Deaf children as language learners: The strategies teachers use to support early language development in deaf children in Kenya

Lorraine Michelle Wapling

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Declaration

I, Lorraine Wapling confirm that the work presented in my thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

Deaf children experience low academic results in comparison to hearing peers despite the fact that deafness is not a learning disability. This is experienced most acutely in the global South where access to early diagnosis and family support mechanisms are limited. Despite a positive inclusive education policy environment, deaf children in Kenya show poor average results in the national exams at the end of primary school indicating that the system is not meeting their educational needs.

Currently there is little academic research that specifically documents the educational challenges facing teachers of deaf primary age children in low resource contexts. This study will explore whether special education teachers in Kenya are equipped to assess and support the early language development needs of deaf children. The study is situated within Skyer's deaf-centric approach focusing analysis on the extent to which classroom practice pays full attention to the biosocial aspects of young deaf children's lived reality.

A participant-as-observer, qualitative research approach was used to collect data from early years classroom teachers across three schools for deaf children in Kenya. An interpretive analysis framework was used to determine findings. A novel early language assessment tool was trialled to help teachers identify primary language difficulties amongst their students.

Findings revealed deaf children to be significantly delayed in their primary language capabilities with teachers who were ill-prepared for their specific educational needs. It suggests that pedagogy and curriculum materials were creating confusing language environments that were hindering development of primary language in the deaf children.

This study recommends a mindset change in approach to early years education for deaf children: to move away from viewing signed languages as an impairment accommodation towards a focus on primary language development needs. Deaf-centric approaches should be applied. Internationally, inclusive education programmes must pay attention to this unmet educational need.

Impact statement

Deaf children experience low academic results in comparison to hearing peers despite the fact that deafness is not a learning disability. This is experienced most acutely in the global South where access to early diagnosis and family support mechanisms are limited. Deaf children face specific learning needs around primary language development because they rarely have access to a fluent language in their homes. However, there is little academic research focused on the impact this has on the design of inclusive education. Globally the consequences of this research gap are found in a lack of attention paid to articulating the early language deficit in deaf children as an educational need within inclusive education policies and programmes. This study explores how special education teachers in Kenya assess and support the early language development of deaf children.

This research revealed deaf children to be significantly delayed in their primary language capabilities with teachers who were ill-prepared for their specific educational needs. These findings are directly relevant to the Department for Education in Kenya, and for the Kenya Institute of Special Education (KISE) who need to be aware of current shortcomings in training and curriculum design. It also uncovers a significant gap in the way international development programmes approach deaf children within inclusive education programmes and is therefore of significant value to agencies wanting to design effective educational interventions. In the immediate term this research has resulted in changes to the way that Deaf Child Worldwide, the UK's main international development organisation focused on deaf children and their families, approaches its early years education support. Deaf Child Worldwide is currently

working with KISE to contextualise the novel language assessment tool piloted in this research with the intention of rolling it out in schools across the country. Further immediate impacts from this research have included training to Deaf Child Worldwide on how to use the language assessment tool; advisory support into the development of the new language profiling project between KISE and Deaf Child Worldwide; and presentations to two international conferences on education in the UK and the US. At least two academic papers are planned over the next year to promote the mindset change required to ensure deaf children's unmet primary language needs are being studied within the discourse around inclusive education.

I work in international development and regularly interact with the UKs Foreign Commonwealth and Development Office, providing training on inclusion of deaf and disabled persons in the initiatives they support. I will use these and other interactions with agencies such as UNICEF to promote a more nuanced understanding of the importance of primary language support for deaf children in inclusive education initiatives in the Global South.

At local level this research has already had an impact on the teachers in the study who set up their own small community of practice to continue discussing how best to address the language deficit they were now observing. These teacher level changes may continue if KISE successfully implement the new language profiling activities across more schools in Kenya.

Acknowledgements

I would like to thank all those who worked alongside me on this long journey. The members of the research team and the teachers who gave their time and expertise to me so willingly: who taught me so much about deaf education in Kenya and what it is like to grow up in a place where so little awareness and support is available. We spent many hours together, often in very hot and dusty circumstances, but our conversations and debates were always so rich. Quite simply this research would not have been possible without their insights and contributions.

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Finally, to my partner, close friends, and family – thanks for giving me the time and space to do this.

Acknowledgements

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Abbreviations

CRPD	United Nations Convention on the Rights of Persons with Disabilities
CSO	Curriculum Support Officer
dBHL	Decibels of Hearing Loss
DCW	Deaf Child Worldwide
DSE	Disability Studies in Education
EARC	Education Assessment and Resource Centre
EFA	Education for All
EMIS	Education management information system
FBE	Free Basic Education
FCDO	Foreign Commonwealth and Development Office
GPE	Global Partnership for Education
KCPE	Kenya Certificate of Primary Education
KISE	Kenya Institute for Special Education
KSL	Kenya Sign Language
KSL-MT	Kenya Sign Language Mother Tongue
MDGs	Millennium Development Goals
MT	Mother Tongue
NGO	Non-governmental organisation
OHCHR	Office of the United Nations High Commissioner for Human Rights
OPD	Organisation of Disabled Persons
SDGs	Sustainable Development Goals
SEN	Special Educational Needs
SNE	Special Needs Education
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UPE	Universal Primary Education
WHO	World Health Organization

Introduction

Deaf children around the world experience low academic results in comparison to their hearing peers although deafness in and of itself is not a learning disability (Maller & Braden, 2012; Marschark & Knoors, 2012). Nevertheless, it is a 'fundamental educational handicap' because hearing impairment directly impacts on the linguistic and cognitive development of children (Gudyanga, 2014).

