentence secondary school
25		But	Adversative Conjunction	Preceding sentence
26		Rev.Muhoro Sec School	Lexical: Same word	Rev.Muhoro Sec School
27		So School	Causative conjunction Lexical: Same word	Preceding sentence School
FCC 1				
2	2	I SCHOOL	Lexical: Same word Lexical: Same word	I School
3	4	When Class Learn reading	Temporal conjunction Lexical: Collocation Lexical: collocation	Preceding sentence School School
4	7	And that day Reading My exam Learn Teach school	Additive conjunction Demonstrative reference Lexical: Collocation Lexical: Same word	Preceding text one day I went to school School School
FCC2				
2	3	I Class form three	Lexical: Collocation	my School
3	1	I	Lexical: Same word	I
4	2	When	Temporal	Vague

		Ngala Secondary school	conjunction Lexical: Collocation	School
5	2	Teacher Biology	Lexical: Collocation	School
6	1	I	Lexical: Same word	I
7	1	I	Lexical: Same word	I
8	1	Subject	Lexical: collocation	School
9	1	Friend	Lexical: Same word	Friend
10	1	Friend	Lexical: Same word	Friend
11	1	School	Lexical: Same word	School
12	1	School	Lexical: same word	school
14	1	Friend	Lexical: same word	friend
16	3	When School Class eight	Conjunction Lexical: Collocation	Preceding Sentence school

FCC 3

Sentence Number	Number of Ties	Cohesive item	Type of Cohesion	Presupposed Item
2	1	Ngala secondary school	Lexical: Collocation	Form one
3	2	When	Lexical: Temporary conjunction	Proceeding sentence
4	3	Ngala	Lexical: Collocation	Ngala secondary school
5	4	Staffroom teacher	Lexical: Collocation Lexical: Collocation	
7	1	Principal	Lexical: Collocation	school
9	2	Teacher Principal	Lexical: Collocation	school
11	2	KCPE subject	Lexical: Collocation	school
12	1	Parent	Lexical: Same word	Parent
13	2	Class dorm	Lexical: Collocation	school
14	1	principal	Lexical: Collocation	School
15	1	principal	Lexical: Same word	principal
16	1	Student	Lexical: Collocation	
17	1	Mother	Lexical: superordinate	
18	1	Parent	Lexical: Same word	
19	2	Principal Student	Lexical: Same word	
20	2	Subject teacher	Lexical: Same word Lexical: Same word	Subject

APPENDIX 4: Letter of Introduction



INSTITUTE OF POST GRADUATE STUDIES

Private Bag - 20157
KABARAK, KENYA
E-mail: directorpostgraduate@kabarak.ac.ke

Tel: 0773265999
Fax: 254-51-343012
www.kabarak.ac.ke

14th March, 2018

Ministry of Higher Education Science and Technology,
National Council for Science, Technology & Innovation,
P.O. Box 30623 – 00100,

Dear Sir/Madam,

RE: RESEARCH BY ANTONY SOMBA MANGOKA –GDE/M/1285/09/11

The above named is a student at Kabarak University taking PHD Degree in Language and Linguistics. He is carrying out research entitled “*Cohesion in the Written English Texts of Hearing Impaired Learners in Selected High Schools in Kenya*”

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please provide the necessary assistance.



DR. ESTHER J. KIBOR
AC. DIRECTOR (POST-GRADUATE STUDIES)

Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)



Kabarak University is ISO 9001:2015 Certified

APPENDIX 5: Research Permits

**THIS IS TO CERTIFY THAT:
MR. ANTONY SOMBA MANGÓKA
of KABARAK UNIVERSITY, 18286-20100
NAKURU, has been permitted to conduct
research in *Kiambu , Machakos ,
Nakuru , Nyeri Counties***

**Permit No : NACOSTI/P/18/77180/22035
Date Of Issue : 28th March,2018
Fee Received :Ksh 2000**

**on the topic: *COHESION IN THE
WRITTEN ENGLISH TEXTS OF HEARING
IMPAIRED LEARNERS IN SELECTED HIGH
SCHOOLS FOR THE DEAF IN KENYA***

