

# TEACHING ENGLISH LITERACY SKILLS TO DEAF LEARNERS IN PRIMARY SCHOOLS IN EASTERN AND CENTRAL KENYA.

By

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## **Abstract**

This thesis explores the experiences and literacy teaching practices of primary school teachers for deaf learners in Kenya. While several studies have investigated the development of literacy skills among deaf learners in developed countries, focus has primarily been on those who utilise speech thanks to access to newborn hearing screening and hearing devices. For this reason, this study specifically focusses on teaching of literacy skills to deaf learners who primarily employ sign language and often lack access to spoken language.

For this thesis, I utilised a qualitative research design and used semi-structured interviews, lesson observations, and document analysis as data-collection tools in seven primary schools for the deaf in Kenya. I conducted 24 semi-structured interviews with English literacy teachers and eight lesson observations. Furthermore, I collected documents such as lesson plans, textbooks, and curriculum design. I analysed data using reflexive thematic analysis in order to gain an in-depth understanding of teachers' practices and experiences. I discussed the findings by considering the sociocultural approach to language teaching as well as previous literature on literacy skills development and deaf learners.

The main findings reveal how teachers' practices support the development of deaf learners' literacy skills. Specifically, the findings indicated that teachers focussed on specific language components and differentiated their methods of instruction in order to aid learners in reading and writing.

The other key finding is that teachers organised their classrooms space to increase opportunities for both human and material mediation. Additionally, regarding the use of resources in literacy lessons, this study revealed that teachers used visual resources to mediate learners' understanding of written English, and they used print to mediate learners' contact and engagement with written language. However, some instructional practices like where teachers dominated the literacy lessons limited the support deaf learners received in literacy lessons. Such findings revealed few opportunities for interaction, mediation, and scaffolding, which contribute to limited acquisition of literacy skills in English by deaf learners.

Continuing, even though teachers appreciated the support they received, their experiences revealed limited instructional knowledge as well as unsuitable curriculum and resources. Additionally, teachers viewed Kenyan Sign Language (KSL), limited language proficiency, and deaf learners' challenges in reading and writing tasks as limitations to learners' proficiency in literacy skills. Overall, the teachers' experiences indicate a lack in deaf learners' acquisition of appropriate tools, such as language and vocabulary knowledge, as well as limited human mediation of their literacy learning.

The findings suggest that teachers must create opportunities for interaction and scaffolding in literacy lessons by effectively mediating learning. Furthermore, findings also reveal a need for teachers to enrol in teacher professional development programmes in order to gain effective instructional skills. In addition, it is important to consider teachers' pedagogical needs and contexts when developing programmes for practising teachers. Since deaf learners use KSL, teachers should be provided with

information regarding KSL and literacy skills development, as well as how they can effectively utilise KSL in teaching literacy skills in Kenya.

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## **Abbreviations**

ASL - American Sign Language

BSL - British Sign Language

CBC - Competency-Based Curriculum

CLT – Communicative Language Teaching

CIs- Cochlear Implant

CRIDE - Consortium for Research into Deaf Education.

D - Deaf children without a cochlear implant

dB - decibel

DCI - Deaf Children with Cochlear Implant

DHH - Deaf and Hard of Hearing

EARC - Educational Assessment and Resource Centres.

EFL - English as a Foreign Language

GDC – Global Deaf Connect

GSL - Greek Sign Language

GoK - Government of Kenya

H - Hearing children

HA - Hearing Aids

HL - Hearing Loss

HSL - Hungarian Sign Language

KICD - Kenya Institute of Curriculum Development

KCPE- Kenya Certificate of Primary Education

KISE - Kenya Institute of Special education

KNEC - Kenya National Examinations Council

KNBS - Kenya National Bureau of Statistics

KSL - Kenyan Sign Language

L2 - Second languages

LCP - Learner Centred Pedagogy

MoE - Ministry of Education

MoEST - Ministry of Education, Science and Technology.

NACOSTI - National Commission for Science, Technology, and Innovation

NCAPD - National Coordinating Agency for Population and Development

PP1 - Pre-Primary 1

PP2 - Pre-Primary 2

SC - Simultaneous Communication

SDGs - Sustainable development Goals

SE - Signed English

SEE - Signed Exact English

SIWI - Strategic and Interactive Writing Instruction

SNE - Special Needs Education

SSE - Sign Supported English

TA- Thematic Analysis

TC - Total Communication

TSC - Teachers Service Commission

TPD - Teacher Professional Development

UK - United Kingdom

UN – United Nations

UNHS - Universal Newborn Hearing Screening

UNICEF - United Nations Children's Fund

USA - United States of America

WHO - World Health Organization

# **CHAPTER ONE: INTRODUCTION TO THE STUDY**

## **1.1 Introduction**

This thesis explores approaches, and resources used in teaching English literacy skills to deaf children in primary schools in Kenya. The study looks at instructional activities, resources, and experiences of teachers to contribute to the understanding of teaching English literacy skills to deaf children.

In this chapter, I will state the purpose and the significance of the study. I will explain what motivated me to undertake this study followed by the structure of thesis, showing the order in which, different chapters of the thesis will be presented and finally conclude the chapter.

## **1.2 Purpose of the study**

This qualitative study was designed to seek more information about teaching English literacy skills in primary schools for the deaf in Kenya. The study hopes to contribute to understanding of issues concerning development of English literacy skills by deaf learners in Kenya. The central question guiding this study is “how are English language literacy skills taught to deaf children in primary schools in Kenya?” It is hoped that the findings will generate more knowledge about the teaching of reading and writing to signing deaf children in contexts like Kenya.

The thesis intends to provide a detailed description of instructional practices and resources used in English literacy lessons in primary schools for the deaf in Kenya. The experiences of teachers will be addressed too. The approaches used by teachers, the resources, and teachers’ experiences will be explored in the light of existing

literature on deaf education and Social Cultural Theory (SCT) of language teaching. Three components of SCT that include, scaffolding, mediation and Zone of Proximal Development (ZPD) (Stuyf, 2002) will be used in discussing the findings.

### **1.3 Significance of the study**

This is the first qualitative study, with a large sample of 24 teachers, that has explored teaching literacy skills to deaf learners in Kenyan primary schools for the deaf using sociocultural perspective. I will strive to disseminate the findings in journals and conferences to reach a wider audience. Therefore, findings will be useful to stakeholders in deaf education as shown:

1. The ministry of education, Kenya, can benefit from findings of this study by accessing information regarding how literacy skills are taught in primary schools for the deaf. This can guide the ministry to provide guidelines on how to improve teaching of literacy skills to the deaf learners. For instance, the findings can contribute to development of in-service and pre-service teacher professional development programmes targeting primary school teachers of deaf children.
2. The teachers of deaf children can also understand more about their practices and see where there is need for improvement and ways in which they can do that. The findings can contribute to teachers' use of more effective approaches of teaching literacy in primary schools for the deaf in Kenya.
3. Non-governmental organisations who are interested in and working to improve education of deaf children in Kenya can use the findings of this study to support the interventions they provide to achieve their objectives.

4. Wider research community in deaf education can replicate this study in other contexts or use the findings to design intervention studies on teaching literacy skills to signing deaf children.

## **1.4 Motivation for the present study**

The motivation for conducting this study originated from my experience teaching deaf learners for six years in a residential primary school for deaf children in Kenya. I taught different subjects to deaf learners in various grades as is the norm in primary school system in Kenya. English which was one of the subjects I taught, was the most challenging subject for me to teach. During my time at the school for deaf learners, teachers frequently discussed the challenges and shared experiences of teaching different subjects to deaf children. The most frequently discussed subject was English. The discussions centred around deaf learners' use of Kenyan Sign Language as their primary mode of communication and the difficulties teachers encountered in teaching since the learners lacked spoken language and had limited access to auditory input. Therefore, I developed interest to study about teachers' experiences teaching English to deaf children in Kenya to understand it.

In addition to my teaching experience at the school for the deaf, I currently teach at Moi University in Kenya (special needs teacher-education program). This programme offers training in deaf education to trainee teachers of secondary schools and a school-based program for teachers already employed in primary schools. During the sessions with these trainee teachers, there were discussions about teaching different subjects to deaf learners, including English. Teachers enrolled in school-based programme and taught in schools for the deaf shared their experiences of teaching reading and writing,

mainly highlighting the challenges. The interactions and discussions I had with the teachers made me realize that this was still an area that needed to be pursued further by delving deeper into the practices and experiences of teachers and providing an in-depth discussion of the problem. Thus, my current job also contributed to my interest and motivated me to explore more about teaching English literacy skills to deaf children in Kenya.

## **1.5 Structure of the thesis**

The thesis is structured in that different chapters address different issues as indicated below.

In chapter two, which follows this chapter, I will provide background information about the context of the study, including the Kenyan education system and the education of deaf children. I will show the statistics of people living with disabilities in Kenya, the number of children in different categories of learners with special needs. I will also discuss teacher training in the field of special education.

In chapter three, I will first provide a brief overview of how the literature review was undertaken. This will be followed by review of literature on the development of literacy skills, instructional of reading and writing, translanguaging, visualisation and literacy teaching and studies that explored teaching practices with deaf learners. I will then consider literature on teaching and learning resources moving on to deaf education and teaching English to both hearing and deaf learners in Kenya. Overall, in chapter three I will highlight the need for this study and present the research questions.

In chapter four, I will describe the philosophical orientations in research and identify the philosophical assumptions underpinning this study. In addition, I will explain the methodology and methods of data collection. There will be a section where I show the entire process of data collection and steps followed in the data analysis.

In chapter five, I will present results of the reflexive thematic data analysis. Each research questions will be in separate sections of the chapter. The themes will include direct quotes of the data provided by the participants to support the analysis.

Chapter six is about research findings, and I will discuss key findings of the study by addressing each of the research questions in turn. I will consider the results in the light of the previous literature and the theoretical framework.

Chapter seven will provide a conclusion to the study. It will demonstrate the study's contribution to knowledge and the implications of the findings. There will be a section that proposes recommendations for both policy and practice in relation to deaf children in primary schools in Kenya and teaching literacy skills in English.

In the next chapter, I will explain the common terms used in literature of deaf education and state the term used in this study. I will describe the context of the research, starting with the population and education of deaf children and education in Kenya.

## **1. 6 Conclusion**

In conclusion, I have provided introduction to this study in this chapter. I gave the purpose the study seeks to serve and the motivation for the study. I have explained the factors that motivated me to conduct this study and the significance of the study. Lastly, I presented the organisation of the thesis.

## **CHAPTER TWO: CONTEXTUAL BACKGROUND**

### **2.1 Introduction**

This thesis investigates the instructional practices, experiences and resources used in English literacy lessons in primary Schools for the deaf in Kenya. This chapter is about the contextual background of the study. I will start by defining the commonly used terms concerning deaf people, and state the term adopted in this study. This will be followed by an outline of the context of the study, including number of deaf children in primary schools in Kenya. Next, I will describe education in Kenya and narrow down to education of deaf children. In addition, I will explain deaf learners' methods of communication and Kenyan sign language. A discussion of teacher training in special needs education in Kenya will follow. The last section will summarise the chapter.

### **2.2 Definition of Terms**

The following terms are often used in scholarly literature about people with hearing loss. The definition of each term will be given first then the term used in this study will be stated. The categorisation of deafness according to degree of hearing loss will be presented to provide information on the different levels of hearing loss and their classification.

#### **2.2.1 Hearing Impairment**

The term hearing impairment is an umbrella term that refers to hearing loss ranging from slightest inability to hear to total loss of hearing ability (Zahnert, 2011).

### **2.2.2 Deaf**

The term deaf is defined from two perspectives, one is the audiological perspective in which it is used to refer to people with severe to profound hearing loss (Marschark and Spencer, 2009). The second perspective refers to a person who is associated with the community that uses sign language and whose members identify with one another (Marschark and Spencer, 2009). When used to refer to the community or its members, the initial letter is capitalised, “Deaf” (Marschark and Spencer, 2009).

### **2.2.3 Hard-of-Hearing**

Hard-of-Hearing is used to refer to a person whose ability to hear spoken language is significantly affected by hearing loss, without completely preventing auditory input (Marschark and Spencer, 2009). Hard-of-Hearing is an umbrella term used to refer to those with mild to severe hearing loss and whose hearing can improve with assistive devices (Csizer and Kontra, 2020).

### **2.2.4 Categories of deaf children**

Deafness can be categorised according to the degree of hearing loss. The degree of hearing loss “is expressed as the mean level of amplification needed to enable someone to hear a sound of a specific frequency” and it is measured in decibels (DB) (Knoors and Marschark, 2014, p. 30). In Kenya, the Kenya Institute of Curriculum Development (KICD) provide degree of hearing loss ranges that are used to classify hearing loss as shown in table 2.1 below (KICD, 2018a) as a guideline for identifying and classifying learners with hearing loss.

**Table 2. 1 Classification of hearing loss according to degree of hearing loss (KICD, 2018b).**

Hearing Thresholds (DB HL)	Classification
-10-15	Normal hearing
16 to 25	Slight hearing loss
26 to 40	Mild hearing loss
41 to 55	Moderate hearing loss
56-70	Moderately severe hearing loss
71-90	Severe hearing loss
90+	Profound hearing loss

### **2.2.5 The term adopted in this study**

The term “hearing impairment” is used in research literature in Kenya (Sambu et al., 2017, Aura et al., 2016) and the curriculum design (KICD, 2018b) as a term to refer to the learners with varying degree of hearing loss. However, the term “deaf” is also used in some government documents in addressing issues about people with hearing loss, including children (KNBS, 2019, MoE, 2019). This shows that in the Kenyan context hearing impairment and deaf can be used to refer to people who have varying degrees of hearing loss. Therefore, I will use the term “deaf” in this study to refer to learners enrolled in primary schools in Kenya. However, I will use the terms deaf and Hard-of-Hearing (DHH) when referring to literature in which the authors used DHH.

In addition, the term “deaf” as used in this study, refers to deaf children whose hearing loss range from mild to profound as shown in table 2.1 as indicated by Kenya Institute of Curriculum Development (KICD). I made this decision since learners enrolled in primary schools for the deaf in Kenya include the hard-of-hearing and the profoundly deaf (Adoyo and Maina, 2019).

## **2.3 The Context of the study**

### **2.3.1 Geographical information of Kenya**

Kenya is a country located in East Africa with an area of 582,640 square kilometres. It borders Tanzania, Uganda, Somalia, Ethiopia, and South Sudan (UN, 2018). There are over 50 languages spoken in Kenya (Mwaniki, 2017). The Kenyan constitution of 2010 recognizes English and Kiswahili as official languages (Mwaniki, 2017).

### **2.3.2 Children with special needs in education in Kenya**

The recent Kenya national housing census of 2019 indicated that the number of deaf people aged five years and above was about 385,417 out of about 900,000 people with disabilities out of total population of about 47 million (KNBS, 2019). It is important to note that the 2019 Kenyan census statistics showed a lower prevalence rate of disability of 2.2 % which is significantly lower than 15 % global rate reported by the World Health Organization (WHO) (Devnit.org, 2020).

Following the 2019 census in Kenya, which showed a disability prevalence rate of 2.2%, the organisations advocating for people with disabilities questioned the official census prevalence rate and suggested that the results under-represent the proportion of people living with disabilities (Devnit.org, 2020). Thus, this suggests that there are challenges in measuring disability in Kenya. This shows that the exact number of people living with disabilities of all kinds, including the deaf population in Kenya is unknown.

In Kenya in 2019, there were 136,081 children with special education needs enrolled in primary schools (MoE, 2019). Of these, there were 13,725 deaf learners enrolled in primary schools in 2019 (MoE, 2019).

## **2.4 Education in Kenya**

### **2.4.1 An overview of education in Kenya**

The education system in Kenya is anchored on national goals and aspirations (Maluei, 2019). The government uses vision 2030 (Republic of Kenya, 2007) as the road map to Kenya's progress to middle income and industrialised country by the year 2030 (Njengere, 2020). This meant that the education system has to focus on developing critical areas that fulfil the individual's and the country's developmental needs (Maluei, 2019). However, the previous 8-4-4 system (eight years of primary, four years of secondary, and four years of university education) was exam-oriented where only well performing students especially in sciences and few humanities and languages advance in education, leaving most of the learners without reaching their potential (Njengere, 2020). Since the vision 2030 identified strategies such as integration of early childhood and primary education, modernising teacher education and reforming secondary school curriculum, a task force that was set up to investigate the education system, recommended a new 2-6-3-3-3 system of education (Njengere, 2020).

The new curriculum is organised into two years pre-primary, six years of primary school, six years of secondary education, and three years of university, tertiary education and training (KICD, 2016). Thus, the 8-4-4 system was replaced by the 2-6-6-3-3 system of education in 2017 (Maluei, 2019). This Competency-Based Curriculum (CBC) seeks to ensure everyone reaches their potential and the country meets its

developmental goals (KICD, 2016) as illustrated in the vision 2030 and stated in this section. The CBC intends to guide all learners to develop seven core competencies and reach their potential. These core competencies include communication and collaboration, self-efficacy, learning to learn, citizenship, critical thinking and problem-solving, creativity and imagination, and digital literacy (KICD, 2016). It is identifiable that areas such creativity and imagination is recognised in CBC unlike in the 8-4-4 system, ensuring all learners attain their potential and contribute to the country's growth.

Children with special needs in education are offered two options in the curriculum. The 2-6-3-3-3 curriculum mentioned above, is the standard curriculum that is offered to all children including those, with deafness, emotional and behavioural disorders, physical handicaps, gifted and talented, mild mental disability, learning disabilities, communication disorders, and visual impairment (KICD, 2016). Within this curriculum, two assessments are carried out in grades one to three and four to six (9-11 years of age). The teachers conduct a formative assessment of each learner using a portfolio that contain assessments based on 20% of cognitive domains and 80% of affective and psychomotor domains (to guide teachers and parents concerning areas learners need assistance as they transition to next grade) (KICD, 2016). In the last term of grades three and six, learners across the country are assessed using a standardized tool to give an overall picture of the performance of all the children transitioning to grades four and seven (KICD, 2016). In this new curriculum, grades one to three (lower primary education) and grades four-six (middle school) are the same as key stage one

and key stage two, respectively, of primary level education in England and Wales (Saeed, 2007).

In grades seven to nine, each learner takes a formative assessment that is marked out of 70%. Then in grade nine, each learner will take a national examination which is marked out of the remaining 30 % and combined with the score from the formative assessment to determine which subject combinations learners will choose as they transition to grade 10 (KICD, 2016). The exact mode of assessment, formative and summative like the ones in grades seven-nine, will be conducted in grades 10-12, and after the final summative assessment in grade 12, the learners, depending on their performance, will either join university or middle-level colleges (KICD, 2016). In comparison to a country like UK, learners in grade 10-12 in Kenya, are of a similar age range comprising of learners aged 12-17 or 12-16 (Saeed, 2007). The secondary level of education is divided into lower secondary and senior schools (KICD, 2016).

The other CBC option for children with special needs is the stage-based curriculum, composed of four levels: the foundation, intermediate, pre-vocational, and vocational levels (KICD, 2016). The stage-based curriculum is for children who are deafblind, mentally handicapped, autistic, have cerebral palsy, and those with multiple and profound disabilities. Teachers are expected to develop individualised education programmes for each learner (KICD, 2016). The learners' transition from one level to another is based on individual performance outcomes, which is measured in terms of development of skills such as communication, hygiene, basic literacy and etiquette among others (KICD, 2016). This option of CBC does not emphasize the learner's

academic achievement but targets equipping them with skills that support them to be independent. In Kenya, deaf learners receive similar education with hearing learners but with accommodations and enrichment based on their requirements (KICD, 2016). These adjustments are provided to increase deaf learners' access to the curriculum.

#### **2.4.2 Education of deaf children in Kenya**

Deaf education in Sub-Saharan Africa evolved out of the work of European missionaries in the 19<sup>th</sup> century during period of colonial rule. Most of the first schools for deaf children in Africa were set up in urban areas and served only the wealthy Africans placing the poor deaf people who live in rural areas at a disadvantage (Kiyaga and Moores, 2003). These schools followed the models of schools for the deaf from Great Britain and France that were based on the sole use of oral-aural communication; no manual communication, including fingerspelling and signs, were permitted (Kiyaga and Moores, 2003).

However, progress in the education of deaf children has not been uniform across African countries. For example, Kiyaga and Moores (2003) point out that Kenya, South Africa, and Nigeria are among the countries in Sub-Saharan Africa that have reached a point where high school education is provided for deaf children, while access to primary education is not possible for deaf children in some other countries in Sub-Saharan Africa. However, under the previous 8-4-4 education system in Kenya, the number of deaf children transitioning to secondary schools was relatively low (Adoyo and Maina, 2019). This was due to their poor performance in national examinations, which in the 8-4-4 system, marks the transition from primary to secondary school

(Adoyo and Maina, 2019). The current regular curriculum focuses on competencies and is not dependent on examination performances for transitioning to the next grade (KICD, 2016).

The government provides assessment service for children with special needs, although shortcomings have been reported. The service is offered at Educational Assessment and Resource Centres (EARCs) that were established in 1984 in every district in Kenya (MoE, 2009). The EARC is mandated to carry out early identification, assessment, intervention, and placement of children with special needs (MoE, 2009).

Challenges including lack of relevant training for teachers working at EARCs, scarcity of assessment tools, and lack of multidisciplinary teams for comprehensive assessments hinder effective functioning of these centres (MoE, 2009).

Since 2013, Kenya is governed through a devolved system, that constitute of central government and county governments (Ngigi and Busolo, 2019).

As a result of decentralisation, the county government are tasked with provision of some services (Ngigi and Busolo, 2019). Consequently, the county governments provide early childhood education (UNICEF, 2018). Following the transfer of early childhood education to county governments, the government formulated early childhood education act to clarify emerging issues (Republic of Kenya, 2021). According to this act, the county governments are responsible for identifying and assessing children with special needs and develop early childhood education programmes for them (Republic of Kenya, 2021). With regards to hearing loss, newborn screening services are not widely available in Kenya (Adoyo and Maina,

2019) for early identification of children with hearing loss ( section 2.4.3 provides more information).

Deaf children in Kenya are enrolled in any of the available placement options, which include residential schools, inclusion, and special units in mainstream schools after assessments at EARCs (MoE, 2018). Despite recognizing the importance of inclusive education and advocating for its implementation (Adoyo, 2007, MoE, 2018), the government acknowledges that special schools are there to provide for the communication needs of deaf children (MoE, 2018). This suggests that most deaf children do not benefit from inclusion, for instance due to lack hearing devices and attend residential schools.

There are 112 primary schools and units established by the government to provide education for deaf children (Piper et al., 2019). Within these schools, the hard-of-hearing and deaf learners receive their education in one setting (KICD, 2018b). Most deaf children join pre-primary schools at about five to six years of age (Adoyo, 2007). These pre-primary schools are attached to residential primary schools for the deaf, unlike hearing children, where pre-primary and primary schools can be in separate settings (Adoyo, 2002). This setting can be linked to the fact that pre-primary schools attached to residential primary schools for the deaf can meet their communication needs (Mweri, 2016). The government supports special schools and units by providing extra funds for children whose special needs cannot be met in inclusive settings (MoE, 2009). For the deaf learners, they can communicate and be taught in sign language

when they attend residential primary schools unlike if they are enrolled in mainstream schools.

There are more deaf children enrolled in residential special primary schools than in special units and mainstream schools (MoEST, 2005). Unlike in Kenya, inclusive practices where deaf learners learn in mainstream schools, have been reported in literature from developed countries. In comparison with United Kingdom (UK), one of the developed countries where most research on deaf education has been conducted and published (Marschark et al., 2019), the trend in enrolment in Kenya contrasts with practices in the UK, where 78% of deaf children attend mainstream schools, 13% are enrolled in special schools not explicitly meant for deaf children, and only 3% are in special schools for deaf children (CRIDE, 2019). In UK, placement is guided by the statutory framework for special education which requires mainstream schools to be the first placement option considered for all children, even though special schools are part of placement options (Jarvis and Iantaffi, 2006). Similarly, in the United States, there has been increased enrolment of deaf children in mainstream classrooms (Mitchell and Karchmer, 2006). Likewise, 84% of all deaf and hard of hearing children in Sweden are enrolled in mainstream schools (Svartholm, 2010). The inclusion of deaf children in these developed countries may be due to the early identification of hearing loss and advance in hearing devices that increase deaf children's access to spoken language.

It is known that most deaf children are born to hearing parents (Mitchell and Karchmer, 2004 ) and in Kenya, most hearing parents prefer residential schools for the deaf since they are not able to communicate with their children (Mweri, 2016). Thus, it can be

argued that parents deliberate choice of placing their deaf children in residential schools reduces inclusion of deaf learners in Kenya. In addition, hearing parents of deaf children believe residential schools provide the best environments for their children to interact with other deaf children (Mweri, 2016). The hearing parents inability to communicate with their deaf children (Mweri, 2016) suggests that many deaf children who attend residential primary schools in Kenya join school with limited sign language. The impact of delayed first language acquisition on English syntactic processing by the deaf was investigated by Mayberry and Lock (2003), who reported that hearing and deaf adults who acquired a first language before learning English as a second language performed almost the same as native English speakers in English syntactic abilities. On the other hand, deaf adults of the same age at enrolment, without functional language and were learning both American Sign Language (ASL) and English in school performed at a lower level on English syntactic tasks (Mayberry and Lock, 2003).

The Special Needs Education (SNE) policy (MoE, 2009) and the sector policy for learners and trainees with disabilities (MoE, 2018) were developed by the government to promote education for children with special needs. Despite these policies, it is reported that deaf people in Kenya achieve lowly in education (Adoyo and Maina, 2019) and can only access few job opportunities (Opoku et al., 2016). The impact of low level of education achievement can be discerned from the training opportunities the deaf can access. For example, because they are unable to progress to secondary education, most deaf learners in Kenya can only train at vocational training centres, where they enrol in courses such as tailoring, carpentry, and masonry (Viehmman,

2005). This indicates that they are not equipped with levels of skills and knowledge that would prepare them for professional roles that require highly skilled people. This provides evidence that the challenges deaf people face in Kenya in getting employment arises from limited access to quality education. They need to progress to higher levels of education which will depend on their access to primary education.

#### **2.4.3 Methods of communication in schools for the deaf in Kenya**

Research studies have shown that several modes have been used in schools for the deaf in Kenya over the years. For instance, Adoyo (2002) states that oralism was the initial method of communication used in schools for the deaf and Total Communication (TC) was adopted later. TC is a communication philosophy where teachers employ one or a combination of different methods of communication, including oral, manual, auditory, and written (Hawkins and Brawner, 1997). TC was initially meant to guide teachers to use methods of communication appropriate for a deaf child at a given time or during the child's development (Hawkins and Brawner, 1997).

The current use of TC as a mode of communication and instruction in used in schools for deaf children in Kenya (KICD, 2018b) departs from practice in some countries such as the UK. Recent data indicates that more deaf children in the UK are being instructed in spoken language. Around 88% of deaf children in the UK are taught mainly in spoken language and only 2% learn in British Sign Language (BSL) or Irish Sign Language (CRIDE, 2021). Unlike the case in Kenya, the CRIDE data show that a variety of modes of instruction are available to deaf children in the UK including spoken language. There is also a clear indication from recent data reported by CRIDE (2021) that 2% of deaf

children in UK are educated in BSL or Irish sign language, suggesting that their experiences may differ from learners who use sign language for communication and learning as is the case of Kenyan deaf learners.

Research suggests that TC may not meet the communication needs of deaf learners based on how it is used and its overall aim. For instance, Hawkins and Brawner (1997) state that TC aims at individualizing communication modes to meet the needs of individual learners, so it becomes difficult for teachers to put it into practice in a class where there are many deaf children. Research also suggests that early identification and intervention via hearing devices has an impact on the mode of communication used by deaf children. For instance, Universal New-born Hearing Screening (UNHS) is a method of identifying hearing loss in new-born babies, and has contributed to early identification of congenital hearing loss among infants in countries like the USA (Hayes, 2001) and the UK (Bamford et al., 2005). Deaf children can receive early intervention via technology if hearing loss is identified during early childhood and they get access to language during the critical language development phase (Pimperton et al., 2019).

New born screening leads to early identification of hearing loss and if identification is delayed the child may miss critical period of language development even if intervention is provided later (Higgins and Lieberman, 2016). Therefore, newborn screening for hearing loss is critical since together with hearing devices, it improves the ability of children to acquire, and use spoken language (Mayer et al., 2016). For instance, in the UK children have access to newborn screening services and deaf children are fitted

with Cochlear Implants and hearing aids which provides access to and use of spoken language at home and school (Mayer et al., 2016). However, this is not the case in Kenya, where most parents of deaf children cannot afford hearing aids or CIs, and government funds are not expended on these costs. (Adoyo and Maina, 2019). This is unlike countries like the UK, where 9% of deaf children have at least one CIs while 6% have bone conduction devices (CRIDE, 2021) and Sweden, where 90% of all deaf children receive CIs (Svartholm, 2010). This means deaf children in high income countries can acquire and use spoken language for communication and instruction unlike deaf children in Kenya who rely on sign language.

Furthermore, Adoyo and Maina (2019) report that new-born screening services are not widely available in Kenya. For example, it is only available at Kenyatta National Hospital in Nairobi, which most rural parents cannot access due to the distance they must travel to the city, and it is not affordable for those who can access the facility (Adoyo and Maina, 2019). The lack of access to these services and the limited use of hearing technology leaves profoundly deaf children in Kenya with Kenyan Sign Language (KSL) as their primary mode of communication at school and at home.

#### **2.4.4. Kenyan Sign Language**

Kenyan Sign Language (KSL) rely on combinations of hand shapes, hand movements, and orientation of the palm for users to generate signs (Adoyo, 2002). Even though there are many spoken languages in Kenya, KSL neither represents any ethnic spoken languages in Kenya nor Kiswahili and English (Stone-MacDonald, 2019). Manual signs

and non-manual features of KSL are used together to communicate ideas and concepts (Adoyo, 2002).

According to Mweri (2016), at schools for the deaf the few deaf children of deaf parents transform the home-based signs used by other deaf children, into fully-fledged sign language. In addition to schools, organisations like the Nairobi Welfare Association for the Deaf contribute to the development of KSL (Mweri, 2016). Due to language growth and emergence, different varieties of KSL have merged to form one common language used by the Kenyan deaf community (Okombo and Akach, 1997). But there has been existence of regional variations of KSL especially regarding its lexicon (Adoyo, 2002).

In primary and secondary schools, deaf learners are taught KSL as an alternative language to Kiswahili and in addition to English, while hearing children learn English and Kiswahili (KICD, 2016). This is to enhance deaf children's communication abilities and provide them with opportunities to advance their studies (KICD, 2016) since it is used as language of instruction. Nevertheless, studies have reported both negative and positive impacts of KSL on English language and academic performance of deaf learners in Kenya. For example, Piper et al. (2019), argue that the confusion in schools for the deaf regarding the language of instruction in English, especially between KSL and Sign Supported English (SSE), may have caused poor performance in comprehension. In addition, it is suggested that KSL contributes to deaf children's English language writing errors (Ogada et al., 2014). On the other hand, it has been reported that KSL positively impacts deaf children's overall performance in national

examinations, and improves their comprehension of concepts in mathematics and science when used as the language of instruction (Sambu et al., 2017).

However, it is important to note that Kenyan deaf learners are enrolled in schools without having gained proficiency in any language, signed or spoken. Even though there may be diverse languages spoken at their homes, Adoyo and Maina (2019) state that most Kenyan deaf children do not have hearing devices that can aid in language learning. That some may lack knowledge of sign language because most deaf children are born to hearing parents who don't know sign language (Mweri, 2014). Therefore, it can be argued that KSL is not necessarily deaf children's first language since they learn two languages in school, KSL, and English simultaneously.

## **2.5 Teacher training in special needs education**

Special education teachers in Kenya are trained by different institutions to teach at different levels of education. The Kenya Institute of Special Education (KISE) is a semi-autonomous body mandated by the government to train primary school teachers in special needs education (MoEST, 2012). Teachers who previously attended general teacher training colleges, gained teaching experience in mainstream primary schools, can undertake two-year residential diploma training programme (Chitiyo et al., 2015) or certificate courses in special education at KISE (MoEST, 2012).

In addition to the residential programmes, part-time and open and distance learning modes are available at KISE (Chitiyo et al., 2015). KISE trains teachers in many areas of specialization in special education, including hearing impairment, visual impairment, mental handicap, communication disability, gifted and talented, physical handicap, and

emotional and behavioural disorders (MoEST, 2012). However, training in hearing loss and visual impairment is only offered via full-time residential programme (Chitiyo et al., 2015).

In the two-year full-time programme, the trainees are provided with opportunities to get experience through programmes like teaching practice in special schools (Chitiyo et al., 2015). Teachers are given an introduction to all categories of children with special needs in their first year of study and choose an area of specialization in year two (Kimani, 2012). The broad syllabus in the first year prepare teachers to provide instruction to learners with diverse special needs in primary schools (Chitiyo et al., 2015). Public and private universities in Kenya offer undergraduate teacher training and postgraduate courses in special needs education (Chitiyo et al., 2015). The KICD develops curricula, and relevant curricula support materials at all levels of education and training with the exception of universities (Chitiyo et al., 2015). Kimani (2012) notes that a non-governmental organisation called Global Deaf Connection (GDC) partnered with the government of Kenya and deaf organisations to assist the deaf to enrol in teacher training colleges and to teach in primary schools for deaf children. However, apart from initial training like all other primary school teachers, these deaf teachers are not supported to attend specialized training at KISE (Kimani, 2012).

Following devolution of pre-primary education (UNICEF, 2018), county governments are tasked with providing training and professional development for preschool teachers of learners with special needs (Republic of Kenya, 2021).

## **2.6 Conclusion**

It can be identified from this chapter that most deaf learners in Kenya are placed in special schools for the deaf, taught similar curriculum with hearing learners and their academic achievement and access to equal job opportunities has been minimal. The chapter has demonstrated that KSL is the mode of communication for deaf learners. Even though KSL is assumed to be the first language of deaf children, most deaf children are born to hearing parents and do not have knowledge of KSL when they are enrolled in school.

The next chapter will review literature on language and deaf children and literacy skills development in deaf children.

## **CHAPTER THREE: LITERATURE REVIEW**

### **3.1 Introduction**

In the previous chapter, I provided contextual information about this study. This study explores teaching of literacy skills to deaf learners in primary schools in Kenya. In this chapter, I review literature focussing on literacy skills and deaf children, and especially deaf children in Kenya. In turn, this literature review helps summarise prior knowledge on this subject and positions this study within the broader context of the field (Knopf, 2006). In so doing, this literature review also attempts to justify the need for this study and demonstrate that it has considered previous knowledge in the field of deaf education and literacy (Ferrari, 2015).

This chapter begins with explanation of how the review was conducted. This is followed by definitions of literacy, including the definition employed in this study. Continuing, I review literature on language and deafness to demonstrate how this relates to literacy skills. The subsequent section concerns English language teaching, which is followed by teaching of English in Kenya. Some of the sub-skills linked to literacy skills development are identified in the following section to provide further information regarding additional skills that learners need to learn to read and write.

Next, I review literature about how deaf learners are taught literacy skills such as reading and writing. Following this, I explore literature on literacy and deaf learners in both developed and developing countries to establish the need for this study. The

subsequent sections provide the rationale for this study, summarise the chapter and present the research questions addressed in this study.

### **3.1.1. Conducting the literature review**

Literature reviews can be split into two categories: narrative and systematic (Thomas, 2013). A systematic literature review follows a previously agreed-upon method for including studies in the review and utilises special approaches to search for the relevant literature (Thomas, 2013) as the goal is to address previously formulated and refined research questions (Boell and Cecez-Kecmanovic, 2015). Instead, however, I conducted a narrative review, which enabled me to search for literature from various sources without strictly adhering to an established search procedure (Thomas, 2013). This method of review is particularly useful for gathering, analysing, and connecting literature from different topics (Ferrari, 2015) related to literacy, such as instructional methods, teaching and learning resources, and deaf and hearing learners. In this way, this approach allowed me to access and explore available literature from different sources, identify the need for this study, and shape my research questions accordingly (Green et al., 2006).

Since the current study concerns literacy skills and deaf learners in primary schools in Kenya, it is important to first clarify the meaning of literacy and how it is employed in this study. To this end, the next section presents some definitions of literacy from previous studies and states what literacy means in this study.

### **3.2 The concept of literacy**

The literature varies in its definition of literacy skills and type of literacy. For instance, different authors have proposed various perspectives on literacy, such as mathematics literacy (Easterbrooks and Maiorana-Basas, 2015) and print literacy (Lederberg et al., 2013). Mathematics literacy includes the ability to understand and use basic skills in mathematics in our daily lives (Ojose, 2011) Furthermore, even regarding print literacy specifically, various authors have defined this term differently. For example, Lederberg et al. (2013) defined print literacy as the ability to read and write. According to Easterbrooks and Maiorana-Basas (2015), however, print literacy refers to one's ability to read and understand the meanings in documents such as books, newspapers, job applications, stories, or any other written work.

This study adopts the definition of literacy proposed by Easterbrooks and Maiorana-Basas (2015) as well as Lederberg et al. (2013). As such, in this study, literacy is understood as the ability to read, write, and comprehend the messages found in books, stories, newspapers, and other documents. I chose this definition because most deaf learners in Kenya primarily utilise sign language and learn English in written form. Moreover, the adapted English curriculum states that profound deaf learners can sign and observe instead of speaking and listening, but all deaf learners are expected to learn reading and writing (KICD, 2018b).

Furthermore, I also opted for this broader definition of literacy by considering the use of English language among all people, including the deaf, in Kenya, as English is the language of education and comprises one of the nation's official languages (see section 3.9.1 for more information). By considering these roles of the English language,

I believe that the use of English literacy skills for deaf learners in Kenya extends beyond the school context and into the work and community contexts. After school, for instance, learners will engage with various texts, including official government documents, job adverts, and newspapers, among others. To comprehend the information presented in these diverse texts and effectively communicate in English, deaf children should thus be capable of reading, comprehending, and writing text that others can understand.

### **3.3 Language and literacy skills**

Language is important in life regardless of whether a person can hear or not. Language determines how individuals interact with others, what they gain from education, and the extent to which they can participate in education (Knoors and Marschark, 2014, Grosjean, 2001). For example, Knoors and Marschark (2014) identify language as a tool that people use to communicate about their environment and participate in cognitively demanding activities, including classroom instructions. The fact that language represents such a valuable tool applies to deaf children, as well (Grosjean, 2001). Deaf children can utilise language to communicate with their family, learn about the world, develop cognitively, become part of deaf and hearing cultures, and interact with others people (Grosjean, 2001).

For deaf children who lack access to spoken language, such as those in Kenya, written language could help them accomplish tasks that require language use. As mentioned in chapter two, most deaf children in Kenya learn and use English in its written form and are not taught written Kiswahili (the other national language of Kenya) in school.

It can thus be argued that written English provides them with further opportunities for interaction with others and access to information. However, for deaf learners in Kenya, knowledge of the English language remains highly dependent on their ability to read and write. Further details concerning the role of English in Kenya are discussed in section 3.6, and more information regarding literacy skills and deaf learners is available in section 3.7.

To develop literacy skills, children need to have a language, whether spoken or signed (Easterbrooks and Maiorana-Basas, 2015). Accordingly, the following section describes language development among deaf children.

### **3.4 Language and deafness**

Deaf children can acquire spoken language or signed language depending on their ability to access speech through the auditory channel. The subsequent sections elaborate further on spoken language acquisition followed by sign language acquisition by deaf children.

#### **3.4.1 Deaf children and spoken language.**

Deafness significantly influences a person's ability to learn and use spoken language, as spoken language is acquired via the auditory channel and through interaction with caregivers (Knoors and Marschark, 2014, Archbold, 2015). It has been observed that intervention programmes that improve access to auditory input enable deaf children to acquire speech (Knoors and Marschark, 2014). For instance, through innovations such as cochlear implants (CIs), profoundly deaf children have been able to access spoken

language (Archbold and Mayer, 2012). Nevertheless, not all deaf children who receive CIs develop spoken language similarly. Lederberg et al. (2013) state that family context, deaf children's characteristics, language learning environment, response to amplification, and language learning models to which the children are exposed all influence their spoken language acquisition.

In addition, Knoors and Marschark (2014) argue that identification and provision of hearing devices is most beneficial if this occurs before the deaf child starts formal education. Scholarship further demonstrates that, in some countries, deaf children are provided with hearing technology that increases their access to speech. For example, in the United States, deaf children have been able to receive CIs by their second birthday or even as young as 18 months since 1998, while in other countries, six-month-old infants can receive CIs (Knoors and Marschark, 2014).

Once deaf children develop spoken language, it subsequently becomes easier to learn reading and writing skills (Garcia, 2003). Based on literature presented in this section, it can be argued that deaf children who receive hearing devices can learn spoken language and subsequently learn to read and write better than those who do not. However, this may not be applicable to most deaf children in Kenya due to their limited access to hearing devices, as explained in the previous chapter. It is important to state that as shown in the previous section, regardless of whether it is signed or spoken, it is necessary for deaf children to have acquired any language before they are taught to read and write.

### **3.4.2 Deaf children and sign language acquisition**

Sign languages represent natural languages employed by the deaf community as well as the means through which deaf culture is transmitted (Knoors and Marschark, 2014). Natural sign languages such as American Sign Language (ASL) have been accepted and recognised as fully fledged languages just like any spoken language (Higgins and Lieberman, 2016). Much like how children who can hear acquire spoken language, deaf children acquire native sign language if they are born to deaf parents or grow up in signing families with deaf members (Knoors and Marschark, 2014). However, approximately just 4.4% of deaf children are born to deaf parents who are native signers; the majority are born to hearing parents (Mitchell and Karchmer, 2004 ). Most hearing parents of deaf children cannot provide consistent, quality exposure to natural sign language (Woolfe et al., 2010) making it difficult for most of deaf children to acquire sign language. It is argued that it takes so much time for hearing parents to learn sign language to be able to effectively provide the required language input for their deaf children (Knoors and Marschark, 2014).

Furthermore, even when hearing parents learn sign language, they may not be as fluent as native signers (Knoors and Marschark, 2014). This implies that deaf children of hearing parents either experience a delay in acquiring sign language or will not acquire native-like sign language at all, thus negatively influencing the quality of their sign language. In addition, it has been noted that the age at which a child is first exposed to language is crucial. Higgins and Lieberman (2016) state that deaf children who experience late exposure to a first language will exhibit language deficiencies compared to those who benefit from early acquisition.

It is known that approximately 90% of Kenyan deaf children have hearing parents who lack knowledge of sign language and insist on teaching their deaf children spoken language, which the child cannot access (Mweri, 2014). This signifies that most deaf children in Kenya will experience delays in developing KSL, since they will only start learning it in school from the age of six to seven years (KICD, 2018a). In turn, this can influence their ability to read and write, because even if deaf learners can eventually acquire language much later, they will experience comprehension and grammatical issues that can subsequently influence their literacy and academic achievement (Knoors and Marschark, 2014).

### **3.5 English language teaching**

Different methods have been utilised to teach English language, including the grammar translation method, direct method, audiolingual method, humanistic method, and communicative language teaching method (Hall, 2011). Literature reveals that these methods were initially employed to teach languages such as Latin as a second language in Europe and the United States (Setiyadi, 2020).

Over the years, different methods of teaching second languages have been adapted and used. It was noted that, when people in Europe first started learning second languages, the teaching primarily focussed on the acquisition of grammar (Setiyadi, 2020). The grammar translation method was later introduced in schools to teach second languages (Setiyadi, 2020). This method embraces the translation of a second language into the learners' first language by employing the rules of grammar (Setiyadi,

2020). Furthermore, this method also focussed on teaching vocabulary and discussing the rules of grammar (Brandl, 2021). It is implied that learners could employ knowledge of their home language to understand vocabulary or sentences presented in a second language. It is also assumed that effective knowledge of vocabulary and the rules of grammar are sufficient to learn a second language.

Criticisms of the grammar translation method led to the birth of the direct method. This method expects learners not to use their first language; instead, a second, spoken language was taught first, followed by reading and writing (Setiyadi, 2020). The direct method thus aimed at ensuring that learners used the second language (Setiyadi, 2020), which was made possible through exclusive teaching using the second language (Brandl, 2021). This method further emphasised vocabulary knowledge, inductive teaching of grammar, and the ability to pronounce words (Brandl, 2021). In so doing, the implication is that focussing on these language components will ensure learners gain oral fluency in the second language.

The direct method was later replaced by the audiolingual method (Setiyadi, 2020, Cook, 2016). This method is primarily concerned with teaching a spoken language by presenting learners with opportunities for roleplay and to take part in conversations (Cook, 2016). When using this method, teachers introduce spoken language and allow learners to practice before presenting its written form (Cook, 2016). Accordingly, teaching of language skills was conducted in the following order: listening, speaking, reading, and writing (Cook, 2016). Teachers who employ the audiolingual method

usually allow learners to take part in repetition of language patterns and drills for the purpose of memorisation (Brandl, 2021).

Following the audiolingual method, various other methods developed in different parts of the world, including the United States, East European countries, and England (Setiyadi, 2020). Some such methods included the silent way, community language, total physical response, and communicative language teaching (Hall, 2011, Setiyadi, 2020). In the 1980s, the Communicative Language Teaching (CLT) method emerged, which stressed communicative competence as the primary goal of learning language (Walia, 2012). This method went on to become the dominant method of the 20<sup>th</sup> century, and it has since become well known and used by most second-language teachers (Cook, 2016).

The CLT method eventually spread to different parts of the world, and its use was promoted in various educational and cultural contexts (Hall, 2011). Many countries developed CLT policies due to the influence of globalisation and the need for English as a medium of communication across international boundaries (Henkel, 2011). With CLT, it emphasised that teachers should guide learners and encourage them to be independent in carrying out tasks instead of dominating the lessons (Cook, 2016). This differs from audiolingual and grammar-translation methods, wherein teachers take control of the activities of language lessons (Cook, 2016). Furthermore, the experiential dimension of CLT includes the use of scaffolding, which contributes to the learners' gradual autonomy and achievement of communicative competence (Henkel, 2011).

In CLT, teachers are encouraged to step back at some point during the lessons and allow learners the opportunity to participate in activities to help develop competency. It can thus be understood that CLT encourages learner-centred techniques in language teaching and requires teachers to provide support that is gradually withdrawn. The fact that CLT advocates for scaffolding and learners' autonomy (Henkel, 2011) is linked to sociocultural theory of teaching language, which is the same theoretical framework that guided this study (see section 4.4.2). In addition, features of CLT can be seen in approaches to teaching English in primary schools in Kenya, as demonstrated in the following section.

### **3.6 Teaching English language in Kenya**

The curriculum design (for both hearing and deaf learners) calls for balanced use of communicative language tasks and exposure to language form as the teaching methods (KICD, 2021a, KICD, 2021b). Furthermore, emphasis is placed on deliberate teaching of the four language skills of listening, speaking, reading, and writing (KICD, 2021a, KICD, 2021b). However, teachers are not allowed to explicitly teach grammar in grades one through three; instead, the focus is on fluency (KICD, 2021b), which is a component of CLT (Littlewood, 2011).

Even though explicit teaching of grammar is allowed in the upper-level primary education (from grade four) (KICD, 2018b), learners are expected to participate in tasks that not only build their competence in the four language skills, but also help them use the skills in question (KICD, 2018b). This demonstrates the importance

placed on learners using the language they are learning in a meaningful way instead of simply memorising the grammatical rules of English.

It is also expected for teachers to ensure learners engage in activities that encourage interaction (KICD, 2021b). Accordingly, features of CLT practices, such as co-operative learning that take the form of group and pair work (Littlewood, 2011), are to be incorporated into English lessons (KICD, 2021b). It can be argued that CLT is implicitly suggested as the method of teaching English in Kenyan context. The focus on the four language skills implies that communicative competence in English is supposed to be achieved by learners through acquisition of these skills. In fact, communicative competence in English by hearing learners in Kenya has previously been investigated by looking at how the skill of speaking is taught (Syomwene, 2013, Gudu, 2015).

For deaf learners in Kenya, since the majority lack access to spoken language (Adoyo and Maina, 2019) and are expected to observe, sign or fingerspell, read, and write in English lessons (KICD, 2018b), it can be stated that their success in communicative competence is largely determined by their achievement in reading and writing. This means that, to understand how English is taught to deaf learners in Kenya, it is necessary to focus on reading and writing, which is the focus of this study.

### **3.6.1 Teaching English to hearing children in Kenya.**

In addition to Kiswahili, English is one of the official languages of Kenya (Mwaniki, 2017). Additionally, all subjects at all levels of education are taught and examined in English except for lessons specifically on Kiswahili, KSL, and other foreign languages (Wamae and Kangethe-Kamau, 2004). Therefore, students must possess an effective

knowledge of English to access the curriculum and excel in academic work (Wamae and Kangethe-Kamau, 2004). The emphasis on teaching English in Kenya relates to the language's vital role in enhancing linguistic and academic competence, and the teaching of English accordingly focusses on attainment of proficiency by all learners (KICD, 2018b). To achieve this goal, all learners are taught English beginning in grades one through three, where they learn basic literacy skills and are introduced to more cognitively demanding content from grade four and onwards throughout all other levels of education (KICD, 2018b). In turn, this suggests that, as one of the subjects in Kenya's curriculum, English is expected to contribute to learners' access to information in the curriculum for most subjects, as well as to aid their competency in accessing information provided by government agencies.

However, attaining proficiency in English, as is the goal of teaching English in primary schools in Kenya (KICD, 2018b), has become difficult to achieve. For example, studies focussing on mainstream primary schools have consistently illustrated unsatisfactory performance in English literacy skills (Gathumbi, 2013, Hsieh et al., 2018, KNEC, 2019). To explore this further, Gathumbi (2013) measured different sub-skills in English literacy across a sample of 7,253 grade-six learners drawn from all the former eight provinces in Kenya. With scores ranging from 0 to 36, the findings indicated that only 37.6% of children attained the desired competency level (scored 27–36).

The other 62.4% of learners (4,526) performed below the desired competency level (scored 0–26). This group included those who can follow instruction in English but struggle to access information from materials written in English (42.2%) as well as those who cannot benefit at all from teaching in English or cannot access information

from learning materials developed in English (20.14%). It was concluded that the high rate of poor literacy skills in grade six might lead to children completing school without acquiring reading and writing skills, thus calling for the need to improve teaching and learning (Gathumbi, 2013).

Studies that have examined instructional methods for teaching English to hearing learners in Kenyan schools consistently indicate that the teaching methods hindered learners' effective development of literacy skills. According to Pontefract and Hardman (2005), teachers dominated English lessons, and instructional activities encouraged rote learning. The authors further observed an absence of constructive feedback and noticed that the questions did not encourage higher-order thinking. As a result, opportunities for linguistic development by learners remained limited (Pontefract and Hardman, 2005). A comparative study of teaching English in primary schools in Kenya and Nigeria documented similar findings (Abd-kadir and Hardman, 2007). English teachers commonly employed practices that limited learners' opportunities to improve their responses or engage in higher-order thinking, such as by providing inadequate feedback and using closed-ended questions (Abd-kadir and Hardman, 2007). As such, though these studies were conducted in classrooms of hearing children, they reveal ineffective teaching methods for English language in Kenyan primary schools.

Additionally, the literature demonstrates that ineffective teaching practices in Kenya can be the result of teachers' limited exposure to professional development courses (Hardman et al., 2009, Nyarigoti, 2013, Bett, 2016). For instance, findings indicate that teachers who participated in an in-service training programme demonstrated greater

interaction with pupils through group work in science, mathematics, and English (Hardman et al., 2009). However, it should be noted that positive impact of professional development courses can be determined by the content of such programmes and the people who teach such courses (Nyarigoti, 2013, Bett, 2016). For example, in a situation where the cascade model was employed in a Teachers' Continuing Professional Development (TCPD) programme, teachers reported that the content was irrelevant (Bett, 2016). The model assumes that an expert delivers the content of the training programme without considering the unique needs and experiences of the teachers (Bett, 2016). Additionally, people who are invited to schools to conduct professional development programmes do not focus on English language pedagogy (Nyarigoti, 2013), rendering these trainings irrelevant for the teacher.

### **3.6.2 Teaching English to deaf children in Kenya**

Deaf children need English literacy skills to access education (KICD, 2018b) as well as for its use as one of Kenya's national languages (Mwaniki, 2017). According to the curriculum, English is taught to deaf and hearing children as a second language (KICD, 2018b). Furthermore, despite Kiswahili being the second national language in Kenya (Mwaniki, 2017), it is only taught to hearing children and not deaf children (KICD, 2016).