Early language fluency is important for social and cognitive development and plays a role in children's acquisition of further languages (Cummins, 1989; Marschark & Knoors, 2012; Marschark & Hauser, 2012). Deaf children however face very specific learning needs around language because they rarely have access to a fluent language in their homes or communities (Storbeck & Martin, 2010; Knoors & Marschark, 2014).

The purpose of this research is to explore what special education teachers in deaf schools in Kenya know and believe about young deaf children as language learners. It looks at how these teachers approach and define deafness and language, what attitudes and beliefs influence their day-to-day decision making in the classroom and what skills and knowledge they have available to them for supporting early language development in their students. In particular, it investigates teachers' understanding and knowledge of concepts such as language acquisition, communication, and sign language, as they relate to deaf children in the early years of formal education in Kenya and whether their constructs impact on pedagogical choices and teacher self-efficacy.

A key component of the research explores how teachers assess the language capacity of the children, as individuals and as a class; what methods they employ for measuring language skills, how they monitor progress and what teaching strategies they employ in response. As part of this exploration a novel language assessment tool (described in detail in Appendix 1) is introduced to the teachers to gauge whether or not it provides a useful mechanism for understanding the students language capacity and assists them in looking for ways to target language support more effectively.

Overall, the research provides a baseline understanding of the skills, knowledge, and attitudes of teachers around the early language learning needs of deaf children in deaf schools in Kenya and offers evidence around the utility of language capacity assessment tools in the education of young deaf children. It also challenges assumptions built into inclusive education programmes supported by the international development community which rely on providing teachers, or teaching assistants with basic sign language skills without regard to deaf children's primary language learning needs, or to the importance of deaf children as visual learners.

The fieldwork component of this research was supported by Deaf Child Worldwide[1] the UK's main international development organisation focused on deaf children and their families and VSO Kenya[2]. Deaf Child Worldwide has a mission to ensure that deaf children, young people, and their families in low-income countries have access to the support they need to stay healthy, do well in education and go on to lead economically secure lives. They work through local, community-based organisations, providing resources and technical

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[1] https://www.ndcs.org.uk/deaf-child-worldwide/
[2] https://www.vsointernational.org/our-work/where-we-work/kenya

support to improve their reach and services. They also support research that helps build the evidence base around what makes a positive difference to deaf children and their families lives with a view to influencing policymakers and the international development sector. They work with partners in Bangladesh, India, Kenya and Uganda. In Kenya, they are partnering with Deaf Empowerment Kenya (DEK) on several projects, but a key one has been the Elimu Bora, Maisha Bora project which focuses on improving the provision of quality education for deaf children and improving the economic potential of young deaf people.

The author is herself profoundly deaf (with a cochlear implant) and has been providing *ad hoc* technical support to Deaf Child Worldwide since it was established in 2003. In my role as consultant, I evaluated several development projects in India and Uganda, focused on education and on family support interventions. These evaluations gave me valuable insights into the specific challenges faced by deaf children and their families in contexts where there are few government services and where access to schools and education is limited.

The idea for this research came out of a growing mutual interest between myself and Deaf Child Worldwide in finding ways to provide more nuanced technical support to their partners on early language development in deaf children. An early study for Deaf Child Worldwide in Uganda, in which the author was co-researcher, highlighted the need for more direct support to teachers around early language development in deaf children (Miles, et al., 2011). As a consultant I had also been reviewing a growing number of inclusive education projects for other international agencies that were designed to promote the inclusion of disabled children in mainstream classrooms. But what I observed was that even specialist disability-focused agencies were ill-

prepared for developing deaf-focused interventions and support programmes with the result that deaf children were continuing to be excluded from education even when they attended school. The lack of focus on providing deaf children with deaf-focused language support seemed a significant gap in the inclusive education discourse and both Deaf Child Worldwide and I were keen to research what the effects of this might be on reducing the potential of deaf children to succeed in education and beyond.

VSO Kenya has also been working actively in education for children with disabilities and has been collaborating with the Deaf Child Worldwide team for a number of years specifically on supporting education for deaf children. They were instrumental in helping provide logistical support to myself and the research team.