**for the period ending:
28th March,2019**



**Applicant's
Signature**



**Director General
National Commission for Science,
Technology & Innovation**

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



REPUBLIC OF KENYA



**National Commission for Science,
Technology and Innovation**

**RESEARCH CLEARANCE
PERMIT**

Serial No.A 18113

CONDITIONS: see back page



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
2241349,3310571,2219420
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/77180/22035**

Date: **28th March, 2018**

Antony Somba Mangóka
Kabarak University
Private Bag - 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Cohesion in the written English texts of hearing impaired learners in selected high schools for the deaf in Kenya,”* I am pleased to inform you that you have been authorized to undertake research in **Kiambu, Machakos, Nakuru and Nyeri Counties** for the period ending **28th March, 2019.**

You are advised to report to **the County Commissioners and the County Directors of Education, Kiambu, Machakos, Nakuru and Nyeri Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioners
Selected Counties.

The County Directors of Education
Selected Counties.

National Commission for Science, Technology and Innovation is ISO9001: 2008 Certified



THE PRESIDENCY

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

E-mail: nyericountycommissioner@yahoo.com
Telephone: 061 2030619/20
Fax: 061 2032089
When replying please quote

COUNTY COMMISSIONER
NYERI COUNTY
P.O. Box 33-10100
NYERI

Ref. No. NYC/ADM 1/57 VOL.VI/43

5th April, 2018

Anthony Somba Mangoka
Kabarak University
Private Bag – 20157
KABARAKA

RE: RESEARCH AUTHORIZATION

Reference is made to your letter dated 5th April, 2018 on the above subject.

Approval is hereby granted to carry out research on “**Cohesion in the written English texts of hearing impaired learners in selected high schools for the deaf**” in Nyeri County.

The period of study ends on 28th March, 2019.


M. KIAMA
For: COUNTY COMMISSIONER
NYERI COUNTY

**MINISTRY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION**

E-Mail –centralpde@gmail.com
Telephone: Nyeri (061) 2030619
When replying please quote



OFFICE OF THE COUNTY
DIRECTOR OF EDUCATION
P.O. Box 80 - 10100,
NYERI

CDE/NYI/GEN/23/VOL.II/187

5th April, 2018

The Sub County Director of Education
MUKURWEINI

RE: RESEARCH AUTHORIZATION

Reference is made to Secretary National Commission for Science, Technology and Innovation letter Ref. NACOSTI/P/18/77180/22035 of 28th March, 2018 on the above subject.

I wish to inform you that Anthony Somba Mang'oka of Kabarak University has reported to the County Director of Education Nyeri in compliance with the requirements of the Secretary, National Commission for Science, Technology and Innovation. He has been authorized to carry out research on "***Cohesion in the written English texts of hearing impaired learners at Rev. Muhoro School for the deaf in Nyeri County***" for a period ending 28th March, 2019.

**MOSES MAKORI
COUNTY DIRECTOR OF EDUCATION
NYERI COUNTY**

cc.

National Commission for Science,
Technology and Innovation,
P.O. Box 30623-00100
NAIROBI

Anthony Somba Mang'oka



THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: 21009 and 21983 – 90100
Email Address: countycommasaku@gmail.com
Fax No. 044-21999

COUNTY COMMISSIONER
P.O. BOX 1 - 90100
MACHAKOS.

When replying please quote:
REF: CC/ST/ADM 5/9 VOL.II/175
and date.

6th April, 2018

TO: WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – ANTONY SOMBA MANGOKA

The National Commission for Science, Technology and Innovation has authorized the above named researcher to carry out a research on ***“Cohesion in the Written English Texts of Hearing Impaired Learners in Selected High Schools for the Deaf”*** in Machakos Sub County for the period ending ***28th March, 2019***

Please be notified and accord him necessary assistance.

COUNTY COMMISSIONER
MACHAKOS
P.O. Box 1 MACHAKOS

George Opiyo Juma
For: County Commissioner
MACHAKOS

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EDUCATION

Telegrams: **"SCHOOLING"** Machakos
Telephone: Machakos (
Fax: Machakos
Email -cdemachakos@yahoo.com
When replying please quote



OFFICE OF THE
COUNTY DIRECTOR OF
EDUCATION
P.O. BOX 2666-90100,
MACHAKOS

MKS/ED/CDE/U/1/VOL.2/183

6/4/ 2018

Antony Somba Mang'oka
Kabarak University
Private Bag – 20157
KABARAK

RE: RESEARCH AUTHORIZATION.