Accordingly, the only national language profoundly deaf learners in Kenya can acquire is English, further underscoring the importance of English literacy skills for them. Moreover, since Kenya is a multilingual country (Muthwii, 2004), the literature has suggested that deaf children need to be skilled readers and writers in English to

participate in education and to communicate with other members of the society (Wamae and Kangethe-Kamau, 2004, Gathumbi, 2013). Therefore, deaf learners in Kenya require proficiency in reading and writing English, both in school and beyond.

Much as the previous sub-section demonstrated with hearing learners, English language performance by deaf learners in Kenya has been unsatisfactory. According to results from the national assessment system for monitoring learners' achievement in grade three through seven in both mainstream and special education primary schools across the country, over 60% of grade-seven learners scored below 50% in English (KNEC, 2019). This poor performance was linked to unsuitable teaching methods (KNEC, 2019).

Similar findings were reported in studies that measured literacy skills of only deaf learners in Kenya. Findings indicated that the functioning grammar level of 9–10-year-old (grades three through four) prelingually deaf children was the same as grade-one hearing learners at the start of the academic year (Adera et al., 2017). Recently, Piper et al. (2019) measured the reading abilities of deaf and blind learners, revealing that deaf children's performance was incredibly low in word identification and comprehension. Furthermore, it was reported in a previous study that deaf learners encountered problems in comprehension and faced challenges in writing (Ndungu, 2013). These studies consistently revealed a lack of competency in reading and writing among deaf learners in Kenya. Considering the instructional role of English in education (KICD, 2016), this low English competency level subsequently influences

deaf learners' access to the curriculum, thus prompting the need to seek more information about how this subject is taught.

Previous studies have suggested causes for this inferior English performance by deaf learners in Kenya. For example, a study by Ogada et al. (2014) linked the errors in deaf children's writing to the influence of KSL and the mismatch between the language of instruction proposed in the syllabus and the one employed by teachers in class. Regarding the teaching methods, Patrick and Awori (2017) revealed that primary school teachers of deaf learners in Kenya employed unsuitable strategies to teach writing. Addressing the use of KSL, Sambu et al. (2017) and Kodiango and Syomwene (2016) reported that teachers in primary schools for the deaf claimed that KSL negatively affected learners' English grammar and writing. However, outcomes from prior studies challenge the link between deaf children's errors in English and sign language. For instance, Wolbers et al. (2014) conducted an intervention study where deaf students were taught using Strategic and Interactive Writing Instruction (SIWI) for one year, incorporating ASL during instruction. Their findings indicated a reduction in the transfer of ASL skills to English (Wolbers et al., 2014). Furthermore, deaf children's literacy skills in English positively correlated with their KSL skills (Aura et al., 2016). However, teachers' explicit demonstration of the boundaries between ASL and English minimised the transfer of ASL skills to English writing (Wolbers et al., 2014), thus demonstrating the importance of the manner in which teachers use learners' KSL knowledge.

Examining these studies more closely (Ogada et al., 2014, Patrick and Awori, 2017, Sambu et al., 2017) reveals a lack of detailed information regarding the literacy skills teaching approaches. Instead, these studies focussed on methods of communication in English lessons and quantified teachers' practices or KSL's impact on the learners' academic performance. By contrast, the current study seeks to explore the teaching practices in English literacy lessons using qualitative data to fill this gap.

Studies exploring how different subjects are taught to deaf learners have reported inappropriate teaching and learning methods. Kimani (2012) conducted a study about teaching social studies to deaf children in primary school, and the results indicated teacher-centred approaches with minimal opportunities for learners' participation. In another study investigating how science is taught to deaf students in secondary school, the findings revealed that teachers did not fully employ the recommended teaching methods due to unavailable resources (Namukoa, 2014). These studies suggest that instructional methods and resources represent areas of concern for effectively teaching deaf learners in Kenya. As such, this study addresses this concern with specific reference to the teaching of English literacy.

Furthermore, the significance of instructional methods in deaf learners' academic achievement and literacy has been emphasised. For example, Hermans et al. (2014) argued that the lack of improved academic performance by deaf learners suggests that it is crucial to address the quality of instruction instead of focussing solely on the language of instruction. After all, learners' achievement in literacy skills may be influenced more by teaching practices than by certain features of curriculum or the

materials used in the classrooms (Block et al., 2002). These authors thus demonstrate the significance of examining teaching practices to address deaf learners' inferior performance in different subjects in the curriculum.

In addition, there remains a paucity of studies exploring teachers' experiences in teaching English literacy to deaf learners. Instead, studies conducted in English classrooms for deaf children in Kenya have focussed on measuring the literacy performance of deaf children (Adera et al., 2017, Piper et al., 2019) and described the languages used in teaching writing (Ogada et al., 2014). To contribute to better understanding of teaching literacy skills, as is the focus of this study, there is a need to explore the teachers' experiences. This led to the formulation of this study's third research question, which targets the teachers' experiences in teaching English literacy skills to deaf learners in primary schools in Kenya.

### **3.7 Literacy skills development**

There are indications that most children in the world, regardless of whether they have hearing loss or not, possess unsatisfactory levels of literacy skills, and children in some regions of the world are more affected than others (Crawford et al., 2020). According to World Bank data, more than half of the children in the world cannot read and understand a simple text by the time they are 10 years old (Crawford et al., 2020). Furthermore, this situation affects more children in Sub-Saharan Africa (Crawford et

al., 2020), which points to the need to improve the development of children's literacy skills in this region.

Literacy skills influence an individual's life as well as nations' development in terms of the capabilities and benefits accrued from literacy (Luckner et al., 2006, Ippolito and Steele, 2008). The literature has further underscored the values of literacy skills for both individuals and countries. According to Luckner et al. (2006), people need literacy skills to access the technological world, such as emails, Internet, and instruction manuals. In education, literacy enhances a person's ability to participate in instructional activities (Luckner et al., 2006).

At the national level, countries whose citizens possess well-developed literacy skills 'are in a better position to meet the economic challenges of operating in a global information-based economy'; furthermore, challenges related to health and other social issues can be tackled more effectively in a country by ensuring that the population is literate' (Luckner et al., 2006, p. 444). Therefore, it is critical for people to acquire literacy skills to overcome the barrier of accessing information and education and to hasten their country's growth and development. As demonstrated in section 3.6.2, deaf learners in Kenya require English for educational purposes as well as to access information and interact with members of society. In addition, the development of literacy skills by all learners in Kenya also contributes to achievement of the nation's development goals, such as the provision of quality education for all (see section 3.10 for more information).

Since this study concerns deaf learners and literacy skills, it is important to understand what sub-skills learners require to learn how to read and write. As such, the following section focusses on the skills that children need to become effective readers and writers.

### **3.7.1 How children develop literacy skills.**

Scholars have examined how hearing and deaf children learn to read and write. Through their efforts, empirical data has been gathered that links certain skills to the development of reading and writing. Skills such as phonological awareness (Lonigan et al., 2000, Engen and Høien, 2002, Lipka and Siegel, 2007), letter knowledge (Lonigan et al., 2000, Lipka and Siegel, 2007), and English vocabulary (Suggate et al., 2018) have influenced the outcome of young children's and adolescents' reading ability. Pre-school children can decode words if they can identify letters and have developed phonological awareness skills (Lonigan et al., 2000). In addition, kindergarten children's performance in letter identification and phonological awareness predicts reading problems in English as Second Language (ESL) classes (Lipka and Siegel, 2007), revealing relationship between letter knowledge, English vocabulary and phonology and children's potential to read.

Skills related to the phonology of spoken language are necessary for deaf children to acquire literacy skills (Charlier and Leybaert, 2000, Leybaert and Lechat, 2001, Wang et al., 2008, Kyle and Harris, 2011, Wang et al., 2013). This is exemplified in a longitudinal study demonstrating a significant correlation between letter-sound knowledge and reading in deaf children in the UK, between five and six years of age

and educated in special schools and units for deaf children (Kyle and Harris, 2011). The results revealed that letter-sound knowledge longitudinally predicted deaf children's performance in reading (Kyle and Harris, 2011). Furthermore, deaf children who had access to cued speech at home performed highly in making judgement based on rhymes (a task that depended on their phonological knowledge), and they made similar phonologically correct spelling mistakes as hearing children (Charlier and Leybaert, 2000, Leybaert and Lechat, 2001). In turn, this suggests that instructional practices focussing on the acquisition of letter knowledge and phonology by hearing and deaf children remain key to their success in reading. Studies on young children's classes (Lonigan et al., 2000, Lipka and Siegel, 2007) that linked phonology and letter knowledge to reading also suggest the need for teachers to focus on teaching these skills to young children. Although visual coding of phonological contrasts of a language can assist 6-14 year-old deaf children to develop phonology-to-orthography mappings, sufficient phonological information, (including the visual phonological codes) must be provided by teachers for deaf learners to acquire knowledge of phonology-to-orthography mapping (Leybaert, 2000).

Another important skill concerns English vocabulary, which has been identified as a determining factor regarding how hearing and deaf children perform in reading. Suggate et al. (2018) reported that the English vocabulary performance of hearing children at 19 months influenced their ability to comprehend text later in adolescence. Similarly, English vocabulary knowledge has been significantly correlated with deaf children' ability to read (Harris et al., 2017). Researchers have further investigated how vocabulary knowledge of written language influences deaf learners' performance in

distinct components of reading (Allman, 2002, Daza et al., 2014, Zhao et al., 2019). Findings revealed that variance in reading fluency of hearing and eleven to nineteen year-old Chinese signing deaf learners largely resulted from their vocabulary knowledge of Chinese language (Zhao et al., 2019). Nevertheless, improved English vocabulary knowledge alone does not translate into better reading performance in DHH children without significant improvement in phonological skills knowledge, since skilled readers need both decoding and linguistic capabilities (Harris et al., 2017).

Comparably, a relationship exists between reading comprehension and English vocabulary performance in deaf children (Daza et al., 2014), including native and non-native signing deaf children, hearing monolingual English speakers, and hearing Chinese bilinguals (Cates et al., 2022). In fact, English vocabulary exerts more influence on deaf learners' reading performance than even phonology, as effective deaf readers between 8 and 16 years of age, possessed greater knowledge of English vocabulary compared to poor readers even though both groups exhibited similar phonology achievement (Daza et al., 2014). Moreover, it was observed that for 11-19 year-old deaf children, vocabulary knowledge predicted reading fluency more than phonological skills (Zhao et al., 2019). These studies demonstrate that the difference in vocabulary knowledge accounted for the deaf learners' challenges in reading when compared against either hearing children or deaf children who performed well in reading. As such, this suggests the need to pay greater attention to English vocabulary is teaching to deaf learners. In addition, for deaf children (11-19 years old) with insufficient phonological knowledge to support their reading, broad vocabulary knowledge can offer a compensating system within an interactive reading development

model (Zhao et al., 2019). Thus, this study underscores the key role of vocabulary development in acquisition of reading skills among deaf learners with underdeveloped phonological awareness skills (for example, deaf children with limited auditory access and lack exposure to visual codes of phonology resulting to insufficient phonological skills).

Attention has also been paid to how children learn writing. Some of the skills that can help children to become effective writers are same as for reading. For instance, for 5-6-year-old children to learn spelling, knowing the names of letters has demonstrated a significant connection to spelling ability (Kyle and Harris, 2011). In certain studies, deaf children used cueing techniques such as lip-reading, signs, fingerspelling, and previously learned spellings during spelling activities (Allman, 2002). For deaf learners, even when teachers employed strategies that were found useful in teaching writing, some skills remained indispensable. For example, Williams (2011) argued that, in SIWI lessons, deaf learners require an understanding of English phonology in order to learn writing skills, as decoding words they used in sentences proved challenging to young deaf learners in the study.

These studies suggest that teachers should pay attention to teaching these skills in literacy lessons so that learners can read and write, as well as to prevent reading difficulties in the future. To boost their reading and writing ability, it is fundamental for children to be guided in acquiring phonology, letter knowledge, and vocabulary, among other skills.

### **3.7.2 Deaf learners and literacy skills**

Deaf children's ability to read and write significantly influences their academic performance (McAnally, 2004) and their participation in the job market (Lederberg et al., 2013). However, several studies have revealed substandard academic and literacy skills performance among deaf students (Dyer et al., 2003, McAnally, 2004, Wauters et al., 2006, Archbold and Mayer, 2012, Qi and Mitchell, 2012). For example, in a study by McAnally (2004), achievement test results were, on average, similar between deaf high school graduates and hearing students in grade four. However, recent literature challenges the grade-four-level reading performance ceiling for deaf learners who possess access to and use spoken language after receiving hearing aids or implants (Mayer et al., 2021).

With specific reference to literacy skills, deaf children's performance was found to be lower than that of hearing children (Monreal and Hernandez, 2005, Wauters et al., 2006, Archbold and Mayer, 2012, Herrera-Marmolejo et al., 2020). One example of this would be research that included deaf children without access to spoken language and whom exhibited poor reading performance (Wauters et al., 2006).

According to Wauters et al. (2006), deaf children between 6 and 20 years of age without CIs in the Netherlands possessed lower reading measures than their hearing peers. Despite receiving seven years of instruction, the study revealed that deaf children without CIs read at a first-grade level for hearing children. Similarly, in writing, elementary school deaf children performed below the expected performance level in Colombia (Herrera-Marmolejo et al., 2020).

The inferior performance in literacy skills by deaf children compared to their hearing peers has generated debate regarding the factors responsible. It has been argued that deaf children who use sign language face challenges such as lack of proficiency in first and second languages (L2), pedagogical issues, and limited engagement with L2 materials that can expose them to conceptually and linguistically complex information (Mayer, 2009). Other linguistic factors, such as inadequate fluency in language and delayed vocabulary development, represent further challenges faced by deaf children when learning to read and write (Mayer, 2009).

Additionally, absence of spoken language negatively influences deaf children's reading success, since it is believed that written language is a representation of spoken language (Dyer et al., 2003) and that children develop reading skills by mapping previously learned spoken language onto written words (Goldin-Meadow and Mayberry, 2001). By contrast, however, other studies (Toscano et al., 2002, Vermeulen et al., 2007, Simon et al., 2019) and reviews (Mayer and Trezek, 2018, Wang et al., 2021) have established that deaf students perform significantly well in reading and writing, especially after receiving CIs. Still other results indicate that French-speaking deaf children with CIs achieved comparable results to their hearing peers in word reading and spelling (Simon et al., 2019). Furthermore, children who received implants before the age of 42 months and whose reading skills were measured five and seven years after receiving CIs read at the same level as their hearing peers (Archbold et al., 2008). In addition, deaf children who were implanted early experienced fewer reading delays (Domínguez et al., 2019).

It is believed that hearing devices increase access to face-to-face language for deaf children (Marschark and Spencer, 2005), which has been suggested as one of the barriers to reading encountered by deaf children (Goldin-Meadow and Mayberry, 2001). Implanted deaf learners' potential to develop spoken language was investigated further by Ching et al. (2009), who reported that those who received implants before the age of 12 months developed spoken language in the same range as hearing children, thus increasing their ability to learn to read, as well. Nevertheless, for children with CIs, certain other factors also determine their acquisition of spoken language and reading performance (Geers et al., 2009, Wang et al., 2017). For instance, it has been noted that the child's home language contributed to the difference in reading scores among deaf learners using CIs and hearing aids (Wang et al., 2017). Additionally, Geers et al. (2009) conducted a study including 153 preschool deaf children aged five to six years from 39 oral communication programmes across the United States. The results indicated that parental education level, age at cochlear stimulation, and nonverbal intelligence predicted the level of language developed by deaf children with CIs.

In addition, the study by Geers et al. (2009) revealed that domains such as receptive and expressive language (in which the scores were below 50%) were difficult for deaf children with CIs to develop, unlike vocabulary (with scores above 50%). Performance levels also differed in the language domains, meaning that some language domains remained challenging even for deaf learners with CIs. Therefore, according to the literature presented in this section, it can be argued that hearing technology and supportive practices could enable deaf children with CIs to achieve comparable

performance levels in reading and writing as their hearing peers. Regarding deaf children in Kenya, however, their limited access to technological devices and lack of spoken language, as illustrated in section 2.4.3, sets them apart from their peers in developed countries, where deaf children are fitted with sophisticated hearing devices and access programmes that support spoken-language acquisition.

### **3.8. Teaching reading and writing to deaf learners**

The previous section presented literature concerning the importance of literacy skills, deaf children's achievement in literacy, and reasons for their deficient literacy skills performance. The following section reviews studies on teaching literacy skills to deaf learners.

#### **3.8.1. Phonological skills and vocabulary**

As the previous section demonstrated, deaf children possess inferior literacy skills compared to their hearing peers. Following this finding, scholars have attempted to provide explanations for this poor performance. Research has accordingly revealed that, for deaf children who use sign language or sign systems, their inability to develop literacy skills commensurate with hearing learners is caused by a lack of access to spoken language (Lederberg and Schick, 2013). This problem forms as the result of differences in modalities between the signed language that the children use and the spoken language they are taught to read and write (Lederberg et al., 2013).

Literature provides contrasting suggestions regarding how deaf children learn to read and write. Some studies have demonstrated that deaf learners apply their knowledge

of phonemes to read (Kyle and Harris, 2011, Wang et al., 2013). This includes deaf teenagers without CIs and those who use only sign language or sign supported systems of communication (Dyer et al., 2003). Furthermore, it has been concluded that elementary school signing deaf learners who rely on phonological awareness skills are better at writing than those who do not rely on such skills (Herrera-Marmolejo et al., 2020). Visual phonics as a sight-oriented approach that facilitates knowledge of a language's sound system have benefited deaf learners (Dyer et al., 2003, Trezek and Wang, 2006, Syverud et al., 2009, Beal-Alvarez et al., 2012, Salehomoum and Pearson, 2020). Other approaches, such as cued speech, have been labelled as an alternative path to gaining phonological knowledge by deaf learners of mean age of 8.2 years and with limited hearing (Leybaert and Lechat, 2001).

By contrast, however, some authors propose that deaf learners learn to read without drawing upon skills from spoken language, but instead utilise other visual techniques (Goldin-Meadow and Mayberry, 2001, Alvarado et al., 2008, Costello et al., 2021, Miller et al., 2021). In one recent study, Costello et al. (2021) stated that skilled deaf readers ( 25 to 45 years of age ) depend on orthography and not on phonological processing skills to read.

The authors further stated that, unlike hearing readers, deaf readers identified pseudohomophones as non-words, suggesting that deaf learners relied on the appearance of written pseudohomophones. Even though deaf participants in the study had already acquired effective reading skills (Costello et al., 2021), previous studies identified phonology use by beginning deaf readers of Spanish (Gutierrez-Sigut et al.,

2017). This suggest that phonological knowledge is necessary for deaf learners who are still developing literacy skills.

Few studies have focussed on deaf children's writing skills compared to reading, and most of the available studies target spelling and word-level writing (Williams and Mayer, 2015). Deaf children find writing more challenging than reading, as they must come up with words to use in writing (Mayer and Trezek, 2015). Concerning the skills necessary for writing, different propositions have been given. For example, it has been suggested that deaf children do not use phonological decoding to spell, since less than 20% of their spelling errors were linked to phonemic awareness compared to hearing children, whose phonemic-related errors equalled 60–80% (Harris and Moreno, 2004).

However, it has been argued that, because of the demand of connecting face-to-face and written language through phonological processing, deaf learners should be taught visual alternatives, such as using the eyes for what the ear typically achieves (Mayer and Trezek, 2015). Although some visual strategies have been discussed in the literature as appropriate for teaching reading to deaf children, they can also be used to teach writing (Mayer and Trezek, 2015). The literature presented here offers evidence of deaf learners' use of visual phonological techniques in reading and writing and suggests considerations for visually oriented approaches to teaching literacy skills to deaf learners.

English vocabulary is taught to deaf learners in a bid to equip them with reading and writing skills. Empirical studies have demonstrated that signing deaf children perform better in reading when teachers taught vocabulary before they read the passage

(Allman, 2002, Daza et al., 2014, Suggate et al., 2018, Zhao et al., 2019, Alasim and Alqraini, 2020). Comprehension of written words and passages for 11-19-year-old deaf learners who use TC or sign language as their preferred mode of communication was better when reading instructions included explicit teaching of vocabulary (Zhao et al., 2019, Alasim and Alqraini, 2020). These studies have thus demonstrated the importance of signing deaf learners possessing a sound knowledge of the vocabulary of written language for effective performance in literacy skills. Accordingly, it is necessary for teachers to emphasise teaching the vocabulary of written language to deaf learners to support learners' understanding of written language. In fact, teachers utilise all methods at their disposal to ensure that signing deaf learners understand meanings of written language vocabulary before learners read stories (Siima, 2010), including in classes of deaf learners who have access to and use spoken language (Liu et al., 2014, Wang and Andrews, 2017).

As illustrated in the following sections, signing deaf learners use sign language features such as fingerspelling and signs to learn and employ phonological awareness and vocabulary of written language.

### **3.8.2 Fingerspelling**

Fingerspelling refers to the use of hand shapes and movements that represent letters of the alphabet to spell words in written language (Padden and Ramsey, 2000). In spelling, deaf children without CIs rely more heavily on the morphology of words than on phonology, especially when spelling plural forms of English nouns (Breadmore et al., 2012) and in identifying origin of suffixes and affixes in English words (Wang et al.,

2017). This indicates that mastering how words appear in print can support deaf learners with insufficient hearing to learn writing skills. In turn, this literature suggests that teachers of deaf learners should implement approaches that foster learners' acquisition of reading and writing skills through morphological knowledge. This can include visual techniques such as fingerspelling.

Fingerspelling is one skill that has been found helpful to deaf children in reading and writing. Reviews of literature (Alawad and Musyoka, 2018) and empirical studies (Haptonstall-Nykaza and Schick, 2007, Alvarado et al., 2008, Roos, 2013, Lederberg et al., 2019, Miller et al., 2021) have further illustrated the role of fingerspelling in deaf learners' reading ability. With specific reference to signing deaf learners between 2-18 years of age, Alvarado et al. (2008), for instance, argued that visual skills such as fingerspelling provide profound deaf children possessing limited auditory phonological access with the ability to decode written words.

In another study of deaf children who only used sign language, Lederberg et al. (2019) recruited 336 early elementary-school deaf children enrolled in 103 classes that exclusively served Deaf and Hard-of-Hearing (DHH) learners in the United States and Canada. Based on the language use, the learners were grouped into three language groups: unimodal sign group (no auditory access to spoken language), bimodal group, and spoken-only group. The authors found that reading skills were highly correlated with fingerspelling and language skills for the unimodal signing group. Drawing from these results, it was concluded that unimodal signing deaf children used fingerspelling phonology skills instead of 'spoken phonological awareness' (Lederberg et al., 2019,

p. 421) skills, which they lacked. The authors subsequently linked this conclusion to similar performance of unimodal signing deaf children and the other groups in the reading test.

Since deaf children use manual alphabets to fingerspell written words (Padden and Ramsey, 2000), it has been argued that alphabet knowledge represents a crucial skill that they should acquire before they learn reading and writing (Johnston et al., 2008, Allen, 2015, Stone et al., 2015). Furthermore, it is evident that knowledge of the alphabet comprises one factor that enhances learning of reading and writing for all children (Breadmore et al., 2019). In discussing how deaf learners utilise fingerspelling, Alvarado et al. (2008) suggested that knowledge of fingerspelling to grapheme by deaf learners who use sign language facilitated their reading ability in the same way that the knowledge of phoneme to grapheme does for hearing children. This was identifiable from the similar performance of deaf and hearing children in identifying phonologically similar words, which lead to the conclusion that deaf sign-language users undertake reading in similar manner as their hearing peers (Alvarado et al., 2008).

The findings from these studies (Alvarado et al., 2008, Lederberg et al., 2019, Miller et al., 2021) further imply that deaf learners should be provided with alternative means of developing phonological skills such as fingerspelling to utilise in reading and writing, especially for those who do not benefit from auditory input.

Additionally, it has been established that parents and teachers of deaf learners in bilingual settings use fingerspelling to teach reading to deaf children (Puente et al.,

2006, Mounty et al., 2014, Jones, 2013). However, contrasting findings were reported in a study concerning fingerspelling and the development of literacy skills by deaf learners. Scott et al. (2019) conducted a case study of six young deaf children who were taught reading English words using fingerspelling, chaining, and sign-to-print. In so doing, Scott et al. (2019) suggested that the children did not consistently benefit from the use of fingerspelling as they did from the other two methods. Nevertheless, the authors acknowledged that limitations of their study that may have affected the results. For example, the children had language and literacy delays and used a combination of American Sign Language (ASL) and spoken language at home and school. It is also possible that the extremely low scores by all children across all fingerspelling subtests on Schick's fingerspelling assessment may have limited the noticeability of literacy gains resulting from the fingerspelling intervention (Scott et al., 2019).

### **3.8.3 Sign language and literacy teaching**

Instructions incorporating sign language in literacy teaching support deaf learners in successfully reading and writing (Storch and Wigglesworth, 2003, Alvarado et al., 2008, Ausbrooks et al., 2014, Mounty et al., 2014, Rudner et al., 2015, Hrastinski and Wilbur, 2016). Sign language use in literacy activities has proven useful, as claimed by parents, teachers, and deaf students. For instance, teachers of successful deaf readers in bilingual settings have reported engaging in discussions of written English using ASL to enhance mediation, which they found to help deaf learners become effective readers (Mounty et al., 2014). From deaf learners' perspective, it was also noted that using Hungarian Sign Language (HSL) minimised communication

challenges encountered by 14-19-year-old deaf students in English as Foreign Language (EFL) classes (Kontra et al., 2015).

The learners' knowledge of and use of sign language as a mode of instruction has further been found to be valuable for deaf learners in acquiring literacy skills, as revealed by empirical data. For example, in a study that investigated word recognition by deaf learners in the Netherlands, signs played a significant role in effectively teaching word recognition to 6-10-year-old deaf children in bilingual education (Wauters et al., 2006). The learners could recognise words presented in speech with sign conditions (Wauters et al., 2006).

Studies have also revealed that learners' performance varies depending on their level of sign language, with highly skilled deaf sign-language users performing better than low-skilled learners (Alvarado et al., 2008, Hrastinski and Wilbur, 2016). Hrastinski and Wilbur (2016) reported that English comprehension reading scores were better for deaf learners (6<sup>th</sup> through 11<sup>th</sup> grade) who were highly proficient in sign language compared to those with less proficient sign language levels.

It has further been argued that effective deaf readers need effective sign language knowledge, as this equips them with tools for communication, without which learning how to read would prove difficult (Salehomoum and Pearson, 2020). These studies thus emphasise the important contribution of sign language in deaf learners' development of literacy skills by improving communication and comprehension of concepts and sub-skills such as vocabulary. However, these studies also indicate that

proficiency in sign language plays a key role in increasing the deaf learners' benefits from using sign language in literacy classes.

### **3.8.4 Classroom environment**

Creating a conducive environment and using suitable learning tasks aid learners in the instruction process (Herring-Harrison et al., 2007, Bowman-Perrott et al., 2013, Loizou, 2016, Sytsma et al., 2019, Omidire, 2022). Accordingly, findings reveal that deaf learners' ability to see teachers' faces in mainstream primary schools facilitates their engagement with both teachers and learning materials (Todorov et al., 2022). In addition, elementary school deaf students reiterated that closeness to teachers during lessons improved their access to facial cues and resources and boosted their understanding (Guardino and Antia, 2012). This means that learners' access to non-verbal cues and participation in learning activities can be fostered through favourable classroom arrangement. It can further be argued that this offers a means of increasing deaf learners' access to information by enhancing supplementation of the input they receive through sign or spoken languages.

As one example, a study by Guardino and Antia (2012) revealed that physical accommodations helped increase student engagement and improve the academic performance of deaf children in elementary school in the United States. Though the study possessed a small sample of three teachers and 14 deaf learners from a single school, learners' academic achievement improved following classroom modifications, including learners' seating arrangement.

Apart from the classroom space, the manner in which teachers organise their lesson activities, such as peer tutoring and group work, are appropriate for learners with special needs in education, including those with hearing loss (Herring-Harrison et al., 2007, Guardino and Antia, 2012) and learning disabilities (Loizou, 2016).

In Omidire (2022) study of a bilingual mainstream primary school in South Africa, teachers organised discussions and peer tutoring to help learners comprehend literacy concepts. Managing instructional activities such as promoting group work results in desirable behaviour and ensures learners spend more time on learning activities (Guardino and Antia, 2012), which can increase learners' gains from the lessons. Practices that promote co-operative learning are thus key for scaffolding, wherein novices learn from those with higher competency level of knowledge and skills (Kao, 2010), and teachers can take advantage of this to promote learning.

### **3.8.5 Translanguaging**

Translanguaging refers to when people draw on their linguistic skills to increase understanding by enhancing communication between people (Swanwick, 2017). As a communication tool, translanguaging proves useful in deaf education, since it involves use of spoken, sign, and written language (Swanwick, 2018). Translanguaging has been viewed as a means of promoting bilingual education in the education of deaf children (Swanwick, 2017) considering deaf learners' use of two or more languages, such as signed and spoken or written language. For instance, teachers of deaf learners who use sign language can practice translanguaging by using sign language features such as signs in combination with spoken language (Swanwick, 2017).

Furthermore, since translanguaging remains closely linked to SCT, it is useful as a tool for learners to collaborate with others and co-construct knowledge, as well as for inner dialogue within learners' mental space (Swanwick, 2017).

For learners who employ sign language, dialogue occurs when discussing written language using sign language or expressing ideas in sign language when learners lack the proper vocabulary of the written language (Swanwick, 2017, Swanwick, 2018). For effective translanguaging in deaf education and dialogic teaching, teachers should not aim to simply present verbal English in sign language, but rather create opportunities for communication and assist learners in connecting sign, spoken, and print language (Swanwick, 2017).

The application of translanguaging in deaf education has been reported where the spoken language of the majority of the population differs from English and was used during English literacy lessons (Bedoin, 2011, Berke, 2013, Jones, 2013, Liu et al., 2014, Csizer and Kontra, 2020) or where spoken English, written English, and the country's sign language were employed together (Evans, 2004, Staden, 2013, Bajarh, 2020, Mohanty and Mishra, 2020). The supportive role of translanguaging in the comprehension of spoken or written language has also been identified by high school deaf learners (Bedoin, 2011, Kontra et al., 2015) and deaf adult bilinguals (Hoffman et al., 2017). In addition, authors have observed teachers of deaf children using chaining strategy in literacy lessons (Padden and Ramsey, 2000, Griffin, 2021). Chaining refers to teachers using sign language by matching print with signs (Padden and Ramsey,

2000). This literature emphasises the use of translanguaging in literacy teaching to deaf learners and illustrates its benefits if teachers understand and utilise it effectively.

Translanguaging represents a common practice in English-language lessons in mainstream schools in Kenya (Muthwii, 2004, Commeyras and Inyega, 2007, Dhillon and Wanjiru, 2013, Dubeck et al., 2012) and in deaf education (Mathew, 2014, Ogada et al., 2014). Local languages, sign language, and Kiswahili are employed in literacy lessons in schools for the deaf (Mathew, 2014, Ogada et al., 2014). These studies have further revealed that teachers use translanguaging in the Kenyan context to explain concepts they think learners do not understand by drawing on learners' knowledge of languages other than English. The multilingual nature of the Kenyan population may help explain why teachers use more than one spoken language in school, including in schools for the deaf, as illustrated by these studies. However, using spoken language for translanguaging in deaf education may not benefit most deaf learners in Kenya, who lack access to spoken language, as illustrated in section 2.4.3.

In deaf education, sign language plays a key role in communication and instruction of deaf learners in contexts where deaf learners use sign language as the primary language, and it is usually employed in translanguaging accordingly (Mathew, 2014, Mweri, 2014, Mpuang et al., 2015). As such, studies have indicated that, for communication and instruction to succeed through translanguaging in sign language, proficiency in sign language by teachers and learners is key. However, use of sign language in instruction has often been associated with negative outcomes in literacy. For instance, poor writing by deaf learners has been blamed on the deaf children's use

of sign language in the UK (Burman et al., 2007) and Kenya (Ogada et al., 2014, Sambu et al., 2017) as well as on how well deaf learners understand that sign language differs from the written language that they are learning to read and write (Griffin, 2021).

In addition, it has been noted that deaf learners with different linguistic backgrounds (ASL, speech, English-based signs or ASL, and severe language delays) transferred skills from sign language to written English, leading to errors originating from sign language (Wolbers et al., 2014). The ASL group produced the second-highest range of ASL skill transfers after the language delay group, while the lowest transfer levels were noted in the speech group (Wolbers et al., 2014). As illustrated in section 3.6.2, this transfer can be reduced by teachers clearly indicating the differences between English and sign language.

### **3.8.6 Visualisation and literacy teaching to deaf learners**

It has been observed that most deaf children with reading problems exhibit deficits in phonological skills, as well (McAnally, 2004). Consequently, Narr (2008) argues that reading instructions supplemented by visual phonics can help deaf children decode using phonological knowledge. For example, deaf children from kindergarten through grade three identified rhymes and decoded text using only phonological skills after teachers used visual phonics for instruction (Narr, 2008). Likewise, Harris et al. (2017) concluded that developing visual components of phonology remains essential for deaf children with limited auditory access to speech, since speech reading and phonology consistently predicted reading performance in a longitudinal study of primary-school deaf children. Supplementing literacy lessons that focus on phonological awareness

skills with visual phonics have accordingly resulted in improved reading performance for deaf learners (Trezek and Wang, 2006, Syverud et al., 2009, Beal-Alvarez et al., 2012, Tucci and Easterbrooks, 2015).

In another study, employing visual phonics in a reading curriculum for three pre-school deaf learners improved their performance in early reading skills (Wang et al., 2013). Moreover, the learners maintained their knowledge of phonemic awareness at the elementary-school level while demonstrating continued growth in reading skills (Wang et al., 2013). The appropriateness of visual phonological skills is further cemented by the fact that visual phonics benefit all deaf learners regardless of their degree of hearing loss. This is especially true for young deaf learners (Trezek and Wang, 2006, Wang et al., 2013), including those who primarily use sign language and do not use amplification (Wang et al., 2013).

Moreover, meta-analysis of the literature indicates that deaf learners require spoken phonological skills to read, profoundly deaf learners can access the phonology of spoken language, and teachers can use visual phonics to equip deaf learners with phonological skills (Alasim and Alqraini, 2020). It is clear from these studies that deaf learners should be taught decoding skills for them to develop literacy skills regardless of their ability to access spoken language (or lack thereof). These studies also demonstrate that deaf learners without functional hearing should be offered visual access to decoding skills.

### **3.8.7 Sign bilingualism**

Bilingual model in deaf education was adopted following the recognition of natural sign languages as a legitimate instructional language and expectations of performance of deaf learners in language and print literacy (Mayer and Leigh, 2010). Sign bilingualism is a method of teaching deaf children in which the second and widely spoken language of the community (L2) is taught and learned on the basis of the deaf child's first language (L1), the language of the deaf community (Johnston et al., 2002). Sign bilingual programmes have been in use in many countries such as USA (Hrastinski and Wilbur, 2016, Griffin, 2021) and Australia (Johnston et al., 2002). For example, in Australia, sign bilingualism have been used in instruction in pre-school, primary and secondary schools for the deaf (Johnston et al., 2002). Two of the key features of sign bilingualism in Australia is use of Australian Sign Language (Auslan), which is the first language of deaf children, to explain English and to present English and Auslan as distinct and separate languages (Johnston et al., 2002). These two features are relevant and beneficial to deaf learners in sign bilingual programmes and should be utilised for such programmes to be successful (Johnston et al., 2002).

To turn our attention to Kenya, which is the focus of this study, bilingualism in education has also been in practice. The language policy in education in Kenya states that the mother tongue or the language of the school's catchment area is used in instruction from grade one to three and English is used thereafter (Adoyo, 2002). KSL is considered the mother tongue of deaf learners in Kenya and is taught to them as soon as they join school (Mweri, 2016). In the Kenyan education, English is taught as the L2 and thus, sign bilingualism can be considered a useful tool to provide L2 instructions

to the deaf learners to enhance their performance in English literacy skills. In most cases, the benefits arising from deaf children with SL as the first language is measured by their performance in the written form of L2 though it can also be visible in the oral skills of deaf children in L2 (Johnston et al., 2002). Thus, since most deaf children in Kenya learn English in its written form, sign bilingualism can contribute to their development of literacy skills. Moreover, bilingual maintenance model that advocates for reliance on and utilisation of first language (sign language for the deaf learners), when learning and after gaining proficiency in second language has been found to be appropriate by educators of deaf learners in residential schools in the USA (Griffin, 2021).

### **3.9 Exploring literacy instructional practices to deaf learners**

The influence of instructional practices on deaf learners' literacy achievement is identifiable from the literature (Staden, 2013, Csizer and Kontra, 2020). In one study that sought perspectives of deaf students in higher education in Austria, Hungary, and the Czech Republic, the students stated that teachers' practices influenced their learning experiences of English as a foreign language (Csizer and Kontra, 2020), specifically in terms of their English language proficiency and interest in learning English (Csizer and Kontra, 2020).

Empirical data further reveals that appropriate instruction practices are crucial for ensuring deaf learners' success in reading. For instance, (Staden, 2013) found that deaf children in elementary primary schools in South Africa improved in their reading scores in English through the use of scaffolding and multi-sensory teaching approaches (Staden, 2013). The deaf learners in the study (Staden (2013) learned

South African sign language as their first language and written English as the second language, much like in the Kenyan context. It is suggested by these studies that teachers' instructional approaches determine deaf learners' achievement in literacy.

Researchers have also explored teaching strategies in different contexts, including in developing countries (Siima, 2010, Obusu et al., 2016, Matlosa, 2010, Glaser and Pletzen, 2012). One study of five primary schools for the deaf in Ghana by Obusu et al. (2016) revealed the use of teacher-centred methods that hindered sufficient input during English lessons. Teachers' inadequate sign language knowledge and lack of suitable technology for deaf children were suggested as reasons for these poor teaching approaches (Obusu et al., 2016).

However, even though it was conducted at the same level of education as this study, Obusu et al. (2016) study lacks an in-depth exploration of the teaching of English literacy skills because it included other subjects. The level of education and the focus of some of these studies differ from the study presented in this thesis. For instance, Matlosa (2010) was largely concerned with the language of instruction in literacy classes of deaf learners in Lesotho, while the study by Glaser and Pletzen (2012) was conducted in further education and training institutions in South Africa. As such, despite being conducted in developing nations, these studies may not provide sufficient knowledge of how English literacy skills are taught to deaf learners in Kenyan primary schools, thus justifying the need for the current study.

Similarly, exploratory studies regarding instructional methods in literacy have been conducted in developed countries (Evans, 2004, Donne and Zigmond, 2008, Bedoin, 2011, Liu et al., 2014, Csizer and Kontra, 2020, Salehomoum and Pearson, 2020). A study in primary school much like the current study was conducted by Wang and Andrews (2017) and observed deaf learners engaged in minimal participation in literacy lessons in primary schools in China. Most teaching followed teacher-centred methods that discouraged pupil participation (Wang and Andrews, 2017). The deaf children in the study by Wang and Andrews (2017) used CIs, learned different curriculum from hearing children, and were enrolled in oral-aural programmes. This context differs from Kenya, where teachers use total communication for teaching, and deaf and hearing children learn same curriculum (KICD, 2016).

Other studies from developed countries were conducted in high school (Bedoin, 2011) or in university and colleges (Csizer and Kontra, 2020). Still others focussed on parents of deaf children and their literacy teaching practices (Salehomoum and Pearson, 2020). It is also important to note that the deaf learners in these previous studies use hearing devices and can access spoken language (Donne and Zigmond, 2008, Bedoin, 2011, Liu et al., 2014, Wang and Andrews, 2017), unlike most deaf children in Kenya. The findings from these studies thus may not be offer insight into how English literacy skills are taught to deaf children in Kenya, further revealing the need for the current study.

Moreover, studies concerning language-in-education and the teaching of language in diverse linguistic contexts can be more insightful when the focus is on different actors

in education (Mariou et al., 2016). For instance, qualitative research of teachers' language-teaching practices offers a detailed narrative of their views and understanding of situated educational practices in specific settings (Mariou et al., 2016). Considering that teachers are one of the actors in education, exploring their practices in this study offers insights into English language teaching to deaf learners in their context.

### **3.10 Teaching and learning resources**

In addition to the skills needed for deaf children to learn reading and writing revealed in several studies (see section 3.5.1 and 3.7), as well as approaches labelled as suitable (section 3.7.1), scholarship suggests that visual teaching and learning resources remain important for deaf learners to acquire literacy skills (Luckner et al., 2001, Evans, 2004, Gentry et al., 2004/2005, Easterbrooks and Stoner, 2006, Smetana et al., 2009, Bedoin, 2011, Guardino and Antia, 2012, Nikolarazi et al., 2013, Kuntze et al., 2014, Gallion, 2016, Ikarasi et al., 2019, Birinci and Sariçoban, 2021) .

Visual aids and real objects have been found to increase the English vocabulary of deaf students, and such students demonstrated long-term retention of the learned vocabulary, unlike when only sign language was used for instruction (Birinci and Sariçoban, 2021). In reading comprehension, deaf children understood written stories that were accompanied by visual aids, such as videos, pictures, charts, and concept maps (Gentry et al., 2004/2005, Nikolarazi et al., 2013, Kuntze et al., 2014, Liu et al., 2014, Ikarasi et al., 2019) and captioning (Alsalamah, 2020).

Use of graphic in novels also positively influenced high school deaf students' interest in reading novels that they could not read of their own free will before the intervention (Smetana et al., 2009). In fact, 9 to 18 years old deaf children who use ASL achieved higher comprehension levels when the story was presented using print with pictures and performed worst when print-only formats were employed (Gentry et al., 2004/2005). In addition, ensuring that learners interact with text or print resources can contribute to enhanced reading and writing skills (Justice and Ezell, 2002, Evans, 2004, Johnston et al., 2008, Owodally, 2012) .

Regarding writing, Easterbrooks and Stoner (2006) state that visual tools used for instructing DHH 17–18-year-old students led to improved written work. For instance, it was noted that students employed more adjectives in their written work following the intervention (Easterbrooks and Stoner, 2006). Furthermore, older deaf students in high school wrote their own comic books after reading graphic novels (Smetana et al., 2009), suggesting that they could identify suitable English words and correct structure to use in their own writing. These studies thus prove that the quality and quantity of deaf learners' reading and writing improves when visual resources are included in the presentation of text or when providing instruction.

In an article that described suitable teaching approaches for deaf learners, Luckner et al. (2001) acknowledges benefits of visual teaching techniques such as pictures, charts, captions, and computer graphics used by teachers. The authors added that preparing and using visual tools to deliver the lesson's content proved suitable for teaching pre-reading, post-reading, and other subjects in the curriculum. The

usefulness of visual aids is linked to their ability to tap into the visual strength of DHH children (Luckner et al., 2001).

Similarly, research exploring the perspectives of teachers, parents, and deaf learners found teaching and learning materials to be key to developing literacy skills. In one study, it was established that deaf students learning English as a foreign language appreciated when their teachers employed teaching aids such as flashcards and techniques like diagrams (Kontra et al., 2015). Moreover, university or college deaf students stated that visualisation techniques such as pictures, projectors, charts, and texts increased their understanding of written English (Csizer and Kontra, 2020). These studies thus present emic perspectives demonstrating the need to employ visualisation techniques when teaching written language to deaf students. These perspectives further demonstrate how visual resources aid in making the lesson content accessible to deaf learners.

In addition to older deaf students, who described a need for visual aids to be included in classes teaching English as a foreign language (Kontra et al., 2015, Csizer and Kontra, 2020), visual aids were also found to appeal to younger deaf children (Nikolarazi et al., 2013). For instance, one study noted that pre-lingual, 7 to 12 year-old deaf learners paid attention to details in pictures presented with text and Greek Sign Language (Nikolarazi et al., 2013). The authors determined that both related and unrelated information to the text was identified from the picture by deaf children, thus revealing how visuals appeal to deaf learners and contribute to learners' interaction with print.

Additionally, there is evidence that visualisation materials and techniques prove useful in teaching literacy skills, as stated by parents of deaf children (Mounty et al., 2014, Salehomoum and Pearson, 2020). The parents of deaf children have mentioned availing books, newspapers, and magazines at home as a means of providing print for their children that led to effective literacy skills development (Mounty et al., 2014, Salehomoum and Pearson, 2020), and deaf children have been found to access closed captioning on television and computers, further supporting their literacy skills acquisition (Mounty et al., 2014). Similarly, according to deaf students in higher learning institutions, teachers' most favourable literacy practice included utilisation of visual aids (Csizer and Kontra, 2020). These studies accordingly affirm that visuals prove useful for making written language accessible to deaf learners and should be considered by their teachers and educators.

The evidence from empirical studies (Gentry et al., 2004/2005, Easterbrooks and Stoner, 2006, Nikolarazi et al., 2013, Kuntze et al., 2014) and studies concerned with the perspectives of teachers, parents and deaf learners (Kontra et al., 2015, Csizer and Kontra, 2020, Salehomoum and Pearson, 2020) has highlighted the key role of visuals in fostering deaf learners' ability to learn literacy skills. In so doing, these studies have established the need to employ visualisation aids in teaching reading and writing to deaf learners. It has also been revealed how visuals contribute to making the content of the lesson accessible to deaf learners and create opportunities for interaction with resources, thus improving comprehension and the quality of their writing.

Regarding the use of teaching and learning resources in Kenya, studies have linked learners' academic performance to the use of teaching and learning aids (Ngware et al., 2014, Maina, 2018). Ngware et al. (2014) reported that students in schools where teachers used learning aids excelled in examination compared to schools where teachers did not use learning aids. Studies have further examined the use of learning resources in schools for the deaf in Kenya, identifying their benefits in deaf education in both secondary and primary schools (Kimani, 2012, Namukoa, 2014). Concerning learners' academic performance and visual aids, a study by Maina (2018) concluded that a lack of visual teaching aids lead to inferior performance by primary school deaf learners in social studies. In addition, Ackers and Hardman (2010) stated that a shortage of teaching resources prevented interactions in mainstream primary schools during English, mathematics, and science lessons.

The importance of visual teaching and learning aids revealed by the literature reviewed here makes it worthwhile to consider investigating use of these tools in teaching. Therefore, it is crucial to identify the resources used to broaden our understanding of teaching English literacy skills to deaf learners in Kenyan primary schools, which accordingly represents the second research question of this study.

### **3.11 Rationale for the Study**

Literacy constitutes an essential skill for everyday life in the modern world, and as such, limited literacy skills negatively influences a person's life (Breadmore et al., 2019). It has further been noted that deaf children perform below the level of their

hearing peers in literacy knowledge (Wauters et al., 2006, Archbold and Mayer, 2012, Herrera-Marmolejo et al., 2020), prompting researchers to address this issue.

However, the focus of literacy research from high-income countries has primarily remained on deaf children with CIs and hearing aids (Archbold et al., 2008, Mayer et al., 2016, Lederberg et al., 2019) due to the high number of deaf children using these modern hearing devices (Svartholm, 2010, CRIDE, 2021). In Kenya, by contrast, in addition to lacking hearing devices (Adoyo and Maina, 2019), which limits deaf children's access to spoken language, such children also use KSL (Mweri, 2016). As such, this places them in a different category from the population of most recent research in high-income countries.

In addition to being one of the compulsory subjects in the curriculum, English is the language of instruction and examination at all levels of education in Kenya (KICD, 2016), thus establishing the importance of literacy skills in English for all learners to access education. Furthermore, Kenya is a signatory of the Sustainable Development Goals (SDGs) (Republic of Kenya, 2007). Accordingly, the nation seeks to provide inclusive and equitable education for all by the year 2030 as a move towards attaining SDG four, which focusses on providing quality education for all (UNICEF, 2022b). However, findings from literacy studies in schools for hearing and deaf children in Kenya reveal an underachievement in literacy skills (KNEC, 2019, Piper et al., 2019), making it necessary to explore how these skills are taught to deaf children. Moreover, available research in schools for the deaf in Kenya comprise studies that quantify language use and communication problems in teaching English literacy lessons

(Ogada et al., 2014, Mathew, 2014, Patrick and Awori, 2017). Unfortunately, these quantified findings do not promote understanding. As such, this thesis presents qualitative data gathered through semi-structured interviews, lesson observations, and documents to contribute to broader knowledge of literacy teaching in primary schools for deaf learners in Kenya.

This study focusses on primary school teachers of English literacy skills in schools for the deaf. Primary education is crucial to an individual's academic life, and a person's future is shaped based on educational experiences acquired at this level (McAnally, 2004, UNICEF, 2022a). Additionally, children who encounter reading problems in primary school continue to lag behind as they progress through education (McAnally, 2004). Therefore, conducting this study at the primary-school level is necessary considering the critical role primary education plays in educational achievement, including literacy.

### **3.12 Conclusion**

The aim of this chapter was to review literature concerning literacy skills and deaf learners. In turn, this review has revealed that literacy skills are vital for deaf learners to participate in education, access technology, and interact with the majority of hearing members of society. However, with exception of CIs users, signing and profoundly deaf learners' performance in literacy skills remains lower than that of their hearing peers.

This review has further demonstrated that all learners in Kenya need competency in English in order to access education and information outside the school system due to

the instructional and official language role of English in the Kenyan system. However, the studies presented here have revealed limited achievement of literacy skills by deaf children in primary schools in Kenya. As such, this clearly indicates the need to further explore the teaching of English literacy skills to deaf learners.

The underlying skills such as phonology, letter knowledge and vocabulary that support learners' acquisition of literacy skills are identifiable from this chapter, and it is suggested that instructional practices need to incorporate these skills. The studies reviewed further identified instructional practices and resources that contribute to the development of literacy skills by deaf learners and illustrate that deaf learners' unique learning needs can be met by differentiating teaching approaches.

In addition, this chapter has demonstrated the importance of visually supplementing the orally presented sub-skills in literacy teaching and using techniques such as translanguaging and visualisation to meet deaf learners' needs. Overall, it has been revealed that it is essential to consider instructional practices and resources in research addressing literacy and deaf learners. Accordingly, instructional practices, the resources used, and teachers' experiences teaching English literacy in primary schools for deaf children in Kenya are addressed in this study.

I also reviewed literacy teaching studies from different contexts, including Kenya. These studies clearly demonstrate a contextual dissimilarity between Kenya and studies from developed countries, and there remains a lack of in-depth exploration in studies in similar contexts. Therefore, it is essential to bridge this contextual and methodological gaps in the literature, thus establishing the need for this study.

This study aims to explore practices and resources employed in teaching English literacy skills as well as the experiences of teachers in primary schools for the deaf in Kenya. To this end, the following research questions have been formulated:

1. What instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya?
2. What teaching and learning materials are used to teach English literacy skills to deaf children in primary schools in Kenya, and what role do they play?
3. What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?

The following chapter explores the methodology employed to answer these research questions and the theoretical framework that guided this study.

## **CHAPTER 4: METHODOLOGY**

### **4.1 Introduction**

In the previous chapter, I reviewed literature concerning literacy skills and deaf learners. To establish the need for this study, I considered the literature on deaf education and literacy—specifically, teaching English literacy skills to deaf and hearing children in Kenya and presented the research questions. With this established, the following chapter presents this study's research design as well as the decisions I made when planning and conducting this study.

In the first section of this chapter, I examine the different epistemological and ontological positions in research and identify the position that underpins this study. Furthermore, this chapter also elaborates on the qualitative research design adopted in this study and why I found it suitable. Continuing, I discuss issues regarding trustworthiness in research and how I addressed them in this study. Another section details the theoretical framework that guided this study and how I applied it to this research.

In addition, since this study took place during the Covid-19 pandemic, I elaborate on the pandemic's effect on this study's methods and the data collection. I further discuss the data collection methods, ethical considerations, sampling technique, and process of participant recruitment. In the data analysis section, I detail how I conducted the reflexive thematic analysis. This being a qualitative study, I then describe the

approaches I employed to enhance the trustworthiness of the data analysis in each step. Finally, I provide a conclusion to this chapter.

## **4.2 Ontology and Epistemology**

Researchers need to explicitly communicate their assumptions about ontology and epistemology for readers to understand how the critical components of research relate to one another and to avoid confusion when discussing social phenomena (Grix, 2010). Ontology is concerned with what the researcher thinks about the kind of things that exist in the world and how those things can be described (Benton and Craib, 2011).