Problem statement

There is concern that the general gains in both educational enrolment and attainment for children in Kenya are not being similarly experienced by deaf children. Whilst there has been a steady increase in the numbers of deaf children enrolling in education since 2003, the Kenya National Special Education Survey (Kenya Ministry of Education, Science and Technology, 2014) found that 16% of disabled children remain out of school and with significant gender differences for those who are enrolled (girls – 46%; boys – 54%).

The situation for deaf children is particularly complex. As the Permanent Secretary in the Ministry of Gender, Children and Social Development was quoted as saying back in 2011: '*The deaf were the most likely to be less*

educated among all persons with disabilities' (reported by The East African Standard, September 20th, 2011, p7).

Although Kenya has progressive education policies in relation to deaf children in that since 2009 the use of Kenya Sign Language (KSL) has been formally recognized as a language of instruction, results in the national exams at the end of primary school (Kenya Certificate of Primary Education) continue to show very poor average scores for deaf children in comparison to their hearing peers (Mwanyuma, 2016).

There are multiple and interrelated reasons why deaf children perform poorly at school which have been well researched, including issues around low levels of expectations; poorly resourced schools and units; lack of deaf specific teaching and learning materials; inflexible and content heavy curriculum; and lack of appropriate adaptations to the KCPE (Kimani, 2012; Mweri, 2014; Mwanyuma, 2016).

However, a key factor which has so far not been addressed through primary research and is not being reflected in Kenya's education planning, is the complex primary language needs of young deaf children entering the education system. With low rates of early detection of severe to profound hearing impairment, and no systematic language and communication support to families of newly diagnosed deaf children, the primary language skills of young deaf children starting school are complex and unpredictable. This puts considerable pressure onto teachers who need to be able to reach out to, interact with and educate deaf children each of whom, when they enter the classroom for the first time, have unique ways of communicating.

In Kenya, the absence of any standardised practice or tools with which to measure the language fluency of deaf children in the early years of formal education also means that teachers do not have ready access to tracking the progress of their students. In addition, poor KSL fluency amongst teachers can mean they find it hard to discern whether any lack of progress in their students is due to conceptual misunderstandings or a consequence of language gaps (Mwanyuma, 2016). Assessment of progress in this situation tends to be based around whether the child can produce appropriate signs/words in response to a prompt rather than on whether they have gained understanding of the underlying concept(s) (Kimani, 2012).

In a typical teacher-student interaction teachers can check meaning and understanding through dialogic processes (Kimani, 2012). In classrooms where teachers and students share a common language teachers gain real time feedback from their students through the conversations they have and will continually adjust the way they deliver concepts and content accordingly. In this way the children's knowledge and language skills are developed. In Kenya this process is disrupted not just by the children's primary language deficits but also by the teachers own lack of fluency in KSL, the only fully accessible language available to profoundly deaf Kenyan children.

Early years classrooms in Kenya are highly complex language and communication spaces requiring teachers to be confident in their own language production as important language role model for the children. It also requires them to be skilled at identifying what primary language gaps exist for each of their children and employing pedagogical responses to meet those needs. The extent to which teachers are professionally prepared and supported in this role is the focus of this research.

Scope of the study

This study focuses specifically on classrooms in schools for the deaf in Kenya ranging from pre-primary to Grade three level. It investigates the attitudes, skills, self-efficacy, and preparedness of special needs education teachers in their classrooms as they respond to the early language development needs of young deaf children. Using a participant-as-observer approach (Bryman, 2012), I sit with deaf children to experience lessons alongside them and then work with their teachers to co-create an understanding of their perceptions of disability, deafness, and language and how these influence the pedagogic choices they make. The study introduces a novel language assessment tool (Bebko, et al., 2003) to help teachers objectively evaluate the language capacity of each of their deaf students and to see if the tool will provide teachers with sufficient prompts to support them in developing effective language learning opportunities for their students.

Significance of the study

At the time of the research there was no standardised methodology for assessing the early language development of deaf children in special schools in Kenya, which meant it was not possible to evaluate how effective teachers were at supporting this key component of early years education nor what kind of training, support and materials might be required to improve the situation. This research therefore provides important learning for the Department for Education in Kenya, for the Kenya Institute of Special Education and for any

international development intervention which seeks to support better quality education for deaf children.

Reaching beyond Kenya however is the significance this research could have on shaping the discourse around inclusive education and addressing the learning needs of young deaf children. A key gap in research on deaf education in low - and middle-income countries currently is the extent to which early primary language deficits in deaf children impact on the pedagogical skills required by teachers in early years settings and the extent to which education systems currently address this situation. At the moment, as the latest special education policy in Kenya illustrates, the primary language deficit experienced by young deaf children is not recognised as an educational need. As a result, even specialist teachers of the deaf remain ill-prepared, with curriculums not appropriately adapted and no specific pedagogies available to teachers to promote early language development.

Globally the consequences of this research gap are found in a lack of attention paid to specifically articulating the early language deficit in deaf children as an educational need within inclusive education policies and programmes. In 2016 the World Federation of the Deaf was prompted to produce a position paper on the language rights of deaf children because of concerns that: "...*Schools in which the majority of students are hearing may present barriers to deaf students, in that they lack the supportive and inclusive signing environments that deaf students require to thrive and to acquire a strong sense of linguistic and cultural identity.*" (World Federation of the Deaf, 2016).