Reference is made to the letter from National Commission for Science, Technology and Innovation Ref: **NACOSTI/P/18/77180/22035** dated **28th March, 2018**.

You are hereby authorized to carry out your research on, **"Cohesion in the written English texts of hearing impaired learners in selected high schools for the deaf in Kenya, Machakos County,"** for a period ending **28th March, 2019**.



SIMON NJIRU
FOR: COUNTY DIRECTOR OF EDUCATION
MACHAKOS



THE PRESIDENCY
MINISTRY OF INTERIOR AND
CO-ORDINATION OF NATIONAL GOVERNMENT

Telegrams: "DISTRICTER", Nakuru
Telephone: Nakuru 051-2212515
When replying please quote

DEPUTY COUNTY COMMISSIONER
NAKURU EAST SUB COUNTY
P.O BOX 81
NAKURU

Ref. No. **CC.SR.EDU 12/1/2 VOL III (115)**

11th July, 2018

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION
ANTONY SOMBA MANGOKA

The above named person has been authorized to carry out research on ***"Cohesion in the written English texts of hearing impaired learners in selected high schools for the deaf in Nakuru County, Kenya"*** for the period ending **28th March, 2019.**

Please accord him the necessary support.

PATRICK OMUSE
FOR: DEPUTY COUNTY COMMISSIONER
NAKURU EAST SUB-COUNTY

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING OF BASIC EDUCATION

Telegrams: "EDUCATION",
Telephone: 051-2216917
When replying please quote



COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

Ref.CDE/NKU/GEN/4/21/VOL.II/65

11th July, 2018

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION –ANTONY SOMBA MANGOKA
PERMIT NO. NACOSTI/P/18/77180/22035

Reference is made to letter NACOSTI/P/18/77180/22035 dated 28th March, 2018.

Authority is hereby granted to the above named to carry out research on "*Cohesion in the written English texts of hearing impaired learners in selected high school for the deaf in Nakuru County - Kenya,*" for a period ending 28th March, 2019.

Kindly accord him the necessary assistance.

A handwritten signature in blue ink, appearing to read 'G.N. Kimani'.

G.N. KIMANI
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY

Copy to:

- Kabarak University
Private Bag – 20157
KABARAK

APPENDIX 6: List of Publications

- 1) **Mang'oka, A. S.**, Ogola, J. O., Bartoo, P. (2019). An Interrogation of the types of Grammatical Cohesive Devices that are Prominent in the Writing of Hearing-Impaired Learners. *Editon Cons. J. Lit. Linguist. Stud.*, 1(3), 63-73.
- 2) **Mang'oka, A.S;** Onyango, J.O & Bartoo, P. (2019). An analysis of the grammatical features and Lexical Features that the Hearing-Impaired Learners Use In Writing To Achieve Cohesion. In *International Journal of Linguistics, Literature and Translation (IJLLT)* ISSN: 2617-0299
- 3) Chepyegon, D.K., and **Mang'oka, A. S.** (2018). Language Predation: How L1 Interference Contributes to Lexico-Grammar Errors in the Pupils' Written Work among Tugen Speakers from Baringo County, Kenya. *Mara res. j. humanities soc. sci.* Vol. 3, No. 2, Pages 1 - 11, ISSN: 2519-1489
- 4) Chepyegon, D.K., and **Mang'oka, A. S.** (2018). The Nature of Lexico-Grammatical Errors in the Pupils' English Written texts among Tugen Speakers from Baringo County. *Mara res. j. humanities soc. sci.* Vol. 3, No. 1, Pages 91 - 105, ISSN: 2519-1489
- 5) Mutie, S., and **Somba, A.** (2017). A Symbiotic Relationship between Creative Writing and Politics in Postcolonial Africa. *Mara International Journal of Social Sciences Research Publication*, Vol. 1, No. 1, Pages 1 – 6. ISSN 2523-1464
- 6) Kimeto, L. and **Somba. A.** (2017). The Challenges Faced in Integrating Participatory Communication Methods into Slum Upgrading: A Case of Kibera, Kenya. *Mara International Journal of Social Sciences Research Publication*, Vol. 1, No. 1, August 2017, Pages 38- 48. ISSN 2523-1464
- 7) Kimeto, L., and **Somba, A.** (2017). Application of the Principles of Participatory Communication in the Design and Implementation of the Kenya Slum Upgrading Program (KENSUP). *Mara International Journal of Social Sciences Research Publication*, Vol. 1, No. 1, Pages 7 – 20. ISSN 2523-1464
- 8) Kimeto, L. and **Somba. A.** (2017). A White Elephant? A Critical Look at the Usefulness of the Communication Channels used by the Kibera Slum Residents, Kenya. *Mara International Journal of Social Sciences Research Publication*, Vol. 1, No. 1, Pages 21 – 29. ISSN 2523-1464
- 9) Kimeto, L. and **Somba. A.** (2017). The Role Played by Settlement Executive Committee in the Design and Implementation of the KENSUP Communication Strategy in Kibera, Kenya. *Mara International Journal of Social Sciences Research Publication*, Vol. 1, No. 1, Pages 30 – 37. ISSN 2523-1464
- 10) **Mang'oka, A. Somba** and Somba, A.W., (2016) Learning Induced Errors in the Written English Texts of Hearing Impaired Learners in Primary School. *Mara Research Journal of Humanities and Social Sciences* Vol. 1, No. 1, December 2016, Pages 94 – 110, ISSN: 2519-1489
- 11) Muthoka, S M., Kitonga, N.N., **Mang'oka, A.S** (2016) A Seed on Good Soil or a Seed on Rocks: Museveni's Contestations with Democracy in Sowing the Mustard

- 12) Mutie, S.M, **Somba, A. M**, Chemwei B, Mwithi, F.M &Mwakio. L (2015). The Ghost Within: A Literary Study of East African Nationalist Leaders' Writings. In International Journal of Humanities and Social Science. Vol. 5, No. 6(1)
- 13) Mutie, S.M, **Somba, A. M**, Chemwei B, Nzula N,(2015) Jomo Kenyatta's Speeches and the Construction of the Identities of a Nationalist Leader in Kenya. In English Language and Literature Studies; Vol. 5, No. 2; 2015 ISSN 1925-4768 E-ISSN 1925-4776
- 14) Somba, A.W., and **Somba, A.M.**, (2015b) Categorization of Linguistic Features Creating Cohesion in Selected Gikuyu Texts. In International Journal of ELT, Linguistics and Comparative Literature. <http://journalofelt.in/> (ISSN: 2347-887X) online.
- 15) Somba, A.W., and **Somba, A.M.**, (2015a) Linguistic Features that Mark Cohesion in Selected Gikuyu Texts. In Research on Humanities and Social Sciences www.iiste.org ISSN (Paper) 2224-5766 ISSN (Online) 2225-0484 (Online) Vol.5, No.2, 2015
- 16) Ezra K R; Rotich, J.C.; N. Ntabo, V.N.; Korir, S.; Onguso, B.N; **Somba, A.M.** (2014).The Role of Knowledge Management towards the Achievement of Vision 2030.A Survey of Secondary School Drop Outs in Rongai District of Nakuru County, Kenya. In Information and Knowledge Management Journal www.iiste.org ISSN 2224-5758 (Paper) ISSN 2224-896X (Online) Vol.4, No.8, 2014
- 17) Chemwei B. & **Mang'oka S.** (2014) Teacher-Student Perspectives And Experiences With The Use Of Cooperative Learning In Poetry Classroom Settings. In International Journal of Current Research Vol. 6, Issue, 04, pp.6141-6145, April, 2014 Available online at <http://www.journalcra.com>
- 18) **Mang'oka A.S** & Mutiti, J. K. (2013).The Relationship Between Verbal Auditory, And Visual Signification In The Acquisition Of English L2 Vocabulary By The Hearing Impaired Learners. In Ruwaza Afrika: Journal Of Contemporary Research In Humanities And Social Sciences.Vol.2 No.1 (238-261).