Epistemology, by contrast, refers to assumptions regarding the nature of knowledge and how it can be acquired (Cohen et al., 2007). These assumptions guide the researcher in choosing the research methodology and methods employed (Scotland, 2012, Grix, 2019). Methodology refers to how the researcher conducts the inquiry concerning the reality that he or she believes can be known, whereas the methods specifies the data collection tools and techniques that are employed in the study (Scotland, 2012).

It has been stated that all studies begin with an ontology, from which one's epistemological and methodological stances logically flow (Grix, 2019). Therefore, it is important to understand the ontological and epistemological positions underpinning this study in order to establish why I designed and conducted the study in the manner presented. For this reason, my ontological and epistemological stances are narrated in the following section. I begin by briefly describing positivism and interpretivism

philosophical orientations and providing a rationale for grounding this study within an interpretive ontology.

#### **4.2.1. Research Paradigms**

A paradigm describes a researcher's worldview or belief system and the methods accompanying this sets of beliefs (Lincoln and Guba, 1985). On a continuum, the main research paradigms include positivism, post-positivism, and interpretivism, with positivism and interpretivism being placed on the opposite ends (Grix, 2019). Locating a study within a paradigm is necessary because the manner in which researchers perceive the nature of reality plays a crucial role in understanding the study's design and conduct (Krauss, 2005).

The positivist paradigm is based on realist ontology, where it is assumed that the meanings of what researchers are searching for already exist within the objects rather than in the conscience of the researcher; the researcher's focus is thus to retrieve these meanings (Scotland, 2012). Consequently, a researcher aligned with positivism is expected to observe and measure these existing facts (Cohen et al., 2007). By contrast, the interpretivist paradigm is grounded in relativist ontology, which assumes that reality is experienced and interpreted differently by individuals and that the same reality can be interpreted in a variety of ways (Mack, 2010, Bunniss and Kelly, 2010). The interpretivist ontology allowed me to explore English literacy teaching guided by the assumption that each teacher will possess an individual interpretation of teaching English literacy skills to deaf children, and this interpretation differs from others based on their interaction with the deaf learners and the context in which they teach.

Epistemologically, I also needed to consider the relationship between researchers and the social world as outlined in different research paradigms in order to identify the fit between a paradigm and research questions (Ryan, 2018). For instance, positivists emphasise a clear separation between the researcher and the researched and insist that both represent independent entities. Interpretivists instead assume that reality is understood through the interactions between the researcher and the participants (Scotland, 2012). Based on these assumptions, positivist researchers employ tools that measure the independent and stable facts so as to limit the researcher's interaction with the study participants (Ryan, 2018). The current study, however, focusses on the instructional practices and experiences of teachers, which demanded my interaction with participants. Accordingly, this matches the interpretivist belief that subjective knowledge is generated by considering how people experience and recognise reality (Ryan, 2018). For this reason, I opted to locate my study in the interpretivist paradigm, as this allowed me to generate meaning by thinking about my data and cognitively processing it as informed by interactions with study participants (Kivunja and Kuyini, 2017).

In this study, I believe that individuals can interpret their experiences of reality and their actions (Mack, 2010). To understand these experiences, I needed to interpret the meanings behind their interpretations (Mack, 2010). This assumption conforms with the interpretive paradigm based on its double hermeneutics approach to understanding society (Grix, 2019). Understanding how literacy is taught to deaf children is guided by

the participants' interpretations of their experiences and instructional practices as well as how I interpret the information they provide.

The choice between interpretivism and positivism also depends on what the researcher seeks to achieve upon completion of the study. Literature affirms that interpretivism represents a distinct paradigm that is closely associated with research focussing on developing an understanding of a phenomenon (Grix, 2019); by contrast, positivism focusses on providing an explanation drawn from a measurable outcome (Kivunja and Kuyini, 2017). I designed this study to explore how English literacy skills are taught to deaf learners, and I believe that measuring teachers' practices and experiences may not fully address this aim. Accordingly, interpretivism represents an appropriate paradigm for achieving this study's goal of understanding teachers' practices.

With the rationale for this study's use of interpretivism established, the following subsection provides an overview of quantitative and qualitative research. This is then narrowed down to the generic qualitative approach employed in this study as well as the rationale behind its choice.

#### **4.2.2 Quantitative and Qualitative Approach**

The research questions addressed in this study fit well with the qualitative approach of exploring to learn more about a phenomenon and understand the process (Creswell, 2012), thus guiding my choice. The quantitative research suits more narrowly focussed questions that seek to collect data on variables that can be observed and measured (Creswell, 2012). However, my research questions strive to understand how English

literacy skills are taught to deaf children in primary schools in Kenya by considering how teachers narrated their practices. As such, this matches the qualitative approach to conducting research.

Epistemologically, the positivist perspective often aligns with the quantitative inquiry based on positivists' assumption of employing methods of natural sciences to conduct social science research (Bryman, 2016). Quantitative researchers use social surveys, experiments, and structured observations to generate quantitative data (Bryman, 1988). It is assumed that these quantitative methods enhance objectivity by separating the researcher from the participants, thus aligning with positivists' beliefs regarding the concrete and identifiable nature of knowledge (Cohen et al., 2018). To enhance my understanding of this study's research problem, however, I needed to visit schools and talk to teachers to obtain the necessary information in their own words. This might not have been possible if I opted to conduct quantitative research. Therefore, I employed a qualitative approach to rely on the strength of its epistemology, which permitted me to interact with participants to address the research questions (Krauss, 2005).

The choice of qualitative approach can also be guided by the researcher's perceptions of participants and their experiences. Like the anti-positivists, qualitative researchers do not believe in the existence of a single reality, as individuals are different, and people's experiences, beliefs, and views about phenomena are not the same (Krauss, 2005), much like how multiple instructional practices and experiences are thought to exist among the participants of this study. Accordingly, I found the qualitative approach useful for this study. Literature further states that qualitative researchers employ methods such as participant observation and in-depth semi-structured interviews to

describe the events, people's experiences, and the context in which events occur (Bryman, 2012). In this study, I understand that providing detailed descriptions using the participants' words to support the analysis will generate extensive knowledge of the subject being studied. This assumption matches the anti-positivist view of the nature of knowledge as well as the qualitative means of gathering information provided in the literature (Krauss, 2005, Bryman, 2012).

Continuing, quantitative researchers start with abstract ideas, which are then measured using methods that produce numerical data and results to explain the phenomenon (Cohen et al., 2018). By contrast, qualitative studies collect most data in non-numerical forms, including words, texts, or visual images, and analysis is performed without converting the data into numbers (Cohen et al., 2007). The quantitative methods of data collection and means of reporting findings in terms of numbers do not fully address this study's goal of exploring teaching English literacy skills to deaf children, as numerical data may not effectively capture teachers' experiences and practices. In addition, following the study's exploratory nature, textual data was considered appropriate for engaging in a detailed discussion of teachers' experiences and practices in order to achieve a better understanding.

As mentioned in the literature review chapter, most of the studies from Kenya concerning the education of deaf children and literacy are quantitative studies that did not include perceptions and experiences described by the teachers themselves. Therefore, in this study, I utilised qualitative data to ensure that this research

contributes to knowledge regarding teachers' literacy instructional practices in primary schools for deaf learners in Kenya.

In this study, I also recognise that teachers' approaches and experiences are shaped by the meanings they attach to them as well as their interaction with deaf learners and the environment. To obtain this subjective information, I must interact with the participants. Therefore, as suggested by Merriam and Tisdell (2016), my assumption regarding the teachers' experiences and practices requires qualitative methods, in which the researcher is the key data collection instrument and is able to probe or request additional information. Furthermore, in qualitative research, a participant is conceptualised as one who actively contributes to knowledge (Carter and Little, 2007), which allowed me to interact with teachers so that they can assume an active role in the creation of knowledge. This is important for achieving this study's goal of improving our knowledge about literacy skills and deaf children in Kenya.

By contrast, quantitative studies measure constructs and statistically analyse numerical data for generalisations and predictions (Mustafa, 2011), making it unfavourable for this study. I perceive that this study's participants may not be a representative sample (more information on the sampling strategy is provided in section 4.9) and that their experiences and practices may be unique to them and the context in which they teach. Therefore, predicting or generalising their instructional practices and experiences is not applicable to this study. Furthermore, quantitative research employs close-ended questions where the researcher prepares a set of responses that are presented to the participants whereas qualitative research utilises

open-ended approaches, which allows the participants to shape how they respond to the researcher's questions (Creswell, 2012). Therefore, use of a quantitative approach may not facilitate development of new insights, understanding of meanings, actions, and phenomenon from the participants' perspectives, which is usually the aim of interpretivism (Scotland, 2012) and the paradigm that was adopted in this study.

Qualitative methods were instead deemed appropriate considering that I aimed to provide a detailed narrative of teaching English literacy skills to deaf learners in primary schools in Kenya. The participants were accordingly provided opportunities to describe their experiences and actions in their own words. In addition, since this study strives to investigate how English literacy is taught to deaf children in Kenya, I do not intend to generalise the findings of this study, so a quantitative approach was not required.

This study employs a generic qualitative approach to explore the practices and experiences of teaching English to deaf children in primary schools in Kenya. The next section provides further details regarding the qualitative approach that was employed and establishes the rationale for this choice.

## **4.3 Research Design**

### **4.3.1 Generic qualitative study**

Several qualitative approaches have been identified and discussed by different authors. For example, Creswell (2007) describes five major approaches, including phenomenology, case study, ethnography, narrative study, and grounded theory. Meanwhile, Merriam and Tisdell (2016) discuss eight qualitative approaches—namely,

basic qualitative, phenomenology, case study, ethnography, narrative, postmodern-post structural, grounded theory, and critical approach. A basic qualitative study is also referred to as generic qualitative research (Kahlke, 2014). This section focusses on the generic qualitative approach employed in this study and briefly mentions the case study, phenomenology, ethnography, and grounded theories to explain why they were not considered.

A researcher conducting a generic qualitative study seeks to understand an individual's thoughts about a situation (Merriam and Tisdell, 2016). The goal is to discover and understand the phenomenon, process, views, or perspectives of participants, or a combination of all these aspects (Merriam and Tisdell, 2016). To fulfil this purpose, generic qualitative enquiries focus on people's interpretation of their experiences, the construction of their world, and the meanings they attribute to their experiences (Merriam and Tisdell 2016). As this study strives to understand the teaching of English literacy skills to deaf children in Kenya, a generic qualitative approach was adopted. In addition, this approach was deemed suitable because, while all qualitative studies seek to understand phenomena, other qualitative designs possess additional features (Merriam and Tisdell, 2016). For example, ethnography considers the culture of a group of people to understand the research question while phenomenology focusses on an individual's lived experiences and their meanings (Merriam and Tisdell, 2016).

As mentioned earlier, my goal in this study is to comprehend how English literacy is taught to deaf children in primary schools in Kenya. To this end, I did not seek to address participants' cultural issues or lived experiences, and so adopting either

ethnography or phenomenology proved unnecessary. Another qualitative approach that would have suited this study is grounded theory. The grounded theory is suitable when the researcher's goal is to generate a theory from the data (Merriam and Tisdell, 2016). However, since this study did not seek to do so, grounded theory was deemed unsuitable.

Among the qualitative approaches described by Creswell (2007), I initially considered a case study design for this study. A case study design can provide a detailed description of the research problem by enabling the use of multiple data collection tools (Creswell, 2007). In turn, this allows one to study a case or many cases in detail to gather insights into the research problem (Creswell, 2007). At the beginning, I thought a case study design was appropriate to address the research questions. However, after careful consideration, I abandoned this idea, as there was an absence of clear boundaries between the cases or units of analysis in this study (the teachers). Furthermore, it was impossible to have the cases bounded as is standard in case study research (Creswell, 2007), making a case study unsuitable.

Therefore, having considered other qualitative designs as demonstrated, I conducted generic qualitative research to explore teachers' experiences and practices of teaching literacy to deaf learners to achieve the aim of this study. After all, studies undertaken using a generic qualitative approach are generally not found to adhere to any of the established traditional qualitative approaches (Kahlke, 2014).

Quality in qualitative research can be assessed in the same manner as quantitative studies, but using different criteria from that which is applied to quantitative inquiry (Bryman, 2016). Trustworthiness represents one primary criterion for assessing quality in qualitative research, and many questions arise regarding trustworthiness issues in qualitative studies (Lincoln and Guba, 1985). As such, in the following section, I state how the trustworthiness of this qualitative study was promoted.

#### **4.3.2 Trustworthiness of the study**

A study's trustworthiness is concerned with the ways in which researchers can convince readers and themselves that the findings are worthy of being stated and considered (Lincoln and Guba, 1985). However, the applicability of measures of reliability and validity used to assess the quality of quantitative research has long been questioned by qualitative researchers, as the concept of measurement is not the main concern in qualitative studies (Bryman, 2016). In addition, applying reliability and validity to qualitative studies remains challenging, since the single objective reality presumed to exist in quantitative research is not viable in qualitative studies (Lincoln and Guba, 1985). Therefore, these four criteria of credibility, transferability, dependability, and confirmability are considered appropriate for judging the trustworthiness of naturalistic studies (Lincoln and Guba, 1985). Accordingly, these four criteria and how they were promoted in this study are outlined in the following sections.

#### **4.3.2.1 Credibility, dependability, transferability, and confirmability**

Credibility in research justifies the extent to which research findings match reality (Merriam and Tisdell, 2016), which is referred to as internal validity in quantitative research (Lincoln and Guba, 1985). Credibility in naturalistic inquiry ensures that the multiple realities have been adequately represented and that findings are credible (Lincoln and Guba, 1985). The fact that I spent a prolonged period of nine months in the field for data collection contributed to this study's credibility (Lincoln and Guba, 1985, Bryman, 2006, Cypress, 2017). In addition, the monthly meetings with my supervisors and our discussions regarding the data collection and analysis further enhanced its credibility (Connelly, 2016). The questions posed by my supervisors probed my biases and helped me clarify the basis of my interpretations (Lincoln and Guba, 1985), thus contributing to the credibility of my findings. I also triangulated data collection using different methods such as interviews, observations, and documents to supplement data collected using one method with data from the other method (Lincoln and Guba, 1985).

Dependability in qualitative research means demonstrating that results are consistent with the data (Merriam and Tisdell, 2016). This is referred to in quantitative research as reliability, which describes the degree to which the study's findings can be reproduced (Merriam and Tisdell, 2016). To enhance the dependability of the findings of this research, sections 4.6, 4.7, and 4.10 provide an audit trail explaining how I arrived at the results by including any decisions made, challenges faced, or ideas that emerged during data collection (Merriam and Tisdell, 2016).

Transferability is similar to the concept of generalisability in quantitative research, and it is based on whether the research findings are applicable to other settings or subjects (Lincoln and Guba, 1985). In this research, I have provided the study's time and context in order to ensure that the extent of similarities between this study's context and the receiving contexts are available to the interested parties as guidance for transferability (Lincoln and Guba, 1985).

Confirmability is equivalent to objectivity in qualitative research (Bryman, 2016). In qualitative studies, the issue of confirmability concerns the product of the inquiry, which considers the extent to which the findings, interpretations, and recommendations are supported by data (Bryman, 2016). The audit trail and reflexivity approaches that enhanced this study's dependability also contributed to its confirmability (Lincoln and Guba, 1985). Furthermore, I also ensured that audio records of the interview transcripts, lesson observation notes, textbooks, and curriculum design were uploaded to NVivo for analysis and stored for reference. The methodology, data reduction process, and development of themes are also described in detail (Lincoln and Guba, 1985). This study's audit trail is presented in sections 4.7– 4.11 while reflexivity is addressed in the following section, which begins with why reflexivity is necessary for qualitative research. This is followed by a description of my position in this study. Specifically, I focus on the relationship between myself and the participants and how this influenced this study.

#### **4.3.2.2 Reflexivity**

The researcher's integrity is vital in validating the credibility of the research, and this is established by revealing the researcher's position or reflexivity (Merriam and Tisdell,

2016). Reflexivity is portrayed when researchers recognise their position within the research and take responsibility for its effect on the study (Berger, 2015). Reflexivity is important for qualitative researchers because it recognises that participants and researchers are inseparable, and it further acknowledges the significant role qualitative researchers play in generating information (Cohen et al., 2018).

After all, bias can easily result from the less structured nature of qualitative research due to its exploratory nature (Cypress, 2017). Therefore, since the current research is underpinned by qualitative methodology, it is necessary to consider reflexivity (Cohen et al., 2007). Additionally, the subjective ontological assumptions present in this study (Mack, 2010) require the researcher to be reflexive. To this end, providing information about myself will contribute to a better understanding of the circumstances under which the findings developed.

In addition, reflexivity demands that researchers accept that their interpretations of meanings of reality are influenced by subjectivity and their experiences (Petty et al., 2012). As such, their own biases and values are communicated to the readers by explicitly acknowledging them in the report to provide the context of the study (Petty et al., 2012). This is important for me because I came into this study after having taught deaf learners for several years in Kenya. In addition, I taught with some of the participants, and I understand the education system in Kenya. To demonstrate the practice of reflexivity in this study, the following section thus discusses my position in this study and its impact on the research.

#### **4.3.2.3 My position in the study**

Depending on the relationship between the researcher and participants in a study, one can either be an outsider or an insider (Bonner and Tolhurst, 2002). Researchers can be identified as insiders if they share some characteristics, experiences, or roles of what is being studied with the participants (Dwyer and Buckle, 2009).

An outsider position is applicable when there is nothing in common between the researcher and participants (Dwyer and Buckle, 2009). That said, I can be described both as an insider and an outsider in this study. As an insider, I was a teacher of deaf children in a residential school in Kenya, just like the participants, and I attended the same college as some of the teachers and taught in the same school as others.

Additionally, some of the teachers (those who had not met me before) considered me one of them when they learned of my previous teaching experience in a school for the deaf. Furthermore, as a Kenyan, I also believe that I am an insider due to my knowledge of the education system and how teaching and learning are conducted in primary schools in Kenya, including in schools for the deaf. Placing me as an insider in this study from another perspective, one of the teachers opted to use a local language when she discovered that I speak the same local language (there are more than 40 languages spoken in Kenya). Additionally, some participants who used expressions such as 'you also know we sign ...' when demonstrating signs for words indicating that they considered me one of them and assumed I possessed knowledge of KSL, which is used in schools for the deaf in Kenya. Expressions such as 'you also know' in response to the interview questions were also used by teachers to exhibit

shared experiences of teaching deaf children as well as their perception of me as an insider.

In turn, this insider position linked to my experience teaching deaf learners influenced how I view knowledge production. In this study, I perceive that our ability to understand teaching of deaf learners depends on teachers' narratives of their practices and experiences. In addition, I believe in the need to understand teaching literacy skills to deaf learners by considering the teachers' views. This can be traced back to my personal experiences and discussions with teachers, suggesting a limited understanding of the phenomenon under study and the need for teachers to discuss their practices. Furthermore, my insider position also helped me to easily reach out to participants and recruit them for this research.

However, researchers must maintain a marginal position when assuming an insider role by critically questioning data collection and analysis and by providing the study context (Bonner and Tolhurst, 2002). The reflexive thematic analysis of data in this study facilitated me to reflect critically on the data analysis (Braun and Clarke, 2022). This practice helped minimise the research effects that may arise from my insider position (Bonner and Tolhurst, 2002). The context of this study and reflexive thematic data analysis is detailed further in chapter two and section 4.10, respectively.

That said, some of the participants viewed me as an outsider based on my status as a PhD student in the UK and an employee of a university in Kenya, which differs from the level of education that the study participants teach. Kenya is also a multi-ethnic

and multilingual country; I do not belong to the same tribe as most participants, and except for one of the schools, I do not speak the same local language. Therefore, this also placed me as an outsider among the participants and within the locality of most study schools while also positioning me as an insider in one of the schools. However, since I speak Kiswahili (the national language in Kenya) and English, just like the participants, there was no language barrier arising from multiethnicity that had an impact on this study.

#### **4.3.2.4 Section conclusion**

It was possible to use either quantitative or qualitative approaches for this study. However, after careful consideration, I believed that qualitative research represented the most suitable approach for this study's research questions. Qualitative methods such as semi-structured interviews allowed teachers to share their experiences without limiting them to prior developed responses if I used quantitative methods. Furthermore, understanding how English literacy skills are taught from the teachers' perspective required the use of an interpretive paradigm.

Having established the reasons for using the generic interpretive qualitative approach, as well as this study's trustworthiness, the following elaborates on the theoretical framework employed in this study.

#### **4.4 Theoretical framework**

This section concerns the theoretical framework that guided this study and the ways in which I applied this framework to this research.

The literature states that frameworks are useful in research because they demonstrate coherence and guide the researcher to avoid losing focus on what the study seeks to discover (Green, 2014). In a qualitative study, a framework can be applied at any of the different stages of the study, enabling flexibility in its use (Parahoo, 2014).

Frameworks are used in qualitative research in at least three ways, including generating conceptual frameworks or theories, using conceptual frameworks to rationalise the study's design or approach, or analysing and interpreting data using frameworks or theories (Parahoo, 2014).

Since qualitative researchers can use theories after data has been collected to compare the data with a framework (Parahoo, 2014), I discussed the findings of this study using the theoretical framework described below.

This study draws upon the framework on sociocultural theory (SCT) in a second language. This approach was deemed suitable for this study because English is taught as a second language in Kenya (KICD, 2018b). The following sections elaborate further on the theoretical framework that informed this study.

#### **4.4.1 Sociocultural theory of language teaching**

The belief that underpins SCT is that development and learning occur within social and cultural contexts (Kozulin, 2003). Vygotsky's SCT states that learning occurs through mediation, since mediating agents influence the process of children's higher mental order (Kozulin, 2003). Mediation received attention at a time when educators were

debating about the level of activity that is expected of learners in instructional tasks (Kozulin, 2003).

Questions were also raised concerning the suitability of the acquisition learning model, which portrays learners as empty containers waiting to be filled by teachers with knowledge and skills (Kozulin, 2003). During this time, educators discovered that the acquisition model falls short on empirical and theoretical grounds. On the one hand, it was noted that the child was much more than a passive receiver of information; on the other hand, it was felt that independent learning largely results in learners acquiring immature concepts and missing the necessary skills in school (Kozulin, 2003). In turn, these beliefs led to a search for models that perceived learning differently from previous learning theories, resulting in concepts such as mediation, scaffolding, and organisation of learning (Kozulin, 2003). It can be noted from this research that these concepts advanced the view that learners play an active role in the teaching and learning process and are not just passive actors or receivers of information.

Using Vygotsky's view of child cognitive development and the role of the adult, an empirical study by Freund (1990) demonstrated that interaction between mothers and their children led to more independent performance of tasks compared to children who worked on the tasks alone and received feedback at the end. Likewise, teacher mediation has also been linked to improved literacy skills among deaf learners (Golos and Moses, 2011). These studies thus signify the usefulness of using SCT theory in exploring instructional practices, as is the focus of this study.

According to SCT literature, instructional approaches guided by SCT help learners develop higher-level mental processes and reach their potential to acquire knowledge and skills (Kozulin, 2003). Mediation, scaffolding, and Zone of Proximal Development (ZPD) represent concepts identified in the literature and are interconnected in the teaching and learning activities (Stuyf, 2002). For example, scaffolding has been mentioned as having its roots in ZPD (Stuyf, 2002), and according to Ellis (2000), human mediation describes the process through which children reach their ZPD. These concepts in SCT that constitute components of this study's theoretical frameworks are discussed further in the following section.

#### **4.4.1.1 Mediation and learning**

Mediation is a key concept of SCT that describes how human beings learn (Eun and Lim, 2009). Mediation occurs within a social context, and it is through this process that naturally occurring and spontaneous impulses are transformed into higher-order mental processes (Eun and Lim, 2009). When mediation occurs in a language learning classroom, an initially unfocussed language learning action may evolve into one that is corrected and aimed at achieving a goal (Eun and Lim, 2009). It has been determined that mediation can occur through symbolic tools, other people, and material tools (Kozulin, 2003). Human mediation refers to a mediating agent where an adult's involvement in the process leads to enhanced learners' performance (Kozulin, 2003). In Vygotsky's 1978 theory, human mediation leads to a person's psychological function manifesting itself twice, first as an actual interpersonal interaction and again as an internalised version of this function (Kozulin, 2003). This literature on SCT suggests that, for children to learn new material, mediation should support them in

achieving the desired skills and knowledge. Research also emphasises that mediation leads to increased mental ability among learners if incorporated in the learning process.

In addition to human, mediation can also take the form of language, textbooks, and other visual materials employed in the classroom (Donato and MacCormick, 1994). It has been argued that learners' interaction with people and artefacts mediates how they internalise language or information, and both humans and objects can mediate learning and development in the ZPD (Swain et al., 2015). Therefore, it can be argued that teachers, peers, and resources can be sources of mediation in a literacy skills lesson. In addition, drawing from this literature, teachers must consider how they interact with learners during instruction and whether the mediation they provide helps learners internalise new concepts. Accordingly, the research questions addressed in this study focus on teachers' instructional practices and resources used to teach literacy skills to deaf learners in primary schools in Kenya. This study addresses human mediation by exploring how teachers interact with the deaf learners as they provide instruction. Beyond this, the resources used are also analysed to understand how they provide mediation to deaf learners in the Kenyan context of residential primary schools. Mediation by people or resources is connected to the concepts of scaffolding and ZPD, which are discussed in the following sections.

#### **4.4.1.2 Scaffolding**

The idea of scaffolding is derived from ZPD, one of Vygotsky's SCT concepts (Stuyf, 2002). Scaffolding concerns how learners move from a stage of possessing limited

knowledge in a certain field to a level where they can use knowledge and skills independently (Bella, 2008). Scaffolding is keen about the role of teachers or others present in the classroom during instruction, especially in terms of how their actions influence the acquisition of new knowledge or concepts (Bella, 2008).

Vygotsky perceived that learning does not happen in isolation. Instead, social interactions in meaningful contexts heavily influence learning (Stuyf, 2002). After all, children's social interactions with others who are more knowledgeable, as well as with their environment, significantly influence how they think about and interpret situations (Stuyf, 2002). This information about scaffolding can be conceptualised to mean that the ways in which teachers plan and shape social interactions in their classrooms influence the extent to which learners develop new knowledge and skills during the lessons. Scaffolding thus considers the support learners receive from others through classroom interactions.

Scaffolding represents one component of mediation in the learning process (Kozulin, 2003), because successful interactions in mediated learning must include scaffolding of new tasks (Ellis, 2000). Scaffolded instruction contributes to learning when the learner understands how to perform a new task with assistance from another person during interaction (Bella, 2008). Learners first succeed in performing a new function with the aid of another individual; following this, learners internalise this function so that they can perform it without assistance (Ellis, 2000, Bella, 2008). In this way, learning and internalising of tasks is made possible through scaffolding, which includes structuring learning activities such that the teacher demonstrates the skill to be learned (Bella, 2008). From the literature in this section, it can be argued that meaningful

interaction in an educational context requires educators to provide scaffolding so that learners can work independently once support is withdrawn. Therefore, scaffolding comprises an important element of learning that can be employed to evaluate teachers' instructional practices.

The benefits of scaffolding have been identified in the field of deaf education and literacy. For example, it has been noted that social mediation that featured scaffolding practices increased deaf learners' comprehension of meaning of words and sentences (Kuntze et al., 2014). Additionally, teacher-mediated video sessions of ASL have demonstrated greater engagement in literacy behaviours by preschool deaf children than non-teacher-mediated sessions (Golos and Moses, 2011). Specifically, learners exhibited increased fingerspelling and knowledge of the target words, thus indicating the influence of scaffolding (Golos and Moses, 2011).

For this reason, teaching approaches and use of resources are the focus of this study as it identifies how scaffolding strategies were employed by teachers. As mentioned earlier, scaffolding and ZPD go hand in hand in instructional practices and were considered together in this study. The following section provides an overview of ZPD.

#### **4.4.1.3 Zone of Proximal Development**

The ZPD is the second concept identified by Vygotsky in instructions that include scaffolding, the other being mediation (Amerian et al., 2014). According to Vygotsky, ZPD represents the difference between the developmental level a child can achieve on their own and what the child can achieve with support from others (Ellis, 2000). Furthermore, ZPD goes hand in hand with scaffolding, without which teaching takes

the form of direct instruction, which provides only limited opportunities for teachers and learners to engage in interaction and dialogue to co-construct knowledge (Amerian et al., 2014).

The ZPD feature of Vygotsky's theory relates to students' learning potential and aids educators in conceptualising the difference between the learners' actual performance level and learning potential (Ellis, 2000). When working with the ZPD concept in mind, teachers can understand how to organise and structure the classroom interactions to ensure learners fully participate in the lessons and reach their potential (Stuyf, 2002). It has also been stated that, in ZPD, students are supported and guided by engaging in learning activities that act as stepping stones to the next level (Stuyf, 2002). As a result, the learners expand on their prior learning with assistance from those who are more competent than them (Stuyf, 2002).

It is possible to argue that ZPD represents a learner-centred approach to teaching that advocates for the learners' participation in the teaching and learning process. The ZPD calls upon the teachers to work towards enabling learners to perform at a level beyond what they can perform with teachers' support. Therefore, ZPD was one concept that was explored in this study by analysing the instruction of literacy lessons in primary schools for the deaf in Kenya.

The literature on ZPD reveals the developmental future of a learner; specifically, it indicates that the learner will not require any assistance in the future to accomplish tasks they currently conduct with the aid or cooperation of others (Ellis, 2000). The

literature on mediation, scaffolding, and ZPD that has been identified in these sections further proposes that the teacher's role in the classroom is to ensure that the learner progresses through the ZPD regarding tasks taught in the lessons. Having discussed the SCT and the role its features play in teaching language, this study explores whether and how teachers use mediation, ZPD, and scaffolding to teach English to deaf learners in Kenya. More information regarding how the theoretical framework guided the conduct of this study is provided in the next section.

#### **4.5 How the theoretical framework was used in this study**

I conducted data analysis and interpretation by considering the concepts of mediation, scaffolding, and ZPD, as well as how teachers used these elements in their literacy instructions. In my approach to this study and the discussion of the findings, I assumed that ZPD, mediation, and scaffolding enable deaf learners in primary schools in Kenya to engage in English language activities and experience mediated learning through human or psychological tools, and thus reach their ZPD. Therefore, I found SCT relevant for this study, since the SCT concepts address teaching a second language in ways that balance the teacher's assistance in performing tasks as well as the learner's independence in tackling the same tasks (Lantolf, 2005).

Therefore, the theoretical framework described in this section and the reviewed literature suggest that it is not only essential to consider teaching of literacy skills to deaf learners by identifying the teachers' practices and experiences, but it is equally important to examine the findings through the lens of this framework considering that English is taught as a second language in Kenya.

The data collection methods are the next equally vital issue to address. Since this study was conducted during the Covid-19 pandemic, the following section explores how the pandemic influenced the choice of data collection methods and the actual data collection process. This is followed by an explanation of data collection tools and how I collected and analysed the data.

#### **4.6 Research methods and data collection**

Researchers must acquire necessary information using suitable tools to address a research problem effectively. It has been stated that qualitative researchers' core principle is constructing meaning, which plays a key role in their choice of methods and data analysis process (Krauss, 2005). Similarly, the key concern of this study is to establish what teaching English literacy skills means to the teachers of deaf learners in Kenya, specifically in terms of their practices and experiences. Consequently, I chose methods that suited this purpose. To this end, I conducted semi-structured face-to-face and telephone interviews with English language and literacy teachers and headteachers of primary schools for the deaf in Kenya. I also gathered documents such as textbooks, syllabi, and lesson plans to provide additional data. Lesson observations further supplemented the data from interviews and documents.

The following provides a detailed discussion of data collection tools, including the rationale behind their choice. First, though, I highlight how the Covid-19 pandemic influenced my choice of methods for this study.

#### **4.6.1 Impact of Covid-19 on data collection**

Decisions regarding the data collection methods were considered with the Covid-19 pandemic in mind, and they continued changing as the pandemic situation evolved. The Covid-19 global pandemic started around December 2019, and from 2020 to 2021, the pandemic went on to impact all aspects of life, including education. The pandemic further coincided with this study's planning and execution.

Schools and learning institutions around the world were closed without guarantee of when they would reopen. In addition, there were lockdowns all over the world, which hindered people's movement. I was located in the UK, and the study locations were in schools for the deaf in Kenya, so it was impossible to plan for data collection methods that required my presence in schools or classrooms. As a result, planning for data collection methods had to adjust over time to match the pandemic situation while attempting to make the most of available opportunities to collect data. This was intended to ensure that the study progressed with minimal interruptions.

Due to the duration of my study leave and scholarship tenure, the study had to be accomplished within a specified time. Initially, I planned to use questionnaires and telephone interviews for data collection. However, I left out the open-ended questionnaires in favour of telephone interview because of the challenges of postal mail delivery in Kenya, especially during the school closures. There was also no guarantee that teachers would receive the questionnaires, fill them in, and return them, as most lacked personal postal addresses and instead used school postal addresses. This meant that they would not receive the questionnaires, as the schools were closed

indefinitely. Use of email questionnaires was also impossible because most primary teachers in Kenya do not have school email addresses, and accessing their personal email addresses is difficult without personally meeting them, which was not possible during the pandemic.

Later, it became possible for me to travel to Kenya for data collection. When the schools in Kenya were opened and local restrictions were lifted, I was able to visit the schools. I applied to the University of Birmingham Ethics committee to amend my data collection methods, and I included face-to-face interviews and lesson observations. I retained the telephone interview method due to the unpredictable situation of the Covid-19 pandemic.

It is also important to note that, while in the field collecting data, the Covid-19 pandemic continued to influence data collection. For instance, the recruitment process was slow, as teachers faced a great deal of schoolwork, and it was not easy to talk to them about participation in a study when they had a considerable amount of teaching to perform within a short time. The initial plan included participation of headteachers, which was not fully successful because only one headteacher participated. The headteachers were extremely busy planning for assessments, such as the Kenya National Certificate of Primary Education (KCPE) and Competency Based Curriculum (CBC) implementation, including specific nationwide assessments for grades three and five. All these activities overlapped due to the schools' closure during Covid-19 and the shorter school terms after schools opened. As a result, the headteachers were mostly out of the school during the data collection period, being busy attending meetings to plan for the many school activities.

Despite these pandemic-related challenges, from study design up to the data collection, I developed and used the following data collection tools in this study.

#### **4.6.2 Interviews**

Having considered questionnaires as well as interviews for potential data collection methods, as explained in section 4.6.1, I deemed interviews to be the most applicable method, and I used this accordingly as the primary data collection tool. Furthermore, interviews represent the most suitable data collection method for educational research and prove useful for inquiring about people's experiences and what they mean to them (Seidman, 2006). Therefore, following this study's focus on teachers' experiences and practices, I designed and employed semi-structured interviews as a tool for data collection. The reasons for my choice of semi-structured interview are provided in the following section. In addition, I elaborate on why I opted for face-to-face and telephone interviews.

##### **4.6.2.1 Rationale for the choice of semi-structured interview**

Interviews take several possible forms, including unstructured, structured, and semi-structured interviews (May, 2011). A semi-structured interview refers to when key questions and broad themes to be covered during the interview are prepared and used. This allows for modification to the questions and the emergence of new themes as the interview progresses (Saunders et al., 2019). A structured interview contains predetermined questions that the interviewer asks in the same order as they appear on the paper and do not allow for flexibility or changes (Saunders et al., 2019).

An unstructured interview occurs when the researcher does not have any pre-planned questions, but instead just a general idea of the topic; responses provided by interviewee act as prompts to the questions that can be asked (Saunders et al., 2019). After considering the types of interviews, I deemed it appropriate to utilise semi-structured interviews that aimed at understanding teachers' teaching methods, their experiences, and the resources they use to teach English literacy skills to deaf learners. Furthermore, one strength of the semi-structured interview that guided my decision concerns the potential for follow-up on responses and modifications to questions when needed (May, 2011, Irvine, 2012). Accordingly, the flexibility of semi-structured interviews was suitable for exploring teaching practices and experiences of teachers, as this allowed me to delve into participants' responses and follow emerging leads, thus increasing my understanding of literacy teaching to deaf learners. In turn, these options generated detailed data regarding how English literacy skills are taught.

I did not consider using unstructured or structured interviews, as they would not generate the amount and type of data suitable for this study's research questions (Saunders et al., 2019). A structured interview would limit responses to those included in the pre-prepared questions while the unstructured interview may generate irrelevant data if the interviewee is allowed to lead the process (Saunders et al., 2019).

The open-ended feature of semi-structured interviews (Saunders et al., 2019) instead allowed for data to be collected regarding individual teachers' experiences and instructional practices. The open-ended questions also encouraged teachers to respond to the questions in their own words, thus expanding our understanding of the

phenomenon. I prepared and utilised a semi-structured interview with content determined by this study's research questions (Irvine, 2012). The interview questions concerned instructional strategies, teaching aids employed by teachers, and teachers' overall experiences of teaching English to deaf children.

After deciding on the type of interview to use, the other important consideration was the mode through which the interview would be conducted. The literature identifies three types of interviews based on the mode in which they are conducted—namely, face-to-face, telephone, and Internet interviews (Saunders et al., 2019). The face-to-face interview refers to when the interviewer enters the field, meets participants, and asks them questions (Saunders et al., 2019). Telephone interviews are conducted over the phone, and the researcher and participant do not have to meet. For Internet interviews, the interviewer does not have to meet the interviewee; instead, the interview is conducted using text messages or email (Saunders et al., 2019).

I conducted telephone and face-to-face interviews with the participants. Regarding the disadvantages of telephone interviews, Lechuga (2012) lists a lack of non-verbal cues that could be sources of information, brief answers by participants, decreased level of motivation to take part, and the potential for participants to hang up before the interview is over. However, responses from telephone and face-to-face interviews are similar in terms of quality and quantity (Sturges and Hanrahan, 2004). Therefore, telephone interviews in this study did not compromise the quality or quantity of information. In addition to identifying similarities between telephone and face-to-face interviews, Sturges and Hanrahan (2004) pinpoint one significant strength of telephone interviews

over face-to-face interviews—namely, the ability to contact hard-to-reach participants. In this study, due to the Covid-19 pandemic, telephone interviews were planned for use when it was not possible to meet the participants (more information about use of these two modes of interviews is provided in section 4.6.2.2). For this study, Internet interviews were not suitable due to mobile data requirements, which would have been costly for the teachers, as they would be forced to buy mobile data to access the Internet.

It was also essential to decide how data from the interviews would be recorded. Atkins and Wallace (2012) suggest recording through video or audio and note-taking. For this study, I employed audio recording, since verbal records were required for reference when analysing qualitative data. However, I employed note-taking in the interview with one participant instead of audio-recording (Guest et al., 2013); (see section 4.7.2.2 for more information).

The research questions determined the content of the semi-structured interview, which covered all three questions, including ‘What instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya’, ‘Which resources are used in teaching English literacy skills to deaf children in primary schools in Kenya, and what role do they play’, and ‘What are teachers’ experiences of teaching literacy skills to deaf children in primary schools in Kenya?’

I drew on the reviewed literature regarding literacy and deaf learners as a guideline to develop the questions contained in the interview guide. Thus, interview questions were

developed from literature on instructional practices, translanguaging, and visual resources regarding the teaching of literacy skills to deaf learners. The questions focussed on how teachers taught reading and writing to deaf learners and what resources they used. Other questions addressed the teachers' experiences in teaching literacy skills to deaf learners (Appendix 7).

#### **4.6.2.2 Piloting the interview**

Data collection tools are usually piloted before the actual data collection (Gorard, 2003). I first developed the interview questions as shown in section 4.6.2.1 above, shared with my supervisors and revised the questions following their advice and then piloted. According to Atkins and Wallace (2012), piloting helps identify issues such as timing, interviewer skills, and the questions' relevance to the study's objectives, and I piloted this interview accordingly. To this end, after piloting, I requested the participants to provide feedback regarding their experiences of the interview.

To maximise these benefits, Bell (2005) suggests that piloting should be conducted with a group possessing similar characteristics to the study participants. In this study, teachers and headteacher from a primary school for the deaf in the Kajiado county of Kenya participated in the trial. Teachers who took part in this exercise and the pilot school were neither part of the study participants nor the location of the study. I requested the participants of the piloting exercise to share their experiences with me. I inquired their experiences regarding clarity of the language, timing and any other relevant issue that would help me improve the interview guide to ensure it elicited the responses that I targeted (McGrath et al., 2019). This exercise helped me to identify

suitable words and questioning techniques to ensure that the interview questions were clearly understood by the participants. Trial interview also confirmed the relevance of the semi-structured interview in answering my research questions. Through piloting, I also noted the approximate duration of the interview, which proved useful, as most interviewees wanted to know how long it would take.

Some words that I used in the interview guide, such as 'strategies' and 'resources', were unclear to teachers, as they were rarely used in their context; instead, teachers were more familiar with methods, teaching or learning activities, and teaching or learning aids used to refer to strategies and resources, respectively.

This information generated through piloting aided me in using questioning techniques such as paraphrasing to generate relevant responses from the participants. In addition, listening to recorded pilot interviews helped me identify missed probing opportunities, and thus to identify the need to be keen in subsequent interviews.

#### **4.6.2.3 Conducting the interviews**

I employed both telephone and face-to-face interviews because of the Covid-19 pandemic, the time available for data collection, and the location of the schools. During the data collection, there was a time when moving from Nairobi to other counties, including where the study schools were located, was restricted. In turn, this limited the potential to visit schools, prompting the use of telephone interviews. In addition, because some schools were far from where I lived, after visiting the school and recruiting participants, I arranged telephone interviews with those who preferred to be

interviewed later or were busy during my visit. This ensured data was collected in the available time.

After identifying the teachers who were willing to participate, we agreed on how to conduct the interview. The interviews were conducted between May 2021 and September 2021. For teachers who took part in face-to-face interviews, I conducted the interview at a convenient time and place for the teacher. I ensured that the interview did not collide with any school programmes in which the participants were involved. For teachers who participated in the telephone interview, I also ensured that the interview took place on the teachers' preferred day and time.

The interviews lasted approximately 25–80 minutes at an average of roughly 45 minutes. With the participants' consent, I recorded the interviews using an audio-recording device. At the start of each interview, I reconfirmed participants' informed consent by asking them if they wished to continue with the interview, and I reminded them of their freedom to withdraw. In addition, for the telephone interview, I confirmed if the time was suitable for the participants as well as their consent for audio-recording. This was to confirm if they remained free from other responsibilities in the school (Cohen et al., 2007, Cohen et al., 2018).

The face-to-face interviews took place in the classrooms or other available rooms in the school during teachers' free time. During the telephone interview, I chose a place with minimal interruptions, such as limited noise or movement of people, and I requested the teachers place themselves somewhere quiet and convenient for them

to talk over the phone. The table below specifies the number of face-to-face and telephone interviews that I conducted:

**Table 4. 1 The number of telephone and face-to-face interviews**

Type of Interview	Number
Telephone	11
Face-to-face	13
Total number of interviews	24

#### **4.6.3 Observation**

The research questions determine whether observations can be used to collect data, such as with questions requiring observation of participants' behaviour (Bogdewic, 1999). In this study, observation was necessary regarding the questions of how English literacy skills are taught and resources used. The specific research questions that were addressed through participant observation concern 'what instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya' and 'which resources are used in teaching English literacy skills to deaf children in primary schools in Kenya, and what role do they play'. In addition, I decided on lesson observation because this provided me with the opportunity to witness the teaching and learning activities as they occurred (Denscombe, 2007).

Moreover, this allowed me to not solely rely on the information provided by the teachers' interviews regarding their teaching practices (Denscombe, 2007). By combining data collected through interviews and lesson observation, it was also

possible to obtain additional information regarding how English literacy skills are taught to deaf children in primary schools in Kenya.

Observations can be split into two categories: structured and less structured (Cohen et al., 2018). Structured observation aims to produce numerical data to aid comparisons between situations or settings and the frequency of the activities (Cohen et al., 2018). For this study, however, I did not aim to make comparisons or conduct strict observation of activities in the lessons. As such, I opted for less structured observation, which is not concerned with comparing one situation to another, thus allowing flexibility in what is to be observed (Cohen et al., 2018).

Researchers assume different roles in studies that use observation as a data collection tool (Saunders et al., 2019). Baker (2006) classifies three observer roles: non-participant, complete observer, and participant observer. The non-participant observer is not present in the field, while the complete observer arrives at the field, but does not participate in the activities. In the observer-as-participant role, the researcher interacts with the participants, and their role is known to them (Baker, 2006). I adopted the observer-as-participant role in the lesson observations in this study, as this role allowed me ample time to observe the lessons since it demands less participation from researchers in the activities being observed (Baker, 2006). The observation guide is provided in Appendix 11.

Not all teachers who participated in the interview agreed to lesson observations. This did not have any impact on the data, however, since the goal of the observation was

simply to provide additional information regarding how English literacy skills were taught to deaf children in Kenya by identifying the activities and resources used. I observed a total of eight lessons across the schools. Most of the teachers were more open to interviews than to lesson observations, perhaps due to lesson assessments usually conducted by personnel from the ministry of education Kenya to monitor the effectiveness of teachers' instructions for the purpose of quality assurance. Teachers may have assumed that I planned to focus on identifying faults in their teaching approaches and reporting said faults in ways that may affect their work. I had to reassure them that my focus was on overall instructional strategies and resources for the purpose of interpretation and understanding. I further assured them that I would not use the information in ways that may harm them or affect their work. I also stressed that all the information would be anonymised and could not be linked to them.

Lesson observations occurred after the teachers consented during the school visits between May 2021 and September 2021. The time for lesson observations was dictated by when the lessons were scheduled for each participating teacher. It is important to note that teachers were extremely busy throughout the data collection period, as this coincided with the opening of schools after closure due to the Covid-19 pandemic. The school terms were also shortened, and teachers had to cover the syllabus and conduct assessments so that learners progressed to the next class. I respected the participants' wish regarding lesson observations for those who did not want to be observed. Due to this, it was impossible to conduct lesson observation in some schools. However, this did not affect this research, as this is not a case study.

Before any lesson observations were conducted, I informed the headteachers, as is the norm in Kenya for researchers who plan to observe or collect any information from teachers. In addition, due to the Covid-19 pandemic, school visitors were restricted and monitored; accordingly, the headteachers needed to know who was visiting schools or classrooms and for what purpose. All the lesson observations took place in the usual classrooms except for one lesson, which took place in the computer room to allow the teacher use of a projector. Each lesson observation lasted 35 to 40 minutes (the usual time allocated for lessons in the curriculum for grades 1–3 and 4–8, respectively). Taking the role of observer-as-participant, I sat in the back of the classrooms and observed the lessons while paying close attention to the resources and the approaches employed by the teachers. I made notes on how the teachers conducted their lessons. The teaching and learning resources employed in the lessons were also noted. Since my research questions targeted teachers, I did not observe the learners but collected information about the techniques that teachers used to teach the English lessons, including the literacy skills they taught and how they taught them. I also noted the modes of instruction and how teachers used the specific modes of instruction. I observed the teaching and learning aids used by teachers and how the teachers used them. To ensure that I did not miss any useful data, I recorded any other activity that was relevant to the research questions.

The number of observations per school is presented in the table below:

**Table 4. 2 Number of lesson observations**

<b>Name of School (Pseudonym)</b>	<b>Number of Observations</b>
Maarifa	2
Faulu	2
Elimu	1
Bidii	2
Masomo Bora	1
<b>Total</b>	<b>8</b>

#### **4.6.4 Documents**

In research, using documents as a data collection tool proves helpful in several ways, such as to provide information that supplements data, identify changes and development, validate results of a study, provide information that can lead to the development of research questions, and establish the contextual background of the phenomena in question (Bowen, 2009).

Documents can be defined as textual or non-textual materials found in social settings (Coffey, 2014). Examples of textual documents include notes, emails, dairies and other written documents while non-textual include paintings, photographs and maps among others (Coffey, 2014). As a commonly used data collection method in social sciences, documents offer several advantages, including ease of access, decreased cost, and availability even after the study. As such, documents can be referred to if there is need for verification (Denscombe, 2007).

In this study, documents were used because curriculum materials such as textbooks, syllabi, and lesson plans are readily available and were useful sources of information

for questions on teaching strategies and learning materials for deaf children in primary schools in Kenya, thus supplementing the information from interviews and lesson observations. In this study, I used documents such as the English language syllabus, textbooks, and teachers' lesson plans. These documents provided evidence of teaching methods and learning aids employed by teachers. I identified the documents used for data collection by ensuring that they contained information about the teaching practices in English literacy lessons and the resources used by teachers. The participants availed their lesson plans and English textbooks. The adapted English curriculum designs were accessed from the KICD website while one soft copy was provided by KICD.

#### **4.7 Study Sites**

The schools for the deaf in the Eastern and Central regions of Kenya were chosen as the locations for this study. These regions were reported as possessing the highest prevalence rates of disability during the 2019 Kenya population and housing census (Devnit.org, 2020). Additionally, four out of the seven counties (Meru, Tharaka Nithi, Embu, and Makueni) located in the former Eastern province are among those with the highest prevalence rate for hearing loss (each featuring a prevalence rate of 0.7% while the national rate was between 0.9 and 0.1%; (Devnit.org, 2020). Therefore, residential primary schools located in these regions of Kenya were selected as the location for this study.

Access to these schools was also considered, as I live in the Nairobi metropolitan area, making most of the schools easily accessible. Data collection was planned to be

accomplished within a pre-specified period, thus establishing the need to consider access to study sites. The study took place in Kiambu, Machakos, Embu, Kerugoya, Meru, Muranga and Isiolo counties of Kenya.

#### **4.7.1 Negotiating access**

The initial plan of using school emails and telephone numbers was unsuccessful when negotiating access. Initially, I negotiated access by emailing information leaflets, consent forms, and invitation letters to some schools with a request to headteachers to share with the English language and literacy teachers. This was intended to ensure that data collection started even as physical access to schools was initially impossible due to Covid-19.

However, some schools lacked functional email addresses while it was impossible to obtain email addresses or school telephone numbers for others (this information was missing on the ministry of education website). Furthermore, none of the headteachers responded to my emails even after follow-up emails. Consequently, I decided to visit all the study schools when local travel restrictions in Kenya due to Covid-19 were lifted. I presented the research permits to the headteachers or deputy-headteachers of the schools and explained the details of my study. Later, the headteachers or deputy headteachers informed the English language and literacy teachers of the purpose of my visit and requested their participation in the study. I discussed my study with the teachers and requested their participation.

## **4.7.2 Ethical issues**

### **4.7.2.1 Approval for the study**

The ethics committee at the University of Birmingham approved this study (Appendix 1). In addition, the National Commission for Science, Technology, and Innovation (NACOSTI) in Kenya granted permission (Appendix 2). Additional research permits were provided by the county directors of education and the county commissioners of every county where the schools were located. I obtained 14 permits from the seven counties in which the schools were located (examples of these permits in Appendix 3 and 4).

### **4.7.2.2 Informed consent**

Before commencing data collection, participants had to be recruited. Homan (2002) suggests that social science researchers should seek informed consent from the participants by providing all research information and informing them of their right to voluntary participation. Seeking informed consent will subsequently determine whether the participants will willingly participate in the study (Fisher and Anushko, 2008).

Therefore, I informed the participants about this study; how data would be collected, stored, and used and their role in the study. I told them of voluntary participation and assured them that their freedom to withdraw up to one month after data collection. I provided the information leaflet to the participants and verbally explained about informed consent.

Those who agreed to take part signed the consent form. Some teachers were not interested in the idea of signing consent forms because they felt that verbal consent

was enough. Therefore, some participants opted for verbal agreement in the face-to-face interview and lesson observations. During the interview, I asked for the participant's consent again, confirming if they still wanted to participate and consented to audio recording. I granted the wish of one participant who did not consent to audio-recording, and I instead took notes during that interview.

#### **4.7.2.3 Confidentiality and Anonymity**

Another ethical issue related to this study is anonymity. Tickle (2002) states that anonymity is achieved by preventing the identification of individuals from data. To this end, I avoided use of real names and instead assigned the schools and participants pseudonyms for use in writing to ensure that they remained anonymous (Neuman, 2014). In turn, this ensured that no one could link the data extracts to participants or the schools.

According to Cohen et al. (2007), an equally crucial ethical issue is confidentiality, which requires the researcher not to reveal information provided by the participants to any other person or group of people. Confidentiality was accordingly upheld in this study by not revealing the information to any other party in addition to anonymising all data. My intention of sharing anonymised data with my supervisors and in thesis writing was consented to by the participants.