There remains a significant gap in the global inclusive education discourse around teacher preparedness for addressing this educational need. The

question of how teachers can provide fully accessible, primary language support to deaf children, remains unaddressed. A recent background paper on inclusive education for disabled children produced to inform the 2020 Global Education Monitoring Report, noted the work of the WFD and reiterated that "*Deaf children have the same right as all other children to develop their linguistic and cultural identity. However, this can only be accomplished when deaf children are immersed in sign language, as early as possible, to maximize their learning potential in both their native sign language and the written national language of their country. Acquisition of both is essential to ensure participation and success, the ultimate aim of inclusive education.*" (Hunt, 2020, p. 60)

However, an otherwise very comprehensive paper failed to provide any comment around the importance of early years education teachers being able to assess and support the primary language development of deaf children. Instead, it reinforced the notion of sign language as an impairment accommodation: *"Teachers must be able to use the same curriculum with a variety of teaching methods, responding to the learning styles and unique abilities of each student. Supported by other professionals, all teachers should be able to integrate assistive technology and ICTs in their instruction, promote the use of appropriate augmentative and alternative modes, means and formats of communication (i.e., Braille, large print, accessible multimedia, easy-to-read, plain language, **sign language**, etc.), identify the most adequate techniques and materials to support students with disabilities, and provide individualized instruction."* (Hunt, 2020, pp. 46, my emphasis). The contradictory way in which deaf children's educational needs are conceptualised in this one report illustrate a fundamental lack of understanding of the deaf child and their language learning requirements.

In a similar way a recent GPE fact sheet highlighted that a GPE grant to Cambodia had amongst other things: *"...trained teachers in inclusive education and sign language..."* (Global Partnership for Education, 2020) – not even going as far as specifying which signed language had been used. More importantly, there was no mention of any specific language support provided to deaf children.

This research will contribute to the global discourse around inclusive education by challenging policymakers and practitioners to pay attention to the language deficits experienced by deaf children in contexts where early identification and access to family communication support services is negligible.

Research objectives

The ultimate aim of this research is to have an impact on the way deaf children are conceptualised within the discourse around inclusive education. This research is practitioner focused in the sense that findings should help inform the way inclusive education programmes are designed, delivered and evaluated within the international development sector. From an academic perspective this research is an opportunity to add to the Disability Studies in Education literature by taking a very deliberate approach to privileging the views and experiences of D/deaf participants and researchers.

The immediate objectives of this research are to help inform national education policies in Kenya to be more inclusive of the specific needs of deaf children with a view to improving academic outcomes. It should offer learning around what teachers require from training and materials support as well as

considering whether the curriculum is meeting the needs of young deaf children.

In carrying out this research, it is envisaged that the novel language assessment tool will be tested for its efficacy in use by special education teachers with deaf students in Kenya. If successful, then it could provide an important tool for all teachers who work with children in early years education for whom early language fluency is important.

Research questions

In order to realise the above purpose and objectives the follow overarching research question was established:

1. To what extent are special education teachers in Kenya equipped to assess and support the language needs of deaf children?

To reach a conclusion on the main research question a series of sub-themes were pursued:

   i.   How do the concepts of deafness and language held by teachers impact their pedagogical choices and feelings of self-efficacy?

   ii.   How do teachers approach the assessment of language capacity and progress in deaf children as individuals and as a class?

   iii. Would the introduction of a novel set of standardised language assessment tools result in changes to the way teachers approach

deaf children as language learners and the formulation of teaching strategies?

In order to fully explore and respond to these questions, this research used primarily qualitative methods alongside a novel language assessment tool. Details around the methods used will be presented in Chapter 4.

Assumptions

This research is built on the assumption that special education teachers can become critically aware of any ableist views they have – ableism in this sense being defined as '…*discriminatory and exclusionary practices that result from the perception that being abled-bodied is superior to being disabled…*' (McLean, 2008, p. 607). Becoming aware of these views is critical to creating the opportunity for agency and change. As McLean (2008) notes, ableist viewpoints can be transformed if people are presented with something that creates dissonance in their understanding of the situation. A 'jolt moment' can occur when established beliefs and assumptions are disrupted by the presentation of new possibilities (McLean, 2008).

The assumption here is that the process of exploring and documenting the attitudes and beliefs teachers hold about language and deafness will deepen their understanding of the language challenges young deaf children face and encourage greater demand for more appropriate resources and support. Moreover, by presenting them with a novel language assessment process which objectively demonstrate the language capacity of their students, something like a 'jolt moment' can be facilitated as teachers reflect more specifically on how well the children are doing in relation to the component

parts of language. By breaking down early language fluency in this way teachers have the possibility for designing more specific interventions which reflect the varied early language needs of their students.

Organisation of the thesis

This general introduction will be followed by a comprehensive review of the international and national context in which this study is situated. In Chapter One, I will review information on the impact of childhood deafness globally and as it relates to Kenya. Here I will review the educational policy environment and the way in which education is delivered. Chapter Two will present the results of a more comprehensive literature review covering recent knowledge and understanding on delivering deaf education in the Global South from an international perspective. Chapter Three will interrogate the literature specifically linked to language development in early childhood and its implications for deaf children as they enter the formal education system. Chapter Four will describe the methodology including the theoretical and conceptual frameworks, the study design and the fieldwork process including the ethical considerations, data collection and analysis strategy and the overall study limitations. Chapter Five will outline results from classroom observations and discussions on how teachers used the classroom space and the extent to which they were prepared for teaching young children who are primarily visual learners. In Chapter Six I will outline results from the language observations that looked specifically at how teachers and children interact with each other and the language and communication models they use in this process. Chapter Seven will outline the results of the implementation of a novel language proficiency profiling tool used by teachers in the study sites. The results will show the extent of children's primary language skills and the impact this had

on their teachers. Chapter Eight is the conclusion in which I will summarise the findings and its implications for national and international deaf education programmes.

Throughout this thesis I use the term 'Deaf' to denote 'cultural deafness' where an individual identifies with the culture and language of the Deaf community. I use 'deaf' to refer to the medical description associated with hearing impairment.

Summary

In this introduction I have outlined the main motivations for why this study is important. Deaf children continue to perform much less well in formal education compared to their hearing peers, despite positive and encouraging changes in policies and attitudes towards the education of disabled children. There is a significant gap in research related specifically to the impact that the primary language deficits experienced by young deaf children affects their educational needs and outcomes. The absence of evidence has affected the ways in which inclusive education policies have been developed both nationally and internationally, without full regard for how to address the primary language needs of young deaf children.

Given that increasing attention is being paid to the promotion of inclusive education programmes by the international development sector, whereby all children with disabilities are expected to be educated in the same classrooms as their non-disabled peers it is concerning that so little attention has yet been given to how practically, the primary language needs of young deaf children can be addressed. This research will highlight how important it is that the

international inclusive education movement does become much more responsive to the specific language needs of deaf children to avoid further marginalising them from within education.

In the next Chapter I will begin to lay out the context for my research by reviewing the available literature on the ways in which deafness is approached in education provisioning, firstly in relation to the Global North and then within the Global South.

Chapter 1: International and national context

This chapter will provide the international and national context in which the research is situated. Deafness in children is a key factor in determining educational outcomes, especially in low-and middle-income countries as a result of the barriers they experience within the education system. The educational policy environment in Kenya will be explained and a short history of the development of deaf education is presented. This will highlight the fact that whilst the policy environment is positive, Kenyan Sign Language is permissible as a language of instruction nevertheless it does not fully capture the educational needs of deaf children in the early years.

1. Background on the significance deafness in development

According to the World Report on Disability just over 15% of the world's population lives with a disability (World Health Organisation, 2011). With around one household in every four including a disabled individual it means that 2 billion people live with disability on a daily basis (UNHCR, 2007). Moreover, the prevalence of disability is growing due to population ageing and the global increases in chronic health conditions and non-communicable diseases.

Epidemiological evidence on the global prevalence of hearing impairment suggest that 1.6 billion people (14.9%) live with a hearing impairment of which almost 30 million have profound or total hearing loss in both ears (World Health Organisation, 2021). Sound is measured in decibels (dB) with hearing loss determined by audiometric testing. The WHO has a grading system for describing hearing impairment which categorises five degrees of hearing loss from mild through to profound (mild, moderate, moderately-severe, severe and

profound). This maps the tested hearing threshold (i.e., the softest sound a person can detect) in their best ear, against what the person is likely to experience in environments which are quiet or noisy (World Health Organisation, 2021).

Mild hearing loss is present for a hearing threshold of between 20 to <35 dB which means the person may experience difficulty in following conversational speech in noisy environments but in quiet environments would experience no difficulties. Severe hearing loss is present for a hearing threshold of 65 to <80 dB and would indicate the person would not hear most conversational speech and may struggle to hear raised voices (even in quiet environments). Profound hearing loss is measured at 80 to <95 dB whilst total or complete hearing loss is measured at 95 dB or greater (World Health Organisation, 2021). For comparison, the sound of a watch ticking would be measured at around 20 dB, normal conversation at around 60 dB, road traffic at around 80 dB and a motorcycle engine at around 95 dB. Any sound above 70dB over a prolonged period of time can damage hearing with sounds over 120dB likely to cause immediate, permanent damage (Centres for Disease Control and Prevention, 2022)

Globally the prevalence of hearing impairment increases with age. Moderate or higher degrees of hearing impairment affect around 1% of children aged one - four years rising to 1.9% of young people aged 15-19 years. By age 70 years it affects around 26% of people rising to almost 59% of those aged 95 years or older.