## **4.8 Sampling strategy**

Before actual data collection can begin, sampling must be conducted to decide who among the population will take part in the study (Guest et al., 2013). This makes sampling a crucial step to be considered in the research process.

Two types of sampling strategies can be employed in research—namely, probability and non-probability sampling (Saunders et al., 2019). Probability sampling is utilised when each case or person possesses an equal chance of being part of the sample; non-probability is employed when chances of each case being part of the sample are unknown (Saunders et al., 2019). For this study, I used a purposive non-probability sampling to suit the research questions and focus of this study (Saunders et al., 2019).

The findings of quantitative and qualitative studies serve different purposes, thus determining the sampling technique (Marshall, 1996). Probability or random sampling suits quantitative researchers who seek to draw a representative sample of the study population to generalise findings (Marshall, 1996). However, I did not intend to generalise the findings, and thus did not need to perform probability sampling. This qualitative research is interested in developing an insight and understanding of the research problem (Patton, 2015). Qualitative researchers believe that some people possess more information than others, which can enhance understanding. As such, focus is placed on recruiting such individuals for their studies (Marshall, 1996, Devers and Frankel, 2000, Patton, 2015). Furthermore, probability sampling would not suit this study, as it is not evident that research characteristics such as teachers' experiences and practices are normally distributed in the population (Marshall, 1996). Therefore,

random selection of teachers would not yield more applicable data than a purposive sampling of English language teachers (Marshall, 1996).

The research questions also required information from English literacy teachers regarding instructional practices, resources, and their experiences. Accordingly, I considered purposive sampling of English teachers suitable because, as stated by Saunders et al. (2019), this guaranteed that individuals who are invited to participate could provide relevant information required by the researcher (Inclusion and exclusion criteria are provided in section 4.9.1). The headteachers of the residential primary schools were invited to share information regarding facilities and resources available for teaching and learning. The information about the participants is provided in the table below:

**Table 4. 3 Participant information**

<b>School</b>	<b>Grade taught</b>	<b>Years of experience</b>	<b>Area of training</b>	<b>Gender</b>	<b>Pseudonym</b>
Maarifa	1	12 years	Inclusive education	female	Sara
	8	20 years	Inclusive education	Male	David
	3	16 years	Hearing Impairment	Male	Frida
	3	12 years	Inclusive education	Female	Rebecca
	3	10 years	Inclusive education	Female	Edith
	5	23 years	Hearing Impairment	Female	Abby
Elimu	3	16 years	Hearing Impairment	Female	Anna
	4	8 years	Hearing Impairment	Female	Ruth

	1	5 years		Female	Rael
	Headteacher	3 years	Hearing Impairment	Male	James
Faulu	7	11 years	Hearing Impairment	Male	Henry
	2	18 years	Inclusive education and Hearing Impairment	Male	Luka
	5	21 years	Inclusive education	Female	Rahab
Msingi	7	12 years	Inclusive education	Male	Noah
	2	9 years	Inclusive education	Female	Joyce
	1	7 years	Inclusive education	Female	Nina
	4	20 years	Hearing Impairment	Female	Yvonne
Masomo Bora	1	21 years	Hearing Impairment	Female	Jennifer
	3	20 years	Hearing Impairment	Female	Lily
Bidii	4	4 years	Hearing Impairment	Female	Emma
	5	6 months	Hearing Impairment	Female	Florence
Upendo	4 and 5	15 years	Hearing Impairment	Female	Emily
	7		Hearing Impairment	Female	Sophia
	1	23 years	Hearing Impairment	Female	Evelyn
Bahati	7 and 8	8 years	Hearing Impairment	Female	Grace

#### **4.8.1 Sample size**

Deciding on a sample size is necessary for both practical and theoretical purposes (Robinson, 2014). Practicality is essential for decisions such as resources and time allocation while theoretical matters are necessary if the study targets theory development (Robinson, 2014). In this study, it was important to have an approximate sample size to plan for data collection by estimating the data collection period and to plan for travel to Kenya and back to the UK.

Regarding qualitative research, no rules exist govern decisions regarding the sample size (Patton, 2015). However, Sim et al. (2018) discussed the criteria researchers can use to determine sample sizes. Specifically, they propose four guidelines: rule of thumb, conceptual models, numerical guidelines, and statistical formulae. According to Sim et al. (2018), numerical guidelines include when researchers use guidelines from previous empirical studies that focus on similar research problems or are underpinned by similar ontological and epistemological positions to the proposed study.

An overview of the numerical guidelines used to determine the choice of sample size in this study is provided in this section. Different authors have further discussed the above-mentioned guidelines to determine the sample size. For example, (Ando et al., 2014) demonstrated how numerical guidelines could guide the sample size. To achieve saturation for the thematic data analysis in their study, Ando et al. (2014) conducted thematic analysis of interview data and discovered that 12 interviews were sufficient to achieve saturation. In their study, all the codes were developed after analysis of the first 12 interviews. Other additional interviews after these first 12 did not create any

new codes. A total of 39 interviews were conducted. In addition, Ando et al. (2014) study used thematic analysis to gather and analyse qualitative interview data to understand the phenomenon being studied. Similarly, as the current study focusses on understanding English literacy teaching to deaf children in Kenya, thematic data analysis is employed to analyse qualitative data. Consequently, I targeted 12–40 participants from the study schools.

## **4.9 Participants**

Teachers of English and literacy in grade one through eight and headteachers of the schools in question were invited to participate.

In exploring the teaching of English literacy skills to deaf learners in Kenya, I only focused on teachers' practises and perceptions. This decision was informed by the Covid-19 pandemic (that coincided with the time the study was designed) that led to closure of learning institutions in Kenya, making it challenging to meet the deaf learners. Additionally, since the research questions focused on how literacy skills were taught, it was crucial to get information-rich cases that included the English language teachers. However, I believe that capturing the learners' responses would advance our knowledge of teaching English to deaf learners in Kenya, and I have proposed it as one way of furthering this study (see section 7.5).

### **4.9.1 Inclusion and exclusion criteria of participants**

This study aims to describe how English literacy skills are taught to deaf children in primary schools in Kenya.

The criteria for inviting participants were that they must be teaching English language and literacy or assume the role of headteachers of the schools in this study.

I exempted other teachers because I was interested solely in how English literacy skills teaching are taught and not in other subjects.

#### **4.9.2. Recruiting the participants**

The participants in this study comprise teachers of English language and literacy in eight primary schools for the deaf in Kenya as well as headteachers of the schools. Literacy is taught in grades one through three in CBC in addition to English language where reading and writing skills are taught. Therefore, it was important to include literacy teachers in grade one through three in this study. After all, nearly all teachers taught both literacy and English in these grades, and literacy skills are taught in English in all other grades.

English language and literacy teachers from eight residential primary schools for deaf children in Kenya's Eastern and Central regions were invited to participate. Potential participants in each school were initially invited via the participant invitation letter emailed to some of the schools (see section 4.7.1). Since no headteacher responded to my recruitment email, which was my initial mode of recruitment, I later visited the schools and recruited the participants.

Due to the Covid-19 pandemic, local travel was restricted in Kenya from mid-March 2021 to April 2021, which limited my movement to some of the counties where the study schools were located. Therefore, recruitment and data collection started in May 2021 when the schools opened. At the study schools, after meeting headteachers or

deputy headteachers (more information provided in section 4.7.1), I provided teachers with information about my study, as detailed in the information leaflet (Appendix 5).

At the same time, I also addressed any questions or concerns the teachers raised regarding the study. Furthermore, the participants and I discussed the type of interview to be conducted based on the pandemic situation and available time. I also planned for the lesson observations with those who agreed to this.

## **4.10 Data Analysis**

To answer the research questions, a qualitative researcher must make sense of the data, which may be textual or images (Creswell, 2012). Therefore, I conducted data analysis using reflexive thematic analysis (Braun and Clarke, 2022) to achieve the goals of this study. The following section provides an overview of thematic analysis and why I deemed it fitting for this study.

### **4.10.1 Thematic analysis**

It is possible for researchers to describe the social world of participants by referring to their verbal or textual data and developing patterned meanings (Lochmiller, 2021). The researcher plays a crucial role in knowledge production during thematic data analysis (Braun and Clarke, 2019). This confirms the presence of subjectivity in conducting reflective thematic analysis (Braun and Clarke, 2022). Since subjectivity is also a feature of a qualitative study (Creswell, 2007) and is the design used in this study, this further confirms usefulness of thematic analysis for analysing the current data. In addition, the ontological assumption I adopted in this study is idealism, according to

which reality can be known through the human mind as a product of the social construction of meanings (Snape and Spencer, 2003). Therefore, I understand that, due to my research design and philosophical assumptions, I assume a subjective role in data collection and analysis, and I should be reflexive throughout the entire process. Accordingly, this calls for the use of reflective thematic analysis.

Thematic analysis can be inductively or deductively conducted. Deductive analysis involves using a framework to guide the coding and themes development while inductive analysis is data-driven, and thus relies on the content of the data (Braun and Clarke, 2022). I used inductive thematic data analysis to analyse and interpret data since the research questions focussed on participants' practices and the meanings of their experiences, which are identifiable from the data (Braun and Clarke, 2022). In addition, I chose thematic analysis because this is appropriate for analysing data from various sources and enables a data-driven approach to analysis (Braun and Clarke, 2013). Consequently, I found this method suitable for the current study given that I used data from interviews, lesson observation, and documents, which were necessary for triangulation. Accordingly, I utilised reflexive thematic analysis to identify themes related to the three research questions presented in chapter three.

I undertook thematic analysis using NVivo computer software for qualitative data analysis. I ensured all transcriptions were uploaded onto NVivo, and the software was used to code the data and modify the codes as the analysis progressed (Gibbs, 2014). The advantage of using NVivo is that large data can be kept in one file, making it easy to retrieve when needed. Identification of codes and themes across the data is also

easier with NVivo than when performed manually (Gibbs, 2014), as NVivo makes it possible to display all collated data for the codes simultaneously. In addition, computer software analysis presents researchers with numerous opportunities when working with data. For example, 'What data analysis packages can do is enable you to handle and analyse qualitative data more systematically, comprehensively and effectively than you may be able to achieve by other methods' (Watlings et al., 2012, p. 383). In this study, NVivo enabled me to analyse data from different sources in a manner that enhanced access to all three sources, as it was easier to move from one source to another.

#### **4.10.2 Process of analysing data**

In preparation for data analysis, I transcribed the interviews and uploaded lesson observation notes and documents to NVivo and analysed the data from these three methods using thematic analysis. Therefore, before describing the reflexive thematic data analysis in each step, I first present the transcription and preparation of data for analysis.

#### **4.10.3 Transcription of interviews**

Since the participants and I could communicate in English, I used English language to conduct the interviews. However, one teacher responded to some interview questions by switching between the local language (which I understand) and English. I translated her responses into English during the transcription.

The interviews were audio-recorded with permission from the interviewees. However, one teacher did not consent to audio-recording, and so I wrote down her responses. I conducted verbatim transcription as soon as each interview was completed (Braun and Clarke, 2006). This was possible for the first few interviews, but as the number of interviews increased, it became impossible to transcribe each interview immediately after it was conducted due to the time needed for transcription. Accordingly, I continued with the transcription until the end of the data collection. I maintained the accuracy of the transcription by listening to the audio recording several times and comparing this against transcripts while making any corrections. Furthermore, I transferred teachers' lesson plans into word documents and uploaded them to NVivo. I also uploaded the curriculum design onto NVivo.

#### **4.10.4 Steps in thematic analysis**

After preparing the data for analysis, I conducted reflexive thematic analysis. According to Braun and Clarke (2022), thematic analysis refers to a process in which researchers analyse qualitative data by organising, identifying themes, and providing a detailed description (Braun and Clarke, 2022). The thematic analysis followed six steps: familiarisation with the information; generating codes; generating initial themes; developing and reviewing themes; defining, refining, and naming themes; and writing the interpretation (Braun and Clarke, 2022).

The following sub-sections illustrate how I conducted the analysis in each step.

#### **4.10.4.1 Familiarising oneself with the data**

The first step of data analysis began with gaining familiarisation with the data by reading and re-reading it and making notes (Pope et al., 2000, Braun and Clarke, 2022). Familiarisation included reading all data gathered for the study (Maguire and Delahunt, 2017), including information from lesson observations and documents for this study. Since I collected and transcribed the data for this study, this process helped me develop further knowledge about the data (Nowell et al., 2017). I read the interviews several times before the actual data analysis to understand the data.

I performed this initial reading and re-reading of transcripts without coding the data, and the ensuing familiarisation helped me notice data that was relevant to the research questions (Braun and Clarke, 2013). At this point, I read the transcripts to develop an understanding of the information by focussing on the data and relating it to the research questions (Braun and Clarke, 2022). After thoroughly reading the interview data and gaining in-depth knowledge, I started coding as described in the following step.

#### **4.10.4.2 Coding the data**

At this stage, meanings were identified regarding the research problem by questioning the data and comparing this against the research questions (Tuckett, 2005, Braun and Clarke, 2006). I accomplished this by identifying the meanings of individual words, sentences, or meaningful units for coding (Braun and Clarke, 2006, Lochmiller, 2021). The primary data used for coding came from the interview transcripts.

I conducted complete coding, wherein phrases, words, or sentences that contained features of data that were pertinent to the research questions were coded (Braun and Clarke, 2013). Selective coding would have required me to look for specific instances of the subject in question and then to code only those instances (Braun and Clarke, 2013). Accordingly, I did not utilise selective coding, as this study is meant to explore how literacy skills are taught to deaf learners, and using selective coding would mean potentially missing certain aspects of the phenomenon (Braun and Clarke, 2013).

Coding can be performed using hard copies of the data, data analysis software, or Microsoft word (Braun and Clarke, 2013). I elected to use the NVivo computer software to code the data, where I read each of the uploaded interview transcripts and attached codes to the pieces of data that I deemed relevant. This process continued until I completed coding all 24 interviews. This process involved either applying the same codes for new pieces of data or using new codes (Braun and Clarke, 2013). I coded the data from documents and lesson observation under the codes derived from the interview transcripts, but I also coded any data from lesson observation notes and documents that was not captured by the available codes but appeared relevant to the research questions. A sample of how the data from lesson observations was analysed is shown in appendix 12.

Upon completion, I discovered that there were a great many codes due to duplication of some of the codes, and it was overwhelming to deal with them. As such, I combined the codes that appeared more than once or where different terms with similar meanings were used to code different data, reducing the number of codes (Creswell, 2012). At this point, it became necessary to actively engage with the data and reflectively, which

meant continuously questioning the data and the assumptions that underpin my interpretations (Braun and Clarke, 2019). To this end, I coded the data with reference to the research questions. The initial codes on NVivo are presented in Appendix 8.

#### **4.10.4.3 Generating initial themes**

During this step, candidate themes were developed (Braun and Clarke, 2022). Moving from codes to the identification of themes required me to think about what a theme is, which has been described as follows: 'A theme captures something important about the data in relation to the research question and some level of *patterned* response or meaning within the data set' (Braun and Clarke, 2006, p. 82).

To start with, I read through all the codes and checked if multiple codes could be linked to one central idea about the research questions (Braun and Clarke, 2022). I combined these codes to form a theme and placed the relevant coded data extracts under each theme (Braun and Clarke, 2006, Maguire and Delahunt, 2017). In addition, I read the collated data under each theme once again to see if it relates to the research questions and to check if the candidate theme covers the concept in most of the collated data (Maguire and Delahunt, 2017, Braun and Clarke, 2022). At this stage, I moved some codes to other themes to ensure each code fit the theme under which it appears (Braun and Clarke, 2013).

The literature indicate that themes can be developed deductively using a pre-existing theory or inductively by grounding it in the data (Braun and Clarke, 2006, Braun and Clarke, 2013, Braun and Clarke, 2022). I elected to use an inductive approach, where themes were developed without fitting them into a predetermined framework. The

inductive analysis that I conducted was data-driven, so themes were grounded in the data and developed by identifying the overall idea represented by a group of codes regarding the research questions (Braun and Clarke, 2022).

By avoiding use of a predetermined framework, I developed a broader sense of the research questions in this study, as I could not overlook any piece of data relevant (Braun and Clarke, 2022). In this step, I ensured the process remained reflexive by continuously asking what a group of codes communicated about the research questions (Braun and Clarke, 2022). I further confirmed that each theme was distinct and clearly identifiable from others in addition to capturing a meaningful idea regarding the research questions (Braun and Clarke, 2022).

For instance, in the initial theme development, I identified a tentative theme that I referred to as 'problems arising from limited resources and time constraint' using codes about books and digital resources, how deaf children learn, and time allocated for English lessons. This candidate theme was identified by referring to the research question concerning teachers' experiences.

#### **4.10.4.4 Developing and reviewing themes**

Next, I reviewed themes by checking the relevance of data extracts under each theme and confirming if they reflected the interpretation of the entire data (Javadi and Zarea, 2016, Braun and Clarke, 2022). In addition, I ensured that each theme featured different meaning from others (Braun and Clarke, 2022). To this end, I referred to collated data to check if it links to concepts represented by the themes and compared

all the themes to rule out repetition. I also examined each theme to confirm if there was sufficient data extract to support them (Nowell et al., 2017). At this point, I merged minor themes to form broader themes and separated some sub-themes that appeared too broad. For example, the theme on 'components of language and modes of communication' developed after merging the initial themes of 'Kenyan Sign Language' and 'Signed Exact English'.

Continuing, I re-engaged with the candidate themes, coded data, and the entire data set to determine whether there was a need for any further development of patterns (Braun and Clarke, 2022). For example, after reviewing a candidate theme about 'challenges arising from the curriculum', I discovered that I needed to provide additional support for this theme. Therefore, after going through all the coded extracts, I identified one aspect of curriculum and resources—namely, time in relation to curriculum—that could provide an additional description to the theme and help develop the theme further. Accordingly, I included the codes about time constraints for a richer analysis of the findings of the research question (Braun and Clarke, 2022).

As I continued working on theme development, I placed the themes under the research questions so that each question is addressed in the analysis and interpretation.

#### **4.10.4.5 Refining, defining and naming themes**

In this step, I ensured that the themes were refined by identifying what each theme meant and ensuring clear boundaries remained between them (Braun and Clarke, 2022). I also made some changes to the names of certain themes and sub-themes so that the themes are relevant to data extracts. Furthermore, I checked if they represent

the main idea contained in the collated data and the manner the data was analysed (Braun and Clarke, 2022).

In addition to being distinct, it was also important to ensure that the themes create a rich, cohesive, and relevant picture of the main patterns in the data that address the research problem when considered together (Braun and Clarke, 2013). This meant that I considered whether the themes were representative of the interpretations of repeated meanings portrayed in the data (Braun and Clarke, 2006). Finally, I analysed the data extract under each theme to arrive at an interpretation that provided a narrative for the analysis (Braun and Clarke, 2006).

In conclusion, with reference to the research questions, I conducted reflexive thematic analysis by coding, identifying, and refining themes and writing the analysis. At this step, I compared interpretations with the research questions and this study's goal to ensure that interpretations address the focus of this study. Since I lacked the contact information for the teachers who participated in the face-to-face interviews, themes and the key findings of the study were only shared with some participants. While not all of them responded, those who did agreed that the findings reflect their data (more information in section 4.11).

#### **4.10.4.6 Writing up**

This represented a continuous process throughout this study's entire thematic data analysis (Braun and Clarke, 2022). This included a table of the initial themes I prepared and shared with my supervisors and final themes presented in a table used to present

the results of the analysis (Table 5.1). However, a more organised approach to writing that includes an introduction, literature review, methodology, findings, discussion, and conclusion chapters has been produced and presented in this thesis as well (Braun and Clarke, 2022).

Regarding the analysis chapter, the write-up included themes that are supported by extracts from the participants' interviews (Braun and Clarke, 2022). The key findings of the study are presented later in the discussion chapter, where they are explored using the theoretical framework and in light of existing literature (Braun and Clarke, 2022).

#### **4.11 Maintaining trustworthiness in each phase of data analysis**

I employed reflexive thematic analysis (Braun and Clarke, 2022) in this study. Other versions of thematic analysis, such as coding reliability thematic analysis, require multiple coders to ensure consistency in coding the data (Braun and Clarke, 2021). However, conducting quality reflexive thematic analysis does not require following such a procedure to achieve coding reliability (Braun and Clarke, 2021). In addition, due to the reflexive nature of data analysis, qualitative research does not prescribe the practice of demonstrating inter-rater reliability, especially when unstructured interviews are used (Castleberry and Nolen, 2018). Consequently, I did not involve another coder in coding the data.

Therefore, it was necessary for me to be reflexive throughout the entire analysis process (Braun and Clarke, 2022). Additionally, I performed member checking to confirm the themes that developed from the data analysis (Nowell et al., 2017). I sent

a summary of the themes to some participants whose contact information I possessed, and I asked them to confirm whether the results reflected the information they provided (Some of the teachers who took part in the face-to-face interviews did not give me their contacts). Out of the 11 teachers I contacted, seven responded and agreed that the findings matched the interview and lesson observations data.

Additionally, it is important to maintain trustworthiness in reflexive thematic analysis at each step of the analysis (Braun and Clarke, 2022). To this end, I ensured that the four criteria established by Lincoln and Guba (1985) are maintained by following the proposal by Nowell et al. (2017), as illustrated in Table 4.4 below:

**Table 4. 4 Criteria for maintaining trustworthiness of data analysis (Nowell et al., 2017)**

Phase of Analysis	Means of Establishing Trustworthiness
Familiarisation with data	<ul style="list-style-type: none"> <li>• Triangulation of three data collection methods.</li> <li>• Extensive engagement with data through reading and re-reading.</li> <li>• Conducting all the interview transcription personally.</li> </ul>
Coding the data	<ul style="list-style-type: none"> <li>• Keeping an audit trail of how the codes developed.</li> <li>• Discussing the codes with my thesis supervisors.</li> </ul>

Generating the initial themes	<ul style="list-style-type: none"> <li>• Using concepts identified in reviewed literature and the theoretical framework to generate the initial codes.</li> <li>• Recording how the themes developed.</li> <li>• Sharing and discussing potential themes with my supervisors.</li> <li>• Keeping a record of these initial codes on NVivo.</li> </ul>
Reviewing the themes	<ul style="list-style-type: none"> <li>• Referring to the data set to ensure themes remain data-driven.</li> <li>• Discussing the reviewed themes with supervisors.</li> </ul>
Refining, defining, and naming the themes	<ul style="list-style-type: none"> <li>• Providing a description of how the themes were refined and named.</li> <li>• Discussing with my supervisors and making changes as per the outcome of our discussions.</li> <li>• Member checking by sending theme summaries to some members.</li> </ul>

Writing up	<ul style="list-style-type: none"> <li>• Providing the context of the study.</li> <li>• Ensuring an audit trail of how data collection and analysis was conducted is included in the thesis.</li> <li>• Using data extracts to support the results.</li> <li>• Providing a reflexive section indicating my position in the study.</li> <li>• Providing details about the decisions made regarding the choice of methods.</li> </ul>
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## 4.12 Conclusion

This chapter identified the epistemology and ontology that underpinned this study. Furthermore, considerations that led to my choice of qualitative approach have been discussed, and reflexivity as well as my position in this study have been explained. An overview of the theoretical framework has been provided, and the ways in which it guided the study have been explained. In addition, the rationale behind the choice of data collection methods, purposive sampling of English language and literacy teachers, and ethical considerations have been described. This chapter has also paid attention to the data collection process, steps in reflexive thematic analysis, and the approaches I employed to enhance the trustworthiness of the data analysis in each step. The following chapter presents the results for each research question.

## **CHAPTER FIVE: FINDINGS**

### **5.1 Introduction**

This thesis aims to explore how literacy skills are taught to deaf learners in primary schools in Kenya. The previous chapter outlined this study's methodology. Following the data analysis, this chapter presents the findings that have been obtained. This first section highlights themes and sub-themes for each research question and offers guidelines regarding how the results are presented. I present the findings for each question in separate sections. The three research questions are as follow:

1. What instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya?
2. What teaching and learning materials are used to teach English literacy skills to deaf children in primary schools in Kenya, and what role do they play?
3. What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?

To answer these research questions, I conducted reflexive thematic analysis (Braun and Clarke, 2022) using data from interviews, lesson observations and documents. The themes and sub-themes that developed from this analysis are presented in Table 5.1 below.

I utilised direct quotations of participants' own words from the interview as well as extracts from documents to link the themes to the data and illustrate the data-driven

nature of the analysis. I used pseudonyms to label the coded data from interview transcripts and lesson observation notes.

**Table 5. 1 Findings: Themes and sub-themes**

Questions	Themes	Sub-themes
What instructional practices are used in teaching English literacy skills to deaf children in primary schools in Kenya?	Focus on language components and mode of instruction	Spoken language and sign language components
	Scaffolding	Modes of instruction
	Teacher-centred practices	
	Classroom management	
What teaching and learning materials are used in teaching English literacy skills to deaf children in primary schools in Kenya and what role do they play?	Visual teaching and learning aids	Enhance comprehension
		Expose deaf children to print

What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?	Inadequate professional knowledge	
	Inappropriate curriculum and resources	Time constraint
		Unsuitable books and digital resources
	Challenges deaf learners face	KSL and communication problems
		Reading and writing problems
	Valuing available support	
	Suggested adaptations	Reduce curriculum content
		Inclusion of visualisation techniques in resources

The results in Table 5.1 above are presented in the following sections of this chapter. To begin with, section 5.2 presents question one: 'What instructional practices are used in teaching English literacy skills to deaf children in primary schools in Kenya?' Continuing, section 5.3 explores question two: 'What teaching and learning materials are used in teaching English literacy skills to deaf children in primary schools in Kenya, and what role do they play?' Finally, section 5.4 presents findings for question three: 'What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?'

## **5.2 What instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya?**

In this section, I address question one: ‘What instructional practices are used in teaching English literacy skills to deaf children in primary schools in Kenya?’ The data from interviews, lesson observations, and documents were used to develop themes regarding this question. Specifically, four themes developed—namely, focus on language components and modes of instruction, scaffolding, teacher-centred instructional practices, and classroom management.

### **5.2.1 Focus on language components and modes of instruction**

This theme captures the different components of language that are taught to deaf learners as well as the modes of instruction that teachers used in this study. This theme is split into two sub-themes: spoken and sign language components and modes of instruction. Each sub-theme is presented in separate sub-sections below starting with teachers’ focus on spoken and sign language components, after which the modes of instruction are explored.

#### **5.2.1.1 Spoken and sign language components**

This sub-theme demonstrates teachers’ use of spoken and sign language features in literacy lessons in this study.

##### **5.2.1.1.1 Spoken language components**

The data revealed that 12 out of 24 teachers (50%) use components from spoken language to teach literacy skills. It is further understood that teachers perceived that

these components support the learners' competency in literacy. These components, drawn from spoken language, include phonology and speech. Some teachers taught pronunciation during reading and writing lessons. One of the teachers articulated the words and the sentences to help deaf learners access the pronunciation of words. This can be seen from the extract below:

*I can write sentences, we sign and say, we pronounce the words and then they write, they copy.* (Evelyn, 23 years teaching experience, grade one teacher)

Another grade-one teacher approached a vocabulary lesson by introducing signs and pronunciation of words together. The teachers stated that learners are expected to do the same in response:

*The first thing they sign the word after signing we start pronouncing and we combine the two, signing and saying the word.* (Sara, 12 years of teaching experience, grade one teacher)

For these teachers, signs were combined with speech in literacy lessons. The teacher stated that words are initially signed before teaching deaf learners to pronounce them. The evidence presented by this teacher indicates that teachers focus on teaching spoken language components to deaf learners to read even though the learners use signs.

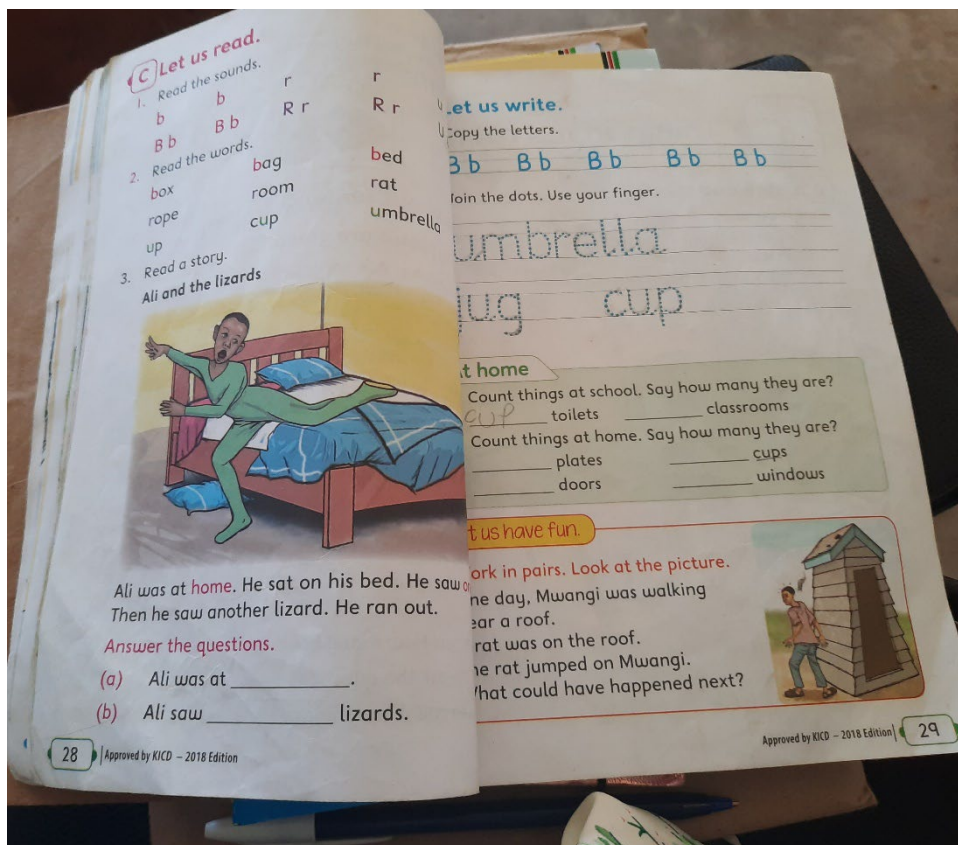
A similar approach was shared by Ruth and Emily (grade-four teachers). Ruth demonstrated pronunciation of words for deaf learners to lip-read. The learners are taught letter–sound relationships before teaching them to pronounce and lip-read. The teachers also used phonology to teach writing, wherein learners identify letters that comprise words by relating letters to sounds.

Unlike Evelyn, Ruth taught phonology without including signs for the words and tests the learners' ability to write on their own. In addition, the teacher's approaches to teaching phonology focussed on combining different approaches so deaf learners can comprehend letter–sound relationships:

*So, you pronounce so that they can lip-read. And first, you must teach them to master the alphabetical letters so that they can pronounce the sounds—for example, /a/. You must show on your lips even if they will not hear. I use letter cards where I have written the alphabets and I have cut them into pieces. So, when I am teaching them how to read and I have taught a word like mat and they have already mastered pronouncing letter M as /m/, you see, so you can tell them to pick /m/, /a/, /t/ and then they can form a word. (Ruth, 8 years teaching experience, grade-four teacher)*

It can be noted that the practices of grade-four teachers (Ruth and Emily) differ from those of grade-one teachers (Sara and Evelyn). Grade-four teachers targeted phonemes and teach decoding while grade-one teachers targeted whole words. As explained further in the sections below, in teaching of spoken English through skills such as phonology, teachers' actions were directed towards deaf learners with residual hearing, to help them learn the English sounds and to be able to lip-read.

The English curriculum contains phonological skills to be taught to the learners in all classes (KICD, 2018b). For instance, in grade four adapted English curriculum for deaf learners, phonics is one of the topics that should be taught. In addition, textbooks contain topics and reading exercises where learners are expected to apply phonological knowledge. For example, a grade-one textbook (New Progressive Primary English Pupils Book 1) presents the following information:



The curriculum design not only directed teachers to teach phonology, but it also guides them towards the specific activities expected of the learners with different degrees of hearing loss (KICD, 2018b). In this regard, two teachers stated that pronunciation is taught to learners who have speech while others use a combination of letters to form words. The teachers targeted the hard-of-hearing learners regarding the use of speech for reading. In this case, teachers aimed at building on the strengths of those who possess access to some auditory input by teaching speech sounds:

*You teach them how to blend sounds for those who will benefit. Those who will not benefit, you will find they do it with letters and are able to write, like B-O-Y. Then, you show them this one becomes a BOY, so they are able to try and put letters together to make a word. (Emily, 15 years teaching experience, grade-four teacher)*

Similarly,

*We pronounce each letter for them. You try to say it, but they cannot hear it; hearing is a distant sense. They also need to learn the sounds, but those who are profound will not hear anything, but there are those who are hard of hearing, and we are together, and they need to know the sounds. (Lily, 20 years of teaching experience, grade-three teacher)*

The teachers' practices and curriculum design aimed to meet the diverse needs of learners with hearing loss to ensure they acquired the required sub-skills. In addition, teachers conducted comprehension lessons using signs and speech simultaneously. In all the lesson observations, it was noted that teachers voiced all the written words from the passages and sentences even though the deaf learners are not asked to use speech.

#### **5.2.1.1.2 Signs and fingerspelling**

Signs and fingerspelling were employed by most of the teachers—namely, 18 out of 24 (75%). These components were used to teach the meaning of novel words and read comprehension stories. The data indicates that sign language features are used across the classes of younger and older deaf learners. For example, signs and fingerspelling helped teachers introduce deaf learners to the text they would read later. One of the teachers, Yvonne, who teaches grade four, shared that fingerspelling and signing unfamiliar words represent critical tasks for teachers. The teachers accordingly focus on exposing deaf children to signed and fingerspelled forms of written words:

*You make sure you fingerspell and sign those words that are found in the story. (Yvonne, 20 years teaching experience, grade-four teacher, trained in hearing impairment)*

The teachers further stressed the importance of using fingerspelling and signs in teaching writing. Most had trained in inclusive education, except for one who trained in deaf education, and their teaching experience ranges from seven to twenty years in schools for the deaf. They also mentioned how combining written words, signs, letters, and synonyms help deaf children learn spelling. The teachers stated that fingerspelling helps deaf learners use their vision to compensate for their limited hearing ability by recognising letters that comprise words and, eventually, learning spelling:

*Deaf, they have no access to sound, that is like the hearing children have. Theirs is to look, observe, and know the composition of the letters the way they are. Then, they master how that word is written.* (David, 20 years teaching experience, grade-eight teacher, trained in inclusive education)

Rahab also stated the following:

*For the children who are hearing, they can sound those letters, join and make a word. But for the deaf, they are disadvantaged in that area. So, for me, what I do, we do a lot of fingerspelling to internalise the spellings so that, when they are faced with the same word in another subject, they are able to recall it through fingerspelling and through signing.* (Rahab, 21 years teaching experience, grade-five teacher, trained in inclusive education)

The teacher here maximised use of fingerspelling with deaf learners, as these students cannot pronounce the words. The teacher states that deaf children can connect the written words with fingerspelled forms, thus helping them to identify the same words in other contexts.

Another approach to using fingerspelling is to test deaf learners' memory in spelling, as expressed by Nina and Yvonne. Nina described using fingerspelling to test the

learners' spelling ability. Here, the teacher substituted dictation, where speech is used for hearing learners, with fingerspelling. The following extract describes her approach:

*What I usually do, for the learners to write the word, I usually give some dictation, whereby I sit down, fingerspell some words slowly. (Nina, seven years teaching experience, grade-one teacher, trained in inclusive education)*

In reading lessons, the teachers fingerspelled names of people, new words, and words without signs. The teacher expected deaf children to use fingerspelling for reading or identification of new words or words without signs, as can be seen from the excerpt from Emily's interview below:

*For the reading lesson, one, we have the vocabulary which has to be taught. So, first, I teach the new words. We fingerspell, we get the signs for the new words, because you may find some words have no signs, like your name. You may find it in a story, and it may have no sign; you fingerspell it. (Emily, 15 years teaching experience, grade-four teacher)*

Most teachers combined signs, fingerspelling, and speech. The application of signs in literacy lessons vary. Signs are employed depending on what the teachers seek to achieve.

For instance, in Sara's class, deaf learners used signs to discuss the title and pictures in stories. The teacher also signed the comprehension for the learners. According to the teacher's assumptions, deaf learners use signs to express themselves and obtain a preview of the story. In this case, the use of signs supports learners' expressive and receptive skills. This can be identified from the excerpt below:

*You start with the title; you explain the meaning of that title, and then you ask them what they can see in the picture. They tell you; they sign whatever they*

*see in the picture. From there, I take them through the new words. I explain the vocabulary, then I sign the story for them. (Sara, 12 years teaching experience, grade-one teacher)*

It was noted that teachers and learners used signs for reading and for teaching new words. Twelve participants used signs for reading and explanation of concepts. This practice was also observed in all the English literacy lessons. For instance, Evelyn drafted the story on a manila paper and then signs it for the learners. The teacher presented the text together with signs so that the learners can associate the signs with the written words:

*I write the story on a manila paper, then I sign myself the whole story. You know it is grade one, [the] story will not be long; it will be five or six sentences, so I sign it alone. I sign each word, and they repeat the words until we finish the story. (Evelyn, 23 years of teaching experience, grade-one teacher)*

Joyce presented a similar approach:

*Then you come to reading. First, the teacher reads the passage to the deaf children, reads by signing as the children observe and they follow the teacher. Next, you read together. Then, you come to the individual one to read one at a time. (Joyce, 9 years of teaching experience, grade-two teacher)*

Joyce and Evelyn both read the passage using signs to help compensate for the learner's limited access to spoken language. The teachers expect learners to master the signs by observing them. Sign-reading by the teacher is aimed at enabling the learners to gain the gist of the story before reading.

For Florence, it was also important for learners to know signs for all new words in reading lessons. Florence viewed reminding learners of the signs for new words as a method for reminding them of the meaning of the words:

*Then you read before that you will have checked on the vocabulary that they might not be knowing the signs. (Florence, 6 months teaching experience, grade 5 teacher)*

As used by most teachers, and as demonstrated in the quotes presented here, signs and fingerspelling provide an avenue through which teachers present English words in an accessible format so that learners can use them to express concepts represented by the written English words. After all, the curriculum designs also provided signing and fingerspelling as options for those who cannot use spoken language while teachers indicated the use of signs and fingerspelling in their lesson plans.

#### **5.2.1.2 Modes of instruction**

In this sub-theme, it was noted that 13 out of 24 teachers (54%) used Kenyan Sign Language (KSL) and Signed Exact English (SEE) as modes of instruction for teaching English. Kiswahili was used by a few teachers. Each of these are analysed separately.

##### **5.2.1.2.1 Kenyan Sign Language**

Data from 9 of 13 (69%) teachers demonstrate use of KSL in teaching English literacy. The data indicated that teachers perceived the use of KSL as a means of helping deaf learners understand English. For example, three teachers relied on KSL sentence structure to increase deaf learners' understanding of English. In the interview extract below, Anna explains using KSL structure for learners to understand English sentences:

*Sometimes, if you make your sentence shorter, they can understand. You use sign language. For example, instead of saying 'where is my mobile phone', you*

*say, 'MOBILE MINE WHERE' so that they can understand that. (Anna, 16 years teaching experience, grade-three teacher)*

Similarly, according to another participant, KSL sentence structure makes it easier to express the same idea represented in English, and thus helps learners interpret the meaning of English sentences:

*In English, we say, 'This is a ruler'. That is exact English, but in KSL, they say, 'RULER THIS'. And you can see it is easier to say RULER THIS than to say 'This is a ruler'. So, I will use their language to help them understand this foreign language. However, I will tell them 'RULER THIS'. But they will understand that this is a ruler, but now, I will come and write, but in English, 'This is a ruler'. (Joyce, nine years teaching experience, grade-two teacher)*

Another teacher explained how she uses KSL. It can be noted that there is an addition of a KSL sentence 'SUN A LOT' at the end of the English sentence 'Today is hot'. Here, the teacher uses the KSL sentence to provide additional information to the English sentence presented:

*We use both sign language and sign English gestures, facial expressions, body language, like, for example, when you are telling them 'TODAY IS HOT, SUN A LOT' (teacher demonstrates wiping sweat off her forehead as she signs). So, it is, you are sweating. (Ruth, eight years of teaching experience, grade-four teacher)*

The examples provided by the teachers demonstrate that KSL structure does not include non-content words and focusses solely on words that carry meaning in English. The teachers use the KSL structure to help deaf children understand English sentences.

Other teachers consider KSL to be the mother tongue of deaf learners and believe that deaf learners can relate KSL concepts to English text. One teacher compared using

KSL to the use of spoken language by hearing children and how this can help explain written English. Rahab's response to the question regarding the ways in which deaf children's knowledge of sign language is used to teach English to deaf children illustrates this:

*When you are trying to bring them to reality, you tend to use from known-to-unknown. What do they know? KSL is their mother tongue. So, you find yourself shortening the sentences so that they may understand. And then, from there, now you can tell them that is how it is, the same if you are a Kikuyu (one of the tribes in Kenya) hearing, you would say it like that. (Rahab, 21 years teaching experience, grade-five teacher)*

Correspondingly, Grace suggests that KSL proves useful in the same way any spoken language is to teachers of the English language in classes of hearing children in Kenya. In the following extract, she further explains how KSL can be used to support deaf learners in comprehending English:

*Like, you can have learners from, let us say, Kalenjin community (one of the tribes in Kenya); they are in class, you want them to understand, let us say, a word, a vocabulary. Sometimes, you will be forced to use that Kalenjin language for them to understand. The same case applies here when teaching these learners; though it is English, sometimes, you will be forced to use the Kenyan sign language—that is, its structure, that is, when sign-explaining, not writing. (Grace, eight years teaching experience, grade-eight teacher)*

Noah believes KSL bridges the gap resulting from the learners' limited English language knowledge. While agreeing with Grace and Rahab concerning the role of KSL in improving communication between the teacher and deaf learners, Noah stresses that KSL supports the teaching of English, as illustrated in the excerpt below:

*Most of the teachers will use KSL to explain English concepts. And we begin from there, because if they do not understand what you are teaching, you use the language they know better. So, we cannot separate the two. If we separate*

*the two, then it will be very difficult to understand English. (Noah, 12 years teaching experience, grade-seven teacher)*

Switching from SEE to KSL by teachers was observed in six out of eight lessons. Frida, teaching grade three, asked questions related to singular and plural English words in KSL. The teacher asked for the plural of some words, one of which was the word 'parent'. To this end, the teacher signed, 'PARENT ONE MANY HOW'.

Emma used KSL signs for words such as 'MANY' and 'PAST' to illustrate the plural and past tense, respectively. In explaining the use of KSL in teaching English, the teacher said the following:

*I use KSL when I teach. For example, past tense. I show the past tense of the word by signing PAST before the word. For example, for words like GO, I sign PAST GO to indicate the word WENT. Even for plural, I sign MANY to indicate the -s or the -es that is added at the end of the word. (Emma, four years teaching experience, grade-four teacher)*

Emma's use of KSL can be stated as follows: Using KSL to indicate -s and -es for the plural and past tense of words, respectively, demonstrates that the -s and -es are represented by KSL signs for concepts of 'MANY' and 'PLURAL' in KSL, which is intended to aid learners' comprehension.

The teachers' narratives and practices in the lessons suggest that is possible for them to communicate with the learners and convey the information effectively using KSL due to its different sentence structure. It is also considered easier to use KSL, which deaf learners understand better.

#### 5.2.1.2.2 Signed Exact English

It was noted that SEE was employed as another mode of instruction. The data indicates that 11 out of 24 teachers (46%) use SEE to teach English literacy to deaf children. Among these 11 teachers, the responses of four teachers indicate that they use SEE to read passages and describe new words written on the chalkboard or charts. In one participant's narrative, SEE is used in writing or reading lessons. The teacher mentioned suffixes in English and how this can be demonstrated in SEE. Unlike Emma, who uses KSL concepts, Edith focusses on ensuring deaf children learn grammatically correct English by presenting the plural form or tense of a word by visualising the -s or -ing as letters rather than concepts:

*Normally, we try as much as possible to avoid using KSL when writing English or reading. But it assists them at least to understand. Then, when we come to reading, when we are reading, we try to read following exact English. If there is a plural, we add -s. If is eating, you sign the word eat then -ing so that they can see the difference. (Edith, 10 years of teaching experience, grade-three teacher)*

However, one of the participants believed that, despite being used in teaching English, SEE is not comprehensible to deaf children in Kenya. For this participant, KSL assists deaf learners in making sense of information presented in English. The response from Sophia below indicates this:

*Here, we use SEE when we are teaching. So, we would make sure that, when we are teaching, you do not use KSL. Although, to them, KSL will make them understand faster than when you are using exact English. (Sophia, 15 years of teaching experience, grade-seven teacher)*

In addition, teachers used SEE in two of the eight English lessons. They conducted the lessons in SEE to explain concepts, read, and write. During Rebecca's grade three

lesson, SEE was employed to explain the meanings of vocabulary, read, and discuss the passage. Florence also read the definitions of the words and sentences from the blackboard and explained the meanings of words using SEE. The use of SEE by Rebecca and Florence thus reveals how they use English language without mapping KSL onto spoken or written English.

Another perspective regarding the use of SEE in teaching is to keep KSL and English separate, as stated by Luka. This participant thinks that any contact between the two languages will confuse the learners:

*Normally, if it is an English lesson, I try to avoid using KSL, because it might confuse them. I want them to understand that it is different from KSL. So, I mostly use SEE. (Luka, 18 years of teaching experience, grade-two teacher)*

All reading and writing activities in all observed English lessons were conducted in SEE, indicating that teachers wanted to ensure written English is presented word by word. However, most teachers (six out of eight) switch to KSL to explain English concepts.

#### **5.2.1.2.3 Kiswahili**

It was found that teachers used Kiswahili words and phrases. Deaf children in Kenya are taught KSL as an optional subject to Kiswahili (KICD, 2016). Kiswahili is a compulsory subject in primary- and secondary-school curricula for hearing learners. In the lessons, three teachers used words and phrases in Kiswahili. Rahab, teaching grade five, used Kiswahili to explain the English word 'cap', for instance. Here, the teacher provided the definition of the word in English, wrote it on the board, and then

provided the Kiswahili word for it and elaborated in Kiswahili—namely, ‘KOFIA KIDOGO’—and used signs—that is, HAT for KOFIA and the sign for SMALL for KIDOGO.

Lily taught grade three, and when a learner answered a question, she used Kiswahili to ask the question ‘AMEPATA’, which means ‘has he/she got it right’. This provided a means of confirming if the learner gave the correct answer.

In the two classes, Kiswahili was used in combination with signs. It was further noted that teachers used Kiswahili to repeat what they were teaching. They switched to Kiswahili after initially explaining in English and KSL and perhaps felt that learners did not understand, such as when learners failed to respond to the questions, as in the case of Lily. Ruth also switched to Kiswahili after explaining the meaning of words in English and KSL, which can be understood as her means of reinforcing the explanation. The use of Kiswahili, KSL, and SEE can be said to be a practice intended to increase the chances of deaf learners comprehending the written language.

### **5.2.2 Scaffolding**

Data from 10 out of 24 teachers (42%) indicated that they use scaffolding to teach reading and writing English. The data that revealed the use of scaffolding was derived from interviews and lesson observations.

Scaffolding was employed for different instructional activities. In activities that involved reading, 6 of the 10 teachers indicated that they started reading lessons by showing the deaf learners how words in the passages are signed. Following this, the teachers and the learners read together, and lastly, learners read by themselves.

For example, Nina starts with demonstration of signs for English words and then reads with the learners before letting them read independently. This suggests that the teacher provides support until the teacher is confident that learners can read without it. This method of reading helps learners access more opportunities to learn signs from the teacher:

*After you read as a teacher, you go to the next step [where] you do it together now with the learners, whereby the teacher and the learners, you read the word and sign it together. And then, there is the last step; you keep quiet as a teacher, and the learner will read it alone. (Nina, seven years of teaching experience, grade-one teacher)*

In addition, Emily stated that, after demonstrating sign-reading, she reads with the deaf learners and, in the process, helps those who do not know signs for some of the written words. Individual deaf learners may need assistance even when others have acquired the skill being taught. In this case, support for these learners is provided when they read together before they engage in individual reading:

*I first read for them. They observe me read and sign. Then, we go to the book we read as a class, because in deaf, we have learners who will just sign, and they do not know what they are signing; they just sign because they have seen you sign this like this. You signed a word, maybe a book, but the learner will sign for you a boy. Then, from there, we read as a class. Then, we go to individual reading. (Emily, 15 years of teaching experience, grade-four teacher)*

A similar approach was shared by three lower primary grade teachers (Evelyn, Lily and Joyce) with varying levels of experience in teaching the deaf (23, 20, and 9 years of experience, respectively). The teachers described presenting the learners with signs

for written words. Teachers and learners read together, after which learners read alone, as illustrated below:

*First, the teacher reads the passage to the deaf children. The teacher reads by signing as the children observe, and they follow the teacher. Next, you read the passage together. After you read the passage together with the learners, you come to the individual, one learner, to read at a time. (Joyce, nine years of teaching experience, grade-two teacher)*

Lily signs the story as the learners observe and sign. However, she added that words are matched with signs by pointing to each written word as they sign. The teacher also provides opportunities for learners to practice the signs, as demonstrated in the following:

*I first go through the story, and they look and sign. So, we go through read and point. So, we go through the story together. Then, the third time, I will point out or I will ask who is able to read in parts, maybe three four lines. Then, I will tell the boys to sign. Then, I tell the girls to sign. (Lily, 20 years teaching experience, grade-three teacher)*

The teacher and learners signing together may provide a means of encouraging the learners to try the new signs presented by the teacher. This is the teachers' way of preparing them to read independently.

In addition to presenting signs for English words and reading with the deaf learners, another participant does the same for comprehension questions. Sara, who teaches grade-one learners, signs the comprehension questions, and they sign after her, unlike Frida and Lily, who both teach grade-three learners. Here, the teacher attempts to help the deaf learners read the questions before they attempt to answer:

*I sign the story for them, we sign the story together, and then they sign it on their own. Then, if there are questions, I sign for them and write them down. They also sign the questions. (Sara, 12 years of teaching experience, grade-one teacher)*

Scaffolding was also noted in Yvonne's approach to a writing lesson. This included a discussion of the events the learners were expected to write about and noting down the key points to be included in the final write-up by learners. This teacher encourages learners to provide details on the topic they will write about through discussion. The learners who may lack ideas can thus learn from and build on the information provided by the teacher and their peers:

*I want them to write about their Christmas holiday or birthday, so I will involve them in discussing what was there, what food was cooked. That way, you are triggering them to think, because they are able to tell you there was chapati, there was chicken. Then, you can note them somewhere, like which date was it, who was invited, how was the dressing, what food was cooked, what time did it begin, something like that. Then, from there, you can now tell them, 'Write your own Christmas story'. (Yvonne, 20 years of teaching experience, grade-four teacher)*

In lesson observations, all eight teachers attempted to use scaffolding in the reading and writing activities. This included demonstrating signs for the words and reading as the learners observed. The same procedure was followed for the vocabulary part of the lessons, but teachers only signed and sign-read the meaning of new words.

However, the data from lesson observations and the interviews noted that scaffolding was not utilised adequately. Some of the instructional practices did not provide learners time to participate in the lessons or access the teacher's and other learners' support, which could help them to learn the skills presented in the lessons. For example, in six lesson observations, while attempting writing exercises, learners did not receive adequate time to learn approaches to answering comprehension questions, attempting writing exercises, and using the new words in sentences. The next sub-section under

teacher-centred approaches presents a more detailed description of the inadequate utilisation of scaffolding.

### **5.2.3 Teacher-centred practices**

Some instructional practices mentioned by teachers and observed in lessons hindered deaf children's participation in the lessons. Specifically, instructional practices from 9 out of 24 teachers indicated teacher-centred approaches to teaching. This theme highlights certain practices in the current study and presents an analysis of how they limit deaf children's participation in literacy lessons.

Despite receiving training in deaf education, six out of the seven teachers (88%) whose lessons were observed demonstrated low levels of learner participation in instructional activities. In addition, all the teachers who made little efforts to involve learners in the lessons had experience of teaching deaf learners for over 10 years. For instance, teachers Rahab and Fridah taught unfamiliar words before the learners read the passage. The teachers provided the meaning and signs of the words that were written on the chalkboard. The learners signed and fingerspelled the words as presented by the teacher. However, despite being among the longest-serving teachers, possessing 21 years of teaching experience, teaching grade-five learners, and having trained in deaf education, Rahab did not offer the learners time to use the new words in sentences of their own. The vocabulary instructional practice demonstrated by Rahab thus reveals that deaf learners do not receive the opportunities to practice what they learned despite being in grade five and within an age range of 12–13 years.

In reading, a couple of teachers likewise did not allow all the learners to practice the signs. In Anna's grade three class, the teacher did not offer all learners time to practice the signs, but instead asked a few learners to sign the words and sentences. Therefore, these instructional practices indicate that deaf children do not receive opportunities to read independently during comprehension lessons.

From the previous sub-section concerning teachers' use of signs during reading lessons, it was noted that learners signed after the teachers to learn the written words' signs. This was intended to help them sign-read on their own. In Henry's class, the teacher signed the new words and the story, but only a few learners signed after the teacher. In this case, most of the learners exhibited limited engagement with written English.

Another teacher-centred practice encouraged deaf children to remain dependent on teachers in writing activities. Specifically, it was noted that some teachers do not allow deaf learners to attempt writing exercises on their own. Three teachers granted deaf learners hardly any time to practice writing using the new words. For instance, Lily, Jennifer, and Edith, who teach grades one through three (lower primary classes), attempted writing and comprehension questions, provided the responses, and asked the learners to copy.

Much like Lily's approach, Jennifer stated that deaf learners face challenges in answering comprehension questions, and she assists them in developing answers to

these questions. Teachers perceive this as a useful means of instructing deaf learners by helping them overcome the challenge of reading and writing:

*They find it difficult to answer the questions. It is like you, as teacher, you teach, and at the same time, you help them answer the questions. Then, later, you go back to the same comprehension and ask the same questions. (Jennifer, 21 years teaching experience, grade-one teacher, trained in deaf education)*

Both Edith and Rebecca showed the learners where the answers are found in the story and asked them to copy the exact sentences from the textbook. Rebecca also encouraged learners to match the words or phrases in the questions with words in the passage and to copy the matching sentences as answers. The deaf learners thus do not take part in tasks that involve reading for comprehension and writing the answers in their own words. There was also a lack of activities that help deaf learners make meaning of the text. The same approach can be identified from Edith's description:

*Where we have been asked the question, 'Who went to the market?' Now, you will show them who went to the market, so you read again. You underline the whole of that sentence. If it is the mother who went to the market, I normally tell them to copy that sentence. (Edith, ten years teaching experience, grade-three teacher, trained in inclusive education)*

The teachers seem to focus on ensuring that learners provide the correct answers to comprehension questions regardless of whether they understood the story or not. The learners' ability to write the responses in their own words was not considered. In this way, despite being comprehension lessons, the teachers' approaches do not expose deaf learners to comprehension skills.

### 5.2.4 Classroom management

This theme concerns practices that create a conducive learning environment. Such practices further demonstrate that teachers have organised their classrooms and learning activities in order to facilitate learning. These practices were identified from interviews, lesson observations, lesson plans, and the adapted curriculum design for grade-four learners. Data from 9 out of 24 teachers (38%) indicated that they planned for strategies to create a conducive classroom environment.

Teachers described using peer tutoring in instructions. One participant mentioned asking those learners who understood the lesson's content to guide others. Said teacher acknowledged that the majority of the children do not comprehend the content of the lessons. In response, teachers believe that they need to change their approach to teaching to assist the slow learners:

*Yes, most of the time, you may fail to achieve your objectives. You will realise that the number of the children who have understood what you have been teaching may be, from 14 children, you may get five, but you ask the same children to teach others. (David, 20 years teaching experience, grade-seven teacher)*

Asking those who have learned from the teacher to demonstrate signs for the English words was also viewed as a means of helping deaf learners to sign-read:

*In my own way, for example, in reading, I read sign a small part of the passage. Then, I call one child to come and to be a teacher and others to follow. (Frida, 16 years teaching experience, grade-three teacher)*

A similar response was provided by another teacher:

*Their peers who are good, like these two girls, they are good, you can do peer tutoring even when the teacher is not there.* (Anna, 16 years teaching experience, grade-three teacher)

The teachers thus call upon deaf learners who are better at carrying out certain activities in the lessons to help others acquire the same skills and knowledge. The teachers' practices in this peer tutoring approach accordingly demonstrate how peer tutors can take charge of learning activities in the presence or absence of teachers.

There were also considerations of the seating arrangement and the learner's position in class during the literacy lessons. Concerning the seating plan, teachers ensured learners were able to follow activities in class from wherever they were seated:

*Our arrangement is the horseshoe, or it is semi-circle. They are able to see you from a distance.* (Henry, 11 years teaching experience, grade-seven teacher)

Evelyn shares the same view as Henry:

*The way they sit is U-shaped such that they can all see the teacher. Any instructions which I give, every child will see.* (Evelyn, 23 teaching experience, grade-one teacher)

The U-shaped seating plan was also observed in four classrooms. During the lessons, deaf learners could see the teachers as they signed and explained the meaning of new words or sign-read the passages. For example, Emma's class featured a projected picture with text that all children could see because of the U-shaped seating arrangement. Furthermore, they could also see her instruct from the front of the class. Henry, a grade-seven teacher, neither used a flipbook nor wrote the story on the blackboard. However, he stood at the front of the classroom, and the learners' desks were organised in a semi-circular design, enhancing their ability to see him and the

chart that he used to teach new words. Not only could the learners see the teacher, but he could also see them when they signed the words. This arrangement provided the teachers and the learners the ability to see the others and follow the happenings in the class.

Ruth and Frida, teaching grade three, employed a different approach and asked the learners to move closer to the teaching and learning materials used in the lesson. These resources were pinned in front of the classes, and the teachers requested the students move closer in order to guarantee that deaf learners could access the resource and see the teachers as they taught:

*The teacher called all the learners to move closer to the chalkboard where the flipbook was hanged and arranged them in a way that all of them could see her as she signed, and they were also able to see the flipbook.* (Frida, 16 years teaching experience, grade-three teacher, lesson observation notes)

Frida ensured that the learners remained standing nearer her as she explained the story from the flipbook. The teacher used this practice to advance learners' attention. Another teacher described a similar approach during the interview. The teacher explained that learners are asked to move closer to the learning resource or the teacher's desk during lessons:

*For my case, I do not teach them when they are seated. So, mine is, I bring them closer to the board if we are working from the board. If it is from the books or is a chart that we have, I can sit and then arrange them here* (teacher points to the teacher's table). (Ruth, eight years teaching experience, grade-three teacher)

There is a similarity between the approaches of teachers in lower grades, as demonstrated by data from Frida and Ruth, who teach grades three and one,

respectively. The learners in grade one through three are 8–10 years of age. This can be contrasted with practices of teachers of learners in classes five and seven, where the learners are older (12–14 years) and teachers did not ask them to move to the front of the classroom during the lessons.

From the curriculum design, it was noted that organisation of classroom interactions focussed on improving learners' participation. The curriculum design instructed teachers to provide learners with opportunities to work in groups and pairs during English literacy lessons. Working in small groups and pairs thus allowed teachers to encourage deaf learners to participate in instructional activities. As a result, it is assumed that deaf learners received opportunities to learn by practising language use in the form of sharing ideas and discussing pictures with their peers.

Teachers also planned for use of small groups and pairs for instructional activities. Two teachers, Florence and Emma, included group work and working in pairs in their lesson plans as a means of organising instructional activities. However, this practice was not observed in their lessons.

Six of the teachers described employing different teaching approaches to ensure that deaf learners participate in writing lessons. For instance, a couple of teachers use discussions of pictures to aid deaf children in developing writing skills. Yvonne claims that discussing pictures will motivate deaf learner to become critical thinkers and provide them with a hint of what to write. Below is the description offered by Yvonne:

*We can discuss in picture number one, this is what is happening. In picture number two, this is what is happening. Then, from there, you can tell them, from these pictures, 'Can you come with your own story about what is*

*happening?’ So, that way, they will think; you will be arousing their critical thinking, and they will come up with their own compositions. (Yvonne 20 years of teaching experience, grade-four teacher)*

Through the discussion, the teacher helps deaf learners comprehend and expand their knowledge about writing by working with other learners. To this end, Sara and the deaf learners discuss pictures in the story. The teacher’s focus here is to help learners gain a preview of the passage by talking about the pictures. In this case, the discussion may enhance their participation in the lesson, including reading the story. Below is an extract from Sara’s interview that demonstrates this:

*So, first, we discuss the pictures in the passage with them. Then, I ask questions; for example, ‘What can you see?’ They will give what they can see from the picture. Number two, first, I have gone through the passage, so I know all that it is in the passage. So, then, I try to give them a rough idea of what is happening or what to expect from the passage and in relation to the pictures we have discussed. (Sara, 12 years of teaching experience, grade-one teacher)*

It was also recognised that learner participation was encouraged by granting them opportunities to practice signing. This practice was common with three teachers, who encouraged individual learners to participate in activities by signing new words or through individual reading of passages. Sophia, for instance, ensures that each deaf learner reads a section of the story to check their understanding and ability to sign. Through individual reading, the teacher can then identify the learners who are not at par with others:

*For me, the way I do it, I will pick one paragraph or two depending on how long they are. You make sure each child will read a sentence or two to find out whether the children are really learning something, whether they can sign like how many words in that sentence correctly. (Sophia, 15 years of teaching experience, grade-seven teacher)*

### **5.2.5 Section conclusion**

This section illustrated the literacy instructional practices of teachers of deaf learners in primary schools for the deaf in Kenya. It was noted that teachers supported deaf learners' acquisition of skills suitable for reading and writing. To this end, teachers used sign language, spoken language, and differentiated instruction to match the learners' needs. Furthermore, KSL and SEE were also identified as modes of instruction employed by teachers.

Other teachers practised scaffolding to teach reading and writing. However, most of teachers' practices provided only minimal support to deaf children in developing English literacy skills. These practices included limited time for learners to practise language skills and other literacy activities.

In the following section, I present findings regarding teaching and learning resources to reflect the focus of this study's second research question.

### **5.3 What teaching and learning materials are used to teach English literacy skills to deaf children in primary schools in Kenya and what role do they play?**

The previous section illustrated the instructional practices employed in English literacy lessons in primary schools for deaf children in Kenya. This section addresses the question of 'What teaching and learning materials are used in teaching English literacy skills to deaf children in primary schools in Kenya, and what role do they play'. Data for this section is drawn from the interviews, lesson observations, and documents. The

analysis includes identification of the teaching and learning resources, as well as how they were used. Teachers employed diverse visual aids to improve the deaf children's ability to develop English literacy skills. Analysis of data revealed one primary theme concerning visual teaching and learning aids along with two sub-themes. The two sub-themes revealed that visual aids were used first to enhance the learners' comprehension and, second, to help them access print.

### **5.3.1 Visual teaching and learning aids**

The information in this study indicates that 18 out of 24 teachers (75% of teachers) described using visual aids to teach reading and writing to deaf learners. It is important to note that teachers perceive visual aids as an essential part of the teaching and learning process for deaf learners. Documents analysis further revealed that visual resources such as coursebooks, realia, charts, pictures, digital resources, and flashcards comprise some of the suggested resources in the primary English language curriculum for deaf children. Teachers also included several visual aids in their lesson plans. For the lessons that focus on independent reading, additional resources such as magazines and newspapers are included in the curriculum design for teachers to consider using.

The analysis of each sub-theme is discussed next, and different visual aids that relate to each sub-theme are analysed.

#### **5.3.1.1 Enhance comprehension**

This sub-theme illustrates teachers' intention to provide learners with opportunities to comprehend written English using resources that build on the students' strengths.

Information gathered suggests that teachers of deaf learners in Kenya aim to increase the learners' visual exposure to language to boost their understanding. To this end, different visual aids were employed by teachers, as discussed below:

### **Real objects**

The data that indicated use of visual aids were derived from curriculum design, the interviews, and lesson plans. Data from 9 out of 18 teachers who use visual aids (50% of those who use visual aids) reveals that real objects help deaf learners connect the written words with the concepts they stand for. To cultivate these connections, teachers employ several different approaches. For instance, one teacher supports deaf learners in developing visual images of the concepts by presenting real items with the written word. In this way, the teacher seeks to improve the language learning experiences for learners by presenting real objects, as illustrated below:

*If you have words, you use real objects. For example, the word 'book', 'pencil'. You write that word on the board. Then, you hold that book, you show them; they will understand.* (Rael, five years teaching experience, grade-one teacher)

Another participant discussed the use of real items during dictation. This teacher also mentioned drawing the object so that the deaf learners could associate it with the real object. It was further indicated that the drawing and the real object enhance the deaf learners' ability to remember the previously learned word:

*In dictation, you draw the picture; you show the real object. For example, you draw a table. When you draw it on the board, they already know this is a table, and the table is here. So, they can see the table.* (Ruth, eight years teaching experience, grade-four teacher)

In other instances, young deaf learners are shown real objects and then allowed to use approaches that help them visualise the object to understand the meaning of the vocabulary.

In describing vocabulary teaching, grade two and three teachers described allowing deaf learners to employ visualisation techniques such as drawing to grasp the meaning of new words by linking the real item presented, written words, and drawings. Related to this, Joyce narrated how she incorporates a number of visual aids such as realia to teach new words:

*If I am teaching the word 'pencil', they have to see this a pencil; they sign, they draw it. You can refer to the same pencil from the picture, and they can observe, and then you can draw it on the blackboard, or you get the item itself, or you get a picture of it. (Joyce, nine years of teaching experience, grade-two teacher)*

Some of the participants asserted that real objects improve learning experiences. After all, six teachers associate visual aids with presenting the deaf learner with real learning experiences to make learning enjoyable and memorable. This view was common among teachers of lower primary grades one through three (four out of the six). For instance, for younger deaf children, teachers believe that real objects increase their literacy skills development. According to the teacher, young deaf learners require visual aids to comprehend certain concepts:

*If you give the deaf the word 'phone', and you show them a phone, or maybe a picture of a phone, you realise that word becomes so easy for the learner to sign, write, and even most likely recognise it even when it is written. (Nina, seven years of teaching experience, grade-one teacher)*

In addition, data reveals that visual resources connect learners' experiences to the lesson's content. In this way, learning becomes real when real objects help them

connect what they have encountered outside the school to the written language. For instance, one of the participants believes that real objects assist with memory and help deaf learners develop interest and understanding, as illustrated in the quote below:

*What they see, they do not forget, and it also motivates them. As you teach them, you will see that even their facial expression will show you that they are able to follow what you are teaching them. The other thing I have come to realise when you are using those resources, you sometimes remind them about their homes.* (Jennifer, 21 years teaching experience, grade-one teacher)

Most data concerning the use of realia as a resource was derived from the information from teachers (70% of those who use real objects) of younger deaf learners of approximately 7–10 years of age. These teachers' experiences of teaching deaf learners range from 4 to 21 years.

### **Flashcards and pictures**

The interview data and the curriculum design indicate that flashcards and pictures are utilised in the instruction of reading and writing lessons. The interview data revealed that 9 out of 18 teachers who use visual aids (50%) mentioned using flashcards in their lessons. Data analysis further revealed that teachers use flashcards to assist learners in accessing language and improving comprehension and memory.

While real objects were identified as a means of providing deaf learners with an initial introduction to vocabulary, flashcards were used to teach vocabulary by offering learners opportunities to identify, use, and spell English words. To this end, a couple of teachers conducted exercises using flashcards to test learners' ability to recognise words. One teacher, Emily, indicated that flashcards remind learners of the words they had previously learned. The teachers also assume flashcards offer deaf learners

access to the English language by providing words which they can use in sentences and for communication. Additionally, the teachers claim that the usefulness of flashcards in games and group work offers an additional means of encouraging learners to practice language use:

*Like when they have these cards for games, you know the learners can use new words and practice. When you have flashcards, they are able to construct sentences from the cards in groups. They are able to communicate, because as the learner identifies a word that was taught and practice what you have taught them, that is learning through the resources. (Emily, 15 years of teaching experience, grade-four teacher)*

Data revealed that flashcards aid vocabulary development according to five teachers (28% of those who use flashcards) from lower and upper primary classes. This reveals that flashcards are used in vocabulary lessons for the young and older deaf learners. Information from these participants further indicates that flashcards were accompanied by fingerspelling and signs to improve spelling. In two instances, teachers discussed using flashcards for spelling and use of words in sentence construction. For example, one of them checked if the learners had internalised spellings by presenting them the card, fingerspelling the words, and asking them to confirm if it was the correct spelling:

*Sometimes, I use games, like when I use flashcards, I put all the flashcards in a box. Then, I pick one card, and I fingerspell, sign the word, and ask the learners if I have done it correctly. (Emma, four years of teaching experience, grade-four teacher)*

In addition, one participant described using flashcards for activities ranging from teaching the spelling of individual words for lower primary grades and to fill in blank spaces in sentences for learners in upper primary. In so doing, the teacher aims to help

learners develop vocabulary by using words in sentences or to learn spelling with flashcards as a prompt. This can be identified from the interview excerpt below:

*You use the words on the card to fill the blanks to assist them to grasp the meaning, or you get these cards with letters, so they pick the letters and use them to fill the blanks where there is the spelling of the word. Mostly, such things you find in lower classes, but for upper (primary), you have a card with the whole word. (Sophia, 17 years of teaching experience, grade-seven teacher)*

Similarities were noted in approaches to using flashcards by teachers with longer teaching experiences in schools for the deaf, ranging from 15 to 20 years (three out of five teachers). This is regardless of whether they teach in lower primary (grades 1–3) or upper primary (grades 4–8). For example, Emily (taught 15 years, grade four teacher), Lily (taught 20 years, grade three teacher), and Sophia (taught 17 years, grade seven teacher) all described engaging learners in activities that require them to use the flashcards as demonstrated in the data analysis above.

The use of visual aids to support creative writing was also noted. For example, one teacher described the value of using pictures to encourage deaf learners to write in prose. To this end, pictures and words were combined to support learners in using language in writing. The teacher believes that, by relating words to pictures, deaf children can conceptualise what to write and think of words to use in writing, as illustrated below:

*For example, story writing. You have to start very early, and maybe the only way that I have seen work is to use pictures to make children know how to make a story. You can change the pictures. Through, maybe to the pictures, you can add words so that they can express themselves. (David, 20 years teaching experience, grade-eight teacher)*

Here, the teacher's concern focusses on deaf learners' ability to write stories, and this is due to the level of learners he teaches. In grade eight, learners are expected to write stories on their own. Therefore, the teacher focusses on the use of pictures to help them write.

Continuing, a grade one teacher stated that pictures arouse learners' interest. The teacher claimed that pictures in the textbooks appeal more to deaf learners than the text in the passages. The teacher accordingly views images as means of motivating deaf learners and assisting them in exploring the information presented:

*When there is a picture, they seem more interested. They are more interested in the picture than even the story. (Sara, 12 years teaching experience, grade-one teacher)*

### **Digital resources**

Both the teacher interviews as well as the curriculum design revealed that digital resources comprise part of the teaching and learning aids employed in this study. For instance, the data presented indicated that 7 out of 18 teachers (39% of those who use visual aids) employ mobile phones and computers during instruction. The use of digital devices such as mobile phones was associated with creating a feeling of enjoyment and motivation among deaf children. The teachers' responses further indicate that they experienced increased learner participation from use of such devices, as demonstrated in the following excerpt:

*Like, when we come to letter writing like me, I tell them to have my phone, write a message to your mum (the deaf learner). You see they are enjoying it. I tell a learner, 'Okay, now tell your mum that you do not have socks'. You*

*see them trying to write.* (Emily, 15 years of teaching experience, grade-one teacher)

For a couple of other teachers, mobile phones offered a means of ensuring deaf learners conceptualise ideas by visually accessing the learning material, as demonstrated by responses from Lily and Ann (teachers of grade three learners). This approach focussed on using the mobile phone to enhance learners' access to relevant visual information via the Internet. The following quote from one of the teachers relates to this:

*Sometimes, I use my phone, like when I was teaching about weddings. I go to my phone and get something that shows a wedding, and then, they can watch. In most cases, I use my phone.* (Lily, 20 years teaching experience, grade-three teacher)

The data analysis indicates that most teachers (five against three who talked about laptops and projectors) mentioned using mobile phones more often than other technological devices.

The curriculum design illustrates the inclusion of digital resources in suggested learning experiences for reading and writing lessons. For example, in a grade four reading lesson, the curriculum design indicates that learners could be guided to watch a video on etiquette and skim a digital text to expose them to the use of digital devices in English language lessons. In a writing lesson, the curriculum suggests that teachers guide deaf learners to work on filling out digital and downloaded forms in pairs. Use of digital resources in this way presents deaf learners with opportunities to engage with technology and develop an interest in literacy tasks.

To support schools in integrating technology use, the government has established computer rooms in seven out of eight schools in this study. The teachers of one of the schools did not offer information regarding the availability of computers. However, no lesson was conducted using computers in the observed lessons. The curriculum design requires teachers to incorporate the use of information technology and communication across all learning areas and in every lesson. This is in a bid to enhance digital literacy, which represents one of the core competencies to be developed by learners in the new curriculum (KICD, 2016). Nevertheless, teachers raised issues that may hinder them from using technological devices, as discussed in section 5.4.1.2.

#### **5.3.1.2 Expose deaf children to print**

This sub-theme addresses how teachers enhance deaf learners' interaction with English text. For this role, teachers identified the use of blackboards, flipbooks, charts, and textbooks as resources that expose learners to written English. These teaching and learning resources that contributed to exposure to print are discussed below.

##### **Blackboard, Flipbooks and Charts**

Drawing from the information gathered through interviews and the curriculum design, it was noted that resources such as flipbooks and charts were commonly used while use of blackboards and flipbooks was observed during lessons.

This chapter's previous section on instructional practices demonstrated that the deaf learners in this context read using signs and fingerspelling following the teacher's demonstration. Therefore, data indicates that the teachers in this study find it

necessary to provide learners with access to text in a format that allows the learners to see the teachers and the text simultaneously. To this end, teachers seek to expose deaf learners to print by presenting written English on blackboards. Observation and interview data indicated that a total of 18 out of the 24 teachers in the study (75%) use blackboards as a resource in English lessons, making it the most commonly employed learning resource in this context.

Three teachers described using the blackboard as a resource. In so doing, they stressed the need for deaf learners to see the teacher when reading, thus requiring them to write stories or words on the blackboard. One of the teachers said that they write stories on the blackboard so that deaf learners can see as the teacher signs. This can be identified from Ruth's response below:

*The best thing is to write the story or the passage on the board where they can see as you sign.* (Ruth, 10 years of teaching experience, grade-two teacher)

Despite possessing the least experience teaching deaf learners, Florence raised a similar point. For Florence (six months of teaching experience), deaf learners' inability to access written text and see teacher signing at the same time demands that the story be written on the blackboard:

*Because they cannot face you and, at the same time, they are reading, you write it on the board.* (Florence, six months of teaching experience, grade-five teacher)

It was further noted that, since the deaf children must look at the teachers while they give instruction, using blackboards can help learners access the signs and see the written form of the language simultaneously. In the same regard, responses from two

participants, Edith and Jennifer, emphasise the need for deaf learners to see both the teacher and the text being read. Edith suggests that deaf learners face challenges in visually attending to more than one activity at a time if they must focus on two sources. This means that, since the learners' primary mode of input is visual, the teacher needs to confirm that the learners have seen the written form of the words and not just the signs:

*We normally write on the chalkboard, because if we, say, we sign by just observing our books, we will not be able to move together, because they will need to look at the book, [and] they also need to look at you. (Edith, 10 years of teaching experience, grade-three teacher)*

Overall, the data from the teachers indicates that, by writing the stories on the blackboard, the teachers are availing the written form of all the words they sign-read. The teachers further reveal that presenting only the signs may not be adequate for the learners to read and write without the ability to identify the written form of the word and connect to the sign. Accordingly, the learners must look at teachers, but not at the expense of not seeing the text. In all eight lesson observations, teachers used the blackboard as a resource. Teachers wrote the meanings of new words on the blackboards and charts during the lessons. Even those who used charts, flipbooks, or a projector wrote some additional information or illustrations on the blackboard.

Those teachers who used flipbooks did not have to write the stories on the blackboard. Instead, they placed the flipbooks at the front of the classroom and read from them with the learners. In three classes, teachers used these flipbooks, and learners paid attention to the flipbooks while the teachers read the stories. The flipbooks were thus used to present comprehension stories in the same manner as blackboards.

It is important to note that the TUSOME literacy programme provided the flipbooks used by the teachers. The TUSOME literacy programme is funded by the United States Agency for International Development (USAID) and the government of Kenya, and it targets learners in grade one through three, including the deaf and the visually impaired (Piper et al., 2019). However, the textbooks for the English language that are approved for use by the KICD do not have flipbook copies, as described by one of the teachers:

*Like TUSOME, we were given the coursebook. They have written it on a big book where we display it; then, we read together. First, the teacher reads—we read together—then, they read by themselves. That is TUSOME. But for other books, we normally write on the chalkboard. (Edith, 10 years of teaching experience, grade-three teacher)*

From another perspective, two teachers believe that visual aids allow deaf learners to access print all the time rather than just during the lessons. This was perceived to enhance continuous learning and increase learners' interaction with the print. One participant stated the following in response to a question concerning resources:

*We use learnings aids like charts, and we have them in the class, and they interact with them. (Joyce, nine years of teaching experience, grade-two teacher)*

Similarly, another teacher stated the following:

*They draw attention. They can be used for revision once we learn from a chart. It will be continuous, repeating; it will be for reference. (Evelyn, 23 years of teaching experience, grade-one teacher)*

Evelyn, Joyce, and Lily are all teachers of learners in grades one through three. Their data reveals a continuous focus on exposure to print for young deaf learners.

Evidence from another teacher suggests that having charts in the classroom allows learners to continue accessing print, especially in their free time. Availing charts in the classrooms thus increases learners' chances of engaging with English text in different ways on their own:

*So, when you have all these, when you are not there, they are able to read. They keep on practising signing, reading, and seeing. They can see this is a cow, see the colours, seeds. (Lily, 20 years of teaching, grade-three teacher)*

It was observed in two out of eight English literacy lessons that teachers used charts to read and write the meaning of new words for the learners. Teachers wanted learners to see the English print for each signed word and not to simply rely on spoken language used by the teacher as they verbalise the English words. In the same regard, charts presented the manual alphabet, English words, and sentences were displayed on the classroom walls in six of the eight classrooms where lesson observations took place. Charts were also displayed in classes of younger deaf children, since five out of six classes with a great deal of charts were from grades one through three. In grade five and seven classrooms, few if any written materials were displayed on classroom walls.

In addition to presenting flipbooks, using charts, or writing vocabulary or sentences on the blackboards, teachers pointed to words as they signed or fingerspelled, directing the learners' attention to the written words or sentences. For example, this was observed with Lilly, Frida, Rebecca, and Anna, who taught grades one through three. Their practice stood in contrast to that of Henry and Rahab, who taught grade seven and five, respectively. For the latter, they read the meanings of the words either from the blackboard or the chart without pointing to each word. In both cases, though,

despite the different approaches to their use, the charts made the text available to the deaf learners, thus contributing to their comprehension.

### **Use of textbooks**

The data that revealed use of textbooks as a resource was derived from observation, interviews, and documents such as the English textbooks, the curriculum design, and lesson plans. Textbooks contain written stories, words, and sentences. A total of 8 teachers out of 24 (33%) described using textbooks as one of their resources. Textbooks helped increase access to written English for deaf learners.

In addition to observations in three of the lessons, five teachers stated in the interview that they use textbooks as a resource. For instance, this included looking for new words in stories and spelling them. In so doing, this offers learners an opportunity to identify the written words and test their ability to spell:

*I can even ask them to take the book and look for those words from the textbook, and then, they fill in using the correct letters. (Edith, 10 years of teaching experience, grade-three teacher)*

However, variation was observed concerning how different teachers used the textbooks. For example, while some teachers used the textbooks to read, a couple refer to textbooks to discuss the pictures that accompany the stories that learners read:

*For reading, there is also prediction. If there is a picture, they look at it in their textbook, because I cannot draw the picture on the blackboard (Abby, 23 years of teaching experience, grade-five teacher)*

Similarly,

*When we follow the stories in the textbook, we have pictures. When reading, you need to discuss that picture.* (Grace, eight years of teaching experience, grade-seven and -eight teacher)

It was further noted that teachers use textbooks when referring to some of the content, such as with pictures that are not easy to draw on blackboards, but which remain necessary for effective teaching and learning.

One teacher believes that learners must relate the signs to the written words, thus establishing the need to refer to the textbook. This teacher demonstrates that the signs cannot be used independently of print for deaf learners in her context:

*I first read for them. They observe me and sign. Then, we go to the book. We read as a class.* (Emily, 15 years of teaching experience, grade four teacher)

Learners referred to textbooks in three out of the eight lessons observed. The learners read stories and answered comprehension questions from textbooks in Rebecca's class while Henry and Rahab asked learners to read passages from the textbooks. These latter two teachers teach grades seven and five, respectively, and they used textbooks in similar ways to ensure learners accessed the written stories, since each of them had a textbook. By contrast, with Rebecca, who teaches grade three, much of the reading was performed from the flipbook rather than the textbooks.

The curriculum design includes coursebooks as a resource in every English lesson, indicating the significance attached to it in Kenya's teaching and learning process. Consequently, the government has provided textbooks to enhance each learner's access to resources, as mentioned by two participants, including in the response below:

*We have the learner's book, and we thank God at least the books are enough. At least every learner has a book; no more sharing may one or two the books are there.* (Emily, 15 years of teaching experience, grade four teacher)

### **5.3.1.3 Conclusion to the section**

In this section, I have illustrated the teachers' use of resources for deaf children in primary schools in Kenya. Findings indicate that teachers use visual aids to increase learners' comprehension and exposure to written English. However, use of some of these resources presented certain challenges that are addressed in the following section, alongside other experiences of teachers in this study.

## **5.4. What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?**

Having analysed the findings of the second research question in the previous section, I now present findings for question three: 'What are the teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?' Some of the experiences shared by teachers are linked to instructional practices and the use of resources explored in the previous sections of this chapter. The themes relating to this question developed from analysis of interview data. Specifically, four themes have been derived from the data, and they are explored further in separate sections. These themes include the following: inadequate professional knowledge, inappropriate curriculum and resources, challenges deaf learners face, and valuing the available support.

### **5.4.1 Inadequate professional knowledge**

This theme illustrates teachers' experiences concerning their ability to provide effective instruction to deaf learners. Here, 9 out of 24 (38%) participants indicated a lack of necessary instructional skills and knowledge. The first sub-section offers evidence of teachers' limited knowledge of teaching methods, followed by teachers' lack of knowledge regarding how to use resources.

#### **5.4.1.1 Limited knowledge of methods of teaching deaf children**

Some participants were concerned about their inadequate pedagogical knowledge of teaching deaf learners and English. According to them, insufficient knowledge of deaf education is linked to initial teacher education, limited or irrelevant content presented in workshops and short training programmes. For instance, one of the participants shared his concerns about how teachers were trained in inclusive education and their capability of teaching deaf learners. While comparing teachers trained in inclusive education against those trained in deaf education, the headteacher suggested that inclusive education training may not provide teachers of deaf learners with relevant knowledge, as illustrated in the following response:

*In a school like this, with about 14 teachers, only three are trained in deaf education. You see these other teachers called SNE (special needs education) or inclusive teachers, they struggle a lot without proper training, and effective teaching of a particular subject is compromised. (James, three years of experience as headteacher of the school)*

The statement above signifies that most teachers in the school are trained in inclusive education focussing on learners with special needs in education in regular classrooms. However, the headteacher feels that this approach does not adequately prepare them

to teach deaf learners. The headteacher believes that the training teachers undergo determines their ability to support deaf learners. As a result, it is also assumed that deaf children may not develop the required skills if their teachers do not train in deaf education.

Another participant mentioned that few deaf education courses are offered at the university, and they do not get opportunities to gain additional knowledge after graduating. The teacher hinted at the importance of learning current practices in the deaf education through refresher courses. This information, as illustrated in the extract below, underscores the importance teachers attached to pre-service training and the need to acquire current information on education of deaf children:

*We should be called for some refresher course, because from the time we left training, there is nothing we have got for the deaf. It is just what one got from KU (Kenyatta University), and then how many units are for handling deaf children? I think two: total communication and something else. I think refresher courses are important, because they help us to know the modern approaches to teaching. (Rahab, 21 years of teaching experience, grade-five teacher).*

Participants also mentioned that limited relevant knowledge was availed during training offered to practising teachers of deaf children. Specifically, responses from five of the teachers indicated that the organisation and delivery of content in training were not useful for them.

The participants' report further revealed that the experiences and information they gain from training do not match their expectations. In the case of Luka, there is a lack of meaningful interactions between trainers and the teachers except for the notes that

are provided. Luka further indicated a mismatch between information given to teachers and the professional knowledge they required, as can be seen from the extract below:

*Can I be very open and say, some of these trainings, you are just given notes five days. You know, nobody will tell you in a CBC situation, 'This is how you approach an English lesson'. I have never seen such a thing. So, sometimes, you go for that training, and you are left wondering, 'Have I really gained anything?'* (Luka, 18 years of teaching experience, grade-two teacher)

Likewise, some teachers cited problems arising from participating in training with either teachers from mainstream schools or teachers of learners in other categories of special needs education. Rahab, for instance, feels the content delivered during training focusses on teaching hearing children and does not suit them. As a result, the teacher revealed challenges in addressing the responsibility of adapting the teaching methods, as can be seen from her remarks below:

*Like, now, there is training going on here, but it is for the regular schools. Yes, we are told to attend. We have two of our teachers there, but what are they learning? The regular way. So, when we go there, we are learning how to handle a regular child. So, is it really helping us? It is for you as a teacher to know that I have been taught these approaches to teach a child who is hearing. So, to teach a deaf child, it is for me to adapt. To choose which is best suited for a deaf child becomes difficult.* (Rahab, 21 years of teaching experience, grade-five teacher)

For two other participants, the concern focussed on including teachers of learners from both special needs and mainstream schools within one setting during workshops. Specifically, the concern is that teachers of the deaf are the minority in the group, and so their pedagogical needs are not considered:

*We are placed together with teachers of mentally handicapped, physically handicapped, and the regular schools. There is no time even for the trainer. The trainer may have no knowledge about a hearing-impaired child. They focus on the majority they train. You, so you go back filling in the gap yourself.*

*Even they rely on us to tell them how. You see, you go for training, but it is up to you now to train, to provide the information.* (James, three years of experience as headteacher of the school)

The teacher mentioned that trainers possessed limited knowledge of deaf education, and they had inadequate time to provide pedagogical information to teachers handling different categories of learners with special needs, all of which presented barriers to gaining relevant knowledge.

Another issue identified is that teachers wish to receive expert knowledge in the field of deaf education. The teachers stated that they share personal teaching experiences without additional input from the trainers of the workshops they attend. The fact that teachers would like additional information may mean that they are not confident in their instructional practices. In relation to this, Noah had the following to say:

*Even the training that we get are not adequate; they are not exhaustive. Most of the contributions that we get come from teachers themselves through their experiences in class. So, that is what we do. We sit and share my experiences, your experiences, and then we combine them, and then we move ahead.* (Noah, 12 years teaching experience, grade-seven teacher)

It can be deduced that there is a lack of feedback on teachers' instructional practices in such forums. In turn, this indicates that teachers do not value the experiences they share in such forums.

Nina and Luka mentioned that teachers generally receive rather few training opportunities. To stress the importance of this training, Nina counts herself lucky for receiving the opportunity to attend. It can also be said that there are a limited number of teachers who usually attend such training from each school:

*We have always been left out. We hear that people are going for HI (hearing impairments) training, but we have no information. It is just only once, and I think I am the only lucky person who attended, just once. (Nina, seven years of teaching experience, grade-one teacher)*

One of the teachers referred to TUSOME, which other teachers have attended, to stress the usefulness of in-service training. TUSOME was mentioned because teachers were trained on how to teach reading and writing when the program started. When asked about the training he received, the teacher responded as follows:

*I have never had any. There are those who went for TUSOME training, may have benefited from it, but those who did not get that chance like myself have not received any form of training that would help me be able to deliver better than I am to our deaf children. (Luka, 18 years of teaching experience, grade-two teacher)*

The above evidence presented by Luka and Nina indicates the presence of a knowledge gap due to inadequate professional development programmes for teachers of deaf learners as well as a lack of focus on teaching different subjects.

#### **5.4.1.2 Teachers' knowledge of use of resources**

Data from the teachers further identified knowledge of technology as a necessary skill in using certain resources in schools. A couple of teachers mentioned that they might not use some useful resources due to a lack knowledge on the use. If said resources are not used when required, this may result in a loss of learning opportunities for learners, as demonstrated with the following response:

*Technology is not known by everybody. So, if I was to use a resource like a projector, and I am not able to use it, even if the guide (teacher's guidebook) tells me to project it, I may not do it simply because I do not have the knowledge*

*to do it. I may feel I do not have the knowledge, and I leave it at that.* (Henry, 11 years of teaching experience, grade-seven teacher)

Keeping up with the pace of technology advancement also represented a challenging task for another participant. This indicates that teachers' lack of advanced knowledge and skills in technology may hinder the use of certain resources. For example, when discussing the use of resources in teaching, one of the teachers mentioned that basic skills may not be sufficient to use some resources:

*I may not have the skill like, you see, the email, searching online; this skill with time is advancing very fast. We have seen online meetings; we have seen Zoom, and it is the same way it is advancing in learning. We have only basic skills, but inner skills require knowledge of information communication technology. So, you know this thing will help, but because you lack the know-how, you are unable to use [it].* (Anna, 16 years of teaching experience, grade-three teacher)

Here, the teacher refers to the current trend in technology and considers such resources helpful but added that a lack of in-depth knowledge can prevent their use.

The learning resources provided for teachers may also require knowledge concerning how they can be used in class. For example, one participant explained how information concerning the use of resources is sometimes not provided. Without such information, the resources will not serve the intended purposes, as they may be used ineffectively. In turn, this limits deaf children's exposure to a variety of resources. The participant had the following to say on supplied resources:

*There was something we were given on sounds. I went to training for lower levels (grades 1–3). There were some letter cards that were given. We are supposed to use [them] with certain charts, [but] I felt that it was not helpful. It was even confusing my learners. Maybe it could have been a lack of knowledge of how to use [it], but we were given [it], and we were told to go and*

*use it to teach English.* (Rahab, 21 years of teaching experience, grade-five teacher)

Furthermore, there is limited communication from KICD, the body that develops the curriculum in Kenya. A new curriculum was recently implemented in Kenya in 2017 (Maluei, 2019) as shown in section 2.3.2. One teacher suggested that the new curriculum requires teachers to be provided with more information. This can be identified from the following comment:

*Nobody has ever come here. Even the ones from KICD and said teachers, I want to have some few minutes with you. We need to do a lot of adaptations, because nobody has ever, even for those who come from KICD, none of them has ever even said, 'Teachers, I would like to have 10–20 minutes with you. We (KICD) are the ones who are developing the curriculum, and these are our expectations'.* (Rahab, 21 years of teaching experience, grade-five teacher)

Here, the teacher refers to adaptations to the regular curriculum intended for special needs learners in areas of teaching methods, assessment, and teaching and learning resources to meet their needs (KICD, 2016). This indicates that teachers need more information on adaptations.

#### **5.4.2 Inappropriate curriculum and resources**

This theme focusses on challenges teachers face regarding time and difficulties in using resources. Information concerning this theme was shared by 12 teachers (50% of participants). Specifically, I examine two sub-themes—namely, 1) time constraint and 2) books and digital resources.

#### 5.4.2.1 Time constraint

This sub-theme describes participants' remarks on the time they needed to prepare their lessons as well as time allocated for the lesson's content.

Eight out of 24 (33%) teachers raised concerns regarding the time and how this influences their preparation and teaching. While sharing their experiences, several teachers mentioned inadequate time as negatively affecting their performance. In addition, inadequate time was discussed regarding curriculum content and barriers deaf children face in learning within the allocated time. These issues related to time are analysed further below.

One of the issues teachers raised concerning time was that there was insufficient time to prepare for teaching. For instance, teachers are assigned to numerous lessons scheduled one after the other and may lack the time needed to prepare learning resources. It is evident from the information provided by four teachers that the numerous lessons they teach in a day negatively affects their preparation of teaching aids. In this regard, one of the teachers stated the following:

*Sometimes, you are moving from one class to another; the time to prepare for this class adequately is not there. I think that could be the only challenge, because I cannot really say that there are no manila papers. They are there, the pens are there, but maybe before I get to class, maybe I did not get enough time to prepare. (Rahab, 21 years of teaching experience, grade-five teacher)*

Moreover, limited time encouraged use of alternative resources or methods that may not be as effective compared to what teachers may have used if they had ample time to prepare:

*There is the factor of time. You see, you are also human; you may find that you have another lesson, and another, and you have no break. So, you see, maybe the teacher is tired. You get other methods of doing those things. The teacher may decide not to improvise. (Emily, 15 years of teaching experience, grade-four teacher)*

It can be noticed from the above responses that teachers' workload can determine their preparation and use of suitable teaching and learning resources in schools for the deaf in Kenya.

The second issue regarding time was that adequate time was not provided to cover the content of the lesson. In their responses, four teachers explained how difficult it is to work within the given time when teaching English literacy. This related to the amount of content taught in a lesson, their need to reteach concepts, and the number of concepts that they think should be taught to deaf children. Furthermore, inadequate time to teach the curriculum content was discussed with reference to the requirement that deaf children are taught the same curriculum as hearing children, but with adaptations (KICD, 2016).

A couple of teachers believe that deaf children do not understand concepts within the time provided in the curriculum, thus illustrating the challenge of teaching within the allocated time. For example, Noah explained that deaf children should be taught the same content repeatedly for them to understand. This further implies that the allocated time does not cater to the need to reteach. The excerpt below illustrates this explanation:

*There is a challenge with the deaf to understand, and if you want them to understand, then you must keep on repeating and repeating. If you do not do*

*that, then at the end of the year, they will have achieved very little. So, my experience with the deaf is that they need a lot of time. (Noah, 12 years teaching experience, grade-seven teacher)*

Time was also mentioned in relation to the amount of work to be covered in a lesson (which lasts 35 and 40 minutes in lower and upper primary respectively). For instance, teaching different concepts in one lesson was described as challenging. Lily shared an experience where, before deaf children learnt vocabulary, they must first read the story, which the teacher found impossible given the available time. The teacher's perception is that teaching multiple concepts to deaf learners in a lesson does not cater to their slow pace of learning:

*But when you start with the story, then you come to teach them those words, tell them to write. It will take time, and you will not be able to finish. (Lily, 20 years teaching experience, grade-three teacher)*

Another teacher went further in providing an estimate of how much time the deaf learners require to learn the same content as hearing learners in one lesson. This proposes that deaf learners learn in different ways from hearing learners:

*Time per lesson, these children, other learners, can take 30 to 40 minutes per lesson, but these ones, you can take one hour to teach the content of one lesson. (Anna, 16 years teaching experience, grade-three teacher)*

In grade four, Emma mentioned that the curriculum design stated that irregular and regular nouns should be taught together within two lessons. However, the teacher had to separate the two and teach each in separate lessons. She later combined the two in a third lesson so that learners could see the differences and stated that this can slow the deaf learners' progress in the learning the content of the curriculum. The teacher

also revealed how different concepts needed to be taught at different times for learners to comprehend:

*I separated regular and irregular nouns and taught them in two separate lessons unlike where the design indicates it should be taught in one lesson. If the two concepts are taught in one lesson it will confuse the deaf children. So, instead of two lessons as indicated in the curriculum I used three lessons and that will affect how much content I will cover. (Emma, grade four teacher, four years teaching experience)*

#### **5.4.2.2 Unsuitable books and digital resources**

This sub-theme represents teachers' experiences regarding the resources they use. Problems expressed by teachers in using the resources include limited information in textbooks and unsuitable videos.

Five out of 24 teachers (21% of the teachers) described encountering issues with using the resources that were provided or were advised to use. One such issue concerns a lack of sufficient information in textbooks. This information is meant to guide teachers in providing instructions. However, according to one of the teachers, when information in the textbooks is lacking, it limited the teacher's ability to use suitable teaching approaches. This is illustrated in the following:

*Even in the book, there is not adequate information to ensure that they understand what they are learning. Sometimes, you are forced to use even some abstract means, which might be difficult for the children. (Sara, 12 years teaching experience, grade-one teacher)*

Florence's response also suggested that the learners' textbooks lack enough content to offer learners sufficient practice of the use of the language:

*The textbooks, like the learners' textbook, might not be so useful. We use it to give assignments. Especially for the new CBC the books are so shallow. They do not have a lot of details, and you cannot entirely depend on them. (Florence, six months teaching experience, grade-five teacher)*

The above comments by Sara and Florence revealed their dependency on textbooks as a key resource. Furthermore, their data also indicated how insufficient information in textbooks limited their ability to identify the best approaches to provide adequate learning experiences for the learners.

Continuing, the teachers also addressed unsuitable digital resources for the deaf learners. Two teachers mentioned lack of adaptations for deaf children to access some resources. One such challenge concerned a lack of captions for resources presented in spoken language. As a result, teachers cannot use these resources, as deaf learners cannot access the information:

*For example, they may give you to use a picture on a phone or laptop, but you realise some pictures in the phone or some of the content with the use of technology contains the use of sounds. For example, maybe if you want to teach a word, whatever is being availed there is in the spoken form. (Nina, seven years of teaching experience, grade-one teacher)*

Other barriers arise when using resources presented in spoken language. Teachers identified this as difficult, especially in comparison with when learners watched captioned videos, as explained in the quote below:

*Sometimes, for deaf learners, it becomes difficult when it comes to incorporation of ICT (Information Communication and Technology), because most of the things involve use of spoken language, which is a challenge for them. So, you will end up, as the teacher, you listen and start signing for them, which does not make any sense. (Nina, seven years of teaching experience, grade-one teacher)*

Another participant added that the main challenge concerns providing deaf learners access to information through a suitable mode of communication. Here, the teacher suggested that resources that were not adapted can produce a frustrating experience for the learners. From this teacher's perspective, deaf learners will encounter difficulties attending to the teacher's interpretation and the video as highlighted in the response below:

*There are areas where you are told to guide the learners to watch a certain video. When you go to the Internet, the video is voiced. They cannot understand, they cannot hear; they cannot watch and observe you signing at the same time. So, it is difficult, that, again, the memory will be quite down. So, they might not grasp anything.* (Florence, six months of teaching experience, grade-five teacher)

The analysis discussed in this theme demonstrates the challenges teachers faced in teaching English language to deaf children in Kenya. Specifically, this section has highlighted that available time affected teachers' preparation and hindered effective content delivery. Some of the available resources have also been identified as not sufficiently meeting the communication needs of deaf learners.

#### **5.4.3 Challenges deaf learners face**

This theme concerns teachers' experiences regarding the use of sign language for instruction and the problems that it creates for deaf learners. This theme is further analysed under two sub-themes. The first one concerns KSL and communication problems. Sub-theme two focusses on reading and writing problems. At 54% (13 teachers), most teachers believe that KSL negatively influences learners' ability to acquire English literacy, especially in terms of writing. Furthermore, deaf children's

dependency on sign language as the mode of communication and their limited KSL proficiency was also identified as a barrier to communication.

#### **5.4.3.1 KSL and communication problems**

##### **5.4.3.1.1 Deaf learners and teachers' lack proficiency in sign language**

Deaf children in Kenya join school with limited first language proficiency, which subsequently contributes to language barriers according to 13 teachers. Three of the 13 teachers who discussed language barriers (27%) felt that this presents a challenge when introducing reading and writing to deaf learners. In addition, participants talked about communication barriers between teachers and deaf children due to either lack of sign language knowledge by teachers and learners or because of deaf learners' limited access to auditory input.

The data suggests that teachers depend on sign language to introduce English literacy to deaf learners. Teachers of grades one through three provided this information. The children join grade one after having spent two years in pre-primary one (PP1) and pre-primary two (PP2). There were indications that the home environment does not provide deaf children opportunities to acquire language before enrolling in school. Teachers suggested that a late introduction to sign language slowed the pace at which deaf children learn signs and fingerspelling that teachers used in teaching English literacy. Anna's interview extract explains this challenge:

*Come to a deaf child, they will never learn that word 'water' until he/she comes to school and learns this is the sign for the water and this is water. Before he/she learns to relate that sign and fingerspelling with the word, it will take a very long time. (Anna, 16 years of teaching experience, grade-three teacher)*

Another teacher commented that deaf children are not able to acquire sign language in pre-primary school because their teachers are not qualified to teach sign language. In Kenya, teachers in PP1 and PP2 are employed by the county governments (see section 2.4.2). The central government employs primary school teachers for the deaf, and most have special education qualifications. For example, all the 24 teachers in this study trained in special needs education, with 20 out of 24 teachers (83%) having trained in deaf education while the others trained in inclusive education. One participant stated that most learners proceed to grade one without acquiring sign language, which subsequently presents a challenge in teaching English literacy. Since the teacher uses signs to teach English, introducing deaf children to reading without the knowledge of sign language is reported as difficult:

*In our school, these learners are taught by teachers who are employed by the county government, and possibly, this teacher is not experienced in handling these learners. So, you realise this child as he comes from PP1 and PP2, and then to grade one, has acquired very little basics, like alphabet. Almost 80%, including the alphabets, they are not aware. So, you realise as a teacher, like me in my case, you [have] to teach the alphabets first so that you can introduce English language, and basically, you cannot teach English without this child recognising the alphabet. (Nina, seven years teaching experience, grade-one teacher).*

In addition, some teachers discussed their limited sign language knowledge. They suggested that, because of this issue, they may fail to provide necessary information, as the following extract illustrates:

*Another difficulty in writing is just a word which the signs, you know, where the teacher does not know the signs. So, they will find it difficult to write, because they do not know the word in signs. (Evelyn, 23 years of teaching experience, trained in deaf education)*

Teachers' limited proficiency in sign language further contributed to communication problems with learners:

*I am a hearing teacher. The language that I use is what I have learned in college and what I have interacted with out of college and what I have learnt from them. So, to reach them as teacher, to make them understand, is difficult. (Luka, 18 years of teaching experience, trained in inclusive and deaf education)*

Furthermore, another participant mentioned that it became challenging for deaf learners to understand the meanings of words that are composed of numerous letters and do not have signs. Since fingerspelling long words is challenging, the lack of signs limited the teacher's options for explaining the words' meaning, as illustrated in the extract below:

*The challenge is when we have a word that is very complex, and we do not have a sign, and especially a word that has so many letters, like 15 letters. They take time to fingerspell getting to the meaning, and you do not have anything that you can bring, even drawing. Those words are so hard for them to understand. (Lily, 20 years of teaching experience, grade-three teacher)*

Moreover, it was noted that a lack of signs for English words led to selective teaching of English words. In other words, a couple of teachers believe that the availability of signs determines the English words they taught:

*It forces us to select what can fit them because many words have no signs. Even if we look for them where, you cannot find them. We do not have the current dictionary for KSL. It is big challenge because they bring editions. (Joyce, nine years teaching experience, grade-two teacher)*

Furthermore, the different signs which learners and teachers use may lead to miscommunication. To elaborate, such communication problems were linked to deaf children using different signs from those teachers used in class. As a result, the teacher

and the deaf learners do not understand each other, limiting access to information for both parties. The following statement illustrates this challenge:

*They also have their traditional signs. That is after class, so when you are signing, they are not able to follow the story, or when they are signing, you are not able to follow, so you take time when they are signing. (Lily, 20 years of teaching experience, grade-three teacher)*

Deaf children's dependency on visual mode of communication in Kenya was further suggested as another reason for communication difficulties. For instance, Luka claims that deaf learners must use vision to understand what is being communicated, unlike hearing children, who can hear without looking at the speaker. According to Luka, the attention demands regarding the use of visual skills make it difficult to instruct deaf children:

*When it comes to teaching the regular learners, even giving them instructions is easy. It is just a matter of speaking, and sometimes, even when the child is not looking at you, the child will hear your voice and follow instructions, but you see, our deaf learners, unless one is looking at you, you cannot instruct them. (Luka, 18 years of teaching experience, grade-two teacher)*

#### **5.4.3.1.2 Negative effect of KSL**

In section 5.2.1.2.1, it was noted that teachers use KSL to teach English literacy to deaf learners. This study has further revealed that some participants believe KSL causes poor writing skills in deaf children. Five out of 13 teachers (39%) claim that deaf children write using KSL structure because they cannot differentiate between KSL and English. As for the reason for the confusion between the two languages, some participants said that using KSL with English words confuses the learners because they do not notice the difference. There is a consensus among teachers of lower primary and upper primary classes concerning KSL's negative impact on deaf learners'

written English. Illustrating with an example, Nina explained that learners use KSL sentence structure more often than English structure:

*Deaf have some kind of confusion with the two languages—that is, KSL and the English language. You realise that KSL is also English, so these learners tend to confuse between the two. If a child decides to write a sentence in English like ‘this is a boy’, the child might write ‘boy this’, because they tend to go on the side of the KSL more compared to English. (Nina, seven years of teaching experience, grade-one teacher)*

Sometimes, the confusion between KSL and English occurs when one teacher teaches both languages. This happens in most schools for deaf and hearing learners in Kenya, especially in grades one through three, where all subjects are sometimes taught by one teacher. It was mentioned that learners may see the two languages as one, as they are taught by the same teacher. Concerning this, Yvonne narrates the following:

*You are teaching it (KSL) here, and the next minute, you are teaching English, and you are telling them, ‘This is how we write’. Especially for the lower primary classes, it is a challenge, because the KSL structure is totally different. So, when you teach KSL, and you come to teach English, there is a lot of confusion. (Yvonne, 20 years of teaching experience, grade-four teacher)*

Data indicates that KSL is easier for deaf children when they cannot construct English sentences. As one participant stated, this happens even when they have understood comprehension passages but cannot write the answers in English. Thus, they switch to KSL:

*Writing is very difficult for them, because they use Kenyan sign language to write. Even if you use Signed English while signing, they understand. But, when it comes to writing, it is very difficult. Now, for example, in a composition, or they are answering questions from a comprehension, if they are not picking the line directly from the comprehension, the one who understood will try to use KSL to write in English. (Grace, eight years teaching experience, grade-eight teacher)*

#### **5.4.3.2 Reading and writing problems**

This sub-theme is about issues regarding the ability of deaf children in primary schools in Kenya to read and write English as perceived by the participants. Some participants reported that deaf learners cannot construct grammatically correct English sentences or correctly spell English words, and they struggle with imaginative writing. Regarding reading, comprehension and answering questions from passages represent primary areas of concern. A total of 13 teachers (54%) raised concerns about reading and writing problems encountered by deaf learners.