Rates of deafness in children vary considerably between high- and low-income countries with a strong correlation between falling prevalence rates and rises

in gross national income (World Health Organisation, 2012). Sub-Saharan Africa has an estimated 1.9% prevalence rate (6.8 million children) compared with 0.5% (0.8 million children) in high income regions (Table 1).

Table 1 Regional prevalence rates of deafness

Region	Prevalence rate	Number of children (0-14 years)
South Asia	2.4%	12.3 million
Asia Pacific	2%	3.4 million
Sub-Saharan Africa	1.9%	6.8 million
High Income	0.5%	0.8 million

Source: WHO Global estimates on prevalence of hearing loss, 2012

The WHO estimates that almost 60% of hearing impairment in children is preventable through vaccination, improved pre- and post-natal healthcare, and better management and treatment of ear infections. Vaccinating girls against rubella just prior to reproductive age for example, has a significant impact on reducing cases of congenital deafness as a result of a rubella infection during pregnancy. Vaccinating against meningitis also has a positive effect on reducing infection rates with reductions in the serious cases that can lead to hearing impairment.

Good maternal healthcare in general can help improve the outcomes of babies whose mothers are infected by syphilis, cytomegalovirus, toxoplasmosis, or HIV – all of which can lead to congenital hearing impairment. Ensuring evidence-based protocols are used for the administration of ototoxic medicines (i.e., those that can damage hearing) in pregnant women and neonates can also reduce hearing impairment in the earliest years of life (World Health Organisation, 2021).

Young children are at risk from ear infections such as Acute Otitis Media (AOM) which if left untreated and unresolved are one of the most common causes of acquired hearing impairment in children. Incident rates for children below age five vary around the world but in parts of Sub-Saharan Africa they can reach more than 43% (World Health Organisation, 2021).

The lack of available ear and hearing care programmes, including facilities such as new-born hearing screening, is more predominant in low-income countries where deafness is not considered as a priority health issue. Training for primary healthcare professionals and paediatricians often does not cover management of hearing loss with resources and expertise limited to Ear Nose and Throat (ENT) specialists. This means that the main prompt for consideration of early onset deafness often comes from parents when the child reaches three to five years of age, and it becomes apparent that their child is not socialising and engaging with the world around them in a typical way. Late identification can reduce the effectiveness of any interventions being offered and have a significant impact on the child's educational needs, especially in relation to language development (World Health Organisation, 2010; World Health Organisation, 2021).

2. Disability and deafness in Kenya

Figures vary in terms of the prevalence rate for disability in Kenya with the government's 2009 census putting the figure at 3.25% (1.3 million people) and the 2008 Kenya National Survey of Persons with Disabilities at 4.6%, both of which are well below the WHO's estimate of 15% and is an artefact of differing data collection methods which rely heavily on self-reporting of disability (Mont, 2007). By contrast, the Kenya National Special Education Survey (2014), which

collected data on the basis of a modified version of the Multiple Indicator Cluster Survey tool (www.mics.unicef.org), identified a prevalence rate of disability amongst children (age 0-21 years) of 13.5%. Of these just over 10% were identified as having hearing impairment. It is to be recognised however, that this data is based on survey tools rather than on diagnostic (audiometric) testing and is therefore indicative only. The incidence of hearing impairment in children in Kenya may well be higher given that they are at increased risk of ear infections that if untreated can damage hearing (World Health Organisation, 2021).

3. Education policy environment

Kenya has had Free Basic Education (FBE) since 2003 and Free Secondary Education since 2008. As a result of the FBE policy general enrolment rates at primary level have risen quite significantly from around 1.5 million to 9.4 million by 2010. Secondary level enrolments have also risen, although not quite as dramatically with an increase from 1.18 million in 2007 to 1.7 million by 2010 (Kenya Ministry of Education, Science and Technology, 2014). Whilst spending on education has also increased (from 5.4% of GDP in 1999 to 6.7% by 2010) Kenya still has a relatively low net enrolment rate of 84% compared with a 91% global average (UNICEF, 2013).

Kenya has a relatively positive policy environment in general with regards to the promotion of education for deaf and disabled children, but challenges remain in relation to implementation (Adoyo & Odeny, 2015). The Kenya Constitution (2010) prohibits discrimination on the grounds of disability and guarantees the rights of disabled adults and children to access education

(Article 54(1)b) which is further reinforced by provision for 'free and compulsory basic education' for all children (Article 53(1)b).

Kenya ratified the UN Convention on the Rights of Persons with Disabilities in 2008 and since then has been revising and updating the 2003 Disability Act to ensure it becomes fully compliant. Kenya is looking to ensure that it collects disability disaggregated data across key sectors such as education and that the current definition of disability is updated to fully comply with a rights-based concept.