##### **5.4.3.2.1 Deaf learners' challenges in writing**

Teachers stated that deaf learners cannot write from imagination. Data from this study further indicates that writing is an area in which deaf learners struggled. This information was shared by teachers from grades one through seven, suggesting that writing problem was not unique to either lower or upper primary classes and is instead characteristics of deaf learners' writing skills throughout primary school in Kenya.

Imaginative writing was identified as challenging for deaf learners by eight participants. For example, one of the teachers shared her experience of telling the deaf children in her class to write about an imaginary trip to Mombasa (a coastal town in Kenya). The children could not write, stating that they had never visited Mombasa:

*Where it requires to write anything imaginative, [it] is like their interaction is not wide. So, once they say that I (the deaf child) have never travelled to Mombasa, so, how do you expect them to write a story about Mombasa when they have never been to Mombasa? Yes, we have read the story of a family that went to Mombasa, and they stayed there one week, so I am telling them*

*try to imagine, in your own case, you travelled with your family.* (Rahab, 21 years of teaching experience, grade-five teacher)

Emily made specific reference to composition writing, an exercise which is part of assessments in English in which learners in primary schools in Kenya sometimes write imaginative stories. This is also similar in the CBC curriculum, since learners are expected to write their own stories. Emily's response confirms the challenge of creative writing:

*Composition writing, creativity, is tough for them because of the concept of imagination.* (Emily, 15 years of teaching experience, grade-four teacher)

Similarly, three teachers mentioned a lack of experiential learning for deaf children in Kenya. David explained that deaf children, in their context, cannot write about what they have not experienced or seen:

*The deaf will talk about things that they have gone through, that they have seen with their own eyes. For example, if you went with them on a tour somewhere, they would write, they will talk about what they saw, how it started, how they sat on the bus, how they started moving; they will talk about what they saw.* (David, 20 years of teaching experience, grade-eight teacher)

Here, David narrates how deaf learners can write detailed accounts of their journey, emphasising the role of experiential learning in supporting their writing.

Two participants went further to provide more information about challenges deaf children in Kenya faced in learning from their environment. This was attributed to the parents not exposing deaf children to situations that provide learning opportunities:

*Like now, if you ask the hearing child to write about the things found in a shop and how much they buy, they will tell you more than the hearing-impaired child. It is like they are not very much exposed to these activities.* (Jennifer, 21 years of teaching experience, grade-one teacher)

From another perspective, one participant related experiential learning to technology. The teacher explained that access to digital devices at home can help deaf learners use devices such as computers in school. The teacher further suggested that, even though digital devices are available in schools, the children's ability to use them remains limited due to lack of exposure at home, unlike hearing learners. This suggests that deaf children's parents provide few opportunities for learning, as indicated in the extract below:

*The learning materials like the computers, we have. They are not computer literate. You see, like the hearing children, at home, they have access to these phones; now, for our children, it is a challenge. Definitely if they are taught how to use [it], they will learn, because they are not mentally challenged, but they did not get that chance to use it. (Abby, 23 years of teaching experience, grade-five teacher)*

The teachers' responses indicated that deaf children in Kenya cannot put their thoughts on paper using grammatically correct English. From the information given by teachers, copying written text is easier for them, as this does not require deaf children to create own stories. This was apparent from the responses of three teachers, as illustrated in the following extract:

*When they are copying from the teacher, they do it perfectly. But writing a story by themselves, they do it, but use a broken language, so it is not perfect for them and just a few of them can write; others, they just write things that you cannot read. (Frida, 16 years teaching experience, grade-three teacher)*

Another participant stated:

*They are good in copying what the teachers write, but not from their own independent mind. (Anna, 16 years teaching experience, grade-three teacher)*

The other impediment in deaf learners' writing concerns spelling mistakes and not writing meaningful English sentences. A total of 11 teachers shared their concerns about deaf learners' inability to spell English words correctly or to construct logical sentences. For Sara and Jennifer (grade-one teachers) as well as Ann and Edith (grade-three teachers), writing sentences that can communicate ideas was difficult for the learners, as seen from the following response:

*The most difficult part is where they are required to construct sentences. So, you find it is hard, and even the sentences that they may write, you cannot understand what they want to say, because they use maybe one word, two words here. The words are not in the order in which they are supposed to be. So, it is very hard for the deaf children to make a sentence an English sentence. That is what I find very difficult.* (Sara, grade-one teacher)

Rahab agrees with other participants about writing issues, but added that punctuation represents another problem deaf learners encounter:

*There is a problem when it comes to using capital letters; punctuation, actually, in short, is a challenge.* (Rahab, grade-five teacher)

Teachers also added that spelling errors are common in deaf learners' written work, which contributes to poor quality in their writing. The extracts below demonstrate this issue:

*In writing, there is spelling; there is a lot of spelling mistakes in writing.* (Noah, grade-seven teacher)

This is further illustrated in the following:

*Writing words is also another problem, especially when it comes to spelling; they don't know how to spell most of the words.* (Emma, grade-four teacher)

As can be identified from the teachers' responses on writing, the main issue is about sentence construction, which results from learners' limited knowledge of the meanings of words, spelling, punctuation, sentence structure, and experiential learning.

#### **5.4.3.2.2 Challenges in reading**

Data indicates that another challenge deaf learners experience in English literacy skills concerns limited reading proficiency. Approximately 46% of participants (11 out of 24 teachers) described facing a challenge in teaching reading to deaf learners. The participants mentioned that deaf learners in their settings face limitations such as an inability to use speech and limited comprehension abilities to develop reading skills.

The data suggests that lack of access to phonology by deaf children in Kenya lead to their inability to read. More specifically, teachers perceive that deaf learners' lack of phonological skills slows their progress in acquiring literacy skills. Furthermore, five participants stated that lack of speech and hearing ability limits deaf learners' potential to learn phonology. Sara explains that, unlike hearing, deaf children who lack speech cannot separate words into sound units to help them read and write. According to her, without the letter–sound relationship, fingerspelling and signs do not fully support deaf learners in reading:

*For the hearing, first, we have the syllables, and so you can sound them, and then they join the syllables to form a word. But for the deaf, there is nothing like the syllable. You see the full word, and even when we fingerspell, the letters that you fingerspell have no meaning to them. They are just letters. So, for them, they will only see the full word, and then you sign it, but for the hearing children, when you read the syllables, they will know this sound is this, and this sound is that, and then you join them, and you make a word. (Sara, 12 years teaching experience, grade-one teacher)*

However, data indicates that even in instances where English pronunciations are taught, there is minimal success, as most learners have profound deafness and do not benefit much from auditory input. Commenting on this, one of the teachers stated that they try to help deaf children develop phonological skills, but very few of them can acquire it, as can be seen from the comment below:

*It is difficult to teach, but we just give them. The hard-of-hearing, maybe one or two will hear, but you may have  $\frac{3}{4}$  of the children who are profound. You want to teach the sounds, but  $\frac{3}{4}$  of the class will not be able to produce these sounds. (Lily, 20 years of teaching experience, grade-three teacher)*

Another participant noted that deaf children cannot read new words because they have not mastered phonology. As such, they cannot break the words into different sound units to read unfamiliar words independently. For example, one of the teachers stated the following:

*It is like memorising the words. Because they have not mastered the sounds. So that at least any other time they see words related to that one, and they can read by themselves. So, they only read the words that you have taught them. But at least, if they could be getting the sounds, maybe if it is something that is related to, maybe, /a/, if they see any other word that has the same sound, they can read. (Edith, 10 years teaching experience, grade-three teacher)*

Regarding comprehension, six teachers shared their experiences of deaf children's poor reading and understanding of the English language. Some teachers spoke of how deaf learners they teach struggled to read and understand written English. In Kenya, all passages in English textbooks are accompanied by written questions that learners attempt after reading. Teachers said that providing correct answers to comprehension questions was difficult for deaf children, as illustrated in the following extract:

*So, when it comes to answering questions, you might say as a teacher they have understood, but when it comes to answering the questions, you find that most of them find it difficult to answer the questions. (Jennifer, 21 years of teaching experience, grade-one teacher)*

One of the teachers stated that deaf children encounter words only in written forms and may not understand their meaning. As such, they draw on the previously acquired meaning of the word every time they encounter the written word. However, they cannot read the word verbally to understand how it is pronounced when the meaning of the word changes with pronunciation:

*Because I want them to understand this 'BOOK', the noun 'book', and the verb 'book'. They are spelt the same, but the sign is different. Now, the challenge comes when you want these children to read a statement, because for a hearing person, they will read 'the family had booked a hotel one week before they travelled'. That is too difficult for them. (Rahab, 21 years of teaching experience, grade-five teacher)*

The participants' data revealed that inability to identify words with two meanings may be connected to deaf learners' lack of ability to understand the meaning of words from the context and its pronunciation. In addition, teachers indicated that deaf learners in Kenya possess limited knowledge of words with multiple meanings. Other comprehension issue may arise from deaf learners' general lack of interest in reading. One participant mentioned that deaf learners lose interest when reading long sentences, which discourage them:

*During reading, you will find, even if you have gone through with them, those long sentences for the deaf, it is like the deaf will read, and then they reach a certain point, and they do not want to continue with the story, with the sentences, because it is too long for them. (Sophia, 15 years teaching experience, grade-seven teacher)*

Furthermore, as shared by Abby, deaf children's poor comprehension skills could be due to limited vocabulary. She added that knowing only the signs for written words and not the meaning hindered understanding:

*The challenge is to understand what they have learnt. For example, you might give a sign; yes, they get the sign, but then they do not understand the meaning of that sign. So, they have the vocabulary, but the meaning, they may not have. (Abby, 23 years teaching experience, grade-five teacher)*

In addition to signs, deaf children lack other skills that aid their understanding, such as fingerspelling. In the evidence presented below, the teacher demonstrates how deaf learners could remember the sign of the word she taught earlier, but they could neither tell its meaning nor fingerspell the word. Relating the written word, the sign, and the meaning remained problematic for the children:

*Let me show you an example (teacher calls one learner, a girl): 'What is this?' (Showing a mobile phone and asking three other learners for the sign and to fingerspell, the children signed the word). You see, now that is it. They know the sign, and if you tell them to fingerspell, they cannot. Even if you write this word here, they cannot tell what word it is; they can sign, but cannot fingerspell, and they cannot guess the meaning of the word. They have a problem in comprehension. (Anna, 16 years of teaching of experience, grade-three teacher)*

What can be concluded from the evidence above is that comprehension problems resulted from learners' incompetency in understanding the meanings of English words. In addition, guessing the meaning of words from context was problematic for them, as well.

#### 5.4.4 Valuing the available support

According to this study, teachers reported a positive experience in teaching English literacy to deaf children in primary schools in Kenya. Teachers appreciate the support provided by the government, schools, and their colleagues. The data from 13 out of 24 participants specifically indicated that they valued the efforts made by the government and the schools to enhance their ability to provide effective instructions.

Still other teachers reported receiving support from schools, such as by enabling them to meet and share experiences and solutions to problems they encounter in teaching. For example, through subject panel meetings, teachers of English language meet and discuss instructional issues. One teacher described how they talked and generated solutions to teaching English. This indicates that teachers discussed challenges and collectively identified solutions as facilitated by the school administration:

*We have subject panels where we sit down and try to get the approaches of teaching English, and we help each other in that panel as a group. (Joyce, 9 years of teaching experience, grade-two teacher)*

Different schools sometimes meet and organise training focussed on instructional techniques. This practice was meant to contribute to effective teaching practices and eventually improve learners' English performance in examinations. Regarding such arrangements, one participant stated the following:

*In the zone in English language, we performed well in KCPE (national examinations in grade eight). We were given a refresher course on how to teach English. They organise, like call these publishers to come and teach the teachers. (Sophia, Upendo School)*

Teachers also mentioned receiving individual support from headteachers in terms of advice on instruction. This support by headteachers, such as listening to issues raised by teachers and trying to solve them, was considered by one teacher as a remedy to challenges she encountered in teaching English. This is clear from the teacher's statement below:

*One time, I visited the headteacher. Then, we sat and discussed, and he told me, 'You are the teacher in your class. You do what you think is the best for the child and let me know'. (Emily, Upendo School)*

Four teachers described requesting support from their colleagues. For example, if a teacher encountered a problem in teaching, they consult others, who can advise accordingly. Teachers also recognised and depended on each other's expertise; for instance, those who are not proficient in sign language ask others for the signs for English words. Grace further mentioned asking for help with comprehension when she encounters scientific concepts in comprehension, while Lily requests to be shown signs of English words:

*When you are not sure of a sign, you go to your colleagues. Sometimes, it is not in the dictionary; they are still developing the dictionary. So, you ask your friend, 'How do you sign this?' And that way, we help one another; like now, I know a teacher who is an expert in KSL whom I call, and he/she assists me. (Lily, 20 years of teaching experience, grade-three teacher)*

Teachers such as Luka, Frida, and Yvonne also seek support from one another in preparing teaching and learning materials. In this way, working together with other teachers made it easier for those who are not able to manage on their own:

*Sometimes, you may think of something you want to use with your learners; maybe it is available, but you may not have the knowledge or that knowhow because you are not knowledgeable in that area. But in that case, usually, you*

*go to your colleague who you think can be of help to you. Then, you ask for assistance.* (Luka, 18 years teaching experience, grade-two teacher)

In response to the question on resources and what may be hindering teachers in using a particular resource, Yvonne discussed the computers that are available in her school and how some teachers may lack knowledge regarding how to use them. However, she added that they usually assisted one another so that teachers do not miss teaching a lesson due to lack of knowledge of using a resource:

*There are teachers who are not able to. They are English language teachers, but they are not able to do it. So, like helping one another where you are co-teaching, you may have a teacher who may not know how to go about it; you ask for assistance from other teachers, and you are assisted to deliver that lesson.* (Yvonne, Msingi Bora School)

The government's efforts were also identified as one support measure that teachers appreciate. Some teachers mentioned having attended training sessions and stated how it contributed to their acquisition of knowledge. Two teachers specifically mentioned attending the new curriculum implementation workshops:

*We have training and being taught how to teach this new curriculum, syllabus.* (Evelyn, Upendo School)

Continuing, the participants acknowledged other areas of support from the government, as well. For instance, the provision of resources such as computers and textbooks were mentioned in efforts to stress the availability of resources in school. Six teachers in particular reported appreciating the fact that the government has provided computers and projectors to schools. In response to the question on resources and their availability, Yvonne stated the following:

*We have a projector ourselves. We are lucky we have a computer lab.*  
(Yvonne, Msingi Bora school)

Teacher Lily further demonstrated that, since the computers are available in her school, she was able to go with the learners to the computer room and teach them from there so that they could access the information. This illustrates the availability of resources in schools and how these resources boost teachers' instructional practices. The teacher also mentioned that the learners were able to understand the lesson, demonstrating how useful she felt the resources were and how its availability improved her teaching, as illustrated in the response below:

*Like now, yesterday, I went to the computer lab for them to see, and they were able to understand. They were able to watch, and when they were watching, they really enjoyed.* (Lily, grade-three teacher)

Teachers also discussed textbooks and other materials they needed for preparation of additional learning resources. The teachers' information revealed that resources such as charts and textbooks are readily available in schools, and teachers and learners can access and use them. The textbooks are also sufficient for the learners. Emily's response below clearly indicates this:

*We have the alphabet charts, pocket charts; we have textbooks, and thank God, at least the books are enough. As least every learner has a book.* (Emily, Msingi Bora School)

According to Ruth, the school provides relevant charts for the teachers' use in addition to those they prepare for their lessons:

*We can use charts that we draw. We use charts that are bought by the school that are relevant to our class and to the subject.* (Ruth, Elimu School)

Florence's response to the question of whether it was difficult to receive resources also indicated that textbooks comprised a resource that they did not need to worry about:

*We cannot say textbooks, textbooks are there, available.* (Florence, Bidii School)

In addition to the pre-prepared charts that Emily explained were provided by the school, there is also a supply of materials that teachers require to prepare charts and other learning aids. This ensures that teachers can easily prepare the teaching aids for their lessons if such is needed:

*Availability of resources—the charts, the felt pens—are provided by the school.* (Florence, Bidii School)

Six of the study schools featured computer rooms with several computers installed by the government. The learners used textbooks in some classes during the lessons. The computers and textbooks available in schools indicate the government's support.

Parent-teacher collaboration represents another support mechanism that teachers perceive as useful, especially with the need to improvise and use the locally available resources as stated in the curriculum designs. For one of the participants, asking parents to provide some of the resources makes it easier to improvise:

*The government is encouraging us to improvise. They are locally available, and with the help of our parents, maybe I am teaching a certain topic, and I identify this term. I might use this or that. I involve the parents, and they provide for us.* (Joyce, grade-two teacher)

The teachers' narrative in this theme reflects their view concerning how they are supported at the school level by both school administration as well as their colleagues. Furthermore, the availing of resources by the government, parents, and colleagues was also reported as making the teachers' work easier.

While investigating teachers' experiences in this study, the participants suggested ways in which teaching of English literacy skills to deaf children in Kenya can be enhanced. The following subsection highlights some such adaptations suggested by the teachers.

#### **5.4.5 Suggested adaptations**

While sharing their experiences, teachers felt the need to adapt how English language is taught to deaf children in Kenya. In this matter, 11 out of 25 (46%) teachers believed that it would be beneficial if some adaptations were made.

##### **5.4.5.1 Reduce curriculum content.**

Some participants (6 out of the 11 teachers who suggested adaptations) recommended shortening comprehension stories for deaf learners. Luka identified language barriers as one limitation for deaf learners' understanding if they read the same passage as hearing learners. Here, he drew on his experiences teaching hearing children and described differences in how hearing and deaf children are taught. Accordingly, he mentioned using his own words to shorten stories for deaf children to understand:

*For our deaf learners, it is a bit different. The way we approach the lesson is different from the regular. The books we use are the same as that used in regular schools for regular learners. The passage could be very much okay for*

*them (hearing children), but for HI learners, it is a bit different; because of the language barrier, they may not be able to comprehend. (Luka, 18 years teaching experience, grade-two teacher)*

For three teachers, long written stories lead to boredom, thus demotivating the deaf learners. This means that deaf children lose interest when they encounter long texts:

*Like this story is very long for them; they need adaptation. A short story, short, clear story like this story, is very long for the deaf when they read the first part. They are bored. (Anna, 16 years of teaching experience, grade-three teacher)*

While suggesting shorter passages to avoid boredom among deaf children, Sophia added that the choice of words employed in stories also represents an area of concern. She suggested that the English words that are currently used are difficult for deaf learners to understand, as can be seen from her response:

*I think the choice of the words in the stories is a concern, and also, give them short stories, not these long ones that they read and get bored in the middle. (Sophia, 15 years of teaching experience, grade-seven teacher)*

While advocating for shorter sentences for deaf children, Sara added that deaf children are less likely to comprehend longer stories. In response, she suggested a need to focus on how much the learners can understand rather than on the length of the passage they read each time:

*If they can do simpler sentences, and the workload should not be so much, because sometimes, you get a story which is a full page or two pages. By the time they read the whole of it, they are tired. It is better for them to read a smaller section and be able to understand it than giving them a long story. (Sara, 12 years teaching experience, grade-one teacher)*

The evidence from these four teachers thus implies that they believe that the length of the stories, the words, and the language level negatively influence deaf learners' ability to understand written English. Two other participants added that the pace at which deaf children learn differs from that of hearing children. As such, this indicates a need to provide less learning material to deaf learners:

*What we require in teaching the deaf is their syllabus content to be minimised, because what the regular school learners can cover in a week or a day, a deaf child can cover in two weeks. (Frida, 16 years teaching experience, grade-three teacher)*

The evidence presented above thereby reveals that teachers believe the amount of information in a lesson can influence deaf children's understanding in their context, and adjusting this to fit the deaf learners' needs may prove beneficial.

#### **5.4.5.2 Inclusion of visualization techniques in resources**

Another suggestion is to include visual techniques in resources for deaf learners. One teacher stated that either KSL or Signed English captions should be included in videos. The participant suggested that such captions help deaf learners make sense of the information:

*We can have something like a video that is recorded, whereby you just play it there, and alongside, there are captions in sign, whether it may be in signed English or Kenyan sign language, explaining what is being displayed there. (Henry, 11 years of teaching experience, grade-seven teacher)*

Four teachers further suggested including pictures in textbooks for deaf children. Anna, for instance, mentioned that deaf children are better able to identify ideas in pictures

than to understand information from text. Pictures are said to captivate the deaf learners and help them visually access information easily, unlike the print version:

*They have a problem with comprehension. What they are very good at is picture reading and making prediction. Now, this picture, if it is there, even the hidden word that you may not know, they will tell you. They know everything they see in it. But the same picture, come and put it into writing, and tell them to read; they will not know. (Anna, 16 years of teaching experience, grade-three teacher)*

For Frida, simple English sentences can be accompanied by pictures to help deaf learners acquire concepts in addition to limiting the number of written words deaf children encounter:

*Those who adapt these books let them use pictures mostly to explain a certain topic and write very short or very few sentences. (Frida, 16 years of teaching experience, grade-three teacher)*

It was further suggested to use signs and text together to enhance deaf learners' understanding of English words and concepts. One participant compared this suggestion to how the KSL textbook features words and signs, claiming that this is the reason deaf learners pass more in KSL exams than English. The teacher assumes that signs provide deaf learners with the ability to connect the signs with written words, and thus boost their understanding:

*There is no sign like the way the book for KSL is, so it is easy for them (deaf children) to understand this than English (Teacher shows the Kenyan sign language textbook book). They understand better. That is why they pass in KSL and English; they fail, but KSL, they pass very well. (Rael, five years teaching experience, grade-one teacher)*

Furthermore, Abby added that signs can be included in storybooks for deaf children. The teacher believed that signs combined with text will improve their understanding and help them develop an interest in reading, even on their own:

*You know, if they had, like, the storybooks translated in signs. Simple story books. You write a story book, and then it has signs. You know, they can look and understand. They can read and practice reading, just the way a normal child will go pick a storybook and read. (Abby, 23 years teaching experience, grade-five teacher)*

The findings in this section have thus illustrated the experiences of teachers of English in primary schools for deaf learners in Kenya. The participants reported more negative experiences than positive ones. The teachers perceive that these barriers arise from the mode of communication employed by deaf learners and similar curricula for deaf and hearing children. Teachers' inadequate knowledge of instructional approaches represented another shared experience.

In addition, participants felt that learners in their context face challenges in developing proficiency in reading and writing due to hearing loss. Teachers also noted that limited proficiency in sign language by deaf learners and teachers makes it difficult to teach English. Furthermore, the structure of KSL and use of signs with English words were some issues identified as causes of deaf children's writing problems. However, teachers also appreciate the support they receive from the government, the school, and their colleagues. The participants' suggestions regarding ways in which English language can be better taught to deaf children in Kenya were also discussed.

## **5.5 Chapter conclusion**

This chapter has presented the findings from this study's investigation into how English literacy skills are taught to deaf learners in primary schools in Kenya and linked these findings to the research questions. The study's findings have accordingly demonstrated how teachers provide instructions to help deaf learners develop skills necessary for reading and writing and support them in overcoming barriers arising from hearing loss. The findings also revealed that some teachers' instructional approaches hinder the necessary interactions during the teaching and learning process, thus limiting the mediation of deaf learners' acquisition of literacy skills.

The teachers' use of visual resources that targeted improvement of learners' ability to gain literacy skills was noted in this analysis. In addition, it was noted that use of visual resources focussed on promoting understanding and exposure to English text, thus playing a key mediational role. However, the teachers' experiences also revealed issue concerning instructional knowledge, curriculum and resources, and deaf learners' ability in their context. Teachers in the study valued support they received and stated how this helps them cope with certain instructional challenges.

Having presented the findings from the data analysis in this chapter, the following chapter discusses the main findings, which are linked to relevant literature and the theoretical framework adopted in this study.

## **CHAPTER 6: DISCUSSION**

### **6.1 Introduction**

In the last chapter, I presented the findings from the data analysis. With this established, the current chapter reports the key findings to illustrate how the research questions have been answered. This introduction section begins by restating the aim of this study and the research questions to link the findings to the focus of the study. This is followed by a recap of the study's context and methodology to place the findings within the context and demonstrate the process that led to the development of findings presented here.

I discuss each research question separately by linking them to the three elements of SCT (scaffolding, ZPD, and mediation). Additionally, I refer to previous literature concerning deaf learners and literacy to identify similar or contrasting findings as well as literature that supports the current findings. The chapter is organised as illustrated below:

- In section 6.2, I address question one, which concerns instructional practices used to teach English literacy skills in primary schools for the deaf in Kenya.
- In section 6.3, I discuss question two, which is concerned with the resources used in English literacy lessons in primary schools for the deaf in Kenya.
- In section 6.4, I discuss the findings to question three, which explores teachers' experiences of teaching English literacy skills to deaf learners in primary schools Kenya.
- Lastly, in section 6.5, I summarise the chapter.

This study aims to understand how English literacy skills are taught to deaf children in primary schools in Kenya. To this end, this thesis has explored practices and resources employed in teaching English reading and writing to deaf learners in primary schools in Kenya. Furthermore, teachers' experiences were also investigated.

In the literature review chapter, I presented the following research questions, which are addressed in this chapter by identifying the findings relating to each of them:

- What instructional practices are used in teaching English literacy skills to deaf children in primary schools in Kenya?
- What teaching and learning materials are used in teaching English literacy skills to deaf children in primary schools in Kenya, and what role do they play?
- What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?

As illustrated in the contextual background chapter, most deaf children in Kenya are enrolled in residential primary schools, and most do not use hearing devices. In addition, the background chapter demonstrated that KSL is the mode of communication most used by deaf learners. The fact that English is taught as a second language in primary school in Kenya was also identified.

To address the research questions and achieve the aim of this study, I utilised three data collection methods to gather qualitative data. The study took place in seven residential primary schools in Central and Eastern regions of Kenya. A total of 24 teachers participated in the semi-structured interview. Additionally, I observed eight English lessons and collected relevant documents to supplement interview data. I

analysed the data following the six steps of reflexive thematic analysis (Braun and Clarke, 2022), the findings of which are presented in chapter five.

The following discusses the main findings regarding the three research questions that were reiterated in this section.

## **6.2 What instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya?**

Section 5.2 indicates that teachers employed several instructional practices. The evidence further suggests that, through these practices, teachers ensured deaf learners acquired psychological tools such as phonology to help them perform reading and writing activities (Kao, 2010). The following sub-sections discuss these practices in greater detail.

### **6.2.1 Supporting learners' development of foundation skills**

This finding concerns teachers' practices that ensured deaf learners were presented with opportunities for developing skills useful for literacy acquisition. Here, it was noted that teachers taught sub-skills that targeted mediation of learners' development of literacy skills. In addition, as a tool for translanguageing, the teachers employed spoken language, SEE and KSL. The next section provides a detailed discussion.

#### **6.2.1.1 Focus on different language components**

This sub-section considers how teachers provided direct instruction in sub-skills that learners could employ in literacy activities, as well as how teachers modified their practices to teach these sub-skills. The key issue here is that teachers attempted to

provide tools necessary for mediating learners' proficiency in reading and writing. The textbooks and curriculum design has established the sub-skills to be taught in literacy lessons. Teachers promoted the acquisition of phonology, English vocabulary, and spelling as psychological tools to mediate learning (Kozulin, 2003). In so doing, teachers sought to guide learners in internalising and using these tools for reading and writing. One foundational skill that was explicitly taught to deaf learners in this study is phonology, which is defined as the sound systems of speech in spoken languages (Wang et al., 2008). The teachers considered phonology to be a skill that contributes to reading and writing and which needed to be acquired by deaf learners, thus teaching this skill in English lessons.

The teachers targeted learners' use of phonology as a tool to mediate their mental process of participating in literacy activities (Lantolf, 2006). For instance, teachers demonstrated the letter–sound correspondence using manual alphabets and letter cards to help learners master speech sounds for use in reading and writing. This resembles findings in classrooms where deaf learners primarily use sign language and teachers taught using manual alphabets to teach speech sounds (Siima, 2010).

The manual alphabets and letter cards could offer a means of compensating for the lack of access to speech experienced by learners with profound hearing loss. It is known that phonological skills have contributed to success in deaf children's reading ability (Wang et al., 2008, Kyle and Harris, 2011, Wang et al., 2013), and deaf children can acquire phonological skills through visual strategies (Wang et al., 2008). Therefore, the teachers' emphasis on phonological skills can be considered worthwhile for deaf learners' development of English literacy skills.

However, deaf children in some of these previous studies use hearing devices and phonological awareness skills were taught via visual phonics (Kyle and Harris, 2011, Wang et al., 2013). In turn, this may have contributed to the success of learners' development of phonological skills. By contrast, the deaf children in this study lack hearing devices, and there is no use of visual phonics by teachers. This suggests that teachers in this study need to consider additional visual pathways of teaching phonology, such as using visual phonics to effectively support literacy skills acquisition. There may also be need for supporting deaf learners access to hearing devices to maximise the benefit from use of visual phonics.

The adapted curriculum design, textbooks, and teachers' focus on teaching phonology are intended to support deaf learners in acquiring and using speech sounds to read and write. The teaching of phonology in this study was evident through approaches employed by teachers of grade one through eight learners and is further supported by results from previous empirical studies demonstrating the benefits of phonology for deaf children of varying ages, such as kindergarten through grade three (Narr, 2008) as well as adolescent deaf learners (Dyer et al., 2003). In writing, it is important for deaf children to access the phonology of the language they are learning to write (Leybaert and Lechat, 2001, Charlier and Leybaert, 2000). In this way, the phonological skills taught by teachers in this study can be said to be appropriate for helping deaf learners attain literacy skills.

However, as mentioned earlier, and as can be identified from the literature review chapter, most deaf learners need access to speech and use visual phonics to acquire

spoken language phonology. This may be difficult for most deaf learners in Kenya, as they do not use audiological devices and do not receive instructions in visual phonics. Therefore, it can be argued that verbal teaching of phonology in this study may not contribute to sufficient auditory access to English phonology by profound deaf learners. That said, teachers' efforts can benefit the hard-of-hearing learners who are able to access some auditory input.

English vocabulary represents another sub-skill of English literacy taught to deaf learners in this study, as illustrated in section 5.2.1.1.2. In addition to teaching the meaning of new words before reading lessons, teachers across all levels of primary grades reviewed meanings of English vocabulary before learners read comprehension passages. Teachers explained that deaf learners needed to comprehend the meaning of novel words used in passages. To this end, teachers strove to ensure deaf learners understand vocabulary and information in the passages to be able to answer comprehension questions. This is in line with previous studies' results illustrating improved comprehension of written language by deaf learners following vocabulary instruction (Alasim and Alqraini, 2020, Zhao et al., 2019). Furthermore, this finding also confirms previous practices of teaching literacy skills to deaf learners that focussed on equipping learners with vocabulary knowledge regarding the language they are being taught to read and write (Donne and Zigmond, 2008, Wang and Andrews, 2017, Alasim and Alqraini, 2020).

Since vocabulary knowledge comprises a skill that influences children's ability to recognise meanings of words or sentences (Breadmore et al., 2019), the teachers'

efforts to teach vocabulary in this study could enhance learners' understanding of English sentences and improve their written language. In addition, this practice is also comparable with the literature review section 3.7, which indicated that both deaf and hearing children's performance in reading and writing is influenced by their knowledge of English vocabulary. The only issue noted in this study concerning vocabulary teaching relates to a lack of sufficient time for deaf learners to practice the use of vocabulary. Nevertheless, with the approaches employed by teachers in this study, deaf learners can gain print knowledge of English vocabulary by matching signs with written English words.

Another skill the teachers in this study perceived as important for reading and writing is spelling. Accordingly, findings revealed that teachers categorically taught spelling to deaf learners. The objective in doing so was for deaf learners to use spelling as a tool for reading, writing, and remembering the meaning of previously learned words. This finding matches the study by Wang and Andrews (2017), where teachers of grade two deaf learners taught spelling using variety of methods, including fingerspelling. Explicit teaching of spelling further matches suggestions that knowledge of spelling aids deaf learners in writing, as they rely more on morphology in spelling plural nouns than hearing children of same reading age, who instead rely on their knowledge of phonology as well as morphology (Breadmore et al., 2012).

By providing instruction in phonology, spelling, and English vocabulary, the teachers ensured that deaf learners acquired the relevant sub-skills to advance the development of their literacy skills. As stated in section 4.4.1 in SCT, tools mediate instructional

activities at social and individual levels. Accordingly, teachers availed tools that include phonological skills, spelling, and English vocabulary to mediate deaf learners' reading and writing. In turn, the teachers expected learners to use these tools in individual reading and writing exercises, such as reading passages, writing stories, and answering written questions from the passages. Furthermore, these same skills were expected to mediate learning at the social level as deaf learners discussed the information from pictures or passages with others as they could use the vocabulary, spell, or read the English words during discussion.

However, given the context of this study, it was also noted that the teaching of the skills mentioned above, as well as learners' ability to acquire and utilise them as mediational tools, depended on the extent to which teachers adapted their instructional practices. The teachers reported that their students can be categorised into hard-of-hearing (mild to moderate hearing loss) and profoundly deaf learners. Therefore, they needed to vary their instructional practices to ensure that all learners benefited. The following section discusses how teachers diversified their practices to increase learners' access to the foundation skills.

#### **6.2.1.2 Differentiated instruction.**

It has been stated that, in order to effectively teach deaf students, educators must remain aware of and accommodate the learners' unique needs in education (Knoors and Marschark, 2015). For this reason, the curriculum design expects teachers to use methods that can meet the students' needs in their classroom (KICD, 2018b). The

following sub-sections illustrate how the teachers in this study differentiated their instruction accordingly.

#### **6.2.1.2.1 Verbal presentation of phonology**

Along with equipping learners with prerequisite skills useful for reading and writing, as indicated above, it was also noted that teachers considered how they taught phonology to learners with varying degrees of hearing loss so as to ensure all could access this skill. For example, the teachers verbally taught phonology to hard-of-hearing learners. This is in accordance with literature claiming that deaf learners with access to speech use phonology in reading (Dyer et al., 2003) and writing (Herrera-Marmolejo et al., 2020).

Moreover, deaf learners with functional hearing develop phonological awareness skills because they can access the sound system of the language (Easterbrooks and Stephenson, 2012). The teachers' practices align with this proposition, because they reported that grapheme–phoneme representations were taught verbally to the hard-of-hearing, as noted in section 5.2.1.1.1. However, it was also observed in the lessons that hard-of-hearing learners were never asked to practice phonemes by verbally reading out words or sentences. It may be that either there were no hard-of-hearing learners in those specific classes, or the teachers may not be encouraging hard-of-hearing learners to verbalise English phonology, which can deny such learners the opportunity to learn and use phonology. In fact, the curriculum expects hard-of-hearing learners to say or pronounce the speech sounds, which appeared to be missing from the focus of teachers in this study.

Considering deaf learners with limited functional hearing in this study, the teachers provided alternative formats such as lip-reading to help them visually identify letter–sound relationships. This finding is in line with literature suggesting that deaf children without functional hearing require optional means to access phonology, unlike those who can access spoken language (Wang et al., 2008). One such optional method is lip-reading, where deaf learners are taught the grapheme–phoneme relationship and the shape of the lips (Easterbrooks and Beal-Alvarez, 2013), as was taught in this study. In this way, teachers employed differentiated instructions for learners with varying degrees of hearing loss to help them acquire sound knowledge of English and to use this as a tool to undertake reading and writing.

When teaching lip-reading, the phonological ability of severe and profoundly deaf teenagers without CIs and who used Sign Supported English (SSE) and BSL was a predictive factor in their reading ability (Dyer et al., 2003). It was noted that most errors by deaf teenagers consisted of words that had phonological resemblance to the target word (Dyer et al., 2003). As such, it was argued that the deaf teenagers may have successfully utilised phonological approaches such as lip-reading and fingerspelling (Dyer et al., 2003). Therefore, considering the findings from the study by Dyer et al. (2003), access to visual phonology may increase deaf learners' chances of developing sound systems of English. Accordingly, by teaching lip-reading skills, the participants employed a differentiated means of presenting phonological content of English lessons to deaf learners as provided for in the curriculum (KICD, 2018b).

Additionally, from the sociocultural perspective of language teaching, this practice demonstrates teachers' awareness of the importance of visual presentation of speech sounds as a tool to support deaf learners in developing reading and writing skills (Kozulin, 2003). In this case, lip-reading can be internalised and used to mediate reading and learning at the individual level (Lantolf, 2006) since the learners can use it to read what others say or recall letter sounds by associating them with the shape of one's lips when reading or writing. The practice also affirms that teachers believed in using instructional approaches such as lip-reading as a mediating tool to aid learners' acquisition of phonology through non-auditory means. However, similar lip movement of some speech sounds and lack of ability to hear represents a barrier to most deaf children (Adi et al., 2017), as may be the case in this context. Therefore, the effectiveness of lip-reading for acquiring literacy skills may be minimal for deaf learners in this study. Furthermore, this indicates that learners who can benefit from hearing devices may need to acquire these devices to benefit from lip-reading.

Continuing, it was noted that variation of instructional strategies in the current study remained limited to verbal presentation of letter-sounds to facilitate lip-reading for all deaf learners as well as auditory input for those with residual hearing. However, some visual approaches used in contexts with similar populations of deaf children vary from those employed by teachers in this study. Deaf children have been taught phonological skills using visual phonics to supplement curriculum that focusses on phonics (Trezek and Wang, 2006, Tucci and Easterbrooks, 2015), and deaf children without functional hearing acquired all the taught letter-sound correspondence in an intervention study that incorporated visual phonics (Tucci and Easterbrooks, 2015). This indicates that

verbally teaching phonological skills to deaf learners in this study needs to be accompanied by visual means of presenting the speech sounds.

Furthermore, enhanced development of phonological skills was noted among deaf learners when instructional activities were accompanied by visual phonics (Trezek and Wang, 2006, Syverud et al., 2009, Beal-Alvarez et al., 2012). Accordingly, teachers are expected to understand their students' ability to access auditory input and plan to modify teaching approaches, including integrating visual phonological techniques to teach auditory phonological skills (Allman et al., 2019). This makes visual-based phonology a vital component of teaching phonological skills to deaf learners, which was not fully exploited by the teachers in this study through use of visual phonics. However, it is important to note that no visual phonics system has been developed or used in Kenya, which explains the absence of its use by teachers in this study. It can also be argued that contextual differences between Kenya and developed countries, such as the availability of tools like visual phonics, contributed to this absence in deaf learners' classrooms in Kenya.

Nevertheless, teachers in this study opted for visual techniques such as lip-reading, with which they are conversant, and omitted visual phonics from their practices, which can be linked to its unavailability. Similar results were reported by a previous study in a school for the deaf in Uganda. Here, it was noted that, while teaching phonology in English, teachers failed to exploit the visual skills of deaf learners who use Ugandan Sign Language (Siima, 2010). The studies from developed and developing countries

cited here further suggest that contextual differences can dictate instructional practices and the realisation of different outcomes in deaf learners' reading and writing abilities.

#### **6.2.1.2.2 Use of fingerspelling and signs**

Another finding of this study indicates that teachers employed visual ways of representing letters of the English alphabet, written words, and sentences. Fingerspelling and signs were identified as techniques utilised in most classes. Teachers' use of fingerspelling remained consistent regardless of whether they possessed a few or many years of teaching experience in schools for the deaf. In turn, this suggests that teachers understand benefit of visual input and plan to use deaf learners' visual skills. To this end, participants employed fingerspelling to mediate their knowledge of manually spelling English words and to visually decode written words, especially those without signs. Teachers and learners also used signs and fingerspelling for reading print to substitute for deaf learners' lack of speech.

This practice is supported by findings from the literature demonstrating the use of fingerspelling by learners with hearing loss and its accompanying benefits (Puente et al., 2006, Mounty et al., 2014). For instance, it has been observed that skilled deaf readers recognise fingerspelled words and can identify logos and dactylic words using fingerspelling (Puente et al., 2006) while parents of deaf proficient readers exploited fingerspelling to help the deaf children recognise the distinct parts of written words (Mounty et al., 2014). Additionally, deaf children used fingerspelling to boost their memory used fingerspelling as decoding and encoding mechanisms for remembering written English words and sentences (Roos, 2013, Williams and Mayer, 2015).

From this, it can be concluded that fingerspelling as used in this study can contribute to deaf learners' identification of written words and encoding. As a tool that mediated their encoding and decoding abilities, deaf learners in this study could fingerspell previously learned words in response to teachers' questions and were able to provide signs for the words fingerspelled by teachers.

The teachers in this study additionally relied on how fingerspelling displays letters via handshapes and considered how deaf children can visually access information regarding letters-sounds and written forms of whole words, thus enhancing their encoding and decoding ability. A similar finding concerning teachers' use of fingerspelling was observed in reading lessons with deaf children in China, where fingerspelling was employed to represent each sound of Pinyin language characters (Jones, 2013).

In this study, teachers used fingerspelling as a tool with learners at all levels of primary school. It has further been stated that early and frequent exposure to fingerspelling supports deaf children's development of reading skills (Stone et al., 2015). However, this may be a barrier in this study, as some deaf learners do not recognise letters in pre-primary classes according to certain teachers. Despite this challenge in grades one through three, all teachers employed fingerspelling and other techniques drawn from KSL during the literacy lessons. This is congruent with the practice of teachers reported by Padden and Ramsey (2000). In their study, teachers in public and residential schools for the deaf (where children used sign language) frequently used fingerspelling and chaining.

As mentioned earlier, young deaf learners possessed limited knowledge of manual alphabets in this study. Accordingly, the use of fingerspelling may prove more beneficial to deaf learners in grades four through six, as they may have gained proficiency in sign language and fingerspelling due to exposure to KSL from grade one. It is also possible that lack of exposure to fingerspelling among younger deaf learners in this study may compromise their ability to develop early literacy skills. In fact, the literature has indicated that pre-kindergarten deaf children's knowledge of skills such as letter-knowledge influences their reading fluency in elementary grade (section 3.7.1). In turn, this implies that PP1 and PP2 learners in this study may be at a disadvantage when learning reading and writing in the future as they progress to grade one.

Findings further reveal that teachers used signs to activate deaf learners' sense of vision, much like the purpose of fingerspelling. Specifically, teachers in the current study mentioned using chaining, which connects signed, fingerspelled, and written words (Padden and Ramsey, 2000). Signs for written words were used to read vocabulary, sentences, and comprehension passages. This was deemed favourable for deaf children in a previous study, where they used sign language and learned English as second language (Staden, 2013), which is similar to the context of this study. In previous research, the reading scores of profoundly deaf learners in South Africa improved after implementation of an intervention that included matching signs and prints combined with fingerspelling (Staden, 2013).

In the current study, signs were mapped on written words to help deaf children comprehend the meanings of English words and sentences. However, mapping one-

to-one signs to written words does not effectively enhance comprehension of written English for deaf children who use sign language (Padden and Ramsey, 2000). Instead, understanding can be improved by translating the English text into signs that are not an exact match (Padden and Ramsey, 2000) and scaffolding by summarising using sign language, predicting, and visualising (Staden, 2013). These studies suggest that use of signs can benefit signing deaf learners if they are utilised in ways that support comprehension, which is not fully applied in this study. Nonetheless, for single words in print, deaf signing learners can benefit from chaining, as demonstrated by Staden (2013). This is applicable to deaf children in the current study and supports the mechanism of signing English words by the teachers. Related to this, it was noted that signs and fingerspelling techniques were employed to teach the meaning and spelling of English words across all primary-level grades of deaf learners.

### **6.2.2 Modes of instruction**

Different modes of communication can be considered tools for mediation in instruction. The findings from this study determined that teachers' use of different modes of instruction improved the quality of communication during lessons. These various modes of instruction included spoken language, KSL, and SEE. It can be argued that this approach aimed to bridge the communication gap and mediate deaf students' learning. In this way, teachers employed different modes of instruction that enabled them to use language as a tool for mediation through translanguaging.

### **6.2.2.1 Mediating through spoken language**

As illustrated in section 4.4.2.1, mediation represents an important part of instruction in language lessons and can take different forms, including language. Translanguaging thus allowed teachers to use other languages in combination with English to mediate literacy learning. Accordingly, this study revealed that teachers used spoken language to mediate so that learners could access the content being presented. For instance, teachers used Kiswahili words and short phrases to ask oral questions or elaborate on English concepts. This supports similar evidence where a different spoken language from English was utilised in classes of deaf learners. In a study by (Bedoin, 2011), for example, the teachers and deaf students used spoken French in English lessons.

In the current study, the teachers' choice of Kiswahili out of the many spoken languages in Kenya may be guided by their belief in deaf children's ability to hear (hard-of-hearing) or lip-read (all learners) Kiswahili better than English. This is because Kiswahili is one of Kenya's national languages (Mwaniki, 2017). The teachers' assumption is that Kiswahili is the spoken language that they share with hard-of-hearing learners, corroborating findings by (Bedoin, 2011), where the deaf students as well as the teachers were proficient in French, and so this language was used during the lessons to explain English concepts.

In this study, the teachers' choice of Kiswahili may support effective mediation for the hard-of-hearing children and allow teachers to talk about English in another language. This approach was deemed effective for the hard-of-hearing learners in this study, as they understood the information provided by the teachers in Kiswahili and responded

in sign language. Therefore, it can be stated that, for the hard-of-hearing learners in this study, spoken language mediated learners' understanding of English concepts. This finding is congruent with reviews from Kenya regarding language and literacy (Muthwii, 2004, Commeyras and Inyega, 2007) as well as findings by studies in mainstream primary schools in which Kiswahili and other local languages were employed as communication tools in English lessons (Dubeck et al., 2012, Dhillon and Wanjiru, 2013). In addition, other languages were assumed to boost the understanding of learners who would not benefit from materials presented in English (Dhillon and Wanjiru, 2013).

Similar findings were reported in schools for deaf learners in Kenya, where teachers used Kiswahili and Dholuo (a local language spoken in Kenya) to repeat explanations of concepts following the same in English (Ogada et al., 2014). However, differences exist between this study and those with similar findings that may influence the level of success from using spoken language in this study. For instance, the study by Bedoin (2011) included deaf learners who had acquired spoken French and could access spoken language, while other studies focussed on classes of hearing learners in Kenya who were proficient in local and Kiswahili languages, just like their teachers (Dubeck et al., 2012, Dhillon and Wanjiru, 2013, Commeyras and Inyega, 2007). Therefore, effective use of Kiswahili to mediate deaf learners' comprehension of English language may prove difficult, especially for those who are profoundly deaf.

Congruent with translanguaging observed in this study, teachers of the deaf look for alternative methods of successfully communicating information using multiple means

of communication (Mohanty and Mishra, 2020). As noted earlier in this section, the participants strove to bridge the communication gap resulting from deaf learners' inadequate proficiency in English by switching between sign and spoken language that they perceive to be familiar to deaf learners. The findings suggest that translanguaging provides a mediating tool for hard-of-hearing learners in this study, as it presents them with opportunities to access and comprehend written English. This happens as teachers identify and use suitable techniques to present the concepts, such as switching to a language that they perceive deaf learners understand better than English.

It is also possible for translanguaging to occur through modalities such as chaining, fingerspelling, and using sign language to discuss text (Swanwick, 2017) for deaf learners who use sign language. The next section illustrates how translanguaging was implemented by the teachers through KSL and SEE, thus contributing to mediation.

#### **6.2.2.2 KSL and SEE**

These modes of instruction acted as another form of mediation in addition to the spoken language discussed previously. Teachers depended on KSL and SEE to ensure that deaf learners better understood the material presented during the lessons. Furthermore, this method allowed teachers to ensure learners were exposed as much as possible to correct structure of the English language.

This study revealed that most teachers used KSL as their mode of instruction, as reported in section 5.2.1.2.1. The teachers suggest that KSL improves communication

and ensures deaf children comprehend English concepts. This result supports findings from prior studies where signs were used to connect print and concepts acquired in sign language used to assist deaf learners in developing literacy skills, making English explicit, and fostering communication (Storch and Wigglesworth, 2003, Liu et al., 2014, Jones, 2013, Berke, 2013, Rudner et al., 2015, Hrastinski and Wilbur, 2016). In line with this finding, it has been reported that ASL conceptual and background knowledge was employed to tackle literacy tasks by bilingual, significantly-deaf adults and used both sign language and English (Ausbrooks et al., 2014). Since most deaf children in Kenya do not use hearing technology (Adoyo and Maina, 2019), the teachers opted to use the visual language employed by deaf learners to explain the meanings of vocabulary or information in the passages.

During reading lessons, KSL signs were matched with written English words as the learners observed and repeated the activity. The literature suggests that sign language can be utilised to teach reading to deaf children by showing them how signs are mapped onto print in the same way hearing children map spoken language onto text (Goldin-Meadow and Mayberry, 2001). As observed in a prior study, teachers accomplish this through chaining, which means showing deaf children the connection between print, sign, and fingerspelling (Padden and Ramsey, 2000), which is similar to the practice of teachers in this study. Moreover, deaf learners writing in English improve with instruction where sign language is used in interactive writing sessions (Bajarh, 2020). The use of KSL promotes sign bilingualism in deaf education in Kenya. Since the deaf learners in this context use KSL as opposed to spoken language, deaf learners can rely on their knowledge of sign language to learn written English as shown in

section 3.8.7. The teachers' use of KSL is an indication that sign language can support learning of written language regardless of the difference in modality between KSL and spoken English.

Interactive writing lessons are based on sufficient interactions between the teachers and learners as well as among learners. In turn, this helps learners contribute to discussions and build on their own knowledge and that of others to collectively tackle the writing tasks (Wolbers et al., 2014, Bajarh, 2020). However, in this study, there were minimal interactions in lessons that made use of sign language in teaching writing, and this limits the benefits of using sign language in writing lessons.

Since KSL is considered deaf learners' first language (even though most of them learn it in primary school), its application in teaching literacy skills in English can be interpreted as one means through which teachers appreciate the knowledge learners bring to the class. In turn, this allows teachers to create opportunities for and improve the quality of interactions, which is useful in SCT (Scott and Palincsar, 2013). However, the interactions using learners' first language requires learners' participation in the lesson, which, as illustrated in section 6.2.4, remained absent in this study. As such, this suggest that teachers need to motivate learners to participate in teaching and learning activities in order to effectively employ translanguaging in KSL.

Signed Exact English exposed deaf learners to correct structure and grammar of English. In some lessons, the teachers avoided using KSL structure and instead solely used SEE. In so doing, the participants sought to ensure deaf children were not

exposed to different language structures from English that could potentially interfere with their level of competency. Since language is one of the psychological tools that can be integrated into the learners' mental functioning and mediates learning (Compernelle and Williams, 2013), exposing deaf learners to SEE can offer one means of ensuring that learners internalise and use English language to mediate literacy activities that require correct use of English language structure.

Previous studies in Kenya have reported similar findings where SEE was used to teach English in addition to other modes of instruction, such as Signed English (SE) and TC (Ogada et al., 2014, Mathew, 2014). Like the current study's findings, Mathew (2014) reported that few teachers attempted to use SEE during the lesson observations, which may be linked to the teachers' concerns regarding SEE's effectiveness in this study. Furthermore, most of the teachers admitted to using KSL during English literacy lessons, and even those who used SEE described limited English comprehension by learners.

Teachers in this study may be using SEE to create an environment where deaf learners can interact in English without relying on KSL as a mediating language. Using SEE may thus increase learners' exposure to English language and simultaneously mediate deaf learners' knowledge of written English in areas such as sentence structure and grammar. This is similar to the practice employed to teach reading and writing by a parent of a skilled deaf reader to expose the student to English grammar (Salehomoum and Pearson, 2020).

As noted above, spoken language, KSL, and SEE were utilised as mediational tools to help learners succeed in literacy skills in this study. Teachers considered these the best ways of communicating to enhance interaction and improve learners' comprehension. This is a similar finding to report from previous studies in classrooms of deaf learners (Siima, 2010, Liu et al., 2014, Obusu et al., 2016, Wang and Andrews, 2017).

The spoken language and KSL used in this study further indicates that teachers attempted to draw on the learners' knowledge of a language other than English. This practice mirrors what has been labelled as translanguaging (Swanwick, 2017). As previously described in section 3.8.5, translanguaging in deaf education is useful in enhancing dialogic teaching, which is linked to SCT of language teaching.

In this study, I observed teacher-led translanguaging (Swanwick, 2017) in which teachers blended spoken language, such as Kiswahili and English, with KSL to communicate English concepts for better understanding. However, deaf learners rarely participated in class, and if they did, it was through use of single signed words, and it was not possible to notice any meaningful translanguaging among the learners. It would have been beneficial if deaf learners also employed translanguaging, as this can lead to increased dialogue in the lessons and eventually contribute to scaffolding and ZPD (Swanwick, 2018).

That said, the teacher's perception of KSL's negative impact on English literacy (see section 6.4.2.3) does not offer an ideal environment for translanguaging in this study. Translanguaging is meant to uphold the independence and growth of the minority

language while supporting the development of the dominant language (Swanwick, 2017). However, the teachers' view of KSL as a negative influence on literacy learning indicates that they are hesitant to assign equal status to KSL and English and effectively use translanguaging. In addition, it was observed that KSL is mostly used to provide support, such as only visualising English sentences and concepts, which does not translate to effective translanguaging (Swanwick, 2017).

### **6.2.3 Classroom management practices**

Another finding is that classroom management practices were employed to ensure that learners benefit from the teachers' instruction and effectively use reading and writing skills outside the classroom context. The way classroom management occurred in this study enhanced the SCT view of human mediation in which learners receive assistance from people who are more knowledgeable to help them master psychological tools (Compernelle and Williams, 2013).

The teachers in this study believe that classroom organisation is key to successful English lessons. Accordingly, teachers organised their classrooms by adopting a seating plan that allowed deaf learners access to instruction, implementing tactics to minimise visual distractions during lessons, and organising teaching and learning tasks. Through organisation of classrooms' physical spaces, the teachers created contexts that enabled effective interactions between the teachers and learners or amongst the learners during the lessons. This was made possible by minimising barriers that may arise due to the learners' hearing loss or the learning environment.

The following discusses teachers' utilisation of physical classroom environment in greater detail, after which organisation of tasks is explored.

#### **6.2.3.1 Use of classroom space**

The way teachers utilised the classroom space contributed to learners' ability to see, participate in, and benefit from the instructional activities. In turn, this can lead to increased literacy skills performance during the lessons. It was further noted in this study that use of space in the classroom during the lessons provided an avenue for enhanced mediation through teachers who are physically present in class as well as through use of learning resources (Compernelle and Williams, 2013). To achieve mediation, teachers deliberately positioned learners in ways that permitted clear visibility of the teacher, the instructional process, and the learning materials presented during the lessons. This included an everyday seating plan as well as temporary changes to learners' positions in the classrooms during the lessons.

In most classes, the learners' desks were arranged in a U-shaped design. The teachers stated that this proved effective in improving learners' ability to see instructional activities and learning resources (section 5.2 and 5.3). Through this seating plan, the teachers thus offered the learners opportunities to engage with mediational tools such as activities, written language, and resources. However, this finding contrasts with the seating plan reported in prior studies (Siima, 2010, Wang and Andrews, 2017). That said, these contrasting findings may be due to the use of CI by deaf learners in China as well as by the small number of deaf children in the class (only six learners; (Wang and Andrews, 2017). In another study by Siima (2010), learners sat in rows, though

this was only mentioned in one of the classes, and there was no information about how other teachers arranged the learners' desks. In addition, in some schools, deaf learners shared classes with other learners from a different grade level (Siima, 2010), which could mean that they lacked sufficient space to plan for a favourable seating arrangement. By contrast, for the Kenyan schools in this study, each grade featured its own spacious classroom.

Teachers in this study also ensured that deaf learners used their sense of vision to access information shared in the classrooms, as the teachers reported needing to demonstrate signs, fingerspelling, and speech sounds. Some teachers also stated that the U-shaped seating arrangement made it easier for all learners to see the teacher, and thus acquire and internalise signs or fingerspelling. In turn, these internalised signs, concepts, and fingerspelling provide useful tools to help mediate their reading and writing activities (Kozulin, 2003). Furthermore, as demonstrated in the literature review (sections 3.8.2 and 3.8.3), deaf learners need signs and fingerspelling to achieve literacy skills.

The teachers presume that the U-shaped seating plan helps maintain learners' focus on activities in the classrooms, thus maximising the benefit derived from using visual skills. In turn, this symbolises that teachers understand the difficulty that learners in their context faced (limited auditory input to access the curriculum) as well as means of assisting them. This finding aligns with the proposal by Kuntze et al. (2014) that adults who interact with deaf children must understand visual constraints associated with signed modes of communication and should avoid traditional teaching practices.

This suggestion further emphasises the need for adults to capitalise on the visual strength of deaf children, as is the goal of the teachers in this study.

Results from previous studies also support teachers' consideration of learners' proximity to resources and teachers (Todorov et al., 2022, Kontra et al., 2015, Guardino and Antia, 2012, Evans, 2004). For deaf learners who depend on visual input, this finding is particularly crucial for their academic achievement, as proximity to teachers and learning aids increases information input (Guardino and Antia, 2012). The U-shaped seating plan in this study was observed in classes of younger deaf children ages six to nine (grades one through three) as well as older deaf children ages 12–14 (grades five through seven). This suggests that teachers acknowledge that all deaf learners in their context, regardless of their age, need to visually access the lessons' content.

Furthermore, the outcomes from prior studies have demonstrated that visual access facilitates deaf students' ability to acquire English literacy skills (Kontra et al., 2015, Evans, 2004, Bedoin, 2011). These studies include deaf participants from diverse levels of education, including primary, high school, and university. In turn, this signifies that, regardless of the education level, deaf learners benefit from visual input to acquire literacy skills. By achieving visual access, deaf learners' interaction with teachers and other learners can thus increase, and they can engage with learning materials presented in class to construct knowledge and learn (Kao, 2010). Accordingly, this supports the application of SCT to instruction and means of gaining access to knowledge and skills (Kao, 2010).

The seating arrangement of learners in this study matches empirical evidence demonstrating an increased knowledge gain by deaf learners after teachers changed the seating plan in their classes (Guardino and Antia, 2012). In the current study, deaf learners' desks in classrooms and computer rooms were arranged in a U-shape pattern, demonstrating consistency. According to the literature, consistent seating plans provide deaf children with a more predictable learning environment where they can ignore stimuli from their peripheral vision (Dye et al., 2008). In addition, the importance of ensuring deaf learners sit at strategic locations is emphasised (Johnston et al., 2008). These studies thus support learners' seating arrangement so that they can follow learning activities and guarantee consistency.

A different classroom arrangement that attempted to promote deaf learners' visual access and mediate learning involved teachers asking learners to move closer to where they stood or to the resources being used in the lesson. Interestingly, in this study, only deaf learners of approximately 8–10 years of age were requested to stand closer to the teachers and resources, such as charts or blackboards. Furthermore, it was observed that deaf children of 12–14 years remained in their usual seating positions and observed the teachers as they taught. It can be argued that teachers of younger deaf children sought to ensure that learners paid attention to the learning activities by reducing distractions from the environment. This result is in line with evidence suggesting the need for younger deaf children to be supported in focussing their attention on a centralised area until their peripheral vision enhancement becomes active (after 7–10 years) (Dyer et al., 2003). It has further been argued that the peripheral vision enhancement enables the learners to be selective in what they pay

attention to by concurrently attending to the periphery and localised areas in their environments (Dye et al., 2009). This argument by Dye et al. (2009) thus supports the teachers' action in this study, as they ensured deaf children in grades one through three were positioned closer to the learning resources or the teachers, thereby limiting interference from competing stimuli within their field of vision.

It has also been suggested that young deaf children have a limited attention span and are easily distracted, which can be countered by structuring the learning environment such that their attention is drawn to the instructor or interpreter (Dye et al., 2008). Additionally, deaf learners choose to focus on the instructor (who is the primary source of information) if shifting their gaze between the instructor and visual aids may lead to loss of information and they must choose one of them (Pelz et al., 2008). In previous studies, partitioning or use of barriers in classrooms of deaf learners to demarcate where and what they should pay attention to accordingly led to improved interaction during the lessons and better academic achievement (Guardino and Antia, 2012). From this finding, it can be argued that deaf children in this study can access mediation by resources, tools, and people in the classrooms due to the classroom seating arrangements and use of classroom space during lessons. This is because the two sources of information (the teacher and the resource) are positioned close to each other, and children can concurrently access information from both.

Since it is possible to have human and material mediation in classrooms (Donato and MacCormick, 1994), the classroom arrangement observed in this study locates the teacher, other learners, and resources in perfect positions for successful mediation

through resources, human, and language. In fact, it was demonstrated in section 6.2.2 that teachers used language as one of the mediating agents during literacy lessons, and sign language users can benefit from seeing the person with whom they are communicating. However, the most observed human mediation in this study was by teachers, whereas mediation from other learners was largely missing. It was further observed that most teachers focus on proximity for the purpose of learners' ability to receive the information they give or availed through use of resources, but not to participate in the co-construction of knowledge required by SCT, as illustrated in section 4.4.1.

Previous studies have provided evidence that access to the lessons' content and classroom interactions supports literacy development among deaf and hard-of-hearing children and those with disabilities (Johnston et al., 2008, Dostal et al., 2017). For effective classroom instructions, these studies presented here recommend optimising access to conversations, text, and sign language and ensuring visibility of the teacher's face. In this way, the participants in this study are providing learners with this access to resources and teachers' input in order to promote the development of literacy skills.

However, as earlier mentioned, it also appears that teachers in this study largely target mediation wherein deaf learners receive information from teachers and learning resources without actively participating in knowledge construction. This does not contribute to effective instruction in literacy skills if there are no opportunities for learners to engage with other learners, teachers, and the resources and if their actions are not scaffolded by others to achieve ZPD (Kozulin, 2003, Kao, 2010).

### **6.2.3.2 Organisations of tasks**

Beyond the learner's position in the class during the lesson, this study also determined that there are ways in which teaching and learning activities are organised to improve deaf learners' participation. Furthermore, the adapted English curriculum for deaf learners calls for teachers to use collaborative activities in English literacy lessons. The teachers stated in the interview, and some indicated in their lesson plans, that they utilise activities such as group work or working in pairs as examples of learning activities. This is consistent with findings from previous studies (Omidire, 2022, Loizou, 2016).

It has been argued that involving learners in collaborative work results in optimal benefits for learners with reading and speech problems, as this creates opportunities for such learners to learn from others (Loizou, 2016). This finding is supported by results from meta-analyses of the literature on peer tutoring (Sytsma et al., 2019, Bowman-Perrott et al., 2013). For instance, the metanalysis by Bowman-Perrott et al. (2013) demonstrated that students who took part in peer tutoring posted better results than those who did not. This finding is in line with literature concerning collaboration during teaching and learning, as illustrated here. However, while this finding was also identifiable from the documents and the teachers' interviews, it did not appear in the lesson observations. This matches findings by Siima (2010), who noted that teachers of the deaf never used activities listed in their lesson plans. As is discussed further in the teacher-centred practices, the teachers did not employ peer tutoring in any of the lessons that were observed in this study, and this could be related to issues mentioned

by teachers, such as insufficient time for English lessons or learners' limited language proficiency.

Discussion of writing exercises, such as writing stories, was undertaken by teachers and learners to co-construct knowledge and enhance the two learning levels ( social and individual levels) leading to cognitive development (Kozulin, 2003). The discussions include general ideas to be included in the written piece or words related to what the learners will write (section 5.2.4). This discussion of writing represents a similar approach to Strategic and Interactive Writing Instruction (SIWI) and can prove useful, as demonstrated in the literature review chapter. However, low levels of learner participation in instruction activities was observed in this study, which may limit the extent of effectiveness of SIWI (Bajarh, 2020). Language proficiency, including sign language, also plays an important role in effective implementation of SIWI (Wolbers et al., 2014), and this may pose a challenge, especially considering the learners' limited English vocabulary knowledge, as mentioned by teachers in this study, as well as the young learners' limited sign language skills. Nevertheless, teachers' scaffolding of composition writing can motivate learners and build their interest in writing exercises.

It is important to note that the extent to which some classroom management practices, such as task organisation, were effectively utilised by teachers determined the extent to which the learners participated in the lessons, as well, which is an important component of SCT, as demonstrated in sections 4.4.1. Though learner-centred approaches were described in interviews and indicated in the curriculum as

instructional strategies in English literacy lessons, it was observed that most instructional activities did not encourage learners' participation.

The fact that teachers indicated use of collaborative learning approaches in their lesson plans but did not implement them in practice could be due to the inclusion of group work and peer tutoring as teaching approaches in the curriculum design, which teachers use to write their lesson plans. In turn, this finding revealed that teachers in this study do not practice teaching and learning activities proposed in the curriculum or those that they plan for. In as much as the curriculum's learning activities are only suggested, and teachers can use suitable alternatives, the findings in this study did not reveal instructional activities that fostered group work or interaction among learners, which is key in the SCT of language teaching. This practice could limit the chances of scaffolding and mediation as well as deaf learners' potential to learn from others who are either more skilled or are at their level (Kao, 2010).

Continuing, the utilisation of classroom space created an environment where the learners had access to text, teachers' input, resources, and other learners' contributions. However, the findings revealed limited interactions between the teacher and the learners as well as among learners. In fact, learners' participation remained absent in English lessons in schools for the deaf in this study. As such, this limited learner participation results in teacher-centred instructional practices, as discussed in the next section.

#### **6.2.4 Teacher-centred practices**

Scaffolding and ZPD represent key features of language learning instructions according to the SCT of language teaching (see sections 4.4.2.2 and 4.4.2.3). The achievement of scaffolding and ZPD depends on the level of the learners' participation in the lessons, as explained in sections mentioned above. However, in this study, instructions were not learner-centred, which subsequently limited the opportunities for deaf learners to engage in learning activities through scaffolding, and thus reach their ZPD.

Accordingly, another key finding from this study concerns teacher-centred instructional practices. It was noted that the use of classroom space discussed above partly supported deaf learners' potential to take part in English lessons in this study. However, the findings further revealed that teachers' instructional practices do not encourage deaf children to participate in English lessons. The teachers dominated activities in all observed lessons, and learners were rarely encouraged to participate in the teaching and learning activities. It was also noted that most teachers demonstrated teacher-centred approaches to teaching despite having instructed deaf children for more than 10 years and receiving training in deaf education. The following sections discuss the teacher-centred approaches observed in this study in greater detail.

##### **6.2.4.1 Passive learners**

It can be argued that the learners' potential to acquire literacy skills remains tied to their interaction with people and the material presented in the lessons. The scaffolding of learners' actions and mediation by teachers and others occurs during such

interaction in lesson activities (Kozulin, 2003, Golos and Moses, 2011). However, it was noted that deaf learners in this study did little more than observe what happened during the lessons. Learners did not attempt to use unfamiliar words or new signs in English sentences, rendering them passive during the lessons. Even in the few instances that teachers asked learners to sign or fingerspell, it was noted that teachers called upon the few learners who were skilled in signs and fingerspelling activities, leaving out most of the other deaf learners (see section 5.2.3). This finding is consistent with results from studies in mainstream primary schools in Kenya (Ackers and Hardman, 2010, Abd-kadir and Hardman, 2007), primary schools for the deaf in Kenya (Kimani, 2012), mainstream primary schools in Nigeria (Hardman et al., 2008) and Tanzania (Sakata et al., 2021), and primary schools for the deaf in China (Wang and Andrews, 2017). All these studies also reported a dominance of teacher-centred activities, such as lecture-driven teaching styles in English lessons.

Many teachers in the current study limited teaching and learning activities to those where learners only signed and fingerspelled following the teachers' demonstrations and copied the meaning of unfamiliar words from the blackboard or charts. Similarly, other studies have revealed that teachers in primary schools for the deaf in Uganda limited their teaching and learning activities to having learners sign and write down words (Siima, 2010). However, in the study by Siima (2010), teachers taught literacy in grade one through three, meaning the learners may still have been learning sign language, which is not taught in school; by contrast, the current study featured teachers of learners from grades one through seven. As such, it is expected that those deaf learners in grades four through seven in this study should have been given

opportunities to practice grammar or use vocabulary as stipulated in the curriculum (see section 3.6), as they should be more proficient in sign language and English vocabulary at that level. This result matches observations from another study investigating instruction in English lessons in low- and high-performing mainstream secondary schools in Kenya (Ngware et al., 2012). Their findings indicated that the recitation technique was the most prevalently observed teacher-centred technique, which limits learners' critical thinking and opportunities for developing high cognitive abilities (Ngware et al., 2012). It can further be argued that the learners' act of fingerspelling and signing after the teachers in this study does not offer deaf learners adequate opportunities to engage in critical thinking and practice English language in the same way as recitation, as was observed in mainstream classes by Ngware et al. (2012).

The fact that instructional practices in this study are largely teacher-centred may limit learners' participation in the English lessons and minimise their development of literacy skills. This can be identified from previous studies highlighting outcomes of approaches that hinder learners' participation in literacy lessons. For example, Hardman et al. (2008) argued that, in classrooms where teacher-centred practices are employed, learners are passive instead of actively sharing, demonstrating, and explaining their views about the lessons' content. In an exploratory study on pupils' experiences with LCP, Sakata et al. (2021) outlined the key role of learner-centred pedagogy (LCP), which established that mainstream primary school pupils in Tanzania perceive group discussions as facilitators of their ability to comprehend in different subjects in primary schools, including English.

Data from the current study reveals that limited opportunities prevented deaf learners from interacting with one another and undermined their participation in instructional activities. This practice was noted across all classes of deaf children aged 6–14 years. In turn, this reinforces the findings from a previous study by Pontefract and Hardman (2005). Their work reported that children in mainstream primary schools were not involved in collaborative learning activities during English lessons regardless of the learners' age or the topic they were studying (Pontefract and Hardman, 2005). In turn, such insufficient scaffolding opportunities from teachers and other learners can hinder learners from reaching their ZPD (Stuyf, 2002), as can be observed in this study due to how the teacher-centred pedagogy does not offer learners time to participate in literacy lessons.

In fact, evidence reveals that teachers in this study practised scaffolding primarily in teaching corresponding signs for each written English word, either when teaching new words or when reading. This scaffolding of signs implies that teachers believe that deaf learners' knowledge of signs for each English word translates to comprehension of written English. As such, teachers did not work with learners to encourage them to use skills that are pertinent for reading or writing. There was limited scaffolding of literacy activities that contribute to achievement of ZPD by learners.

Following the teacher-centred approach in this study, the English lessons employed the behavioural learning theory, wherein teachers disseminated knowledge in a clearly established procedure and in which learners are assumed to be receivers (Wang, 2007). However, this tactic was considered to be problematic from Vygotsky's SCT

perspective, which emphasises the presence of mediating agents (Kozulin, 2003). It can be said that the activities in classrooms in this study limit learners' ability to seek clarification or contribute to the discussion. One feature of SCT concerns the need for learners to perform activities jointly with others, such as their teachers and other learners, thus allowing them to internalise the outcome of the collaboration as well as new strategies and knowledge (Scott and Palincsar, 2013). By contrast, learners' lack of meaningful participation in lessons in this study does not follow this premise of SCT and can be said to contribute to loss of opportunities for learners to experience working with teachers or peers and develop knowledge.

Although the curriculum design and the English textbooks recommend that learners work in groups or pairs during English lessons, and some teachers indicated the same in their lesson plans, this never happened in any of the eight English lessons that were observed. No teacher provided learners opportunities to work collaboratively in any of the classes for deaf children ages 8–14 years where lesson observations took place. In turn, these limited collaborative activities contribute to a lack of chances for deaf learners to work with others and support each other to understand the subject through scaffolding and mediation (Kozulin, 2003). This finding reflects that of the study by Hardman et al. (2008), in which primary school teachers in Nigeria indicated in questionnaires that they frequently use group work as an approach to teaching, but failed to do so in the lessons.

The sociocultural framework also states that negotiation and interaction between learners, learning materials and context, and mediators make students active co-

producers of knowledge as opposed to the unidirectional and passive input of knowledge or skills (Kao, 2010). In turn, this highlights the importance of interaction in the learning process for meaningful learning to happen. However, the teachers' approaches in this study constrain the social interactions that contribute to learning that, according to Vygotsky, occurs at the social and psychological levels (Perez et al., 2004). As illustrated in section 5.2.3, there were few opportunities that contribute to learning between two people (social) and later in the learners' mental space (psychological), thus hindering learners' acquisition of the required knowledge and skills (Perez et al., 2004).

The teachers should assist deaf learners in such a way that the support offered is gradually withdrawn as the lesson progresses. In this way, autonomous learning can occur, as demonstrated in section 4.4.1.2. By contrast, the limited interaction identified in this study can contribute to a lack of self-reliance in performing literacy activities among deaf learners. Further discussion regarding independent learning and how teachers' approach to teaching English in the current study limits independent performance of literacy skills is provided in the following section.

#### **6.2.4.2 Limited independent learning**

The findings of this study revealed that teachers conducted instructional processes in ways that do not match the effective teaching practices for second-language learning identified in the literature review chapter. The literature review section and theoretical framework both highlighted mediations, ZPD, and scaffolding as elements of effective teaching. For deaf children who use sign language and were able to develop strong

literacy skills, previous studies revealed that scaffolding by parents and teachers contributed to their success (Salehomoum and Pearson, 2020).

However, the findings here indicate that teachers did not provide adequate scaffolding to help learners carry out tasks alone. Instead, teachers signed or fingerspelled while learners observed or sometimes copied the signs presented by the teacher with minimal practice. Consistent with results from this study, copying and chorus responses by learners were reported in a study that conducted interpretive analysis of ethnographic studies focussing on literacy teaching in low- and middle-income countries (Nag et al., 2016). The copying and chorus responses were particularly prominent in spelling, sentence construction, and letter recognition, and they were biased towards orthography knowledge (Nag et al., 2016). Similarly, in this study, having the deaf learners sign and fingerspell after the teachers' demonstrations was aimed at ensuring that the students memorised the spelling of words and how words appear in written form. However, this practice of copying or memorising may not be suitable for unaided learning (Nag et al., 2016), as it instead encourages rote-learning.

As such, in this study, the tasks undertaken by the teachers that contribute to less independent learners goes against the SCT concept of presenting the mediator as more than just a source of information and ensuring that learners are not only provided with required skills and knowledge, but are also supported in growing into self-directed learners (Kao, 2010).

Teachers also signed the meaning of words and passages, and the learners signed and copied the meanings of the words in their exercise books without scaffolding by

teachers. This finding mirrors results from studies by (Ackers and Hardman, 2010) and (Pontefract and Hardman, 2005) conducted in mainstream primary schools in Kenya. Their findings revealed that teachers provide support to children but fail to encourage them to work independently. This is also consistent with findings from previous studies of English language primary classes in Kenya as well as the current study. In turn, this points to a persistent challenge in ensuring primary school children in Kenya develop English literacy skills as provided for in the curriculum. The similar findings from prior studies in mainstream primary schools and schools for the deaf in this study further indicates that teachers in schools for the deaf may be employing teacher-centred instructional practices due to other factors and not just because of language and communication problems as suggested by findings from this study.

Based on the teachers' practices in this study, it can be argued that the teachers may be focussing more on explicit teaching of sub-skills mentioned above (see section 6.2.1.1) than on supporting deaf learners in realising their ZPD and developing proficiency in English literacy skills. For example, in addition to signing, fingerspelling, and copying of new words by deaf learners, teachers provided responses to comprehension questions without offering sufficient skills for the deaf learners to use in reading, comprehending, and writing on their own. This is inconsistent with the concept of ZPD, where social factors such as assistance from others (which can be informed by modelling and feedback) are primarily responsible for ZPD (Kao, 2010). ZPD is regarded as abilities that learners do not possess before they reach the state of capability and self-regulation (Kao, 2010).

This lack of scaffolding further indicates that participants failed to guide the learners through the ZPD, thus suggesting that they do not offer interaction opportunities to deaf learners and lead them to achieve their actual level of cognitive development (Lantolf and Pavlenko, 1995). It is possible that literacy instructions in this study are not effective, since the literature indicates that novices require an expert to take them through the process of trying new tasks, which involves making mistakes that the expert corrects until the novices can perform the tasks on their own (Lantolf, 2005).

As noted in section 5.2.4, the teacher-centred approaches are associated with teachers of grade one through seven, and all such teachers possess more than 10 years of teaching experience in schools for the deaf and are trained in deaf education. This suggests that it is challenging for deaf learners in the current study's schools to develop independent reading and writing skills. Furthermore, teachers need to be provided with continuous support to develop valuable teaching practices.

This section has discussed the main findings related to question one of this study, which explores the instructional strategies employed by English language teachers of deaf children in residential primary schools in Kenya. With this established, the following section elaborates on findings concerning question two, which investigates the resources used in teaching English literacy to deaf learners in primary schools in Kenya. The findings in this section specifically focus on the visual aids employed and what teachers used them for in their English lessons.

### **6.3 What teaching and learning materials are used to teach English literacy skills to deaf children in primary schools in Kenya and what role do they play?**

Teachers utilised numerous visual resources to help them achieve their lesson objectives. More specifically, it was observed that teachers employed teaching and learning aids to help deaf learners visualise the lessons' content. Beyond this, the literature reviewed in section 3.5.1.2 revealed how deaf learners benefit from visual learning resources. The following subsections discuss these resources and how teachers used them here. These resources include those provided by the government or prepared by teachers to supplement what is available in schools.

#### **6.3.1 Visual aids for mediation**

It was noted that the teachers' use of visual aids aimed at mediating learners' access to information presented in the lessons. Through mediation, the use of such resources was expected to contribute to the learners' comprehension ability and expose them to English print.

##### **6.3.1.1 Learners' comprehension of English concepts**

The teachers utilised visual resources to mediate deaf learners' comprehension of written English. According to the teachers, visual aids support deaf learners by allowing visual input of information contained in resources presented in class and supplements the teachers' explanation of the concepts.

Visual aids that were utilised to support comprehension include real objects, pictures, charts, and flashcards. As illustrated in the data, these resources assist deaf learners

in constructing a mental image of English vocabulary and contribute to their knowledge of the language and the world (Lantolf, 2006). Furthermore, as demonstrated in section 5.3.1.1, such visuals assisted deaf learners in connecting written words and their meanings. The current findings is in line with previous results indicating that strategies such as using a combination of printed words, pictures, signs, and real objects facilitated literacy development by deaf children (Birinci and Sariçoban, 2021, Gallion, 2016). It is suggested that educators must consider multimodal input to help deaf learners process input in multiple formats and through multiple sensory pathways (Leons et al., 2009). In this way, the teachers' efforts to present visual learning aids in literacy lessons for deaf learners in this study provides a visual input of written words to mediate the deaf learners' English vocabulary knowledge.

The finding from this study concerning the use of visual techniques to mediate learning in English lessons is congruent with findings on instructional practices from previous studies in schools for the deaf (Siima, 2010, Liu et al., 2014, Evans, 2004, Ducharme and Arcand, 2011, Wang and Andrews, 2017). For instance, teachers of English literacy in schools for the deaf in Uganda used real objects, blackboards, charts, and flashcards (Siima, 2010). In another study by Liu et al. (2014), teachers of deaf learners in Taiwan used pictures and drawings, and Evans (2004) reported that teachers of deaf elementary school learners presented real objects to convey information. Similarly, teachers used drawings to assist deaf children who use sign language to learn the meanings of unfamiliar words in reading French (Ducharme and Arcand, 2011). In this way, these studies suggest that different visual resources boost deaf learners'

acquisition of literacy skills by mediating their acquisition of English concepts and vocabulary, thus supporting the relevance of using visual techniques in this study.

Continuing, multisensory teaching provides learners with opportunities to process information using numerous senses, which helps them overcome any sensory issues that can interfere with information processing (Loizou, 2016). Accordingly, the teachers' use of visual aids in this study ensures that deaf learners receive input through the sense of vision. In turn, this implies that visual resources can fill the gap deaf learners experience when they miss certain information from spoken or signed modes of communication. Furthermore, the visual resources also connect English concepts to print, increasing the chances of deaf learners' understanding. Accordingly, this helps ensure that deaf learners in this study access the ideas taught during lessons through the most functional sense for them—namely, the sense of vision. After all, it was established that most of them do not use hearing devices (see section 2.4.3).

Therefore, visual resources assist deaf learners in this context overcome the challenge of accessing auditory input, which may affect their ability to process information (Loizou, 2016). In turn, this provides mediational support in accessing information provided in written language. In this context, resources mediate comprehension of print by making the information visible to the deaf learners and helping them link this to the text.

It is important to note that the most referred-to digital resource in this study that mediated comprehension of written English is the mobile phone. The use of mobile phones by most teachers may be due to its ease of access and use in the classroom,

including ease of connection to mobile data, especially considering lack of Wi-Fi connections in some schools. It was also noted that, depending on the grade they teach, teachers utilised mobile phones for different comprehension exercises ranging from watching videos (grade one) to writing messages (grade four). In both scenarios, the mobile phone can be said to be mediating co-construction of knowledge and enhancing learners' cognitive development. This result matches previous evidence that digital resources such as mobile phones and computers mediate the interaction between learners and the teachers as well as the organisation of mental growth in SCT (Lantolf, 2006).

In addition, in the current study, digital resources introduce deaf learners to diverse means and platforms through which English text can be used, as outlined in section 5.3.1.1. In fact, this constitutes one of the objectives of using information communication and technology (ICT) in English lessons, as outlined in the curriculum (KICD, 2018b). This can be linked to the SCT, where the broader cultural context in which literacy skills are utilised plays a role in shaping the directions of the joint activities between the novice and the expert (Scott and Palincsar, 2013).

Teachers also avail visual resources as mediating tools (Kozulin, 2003). For example, they use visual resources and techniques such as flashcards, real objects, pictures, and drawings to mediate learners' comprehension of written English. Furthermore, teachers not only use visual aids, but they also mediate their use to increase their effectiveness. For instance, they write English words, exhibit the objects, and draw on chalkboards while directing learners' attention to the visual aids. This is in line with

Kozulin (2003) proposal that, even if tools or symbols are available for the learners, this offers no guarantee they will use them for learning without a human mediator. In this case, the teacher acts as the human mediator and ensures that learners pay attention to the mediational tools presented.

### **6.3.1.2 Experience with written language**

The findings of this study suggest that teachers expose deaf children to print using various visual aids. For instance, teachers provided resources that display the English text for learners as they clarified information, presented the signs, or fingerspelled words. These resources, which contain print, can subsequently mediate the deaf learners' exposure to the language they are learning to read and write. Once acquired, the written English can then mediate learners' interaction with others, their own mental state, and the wider context in which they encounter written English (Lantolf, 2006). Relating to this result, previous studies have identified similar practices among teachers and parents of deaf children (Liu et al., 2014, Evans, 2004). In a school for deaf children in Taiwan, for instance, environmental print was displayed everywhere in the school, and parents pointed out prints to their deaf children anytime they were out with them (Liu et al., 2014).

The participants also taught in ways similar to those identified in the literature reviewed in section 3.7.1, where exposing deaf learners to print was identified as a practice that supports learners in developing effective reading skills. Moreover, it can be proposed that English text (presented on charts, textbooks, or chalkboards) represents a symbolic tool employed by teachers in this study for mastery of literacy skills (spelling

and vocabulary) by encouraging learners to internalise words and letters (Kozulin, 2003). The teachers thus mediate the learners' acquaintance with written English by using such resources (Kozulin, 2003), such as by fingerspelling, signing, or explaining the meaning of English words presented using said resources.

The presence of these resources in literacy lessons further situates the teaching and learning within a context that brings all actors together and supports knowledge construction by all (Kozulin, 2003) using the English text availed by teachers. Visual print resources accordingly expose deaf learners in this context to written language and allow them to experience these resources as a symbolic tool through which they can comprehend English language and the world (Lantolf, 2006) due to their minimal access to spoken language.

Findings from studies in classrooms of hearing and deaf children have presented similar outcomes, including teachers providing opportunities to learners to interact with texts (Owodally, 2012, Evans, 2004). In the study by Owodally (2012), for example, teachers prepared and displayed charts on classrooms walls and availed books for hearing preschool learners in Mauritius to expose them to print. Similarly, most charts in the current study were prepared and, at times, even purchased by the teachers when necessary and if the schools could not provide. This demonstrates teachers' commitment to avail print for deaf learners.

In a bilingual-bicultural setting, Evans (2004) also found that, for deaf children, naturalistic language learning that was meant to occur through interaction with other

speakers of the language was made possible through their exposure to books by their teachers. This is congruent with the practice in this study, where teachers availed textbooks, charts, or written words on blackboards or projectors for learners to engage with. In this study, the learners' hearing loss and lack of hearing devices (Adoyo and Maina, 2019) may limit their chances of interacting with teachers and other people as well as their exposure to spoken English from other sources, such as television. Accordingly, this study's findings suggest that teachers use print to ensure deaf learners remain in contact with English language in a form they can access, and which can mediate their written English language learning.

In addition, charts with English words were displayed in the classrooms (see Appendix 10 for an example). The practice of pinning charts on classroom walls is also supported by results from the study by Neuman (2004), in which the provision of print-rich classrooms enabled young hearing children to acquire literacy skills. However, Neuman (2004) also stated that learners' interest played a critical role in increasing their interaction with print materials in literacy sections and prompting them to read books on their own. In turn, this implies that providing a print-rich environment may not be sufficient without learners' interest in reading. Accordingly, teachers in this study acknowledged a lack of interest in reading by the deaf children in their classes, which may influence how much learning can occur through print availed in class.

Some classes featured flipbooks, while in other classes, teachers mentioned writing novel words and stories on the blackboard to enable simultaneous signing and matching of written words to signs by teachers. One practice identified in this study

that was not common in the literature involved teachers writing passages on the blackboard even when learners' textbooks were available. Teachers did this so that all learners could see the text and the signs provided by the teachers.

As most schools feature computers and projectors, it was not clear why some teachers wrote the passages on the blackboard. However, some teachers cited limited knowledge of using technological devices, which may have impacted their ability to use these resources.

As mentioned in the literature review, this study focussed on print literacy, in which learners are taught English in its written form. Literature states that print knowledge includes gaining knowledge of words such that learners can identify words as distinct parts of written language and ascertain ways in which written words and spoken language link together (Justice and Ezell, 2002). To improve the print knowledge of deaf learners in this study, teachers stressed the need to present signs for written English words so that the learners can connect print and signs.

Teachers also ensured that deaf learners accessed written words from a resource that make it easier to link print and signs, fingerspelling or concepts provided in KSL. Using these resources, teachers in this study thus directed the learners' attention to the text throughout the lessons by pointing to written words as they sign or fingerspell (section 5.3.1.2.). Results from a previous empirical study support the use of resources such as blackboards or charts shared by teachers and all deaf learners during reading lessons (Justice and Ezell, 2002). Specifically, previous findings indicate that children

with language problems demonstrated enhanced print awareness after shared book-reading sessions that embedded print cues (Justice and Ezell, 2002).

In addition, review of the literature reveals that one of the strategies most useful for teaching reading is to create an environment that is rich in print for the learners (Johnston et al., 2008). It was also noted that the government provides sufficient textbooks for the learners, as described by some of the teachers here. Deaf learners thus have access to textbooks, which they can use even in the teachers' absence. In turn, the provision of textbooks and the use of other visual resources that expose deaf learners to written English offers one feasible means of availing visuals that mediate learners' experience of learning print language (Donato and MacCormick, 1994). With this established, the following section explores findings concerning research question three of this study.

#### **6.4 What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?**

In this section, I discuss the findings regarding the third research question, which concerns teachers' experiences teaching literacy skills in primary schools for the deaf in Kenya. The first finding to be discussed here involves teachers' concerns regarding their professional development and inappropriate curriculum and resources. The second finding focusses on teachers' perceptions regarding deaf learners' comprehension and writing problems, language difficulties, the negative effect of KSL, and valuing available support.

#### **6.4.1 Teacher's concerns**

The teachers raised concerns related to issues that negatively influenced their ability to provide effective instruction, such as inadequate mediation and scaffolding. Such concerns highlighted limitations in their knowledge and skills that may limit the chances of deaf learners benefiting from the curriculum. Furthermore, issues regarding curriculum, resources, and language were also raised. Accordingly, the following subsections explore teachers' professional development and inappropriate curriculum and resources. Taken together, the teachers' concerns imply that deaf learners' may not receive opportunities for their learning activities to be mediated via tools and human actors.

##### **6.4.1.1 Teachers' professional development.**

This section centres on the teachers' instructional knowledge and skills, which are linked to scaffolding and ZPD. As indicated in the SCT of language teaching, teachers need to understand and utilise effective practices that promote scaffolding and ZPD. Teachers should thus ensure that literacy learning experiences are mediated for effective learning.

Teachers in this study, however, believe they lack adequate knowledge and skills to provide effective instruction to deaf learners. They suggested that some teaching methods are unique to deaf learners, and they are not thoroughly conversant with these methods. Teachers' professional knowledge is vital, as they need to teach in ways that support the curriculum expectations, including ensuring learners are

competent in the four English language skills of listening, speaking, reading and writing (KICD, 2018b) and the use of tasks that support collaborative learning (KICD, 2021b).

The teachers indicated that the knowledge and skills they gained from training and continuous professional development programmes were limited, which posed a barrier to effective teaching. The teachers believe they must continuously update their skills and knowledge to provide valuable instruction to deaf learners. This is consistent with finding from a previous study suggesting that practising primary school teachers in Kenya were not conversant with suitable teaching methods before attending an in-service training programme (Hardman et al., 2009). Unlike the findings from Hardman et al. (2009) study, however, in which the in-service training was found to produce a positive influence, teachers in this study claim that some of the training they received was poorly designed regarding appropriate teaching methods. That said, it should be noted that this study did not specifically aim to determine the impact of any in-service training that teachers in this study received.

Most of the participants possess more than 10 years of experience with deaf learners, yet most of them feel they need to learn more about deaf-specific teaching methods and current practices in deaf education regarding English. The curriculum allows teachers to adapt teaching methods by considering the needs of learners with special needs in education, including the deaf (KICD, 2018b). In turn, this flexibility requires teachers to find appropriate instructional practices by considering the learners' needs.

Although teachers believe deaf children in Kenya require differentiated teaching methods to help them access the curriculum and achieve to the same degree as their hearing peers, they mentioned challenges in adapting their teaching methods. This finding reveals the need for teachers to undergo professional development courses to learn to adapt methods and resources to meet deaf learners' needs in primary schools in Kenya. The teachers' concerns in this study regarding effective methods for teaching deaf learners are in line with Luckner et al. (2012), who stated that teachers of deaf learners who are not specially trained do not understand the quality and quantity of services they should provide for deaf learners to access the curriculum. The teachers in this study may need subject-specific training, as they have already trained in the education of deaf learners. Subject-specific courses can help them acquire second-language teaching approaches, such as how to organise teaching and learning activities and understand their role to help learners reach ZPD (Stuyf, 2002).

Most teachers in this study attended training specific to deaf learners, but they still feel they need to learn more. Their suggestions concerning methods of teaching deaf learners relate to the review by Luckner et al. (2012), who stated that some consequences of hearing loss, such as limited knowledge, dependency on hearing technology, language, vocabulary, and literacy problems interfere with deaf children's learning methods. Considering that teachers in this study acknowledged limited language development and challenges in literacy skills experienced by deaf children in Kenya (as illustrated in section 5.4.3), deaf learners in this context may require differentiated teaching methods.

Similar findings have been reported in other studies (Ntinda et al., 2019, Darwish et al., 2022). For instance, though the study was conducted in a secondary school for the deaf, Ntinda et al. (2019) reported that teachers in Eshiwatini lacked sufficient training in deaf education. Furthermore, teachers in the study by (Darwish et al., 2022) stated that unavailability of in-service training limited their knowledge and skills to effectively instruct deaf learners. Considering this finding from perspectives of SCT, teachers lack knowledge of suitable language-teaching approaches such as those outlined in section 4.4. In turn, this lowers the learners' performance in literacy skills.

Teachers in this study further criticised the suitability of the training, stating that it does not offer solutions to the instructional challenges they faced. Similar findings were previously reported in Kenya (Nyarigoti, 2013, Bett, 2016). Just like the findings here, Bett (2016) reported that teachers who attended the professional development course felt their needs regarding pedagogical approaches were not fulfilled. In turn, this suggests that teachers have different experiences and expectations in teaching. By learning more about teaching English as a second language, teachers in this study can apply the techniques of scaffolding, mediation, and ZPD, which comprise features of second-language teaching in SCT (section 4.4.2). These approaches are minimal in this study, and teachers' concerns regarding their knowledge and skills are relevant. Fundamentally, this may have contributed to the teacher-centred practices observed in this study, which affects learners' literacy skills development.

#### **6.4.1.2 In appropriate curriculum and resources**

Visual resources offer mediational tools, as discussed earlier in section 6.3.1. Accordingly, their absence or inappropriateness minimises their effectiveness in mediating learning. The results of this study indicate that teachers regard some of the curriculum features currently employed in school as unsuitable for deaf learners (the curriculum referred to by teachers includes CBC). Teachers thus indicated that the curriculum does not favour deaf learners in terms of resources and workload.

Teachers further mentioned that they have a great many lessons to teach and do not receive sufficient time to prepare adequately for their lessons. In turn, they claim that this influences how they teach, especially considering the learning aids they must prepare for their lessons to provide different modes of input. The curriculum design provides guidelines for teachers to use locally available materials to make the required learning aids (KICD, 2018b). Therefore, this indicates that planning for and preparing teaching aids is a time-consuming exercise for these teachers. Commensurate with this finding, teachers stated that preparing and teaching deaf and hard-of-hearing learners required a great deal of time, which proved difficult to manage (Mpuang et al., 2015, Darwish et al., 2022).

Findings also indicate that the curriculum content taught in one lesson is too much for deaf learners. In turn, this can limit effective use of scaffolding as well as learners' potential of reaching their ZPD, thus influencing their ability to learn reading and writing. This is derived from the fact that insufficient time hinders interaction in the classroom, which can subsequently lead to scaffolded learning opportunities (Staab, 1990, Donato

and MacCormick, 1994). So much content translates to limited time to teach, thus influencing how teachers plan and conduct their literacy lesson, especially regarding how they structure their learning activities, such as concerning use of collaboration, providing sufficient mediation, and scaffolding.

The participants added that a single lesson is comprised of multiple concepts, and deaf learners cannot learn all this content within the given time. Teachers believe that the slow-learning nature of deaf learners makes it difficult to teach within the allocated time. This contradicts findings from a study by Ntinda et al. (2019), according to which teachers of deaf students raised concerns regarding the suitability of the curriculum's content. More specifically, the teachers in this study were concerned with time allocation for lessons, but they stated that the curriculum itself suited deaf learners, unlike findings from the study by Ntinda et al. (2019). These findings also contradict another study's results indicating that teachers believed that mainstream curriculum does not fit the deaf learners in an Omani-inclusive setting (Darwish et al., 2022).

The inconsistency of these results may be explained by the fact that the curriculum in Kenya is adapted for deaf learners by allowing teachers to adapt the methods and teaching or learning activities (KICD, 2018b). By contrast, in the study by Ntinda et al. (2019) and Darwish et al. (2022), learners are placed in inclusive settings and learn the mainstream curriculum, and there is no mention of provision for adaptations. However, teachers in another study by Berry and Gravelle (2013) reported similar issues with time constraints. The teachers specifically described facing challenges in

fulfilling the demands of their role as special education teachers and teaching the required skills in the available time.

Another aspect of the curriculum that was identified as problematic for deaf children in this study included resources such as textbooks and videos as shown in section 5.4.

2. This interferes with the mediating function of the visual resources, as elaborated in section 6.3.1. Unsuitable resources may not function as material artefacts and mediate learning (Donato and MacCormick, 1994). Teachers referred to digital resources that lack captions and mentioned how they attempted to interpret for learners to help compensate. Teachers are expected to integrate information communication and technology in every lesson in the CBC (KICD, 2018b). However, in so doing, they encounter challenges from non-captioned videos when using digital resources in their lessons. This finding is supported by use of captioning on television and computers by parents of deaf children to mediate literacy skills development, as illustrated in section 3.4.1. In support of teachers' concerns, the literature has addressed the challenges deaf learners face when simultaneously looking at the teacher and videos (Pelz et al., 2008). In such circumstances, it was observed that deaf learners face difficulties attending to competing stimuli and choose to instead focus on the sign-language interpreter over visuals (Pelz et al., 2008).

In this context, considering the communication problems raised by teachers due to the language barrier (section 5.4.3.1.1) and learners' limited access to spoken language, it remains difficult for deaf learners to access the information from the videos, or the interpretation provided by the teachers if the videos were not captioned. In turn, this

suggests that the deaf learners in this study do not fully benefit from the available resources, as they lack the best options for accessing them. Since scholarship show that captions combined with spoken enhances deaf students' access to content of the lessons (Butler, 2019), absence of accessible resources in this study makes it difficult for teachers and deaf learners to use them to mediate their learning of reading and writing.

In addition, resources create the context in which teaching and learning occur and contribute to social interaction (section 4.4.2). By incorporating visual resources in lessons, teachers and learners receive opportunities to participate in discussions or classroom interactions, as demonstrated in section 5.3.1.1. Therefore, it can be argued that resource unavailability or unsuitability will interfere with the quality and quantity of interactions during the lessons. Unsuitable resources, such as the videos mentioned by the teachers, may prove difficult for deaf learners to use in ways that contribute to shared learning activities or to individually engage with the resources and mediate their learning.

The findings from this study suggest that deaf learners need plenty of visual techniques in print instructional resources, such as textbooks. Teachers believe that visuals with print mediate deaf learners' ability to make meaning. To this end, the teachers compared available visual techniques such as illustrations of how words are signed (which is available in the KSL textbooks, but not English) and identified this as the reason deaf learners perform well in KSL and poorly in English. As indicated in section 3.4.1.2 of the literature review, visualisation techniques have been identified as one

means of providing additional information to text for deaf learners, which supports teachers' concerns about insufficient visuals. Findings further reveal that the teachers in this study target visual access to content for deaf learners, as can be understood from their instructional practices, which encourages learners to use visual skills.

These concerns regarding unsuitable resources might stem from the manner in which deaf learners in the Kenyan context access the curriculum—namely, through sign language—and more so concerning those with minimal access to spoken language. Furthermore, a system of symbols (such as signs, in this case) offers one possible source of mediation (Donato and MacCormick, 1994). The positive impact of signs on deaf learners' ability to read and write has been demonstrated in previous studies that included deaf learners in the Netherlands (Wauters et al., 2006) and in South Africa, where learners were taught sign language as the first language in school and learned English in its written form (Staden, 2013), much like in the Kenyan context. In South Africa, Staden (2013) determined that deaf children benefited from a variety of reading strategies, such as presentation of corresponding signs of English words and picture mapping, which led to improved achievement in reading.

It has further been suggested that signs connect words with their meaning (Wauters et al., 2001), thus calling for printed words to be accompanied by illustrations of their signs in classrooms for deaf learners. Additionally, this suggestion by teachers in the current study regarding the inclusion of visual illustration of signs for English words is in line with previous literature advocating for visual support by providing pictures or

illustrations of signs for words in print to be used as a strategy for decoding (Easterbrooks and Trussell, 2016).

#### **6.4.2 Teachers' perceptions**

The teacher in this study perceived that deaf learners' comprehension and writing challenges, language issues, and the negative effect of KSL contributes to deaf learners' limited literacy skills development. In turn, these findings demonstrate limited mediation to support deaf learners' literacy skills development. Without human or mediation via psychological tools, as explained in the SCT (section 4.4.2), deaf children in this study face challenges in learning literacy skills. Mediation problems arise from the use of language for translanguaging in deaf learners' classrooms, as demonstrated in section 3.8.5. Accordingly, the limited language knowledge and KSL's effect on English language described by teachers influence the teaching and learning of literacy skills in this study, especially regarding how much mediation can occur.

##### **6.4.2.1 Deaf learners' comprehension and writing challenges**

Continuing, the findings also suggest that deaf learners' autonomy in reading and writing is inadequate. In turn, this may translate into their inability to participate independently in literacy activities. Most participants stated that deaf children cannot read and comprehend English due to the learners possessing an insufficient English vocabulary knowledge and remaining unable to understand the meaning of words from the context.

From this information, it can be seen that deaf learners in this study fail to acquire the psychological tools like English vocabulary that they need to engage with literacy activities (Lantolf, 2006). This finding matches previous studies where teachers claimed that deaf learners in Omani schools face a lack of ability to comprehend English text (Darwish et al., 2022). Knowledge of English vocabulary comprises a crucial element for learners to be able to read and write, as illustrated in section 3.5 of the literature review, and if deaf learners in this study are not competent in this field, then they may fail to develop adequate literacy skills as a result.

However, teachers' perception that deaf learners lack the ability to comprehend text contrasts with results from a previous study by Ducharme and Arcand (2011). Their findings indicated that deaf children were able to read and understand text after using a technique known as global meaning-making strategy with their teachers to construct meaning. The authors also found that this same strategy was largely used by deaf children who were identified as effective readers. In turn, this implies that deaf learners can comprehend text if they are provided with appropriate techniques for reading comprehension. Although teachers in this study employed some reading strategies deemed effective by Ducharme and Arcand (2011), such as asking questions and using sign language, global meaning-making approaches require deaf learners to actively participate in the lessons for comprehension to be achieved (Ducharme and Arcand, 2011). However, the learners' level of participation in the lessons in this study remained exceptionally low, as demonstrated in section 6.2.4, which subsequently influences the provision of scaffolding and mediation by teachers and may contribute to the learners' lack of comprehension of written English.

Regarding comprehension, there is a need for learners and teachers to collaborate to make meaning of text, as SCT suggests that learners should collaborate with others more knowledgeable or at the same level as them to increase their level of understanding (Kozulin, 2003). In this study, however, it is possible that limited language knowledge and lack of collaboration between deaf learners and teachers could be hindering meaning-making in literacy lessons. In addition, teachers described language-development problems and deaf learners' lack of experiential learning in the current study (sections 5.4.3.2.1). In turn, this may be the cause of learners' lack of familiarity with their previous knowledge about the topic, what to pay more attention to, and when to ask for the teachers' support (Marschark et al., 2011) to increase their comprehension of text. It was further observed in the English lessons in this study that deaf children did not ask questions or make any comment about the passages they read.

The ways in which teachers presented written language in this study may impede deaf learners' comprehension ability. The English text in this study comprises a symbolic tool presented by teachers to enhance learners' literacy knowledge development (Kao, 2010). However, in using symbolic tools, learners need to acquire the meaning of the tools employed for mediation (Kozulin, 2003). It can be understood that teachers in this study do not present written language in ways that promote its expressive and receptive roles. Teachers instead present the written words or comprehension passages for purposes of memorisation and to answer questions from textbooks. For instance, teachers map signs onto words and ask learners to sign without effective demonstration of how the written words can be utilised to express ideas. Furthermore,

deaf learners in this study do not receive adequate opportunities to practise English (see section 5.2.3). Accordingly, this teaching approach and the methods of presenting English text to deaf learners in this study do not teach learners the meaning of text as a psychological tool that they can internalise and later use for independent learning (Kozulin, 2003), including for expressive and receptive purposes.