At the time this research was conducted, in early 2018, education for deaf and disabled children was guided by the Kenya National Special Needs Education Policy Framework (Ministry of Education and Sport, 2009). At this time disability was defined very specifically from a medical/'within child' approach as: 'Lack or restriction of ability to perform an activity in the manner within the range considered normal within the cultural context of the human being' (2009, p. 5). This was not consistent with the CRPD, nor the Convention on the Rights of the Child and was not fully aligned with the Disability Act 2003. Although the policy was designed to create the conditions required to ensure equal access to quality education for all children with disabilities by 2015, it had not been well disseminated and was hampered by a general lack of specific plans and resources to enable its full implementation (Handicap International, 2013; Adoyo & Odeny, 2015; National Gender and Equality Commission, 2016)

During my fieldwork a new policy was being finalised which, although would not impact my observations, certainly must be considered in my concluding remarks because some improvements have been made to the policy environment. The most recent Sector Policy for Learners and Trainees with

Disabilities (Ministry of Education, 2018) is more progressive in its approach and overall messaging and it sits much more firmly within a rights framework. For example, rather than '... recognising the importance of Special Needs Education...' (Ministry of Education and Sport, 2009, p. 8) as stated in the 2009 Policy, the new Sector Policy begins with the statement that the government is '... committed to the full realization of education as a basic human right for all Kenyans...' (Ministry of Education, 2018, p. X)

Significantly the 2018 Policy has an overarching principle to pursue an inclusive education approach; it focuses much more explicitly on learners with disabilities; and it comes with a detailed implementation plan that helps shape how the government intends to respond to challenges such as teacher training, curriculum development, testing and infrastructure improvements.

The 2009 Special Needs Education Policy Framework operational at the time of my fieldwork, had a very broad definition of learners with special needs (it included refugee children and those that are gifted or talented for example) and it focused more on providing education to children with disabilities via special schools and special units. The 2018 Policy very deliberately focuses on disabled learners (listing 11 different impairments which is broader and more inclusive than before) but does so with the aim of gradually shifting away from segregated learning towards enabling all children to learn in the same classroom (Ministry of Education, 2018, p. 5). Having said that, it still strongly commits to supporting special schools which it assumes will continue to provide: '.... education and training specifically for learners and trainees with severe disabilities and under vulnerable circumstances.' (Ministry of Education, 2018, p. 5). The aim seems to be to maintain the option for specialist education whilst also transitioning to an inclusive approach.

An important addition to the Policy is section d) on Home Based Education (Ministry of Education, 2018, p. 5). The Policy sets up an intention to provide families with support from the onset / diagnosis of an impairment to help ensure the individual is as prepared as possible for enrolment in formal education and training. It mentions specifically that this might be necessary for example because of: '...delayed acquisition of language by children with hearing impairment.' (Ministry of Education, 2018, p. 5).

There is no specific guidance around how this might be applied, however. The Policies Implementation Guidelines (Ministry of Education, 2018) rely very much on boosting the role and the capacity of Education Assessment and Resource Centres (EARCs) with multi-disciplinary teams but there is no mention in the plan specifically of personnel who would be responsible for something like family sign language support (Ministry of Education, 2018). There is mention of speech therapists and SNE educators but not primary language focused specialists. Nevertheless, there is scope within this policy for developing such a programme which offers potential for future improvements to supporting young deaf children and their families (Juma & Malasi, 2018).

Overall, there is a much greater emphasis on making use of the EARC system for early diagnosis and support. EARCs were originally established in Kenya as part of a collaboration between the Kenyan and Danish governments in 1984. At this time EARCs were set up within existing special schools with a broad mandate including the key role of assessing children for disabilities so that they could be better placed and supported in schools. In addition, EARCs were tasked with providing individual counselling to parents and children with disabilities; making referrals for medical assessments; providing appropriate impairment related equipment; providing training to parents as well as running

seminars for teachers, health and social workers; and collecting data on the numbers of children with disabilities for educational planning (Emmy, 2020).

The intention was always to expand the network of EARCs across the country and ensure that each one was resourced with the necessary equipment, tools and expert personnel to support the integration of children with disabilities into the mainstream education system. However, even as recently as 2020 most new sub-counties in Kenya still lacked an EARC and the services being provided by those that exist fall far short of the mandate, with inadequate levels of expert staffing, poor equipment, and a chronic lack of investment (Juma & Malasi, 2018; Emmy, 2020).

EARCs therefore require quite a substantial level of investment on the part of government in terms of additional infrastructure, personnel, equipment, and oversight if they are to fulfil the role envisioned within the 2018 Policy (Juma & Malasi, 2018). The Policy's Implementation Guidelines (Ministry of Education, 2018) do contain an intention to address previous poor levels of investment in children with disabilities, with the Policy noting that: '(The) MoE shall continuously review and increase budgetary allocation to institutions and programmes that provide education and training for learners and trainees with disabilities.' (p. 39), but success will require a high level of interaction between different ministries (especially the Ministry of Health and of Education) and between government and different agencies. It will take time and investment for this to become fully operational, but the ambition is considerable and offers the possibilities for improvements to be effected.