As stated previously, the teachers assume that deafness contributes to learners' deficient performance in literacy skills. This finding echoes results from a study from Saudi Arabia that attempted to identify the problems associated with teaching English to deaf learners (Khasawneh, 2021). That study reported that problems linked to deaf learners were moderately significant (Khasawneh, 2021). Additionally, teachers in Oman inclusive schools mentioned that reading and writing posed a challenge for deaf learners (Darwish et al., 2022). Literature further indicates that deaf children face problems in sustaining their visual attention (Dye et al., 2008), which contributes to limited comprehension (Marschark et al., 2011). This may be the case for deaf children in Kenya, as well, since their primary mode of communication is KSL, and they need sustained attention throughout the lessons to understand classroom instructions.

#### **6.4.2.2 Language problems**

The findings reveal that teachers perceive hearing loss to impede deaf children's ability to learn reading and writing. Specifically, teachers reported that hearing loss prevents adequate language development before learners join school. The participants further stated that learners need to be proficient in sign language to learn reading and writing, as this is the mode of instruction and communication employed in schools. The

information from the interviews also suggests that, without sufficient sign language knowledge by deaf learners and teachers, it will remain difficult for teachers to mediate learning or initiate learning activities mediated by language.

Most of the information regarding deaf learners' limited sign language was shared by teachers in grades one through three, which indicates that the learners' sign language proficiency is unsatisfactory at this level and inhibits their ability to read and write. Information from this study also reveals that most deaf learners in Kenya are enrolled in schools with minimal language. This can pose a disadvantage for deaf learners, as they need sign language for communication to become effective readers (Salehomoum and Pearson, 2020). Teachers further mentioned that pre-primary schoolteachers lack relevant instructional knowledge, which subsequently hinders learners' acquisition of the manual alphabet. This concern can be linked to previous studies identifying three crucial components of literacy development—namely, knowledge of letters, sounds, and the meaning of words (Breadmore et al., 2019). In connection with learners' limited sign language skills, evidence indicates that deaf learners who receive early exposure to fingerspelling are better prepared to learn to read and can achieve robust decoding and reading fluency skills (Stone et al., 2015).

It has also been noted that proficiency in sign language contributes to letter knowledge by young deaf children (Allen, 2015); similarly, letter knowledge is linked to reading ability among young learners (Lonigan et al., 2000, Lipka and Siegel, 2007). In this way, these studies establish the importance of alphabet knowledge in promoting reading and writing skills for deaf learners. More specifically, a study in Botswana

reported comparable results to those of the current study. According to the teachers in Botswana, deaf children's inadequate sign language knowledge contributed to their poor literacy skills (Mpuang et al., 2015). For the current research, the young deaf children's limited proficiency in sign language and the manual alphabet raises an important question concerning how this might influence their readiness to learn reading and writing and their ability to read and write in the future as they progress through school.

Teachers in this study recognised that they lacked sufficient sign language knowledge to provide effective instruction, which may subsequently interfere with their ability to mediate and scaffold the learning activities. This finding is consistent with results from a previous study by Mweri (2014), which indicated that teachers of deaf learners in Kenya lacked adequate proficiency in sign language, thus contributing to limited learning. Similarly, section 5.4.3.1.1 likewise revealed that limited sign language knowledge contributes to the number of vocabularies taught to deaf learners, as teachers end up teaching only the words for which they know the signs.

Teachers further claimed that the different signs employed by learners and teachers results in communication challenges, mirroring findings from a previous study revealing communication issues between teachers and learners in primary schools for the deaf in Kenya (Mathew, 2014). In turn, the language and communication problems identified in this study may influence the quality and quantity of the learning experiences to which the learners are exposed in English lessons. This is because language facilitates

interaction, which constitutes an important feature in lessons by fostering mediation and scaffolding (Kozulin, 2003).

Furthermore, interaction and effective teaching of language can be facilitated by successful translanguaging if teachers are proficient in sign language, as noted in the literature review. In this study, lack of proficiency in sign language by some of the teachers and deaf learners may have contributed to the insufficient interactions observed in literacy lessons. In turn, this may hinder the learners' exposure to the skills and knowledge needed for reading and writing that were identified in the literature review chapter. In addition, internalisation of English words and sentences that can be used as tools for the co-construction of knowledge during the lesson (Scott and Palincsar, 2013) may not be achieved fully in the context of this study due to limited vocabulary acquired by learners arising from teachers' limited competency in sign language.

#### **6.4.2.3. Negative effect of KSL**

The findings in this study suggest that KSL can be considered the first language for deaf learners in Kenya; however, this may be applicable to only a few deaf learners of deaf parents while the majority learn KSL from others upon enrolling in school (Mweri, 2014). Regardless, KSL was perceived by teachers as a barrier to the development of learners' writing skills. More specifically, the teachers reported contrasting views concerning KSL's impact on reading and writing. For instance, they stated that KSL negatively influences deaf learners' writing while supporting their comprehension. This stands in contrast to the use of translanguaging in bilingual deaf education, where

minority language can support the learning of the majority language (Swanwick, 2017). However, as can be seen from the following paragraphs, the problems the teachers described can be explained by the different language modalities of sign language and English, as well as the ways in which KSL is employed in translanguaging.

Since most teachers use KSL to provide instructions in English lessons (section 5.2.1.2), it was reported that deaf learners use KSL structure in their writing. This is commensurate with findings from previous studies in Kenya and other contexts (Ogada et al., 2014, Wauters et al., 2006, Sambu et al., 2017). The teachers' concerns are further supported by Burman et al. (2007), who argued that the poorest writings of deaf users of British Sign Language (BSL) indicated that they faced a different challenge from hearing learners—namely, learning to write a language that differs from the language of instruction (which is BSL). It is possible that the negative effect of KSL mentioned in this study could be due to the fact that KSL is signed just like all other sign languages while English is a spoken language, and mapping sign language to spoken language may not adequately capture the meaning and structure of spoken language.

However, the literature review section 3.5.1 suggests that, even when sign language is employed for instruction during English lessons, teachers can highlight the differences between the two languages for learners to perceive them as two distinct languages. In this study, most teachers who described using KSL in teaching English did not mention highlighting such differences between the two languages. In fact,

according to observation data, only one teacher explained this difference to the learners out of the six who integrated KSL's use in their lessons.

In contrast to teachers' perception, the literature review indicated that studies have demonstrated that sign languages such as ASL do not interfere with, but rather can support, deaf learners' development of English literacy skills. In turn, the teachers' concern regarding KSL's negative impact on written English as well as the evidence from previous studies regarding the mediational support sign language offers to deaf children suggest that teachers in this study possess limited knowledge regarding how to use KSL for translanguaging to ensure deaf learners achieve reading and writing skills in English.

Additional challenges faced by signing deaf learners in writing have been identified by Burman et al. (2007), who argued that acquisition of English literacy poses a difficulty for deaf children who use BSL due to the lack of one-to-one signs for written words, and signs for concepts are sometimes used to represent the same meaning by a group of words in English. In addition, there are few articles in BSL, leading to the omission of articles in written English regarding deaf learners who use BSL (Burman et al., 2007). Comparably, teachers demonstrated how changing the English sentence structure to reflect that of KSL leads to the loss of articles and non-content words.

The teachers further explained facing challenges in teaching plural and tenses using KSL. Regarding deaf sign language users, Burman et al. (2007) suggested that this could be a cause of the difficulties faced by deaf BSL users in literacy development

due to the non-use of bound morphemes such as -ed (for tense) and -s (for plural) in BSL. Instead, much like KSL users, BSL users indicate these morphemes using signs for yesterday to illustrate past tense, as demonstrated in section 5.2.1.2.1.

As described above, these problems can be addressed through explicit teaching of the differences between English and KSL and by demonstrating how the KSL concepts can be expressed in written English.

It has also been stated that deaf learners must clearly differentiate between sign and written language for the teacher to successfully employ strategies such as chaining (Griffin, 2021). In this study, however, no distinction between KSL and English was provided by most of the teachers despite their use of chaining. This certainly points to the teachers' lack of understanding regarding how to successfully mediate learners' reading and writing skills using KSL. In turn, this finding suggests that teachers assume that, since the deaf learners use sign language as their primary mode of communication, they can automatically differentiate between KSL and English. This assumption subsequently means that deaf learners may not identify the boundaries between the two languages and learn how to apply KSL knowledge in literacy lessons. The ways in which teachers use KSL to teach English could thus be limiting its benefit in advancing deaf learners' comprehension and writing abilities. From the data in this study, it is accordingly suggested that teachers need to consider how they apply learners' knowledge of KSL in literacy activities.

In deaf education in Kenya, deaf children are taught KSL as an academic subject from primary to high school in addition to English (KICD, 2018a). However, according to

teachers in the current study, if instruction in both KSL and English is provided by the same teacher, teaching KSL contributes to confusion between the two languages among deaf children, especially in grades one through three. Since KSL glossing uses the upper-case letters of English words (Mweri, 2016), for instance, this may result in confusion regarding written English and KSL. In contrast to this finding, SIWI (where ASL was used to teach writing to deaf children) reduced the transfer of ASL features to written English (Wolbers et al., 2014). Additionally, deaf students stated that discussions in sign language and the provision of signs for concepts improved their performance in literacy skills, as illustrated in the literature review chapter (section 3.6.1.1).

Continuing, KSL's impact on deaf learners' written English can be linked to the ways in which KSL is employed. This is due to the benefits that sign language offers deaf learners in literacy classes, as identified in the literature. In turn, the teachers' belief regarding KSL's negative impact on English literacy skills may limit their use of learners' KSL knowledge in teaching, and thus minimise opportunities for scaffolding and mediation. Mediation can occur via translanguaging, where KSL can support the teaching and learning of written English (Swanwick, 2017). In this way, deaf learners' opportunities for scaffolding, mediation, and achievement of ZPD is limited, and their acquisition of literacy skills can be delayed. This finding thus indicates that teacher's perceptions can influence their teaching practices and may need to be countered by helping them understand deaf education and literacy skills development.

#### **6.4.2.4 Valuing available support**

Another finding concerns how the teachers perceived the support they received. The teachers' report suggests they are assisted in providing effective instruction in English through effective practices and use of resources. Availability of resources and suitable teaching approaches in a second language enhances the deaf learners' abilities to develop suitable psychological tools and artefacts to boost their literacy skills (Kozulin, 2003, Kao, 2010). The teachers reported that support was available to them at different levels. This support was offered by other teachers and headteachers, the schools, and the government.

In the same way that teachers in the current study mentioned resources being provided by the government, teachers of the deaf in Oman also described receiving resources such as books, smart boards, and computers from the government to help improve their teaching (Darwish et al., 2022). Other studies have likewise highlighted such resources and their impact on the academic performance of learners in schools in Kenya (Ngware et al., 2014), and the teachers' recognition of the resources availed in school indicates the importance they attach to the teaching and learning resources. Textbooks represent the key resource in the Kenyan context, as listed in the curriculum design. In addition, learners use textbooks for assignments and as reference material during the lesson. Teachers view the availability of these resources as one means of enhancing learners' opportunities to engage with literacy materials and use them as artefacts to foster learning (Kozulin, 2003).

Continuing, teachers strove to help each other when a teacher experiences a knowledge gap, which supported them in overcoming some challenges they faced. The schools had their own methods of organising teachers, such as through the formation of subject panels where teachers can meet and discuss issues on specific subjects, including English. The outcome of such organisations was considered useful by teachers, as it granted them the opportunity to share experiences and hear from others. Teachers of deaf learners with additional disabilities in the United States have reported similar findings of receiving support from other teachers or the schools (Musyoka et al., 2016). In turn, these findings indicate that teachers need support to be able to provide effective instruction to their learners (Musyoka et al., 2016). This support improves the teachers' knowledge and skills and can ultimately increase their ability to employ effective techniques, thus contributing to deaf learners' increased performance in literacy skills.

However, this finding contrasts those reported by Berry and Gravelle (2013), according to whom special education teachers reported not receiving any support from general education teachers. This represents an interesting finding, as the support mentioned by teachers in this study comes from their fellow special education teachers. This may suggest that the special education teachers understand each other's work-related challenges as well as the learning needs of the students they teach. This contrasting finding may be explained by the fact that the teachers in this study and those in study by Musyoka et al. (2016) teach in schools for the deaf and are trained in special education, unlike teachers in the study by Berry and Gravelle (2013), who help students with special needs in mainstream schools and received no assistance from

general education teachers. It is also possible that teachers in the current study all experience challenges at some point in their practice since they all teach deaf learners, and thus understand each other's problems and the need to support one another.

## **6.5 Conclusion**

This chapter has elaborated on the main findings from this thesis. These findings have illustrated how teachers availed mediational tools such as phonology and created spaces or opportunities where teachers, other learners, and resources can mediate learning. Furthermore, it was noted that some practices contributed to teacher-centred pedagogy in which learners were inactive during the lessons. The findings thus revealed limited interaction in lessons leading to loss of scaffolding opportunities.

Another key finding concerns teachers' use of visual resources to mediate learners' access to text by activating learners' visual sense, which the teachers perceived as key to the learners' ability to develop literacy skills. In this way, these visual aids mediated deaf learners' ability to understand the lessons' content. Furthermore, this tactic ensured that the learners maintained contact with the language they are learning to read and write through the print materials provided in a variety of forms.

Continuing, the teachers' experiences revealed their concerns and perceptions relating to their ability to provide effective literacy instruction to deaf learners as well as the issues affecting deaf learners' proficiency in literacy skills in primary schools in Kenya. Specifically, teachers' professional knowledge, curriculum, and resources compromised the teachers' ability to present the content of the lessons in ways that

promote mediation, scaffolding, and ZPD. In addition, teachers' perceptions indicate that deaf learners lack psychological tools such as vocabulary and an understanding of written English. Furthermore, there was absence of mediation and translanguaging due to learners' limited language knowledge and KSL's negative influence on deaf learners' literacy skills. However, the support provided to teachers was identified as a mechanism that helps them cope with the challenges they encounter. In turn, this support empowers them to work towards providing effective instruction of English literacy skills.

The next chapter draws from these findings to clarify this study's contribution to knowledge and provides recommendations. Furthermore, I also identify the limitations of this study and clarify avenues for further research.

## **CHAPTER 7: CONCLUSION**

### **7.1 Introduction**

In the previous chapter, I discussed this study's findings in light of existing literature and SCT features of mediation, scaffolding, and ZPD. In this chapter, I conclude this thesis by highlighting the key points that emerged from this study. I begin by explaining this study's contribution to knowledge, which is followed by recommendations for policy and practice. In the following section, I identify limitations of this study and suggest areas for further exploration.

To clarify, the aim of this thesis is to explore how English literacy skills are taught to deaf learners in residential primary schools in Kenya. To this end, this thesis addressed the following three questions:

- What instructional practices are used to teach English literacy skills to deaf children in primary schools in Kenya?
- What teaching and learning materials are used to teach English literacy skills to deaf children in primary schools in Kenya, and what role do they play?
- What are teachers' experiences of teaching English literacy skills to deaf children in primary schools in Kenya?

### **7.2 Contributions to knowledge**

Based on the qualitative data collected and analysed using reflexive thematic analysis (Braun and Clarke, 2022), the current study's findings have extended the field of knowledge regarding how deaf learners are taught English literacy skills in residential

primary schools in Kenya. Specifically, this study has contributed to the current literature in the following ways:

To the best of my knowledge, this work represents the first study to comprehensively explore teaching of English literacy skills to deaf learners who use KSL in primary schools in Kenya. In the past, literacy research has primarily been in high-income countries such as the UK and the USA. Furthermore, such research has recently shifted to implanted deaf children who can access, and use spoken language and learn in mainstream schools. However, a contextual difference remains between Kenya and these high-income countries, which this study has striven to address. The results from the current study may thus prove relevant to teachers of deaf learners who use sign language and attend schools for the deaf, such as those in Kenya. In this way, this study adds to the body of research about teaching English literacy skills to signing deaf learners.

The literature review further revealed that most previous English literacy studies in schools for the deaf in Kenya generated quantitative results. As such, these results do not provide detailed information about teaching English literacy skills to deaf children. In response, this study utilises qualitative data that offers deeper insight into how literacy skills are taught to signing deaf learners. Accordingly, this study has filled the methodological gap identified in studies from Kenya, and thus advances our understanding of teaching English literacy skills to deaf children in Kenya.

Continuing, this study utilised SCT and its three components of mediation, scaffolding, and ZPD to explore the instruction of English literacy skills to deaf learners in Kenya. In this way, the findings of this study have illuminated teacher-centred approaches in literacy lessons of deaf learners in primary schools in Kenya. In turn, this can contribute to improvements in the quality of teacher-training programmes as well as the design of professional development courses for teachers. This will help teachers remain abreast of suitable teaching approaches and resources that contribute to learner-centred practices. Thus, the findings have further highlighted a need to provide in-service training that focusses on learner-centred pedagogy and evidence-based teaching methods.

In addition, these findings can be utilised by researchers to design future intervention studies by using teachers' instructional practices and resources identified in this study. Such intervention studies can potentially investigate the effectiveness of identified instructional practices and resources in teaching literacy skills to deaf learners in Kenya, as well as other similar contexts. An intervention study would further contribute to the teaching of literacy skills to deaf learners by availing empirical evidence to guide the implementation of evidence-based practices.

This study has generated new knowledge by revealing the complexities of teaching reading and writing to deaf learners in Kenya, most of whom join school with underdeveloped language. First, the majority are born to hearing parents who are not proficient in sign language, and thus cannot teach them sign language at home. In addition, despite other languages being spoken at home, deaf learners come to school

without a satisfactory level in any language, as they lack auditory access. Teachers must therefore teach them sign language and English as subjects in the curriculum. Accordingly, this study has highlighted how teachers provide instruction in English literacy skills while considering deaf children's limited language knowledge at enrolment. In turn, this finding can prove useful for teachers and policy-makers seeking to design suitable approaches to teaching literacy skills to deaf learners with insufficient language development.

To explore this subject, I recruited 24 participants, which represents a large sample size for qualitative research. In addition, this study included a diverse sample of teachers with varying durations of teaching experiences in schools for deaf learners (ranging from a few months to more than 20 years). The sample is also comprised of teachers with training in different areas of special needs education (inclusive education and deaf education). As a result, this has produced rich data to help contribute to a broader understanding of teaching reading and writing to deaf learners in Kenya.

### **7.3 Recommendations**

The findings of this study highlight the need for recommendations regarding how literacy skills are taught to deaf children in Kenya. The following recommendations can be adopted through developments of policy and guidelines for practice:

- This study determined that teachers' instructional practices lacked opportunities for collaborative learning, which is key to effective teaching of literacy skills. As such, it is recommended for teachers to consider their literacy instructional

practices. Specifically, teachers must ensure that their instructions foster social interactions and the co-construction of knowledge. To this end, teachers must initiate and encourage interaction between both teachers and learners as well as among the learners.

- The findings of this study further suggest a need to motivate practising teachers of deaf learners in Kenya to enrol in the Teachers' Professional Development (TPD) programme to gain relevant instructional skills and knowledge. The TPD programme was introduced by Teachers' Services Commission (TSC) as a requirement for practising teachers, and it includes pedagogy and inclusive education practices modules, among others (Oduor, 2021). Findings indicate that, even though teachers were concerned about their professional knowledge, they did not express an intention to enrol in the TPD programme. Thus, establishing a need for the government to develop policy and fund continuous professional development of teachers.
- The findings of this study revealed teachers' dissatisfaction with the content of the short trainings and workshops they attend. It would be useful if the government ensures that literacy instructional practices are congruent with the needs of the deaf learners in the Kenyan classrooms. Accordingly, needs analysis should be conducted to ensure professional development programmes are tailored to meet teachers' pedagogical needs and available resources.

- This study's findings further show that KSL and its impact on English literacy skills represented a concern for teachers. Therefore, it is recommended for KSL's role as the language of deaf learners and as a tool for translanguaging to be analysed and clearly communicated to teachers to help them understand how KSL can support literacy skills development. This can be achieved through development and implementation of policy on sign bilingualism to support the use of KSL in literacy teaching.
- Limited language proficiency among deaf learners was identified as a challenge in this study. In response, deaf learners need to be facilitated in acquiring sign language before they join school. To this end, the government can support the implementation of KSL programmes for hearing parents of deaf children at the school level.
- Teachers' experiences indicate that deaf learners acquire limited sign language in pre-primary classes, highlighting the need to ensure these teachers are proficient in sign language to be able to teach such children. The government can develop policy guidelines so that county governments can train teachers of pre-primary classes of deaf learners in deaf education and sign language.

## **7.4 Limitations of the study**

This study features certain limitations, as follows:

As this represents a qualitative study, the findings are not generalisable. However, the study's aim was not to generalise the findings, but rather to produce knowledge regarding how deaf children in Kenya are taught English literacy skills. Therefore, while these findings will not be suitable for generalisation due to this study's methodology, it should be noted that the transferability of these findings to similar contexts is possible given that I have provided a detailed description of the study's context.

The second limitation is that no units for the deaf were included in this study, as this research focussed solely on residential primary schools. The practices and experiences of teachers in units for deaf learners may be influenced by their context, which differ from residential primary schools for the deaf. Including the units for the deaf in a similar study may thus lead to new evidence concerning literacy teaching practices. Nevertheless, the exclusion of these units did not affect the findings of this study; however, if included, this could potentially lead to a broader understanding of how literacy skills are taught to deaf learners in different settings within Kenya.

The fact that only one headteacher participated in this study indicates a need to include more headteachers in similar studies. Most headteachers were out on official duties during my visits to schools (see section 4.9.2). Including more headteachers to participate in future research could provide additional evidence about teaching literacy skills to deaf learners. For instance, headteachers could offer further information about resources in schools and relevant administrative information that teachers cannot provide.

Some teachers in this study only participated in the interview and not in lesson observations. As such, it was not possible to investigate whether the teachers practise what they say in the interview or the reasons for any discrepancies that may have occurred between the interview information and their actual teaching practices. However, this lack of comparison did not influence the findings of this study, as this research did not intend to compare teachers' practices with the interview data; rather, the goal was to use the different data collection tools for triangulation, as elaborated in the methodology chapter.

Lastly, I did not include parents of deaf learners in this study, as the research questions focussed on teachers' practices. The teachers' practices thus provided one lens for understanding how deaf learners develop literacy skills. That said, as noted in the literature review, parents of deaf children also contribute to improved reading and writing skills among the learners. This perspective of parents remains missing in this study and can increase our understanding of Kenyan deaf learners and literacy skills development.

## **7.5 Further research**

The findings from this study have indicated a need for further research to advance our understanding of deaf learners and teaching literacy skills in primary schools in Kenya. Thus, the following research is recommended:

For further understanding of deaf children in Kenya and literacy skills teaching, future studies may consider the deaf learners' experiences in English literacy lessons. The

current study was interested in teaching approaches, and thus did not include the learners; furthermore, due to the Covid-19 pandemic when this study was designed, there was no guarantee that learners would be in schools during data collection. The findings in section 6.4.2 indicated teachers' perception regarding deaf learners, including learners' inability to develop literacy skills. However, by exploring deaf learners' experiences more specifically, another study could potentially offer a different perspective on how literacy skills are taught to deaf learners in Kenya.

To expand this study, another potential research area would be to conduct a detailed investigation of interactions in literacy lessons to analyse mediation and scaffolding. In turn, this can provide a comprehensive description of how literacy lessons are conducted in schools for deaf children in Kenya. Such a study can further provide insights into how teachers and deaf learners interact, including the resources used. As a result, this could provide more in-depth evidence of teachers' instructional practices in Kenya in primary schools for deaf learners.

Another beneficial avenue of research would be to include parents of deaf learners to investigate ways in which they support their children in learning English literacy skills. This would add another dimension of analysing how literacy skills are taught to deaf learners in Kenya, and thus support the development of programmes for improving literacy skills development by deaf learners.

Finally, another study could potentially explore KSL as the language of instruction and how it influences literacy skills development. More specifically, such research could

investigate how KSL influences deaf learners' English literacy skills. In turn, this could potentially clarify teachers' concerns about KSL's negative influence on English literacy skills.

## **7.6 Concluding remarks**

In this thesis, I have presented instructional practices, teaching and learning resources, and teachers' experiences of teaching English literacy skills to deaf learners in primary schools in Kenya. Using an interpretive qualitative approach, I explored how English literacy skills are taught to deaf learners in Kenya from the teachers' perspective, thus expanding our understanding.

The findings have subsequently revealed teachers' efforts to aid deaf learners in developing the requisite sub-skills for learning literacy skills. The findings further show ways in which teachers use visual resources and language to mediate learning. In addition, the teachers' experiences have highlighted the need for professional development programmes to help them develop effective approaches to English literacy teaching. Beyond this, teachers' experiences reveal a need to address challenges such as limited language skills among deaf learners and KSL's use in literacy instruction through translanguaging.

The findings have advanced knowledge in the field of deaf learners and literacy skills development, as illustrated in section 7.2. In this way, these findings will hopefully prove useful for planning and implementing literacy skills teaching to signing deaf learners.

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# Appendices

## Appendix 1: University of Birmingham ethics approval

Liz Hodges (School of Education)

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**From:** Samantha Waldron (Research Support Services)  
**Sent:** 09 December 2020 14:28  
**To:** Liz Hodges (School of Education)  
**Cc:** Jillo Kalla (PhD Education - FT)  
**Subject:** Application for Ethical Review ERN\_20-1756

Dear Dr Hodges,

**Re: "Teaching English to Deaf children in Kenya,"**  
**Application for Ethical Review ERN\_20-1756**

Thank you for your application for ethical review for the above project, which was reviewed by the Humanities and Social Sciences Ethical Review Committee.

On behalf of the Committee, I confirm that this study now has full ethical approval.

I would like to remind you that any substantive changes to the nature of the study as described in the Application for Ethical Review, and/or any adverse events occurring during the study should be promptly brought to the Committee's attention by the Principal Investigator and may necessitate further ethical review.

Please also ensure that the relevant requirements within the University's Code of Practice for Research and the information and guidance provided on the University's ethics webpages (available at <https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Links-and-Resources.aspx>) are adhered to and referred to in any future applications for ethical review. It is now a requirement on the revised application form (<https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Ethical-Review-Forms.aspx>) to confirm that this guidance has been consulted and is understood, and that it has been taken into account when completing your application for ethical review.

Please be aware that whilst Health and Safety (H&S) issues may be considered during the ethical review process, you are still required to follow the University's guidance on H&S and to ensure that H&S risk assessments have been carried out as appropriate. For further information about this, please contact your School H&S representative or the University's H&S Unit at [healthandsafety@contacts.bham.ac.uk](mailto:healthandsafety@contacts.bham.ac.uk).

Kind regards,

**Ms Sam Waldron**  
Research Ethics Officer  
Research Support Group  
C Block Dome (room 137)  
Aston Webb Building  
University of Birmingham  
Edgbaston B15 2TT  
Tel: 0121 414 8101 (if you leave a voicemail message and number I will get back to you)  
Email: [s.m.waldron@bham.ac.uk](mailto:s.m.waldron@bham.ac.uk) (also available on Skype for Business)

Please remember to submit a new [Self-Assessment Form](#) for each new project. Click [Ethical Review Process](#) for further details regarding the University's Ethical Review process.

Click [Research Governance](#) for further details regarding the University's Research Governance and Clinical Trials Insurance processes, or email [researchgovernance@contacts.bham.ac.uk](mailto:researchgovernance@contacts.bham.ac.uk) with any queries

*Notice of Confidentiality:*

## Appendix 2: NACOSTI Research Permit

 <b>REPUBLIC OF KENYA</b>	 <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
<b>Ref No: 890938</b>	<b>Date of Issue: 10/February/2021</b>
<b>RESEARCH LICENSE</b>	
	
<p><b>This is to Certify that Ms. JILLO SHARAMO KALLA of University of Birmingham, has been licensed to conduct research in Embu, Isiolo, Kiambu, Kirinyaga, Kitui, Machakos, Meru, Muranga on the topic: Teaching English to deaf children in primary schools in Kenya for the period ending : 10/February/2022.</b></p>	
<b>License No: NACOSTI/P/21/8923</b>	
<b>Applicant Identification Number</b> <b>890938</b>	 <b>Director General</b> <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
<b>Verification QR Code</b>	
	
<p><b>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</b></p>	

### Appendix 3: County Director of Education permit (Embu)



#### MINISTRY OF EDUCATION

State Department of Early Learning and Basic Education

Telegrams: "Provedu", Embu  
Telephone: Embu 31711  
Fax: 30956  
E-mail: cde.embu@yahoo.com  
When replying please quote:

OFFICE OF THE  
COUNTY DIRECTOR OF EDUCATION  
EMBU COUNTY  
P o Box 123-60100  
**EMBU**

Ref: EBC/GA/19/4/Vol. II/9

Date: 15 March 2021

JILLO SHARAMO KALLA  
University of Birmingham

**RE: RESEARCH AUTHORIZATION**

Reference is made to your letter dated 15<sup>th</sup> December, 2020.

This office acknowledges receipt of your research authorization to carry out research on **teaching English to Deaf children in primary schools in Kenya** for a period ending 10<sup>th</sup> February, 2022.

This office has no objection and therefore wishes you success in this undertaking and requests prospective participants/respondents to accord you cooperation or support you may require.

**J K KAIRU**  
County Director of Education  
**EMBU COUNTY**

**Copy to:**

The Principal Secretary, MOE-NAIROBI

All Sub-county Directors of Education – **EMBU COUNTY**



## Appendix 4: County Commissioner research (Embu)



**OFFICE OF THE PRESIDENT  
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT**

Telephone: Embu0202310839  
FAX 30040  
Email: [ccembu@gmail.com](mailto:ccembu@gmail.com)  
When replying please quote ref and date

**County Commissioner**  
Embu County  
P.O. Box 3 - 60100  
**EMBU.**

**Ref:No.EBU/CC/ADM/3/37 VOL.III/(111)**

**15<sup>th</sup> Marcy, 2021**

Deputy County Commissioner  
**MBEERE SOUTH**

**RE: RESEARCH AUTHORIZATION**

Please be informed that **Ms. Jillo Sharamo Kalla** of University of Birmingham licence **No.NACOSTI/P/21/8923**, has been authorized to carry out research in your Sub County for the period ending **10<sup>th</sup> February, 2022**.

The research is based on '**Teaching English to deaf children in primary schools in Kenya**'.

Kindly accord her the necessary assistance.

**C.A. IMAYA**  
**For: COUNTY COMMISSIONER**  
**EMBU COUNTY**

Copy to:-

University of Birmingham

## **Appendix 5: Participant Information leaflet**

**Researcher:** Jillo S. Kalla

**School:** School of Education, University of Birmingham

**Contact:** [REDACTED]

UK mobile Phone Number: [REDACTED]

Kenya Mobile Phone Number [REDACTED]

**Lead Supervisor:** Dr. Liz Hodges

**Contact:** [REDACTED]

**Co-Supervisor:** Dr. Emmanouella Terlektsi

**Contact:** [REDACTED]

### **Why this research?**

This research is about how English literacy skills are taught to deaf children in primary schools in Kenya. English is the language of instruction in Kenya from grade 4 up to university in all subjects except for other foreign languages, Kenyan Sign Language and Kiswahili. Literacy skills in English are important skills for deaf children's access to the instructions and instructional materials and for improved performance in examinations. It is equally important for teachers to be equipped with necessary skills and knowledge on suitable approaches to teaching deaf children. In this study teaching of literacy skills will be explored to develop an in-depth understanding.

I would like to understand what options you have in terms of teaching and learning resources and activities, what eventually guide your choices of strategies and teaching aids. Therefore, I would like to find out how you and other teachers teach these skills to deaf children and understand your experiences.

### **Why am being requested to participate?**

You are invited to take part in this study because you teach English language to deaf children in your school. This is guided by the fact that the information required for this study is about teaching English literacy. Therefore, the people who can provide this information are the teachers who teach English language to deaf children and not any other subject. In addition, headteachers of the schools for deaf children and teacher-

in-charge of units for the deaf children are also invited as people who have administrative responsibilities in schools since this may have an impact on teaching and learning.

### **How will the information be collected?**

The information in this study will be collected using telephone/face to face interviews and analysis of documents such as textbooks, teachers' guidebooks and syllabus.

Headteachers, teachers who teach English and teacher-in charge of units will be interviewed via telephone after they consent to taking part in the study. Telephone/face to face interviews will be audio-recorded and later transcribed.

I will also conduct an observation of one of your English lessons. Observations of the strategies and the resources used in teaching will be made by the researcher. An observation guide will be used, and notes will be made by the researcher during the observation.

### **What happens if I agree to take part?**

Once you agree to take part in the study you will sign the consent form and email/send it to me. I will contact you so that I can answer any questions you have, and we will set a day and time for the telephone/ face-to-face interview. On the agreed day and time, I will ask if you still want to take part and if you agree to it, the interview will go on. I will ask you about teaching strategies and materials you use in English literacy lessons, what issues you consider in choosing the particular strategies and materials you use and your experiences in teaching literacy skills to deaf children. Headteachers will be interviewed on issues related to teaching and learning resources, deaf children's examination performance and general information about the schools and units.

### **What is the duration of my participation?**

I will get in touch with you first after you sign the consent form, you will later be interviewed once over the telephone/or face to face. I will arrange with you the day and time that the interview will be conducted. The interview may last for about one hour. One English language lesson of 35 minutes will be observed.

### **Do I have to Participate?**

Your participation is not compulsory, and it will entirely depend on you. You have the freedom to choose to take part or not. Once you agree to participate you will consent by signing the consent form that has been provided to you with this document. In

addition, before we begin the interview you will be given the opportunity to say if you still want to take part or not. After we conduct the interview and you would like to withdraw, you can do so within one- month period after data has been collected.

**Will the information I give be kept confidential?**

The information you provide will be kept confidential. If you decide to take part in the study, information will be collected through telephone interview which will be audio-recorded and then transcribed. During transcription, fictitious names will be used for each individual teacher, headteacher, teacher-in charge and each school and unit. This will ensure that nobody can identify who provided the information. The electronic files used to store data will be password protected and it is only the researcher who will have access to it. Back up anonymized data will be stored on BEAR, which is University of Birmingham's data storage space.

The information you provide will be for thesis writing and articles for publications at the end of the study. At the end of the research, the thesis will be deposited at University of Birmingham resource center in both soft and hard copies. The thesis will be in open access format and can be accessed by others for the purpose of reference in future research. Research findings may also be shared in academic journals or conferences. However, all information you provide will be anonymized by use of fictitious name and therefore, it cannot not be traced back to you. Anonymized data will be shared with the researcher's supervisors for supervision purposes.

The data will be stored at University of Birmingham for a period of 10 years. This follows the university's policy and for the purpose of reference to the data if need arises, for example, comparing the results of the study with the data that was collected. The data will be anonymized, and no real names will be used in any of the information that will be stored.

**Who is funding the study?**

The researcher has been awarded a scholarship to study at University of Birmingham by the Commonwealth Scholarship Commission.

**Does the study present any risks to me?**

No, this study doesn't present any risk to you or to your work. Any shared information will be done in format that will not allow anyone to identify who provided it. I will use

fictitious names for schools and all participants in circumstances where information will be shared. (for more information on this, see notes under *confidentiality* and *what will happen to result of the study* sections in this document)

**What will be done with the results of the study?**

This information will be used for thesis writing for my study at University of Birmingham which will be made available at the resource center and will be accessible by others. In addition, the final report will be shared with National Commission of Science, Technology and Innovation in Kenya as required by the commission. To contribute to knowledge about literacy teaching to deaf children, the final report or findings may also be shared in seminars and journal articles by the researcher. (these will contain anonymized data, and no one can identify who provided the information contained in any of these documents).

I will share the findings of the study with you via You Tube once the study is complete.

**Will I be allowed to withdraw from the study?**

Yes, you can ask to withdraw from the study and request removal of any information you have provided so that it is not used in the study within a period of one month after the data collection. After this period, your information may have already been used in analysis and it will be difficult to remove the specific information you provided.

If withdrawal happens before the end of the one-month period after data collection, I will not use any information you provided, and I will make sure it is deleted from all my records. If you decide to withdraw there are no consequences and you don't have to give any explanation as to why you would like to withdraw.

**Who will address any questions or concerns that I may have?**

In case you have any issue or questions concerning this study, you can get in touch with me or my supervisors Dr. Liz Hodges at [REDACTED] and Dr. Emmanouela Terlektsi at [REDACTED]

*Thank you for reading this information. I have provided the consent form with this document. Please, read it and sign it if you agree to take part in my study. After you sign it, email to me and I will also sign and send you a copy for your records.*

## **Appendix 6: Consent form**

### **Participant Consent Form.**

**Researcher:** Jillo S. Kalla

School of Education, University of Birmingham

**Contact:** [REDACTED]  
[REDACTED]

**Lead Supervisor:** Dr. Liz Hodges

**Contact:** [REDACTED]

**Co-Supervisor:** Dr. Emmanouella Terlektsi

**Contact:** [REDACTED]

I would like to make sure that you understand all about this study so that you can make an informed decision on whether to participate or not.

Please read the following information before you sign the consent form.

#### **Fair Processing statement.**

The data collected in this study will be used for the purpose of writing a PhD research project at School of Education, University of Birmingham. In addition, the findings of the study may be shared through publications and conferences. The data from the interview that you will participate in and any other information collected during the data collection process will be stored in electronic files on University of Birmingham OneDrive in an anonymized format. The files will password protected. Interview data will be anonymized by assigning participants and school fictitious names. Backup anonymized data will be stored in a cloud-based drive at University of Birmingham for a minimum period of 10 years as per the university policy. This is for the purpose of confirmation of the results of the study if required and it will only be used for the purpose for which it was intended.

In addition, anonymized data will be shared with the researcher's supervisors at the University of Birmingham for the purpose of supervision of the study. The anonymization of data will make sure that no one will be able to link you to the information that will be stored or shared. The information you give will be confidential, for example, in case of any published work such as reports or articles, the researchers will ensure that information contained in each one of these will be anonymized by use of fictitious names.

**Statement of Understanding/consent.**

Your consent:

- I have read and understood the information about this study which was provided in the information document. I was given the opportunity to raise any concerns or ask questions about the study.
  - I understand that the interview that I will take part in will be audio-recorded.
  - I understand that I will provide access to documents related to teaching English literacy skills to deaf children.
  - I understand that observation of one of my English language lessons will be done.
  - I understand that it is not mandatory for me to participate in this study and that I am free to withdraw before the end of one month after data collection. In case I withdraw within this duration, the information I give will be deleted and will not be used in the study.
  - I understand how the data I provide will be collected, used and stored.
  - I understand that the data I will provide will be used anonymously in production of thesis for PhD study at University of Birmingham. Report/ findings may be shared in publications, seminars and conferences in an anonymized form.
  - I understand that I will not be paid any compensation for taking part in the study.
- Based on the above, I agree to take part in this study.

**Name of the participant.....Signature.....**

**Date.....**

**Mobile Phone Number.....**

**Name of the researcher.....**

**Signature..... Date.....**

## **Appendix 7: Interview guide for teachers and headteachers.**

### **Brief background information about the teacher.**

- How many years have you been teaching?
- Which area of special needs in education did you train in?
- Which grade do you teach English?

#### **A. Importance of reading and writing**

- Can you tell me whether reading and writing skills are important to deaf children?

#### **B. Teaching strategies**

- Which teaching strategies do you use to teach English literacy? (Probe: for example, how do you teach reading and writing?) Can you share with me how you take learners through;
  - Comprehension lesson
  - grammar lesson
  - vocabulary lessons.
- What factors do you consider when choosing teaching strategies?
- What can you say about the suitability of the teaching strategies that you use? (Probe: can you tell me about a lesson in which you were not able to achieve the objectives due to teaching strategy/method you used?).
- What impact does the choice of teaching strategies have on the way deaf children learn?
- Is there any reading and writing skill in English language that is more challenging to teach to deaf children in your class? How do you try to overcome the challenges?
- Do you think lack of spoken language affects the choice of teaching strategies? How do you overcome that?
- How do you use KSL in teaching reading and writing? In what ways do you make use of deaf children's knowledge of KSL in teaching reading and writing?

- How do you usually maximize the benefits arising from deaf children visual awareness skills/strengths?

**C. Comparing teaching English to deaf and hearing children and to other subjects**

- Can you compare the way you teach English literacy skills to deaf children to teaching English to hearing children? For example, how do you teach reading and writing to deaf children?
- Do you teach English differently from the way you teach other subjects? If yes, can you give me an example of one other subject you teach and compare it with the way you teach English.

**D. Teaching and learning materials/Resources**

- Can you tell me the importance of using teaching and learning materials/resources for deaf children?
- What sort of learning materials/resources do you use in teaching reading and writing?
- What can you say about the availability of the teaching materials/resources that you need to use?
- What factors guide your decision in which teaching and learning resources to use?
- According to you, are there any specific teaching and learning materials suitable for deaf children?
- Share with me examples of resources that you would/use/not use to teach reading and writing to deaf children, why would you not use it/them?

**E. Factors that guide choice of strategies and resources**

- What do you consider when choosing which strategies to use?
- What do you consider when choosing teaching and learning materials to use?
- In what ways do you use the following documents in identifying which strategies and resources to use in teaching reading and writing.

Learners' textbooks

Teachers' guidebook

lesson plans

schemes of work

Syllabus

- Is it always possible to follow the information contained in the above documents? If not, why?
- What role does method of communication have in the choice of strategies you make?
- Are there any personal reasons that make you choose some methods and resources/teaching aids and not others?
- How does the training you had affect the methods and resources you use? For Example, do you sometimes opt not to use a certain method/resource due to limited knowledge on how to use it?
- What support do you receive in relation to teaching methods and resources?  
For example, from curriculum support officers?
- Tell me some of the resources that are suggested in the documents you use that you actually don't use? Why is this the case?
- Can you remember any lesson that you feel went very well based on the learning aids that you used?

#### **F. Teachers' experiences**

- What are your experiences with the teaching strategies you have been using?  
For example, how easy is it to use specific strategies with deaf children?
- What experiences have you had with learning resources that you use?
- How can teaching English literacy skills to deaf children be adapted?

### **B. Interview guide for headteachers**

## **Information about headteacher/teacher-in charge background**

- How many years have you served as a headteacher/teacher-in-charge?
- Which area of special needs education did you train in?

### **A. About the school/unit**

- Which categories of children with special needs are enrolled in the unit/school?
- How many teachers are there in the school/unit?
- what areas in special needs education have the teachers trained in?

### **B. Importance of Literacy skills to deaf children**

- Can you tell me whether reading and writing skills are important to deaf children?

### **C. Teaching and learning materials**

- Which teaching and learning resources are used in the school/units for teaching English literacy?
- What is your experience with availability of the teaching and learning materials in the school/unit? (For example, can you tell me one time when the school did not have a specific teaching and learning material that were required by teachers?)
- How suitable are the available teaching and learning materials for deaf children?

### **D. Teaching strategies**

- Are there any school-specific guidelines on how English literacy skills should be taught in your school?
- What do you think of the suitability of strategies that teachers use in teaching literacy skills to deaf children? (Probe: is there any time that you found out that a specific strategy used by teachers was not suitable?)
- Are there anyways in which teaching English reading and writing can be adapted for deaf children? If yes, how can it be done?

- Are there times when teachers are given trainings on methods and resources of teaching English literacy skills to deaf children, for example do you get support from the curriculum support officers?

**E. Deaf children's performance**

- What is the English language performance of the children from this school in national exams? How can you compare that to performance of hearing children?
- How do the children in this school perform in English language in school level assessments/tests?
- What factors according to you have had an impact on the performance of deaf children in reading and writing in English?

## Appendix 8: Initial codes

Teaching English to deaf children in primary school in Kenya.nvp - NVivo 12 Plus

File Home Import Create Explore Share

Paste Cut Copy Merge Clipboard Properties Open Memo Link Create As Code Create As Cases Query Visualize Code Auto Range Uncode Case File Classification Classification Detail View Sort By Undock Navigation View List View Find Workspace

**Nodes** Search Project

Name	Files	References	Created On	Created By	Modified On	Modified By
teacher looks for resources	1	1	09/11/2021 14:25	JK	09/11/2021 14:25	JK
teacher lacks knowhow	3	3	09/11/2021 15:58	JK	10/11/2021 13:05	JK
teacher has to go an extra mile to teach deaf	5	5	10/11/2021 00:55	JK	11/11/2021 12:26	JK
teacher fingerspells, signs and write on the board	1	1	11/11/2021 09:59	JK	11/11/2021 09:59	JK
teacher finger spells and learners write	1	1	10/11/2021 18:55	JK	10/11/2021 18:55	JK
teacher explains using KSL	5	6	09/11/2021 14:12	JK	10/11/2021 12:44	JK
teacher explains the story	1	1	09/11/2021 13:40	JK	09/11/2021 13:40	JK
teacher explains how the should write	1	1	09/11/2021 20:53	JK	09/11/2021 20:53	JK
syllables and letter sounds difficult for deaf children	1	1	10/11/2021 19:14	JK	10/11/2021 19:15	JK
story left in class for practice	2	2	09/11/2021 14:10	JK	09/11/2021 14:42	JK
some videos in CBC are voiced	1	1	10/11/2021 14:47	JK	10/11/2021 14:47	JK
some resources are to be provided by parents	1	1	09/11/2021 17:10	JK	09/11/2021 17:10	JK
some classes dont have electricity	1	1	10/11/2021 12:51	JK	10/11/2021 12:51	JK
simplify comprehension by teacher will not help learners in future(Nodes)	1	1	10/11/2021 15:16	JK	10/11/2021 15:16	JK
simplify comprehension by teacher leaves out something	0	0	10/11/2021 15:15	JK	10/11/2021 15:15	JK
signs may mean different things to teacher and children	1	1	10/11/2021 13:19	JK	10/11/2021 13:19	JK
signing and showing words help them understand better	1	1	10/11/2021 12:53	JK	10/11/2021 12:53	JK
sign and saying	1	1	10/11/2021 17:17	JK	10/11/2021 17:17	JK
sign and fingerspelling of new words	5	5	09/11/2021 17:42	JK	11/11/2021 12:15	JK

JK 170 Items

Type here to search

15°C ENG 13:17 11/11/2021

## Appendix 9: Themes stage 1

Teaching English to deaf children in primary school in Kenya.mvp - NVivo 12 Plus

File Home Import Create Explore Share

Themes Stage 1 Search Project

Name	Files	References	Created On	Created By	Modified On	Modified By
Resources	0	0	24/11/2021 16:56	JK	24/11/2021 16:56	JK
miscellaneous codes	0	0	01/12/2021 15:14	JK	01/12/2021 15:14	JK
trainings are few	1	1	18/11/2021 18:49	JK	24/11/2021 14:24	JK
KSL not used in teaching	1	1	10/12/2021 16:43	JK	20/11/2021 13:30	JK
Explain meaning of new words	2	2	22/11/2021 19:00	JK	22/11/2021 19:05	JK
multimodal language by teacher	4	4	10/12/2021 16:43	JK	14/01/2022 17:05	JK
Inadequate training for teachers	8	8	18/11/2021 18:49	JK	23/11/2021 15:48	JK
Role of TUSOME	3	8	18/11/2021 19:36	JK	21/11/2021 00:29	JK
Resources are available	7	9	18/11/2021 18:49	JK	21/11/2021 00:29	JK
Encouraging the deaf learner participation in the lesson	8	10	18/11/2021 18:49	JK	23/11/2021 02:33	JK
Teachers strategies to cope with challenges	8	10	22/11/2021 19:41	JK	23/11/2021 02:38	JK
use of spoken language in English lessons	7	11	18/11/2021 18:49	JK	24/11/2021 03:04	JK
Use of Signed Exact English to teach	11	11	18/11/2021 18:49	JK	17/11/2021 01:26	JK
Computers and projectore used in teaching	9	11	18/11/2021 18:49	JK	24/11/2021 03:02	JK
Teachers ensure learning resources are available	7	12	18/11/2021 18:49	JK	23/11/2021 22:55	JK
Parental support is needed for the children	7	12	18/11/2021 18:49	JK	23/11/2021 16:21	JK
multiple disabilities in same class	8	12	18/11/2021 18:49	JK	26/12/2021 19:18	JK
Teacher based problems	9	13	18/11/2021 18:49	JK	17/11/2021 02:40	JK
Resources not available	10	14	18/11/2021 18:49	JK	24/11/2021 13:08	JK
suggested adaptations to English language teaching to deaf children	11	14	21/11/2021 01:45	JK	23/11/2021 02:39	JK
Use deaf children's first language in teaching English	14	17	18/11/2021 18:49	JK	23/11/2021 23:34	JK
learner have problems in learning English	11	17	18/11/2021 18:49	JK	24/11/2021 16:13	JK
Challenges arising from the curriculum	13	17	18/11/2021 18:49	JK	23/11/2021 02:35	JK
Late first language development	7	23	18/11/2021 18:49	JK	21/11/2021 01:43	JK

CV 170 Items

## Appendix 10: Themes stage 2

Teaching English to deaf children in primary school in Kenya.nvp - NVivo 12 Plus							
File Home Import Create Explore Share							
Themes stage 2							
Folders	Name	Files	References	Created On	Created By	Modified On	Modified By
	suggested adaptations to English language teaching to deaf children	0	0	24/11/2021 16:37	JK	23/11/2021 02:39	JK
	Reduce curriculum content for deaf learners	0	0	01/12/2021 17:48	JK	01/12/2021 17:48	JK
	Include more visual tools	0	0	01/12/2021 17:49	JK	01/12/2021 17:49	JK
	Strategies used by teachers to teach English language	0	0	24/11/2021 16:41	JK	24/11/2021 17:18	JK
	Scaffolding	5	11	24/11/2021 16:37	JK	23/05/2022 13:03	JK
	Effective classroom management	19	26	24/11/2021 16:37	JK	01/12/2021 15:38	JK
	Coping with the challenges	16	29	24/11/2021 16:37	JK	06/12/2021 01:29	JK
	Resources used in teaching English	0	0	24/11/2021 16:59	JK	24/11/2021 17:56	JK
	helps in teachers preparation and learners access to the content	0	0	08/12/2021 22:43	JK	08/12/2021 22:43	JK
	Computer and mobile phones	0	0	23/09/2022 20:14	CW	23/09/2022 20:14	CW
	Visual aids	13	15	18/11/2021 18:49	JK	04/12/2021 23:58	JK
	helps in teachers preparation and learners access to the content	0	0	10/12/2021 16:43	JK	08/12/2021 22:43	JK
	Use of textbooks and visual aids to enhance access to learning	5	5	10/12/2021 16:43	JK	12/12/2021 13:36	JK
	Curriculum Design	1	5	12/12/2021 13:15	JK	12/12/2021 13:33	JK
	Teachers experiences of teaching English language to deaf children	16	23	24/11/2021 16:40	JK	01/12/2021 19:39	JK
	Limited knowledge and use of resources	0	0	28/11/2021 18:38	JK	07/12/2021 13:34	JK
	Language and communication problems	0	0	28/11/2021 18:47	JK	08/12/2021 22:37	JK
	Valuing available support	0	0	01/12/2021 19:41	JK	07/12/2021 13:35	JK
	problems arising from limited time and use of resources	16	23	24/11/2021 16:37	JK	09/12/2021 18:40	JK
CW 149 Items							

## Appendix 11: Observation Guide.

Teaching English to deaf children in primary schools in Kenya.

<b>School:</b>	
<b>Class:</b>	
<b>Teacher:</b>	
<b>Date of Observation:</b>	
<b>Time:</b>	
<b>Lesson Focus/Topic:</b>	
<b>Teaching Strategies used:</b>	
<b>Materials and Resources Used:</b>	
<b>Language of Instruction:</b>	
<b>Any other observations:</b>	
<b>Comments:</b>	





**Comments:**

3/4



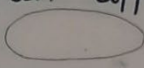


3A

At some point the teacher told learners to sign any word from the poem which they knew how to sign instead of signing sentence by sentence.

**Instructional practices used by teachers to teach English language**

**Coding Density**

### Appendix 13: Example of charts on classroom walls

Articles		
Article	Picture	Word
A		ball
Glen has a ball.		
A		Cup
I have a red cup.		
An		apple
I have an apple in my bag.		
An		egg
This is an egg.		
The		Sun
The sun rises in the East.		
The		flag
The flag has four colours.		