4. Deaf education in Kenya

Provision for the education of deaf and disabled children in Kenya has existed in some form since before independence in 1963, driven initially by missionaries and other voluntary groups (Mwangi, 2013). The schools set up as a result of these initiatives were segregated, often also residential, based on models familiar to the colonial advocates who were promoting education for children with disabilities at this time (Mwangi, 2013). The first deaf units were established by the Aga Khan Development Network[3] in Nairobi and Mombasa in 1958 with the first deaf school, Nyang'oma school for the Deaf, established in 1961 (Mwanyuma, 2016).

As missionaries and voluntary organisations began reducing their direct support to education the government began to take over responsibility and in 1975 the Ministry of Education Sport and Technology (MoEST) set up its first section dedicated to Special Education Needs. By 1977 there was a full time Special Needs Educator post at the Kenya Institute of Education followed by the establishment of the Kenya Institute of Special Education in 1986 and specialist departments in universities such as Kenyatta and Maseno soon followed (Mwangi, 2013; Mwanyuma, 2016).

By the time this research was conducted in 2018, deaf children were offered a variety of different educational placement options ranging from integration (being placed in mainstream classes, with no additional support), to units (classrooms attached to mainstream schools staffed by teachers with Special Needs Education training) and specialist schools for the deaf. Interviews with Educational Assessment and Resource Centre staff for this research confirmed

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[3] https://the.akdn/en/home

what Adoyo (2007) had previously noted, that placement is determined via a medical focused assessment process carried out by trained officers based in District Education Assessment Resource Centres.

All EARC officers are experienced teachers who have undergone training in special needs education and have spent a minimum of five years teaching in special schools. Beyond that, there is no specific additional training although there are short courses (ranging from three to twelve months) that you can apply to go on if you want to upgrade or update your skills. However, those courses are self-funded and at the time of the research, there was no funding available from government to support further training of this nature. Nevertheless, EARC officers are responsible for identifying disabled children and making an assessment as to the most appropriate educational placement for them. In the main, the identification is done either via referrals from local mainstream schools or directly when families bring their child to the centre. One EARC officer described how this often happens:

> *Yesterday a grandmother arrived with her 18-year-old grandson asking that he be placed in the High School for the Deaf. When we did the assessment, we found that he had been in mainstream schools all throughout his childhood, but no one had raised concern about the fact he did not seem able to communicate or to read and write. He had repeated several grades in fact but at no point did the school suggest he be assessed. It's likely that he has, or had, some residual hearing, but it had never been utilised and the boy came (to the assessment) with no structured language, speech or signs. I felt that at 18 he would be better placed in the vocation centre where he could start to mix with other young deaf people, learn some language and also learn a trade rather than facing the prospect of trying to go through the High School curriculum with limited language skills. It was definitely not appropriate for him to be placed in a PP1 class. (KII1)*

Generally, the EARC officers have limited ability to assess the impairments of children referred to them. As I found through my interviews, they get most of

their information from discussions with parents and caregivers (sometimes teachers if they have been referred from mainstream schools) with limited ability for diagnostic testing (Emmy, 2020). One EARC officer remarked that although they do have an audiometer and some training in its use, it's so old that it no longer works properly, and they tend to use more basic tests like shaking a bottle of rice behind the child (KII1). The officer also explained that they can do ear health checks but the otoscope that he showed me was being held together with tape and did not look very clean. The EARCs can make referrals for the children to be seen by health professionals for formal diagnosis and/or treatment but that involves travel for the families and other out of pocket expenses which can make that a lengthy process. The lack of a standardised and easily accessible early identification programme in Kenya means most deaf children and their families are not being supported appropriately (KII1).

Since the 2003 Free Basic Education policy there has been a major push towards the establishment of units for deaf children in an attempt to enable as many deaf children as possible to go to school locally, and there are now around 120 deaf schools and units across the country (Mwanyuma, 2016). Despite increasing education options, the average teacher to pupil ratio for deaf children remains higher than ideal at 1:13 [4], although this varies considerably depending on the placement. My observations noted an average teacher to pupil ratio of 1:9 across classes from PP2 to Grade three level. In mainstream schools the ratio can be as high as 1:46 whereas in special schools it's more likely to be 1:11 (Kenya Ministry of Education, Science and Technology, 2014).

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[4] In the UK for example the recommended ratio is one qualified Teacher of the Deaf to six deaf students in primary school – NDCS, 2015

Language provision in deaf education has changed in Kenya since the early oral only schools, although it remains a contentious issue. In 1986 the government introduced the system of Total Communication (or more specifically, Simultaneous Communication[5]) after noting that very little progress had been made in bridging the attainment gap between deaf and hearing students using oral only methods. Kenya formally permitted deaf children to be taught using Kenya Sign Language (KSL) in its 2009 Special Needs Education Policy whilst also retaining the need for students to learn English and Kiswahili (Ministry of Education and Sport, 2009, p. 6). Up until that point, where sign language was utilised, teachers of the deaf and many Deaf people were using American Sign Language so the switch to KSL, whilst highly positive for the Deaf community, in fact created significant technical and resourcing issues which remain relevant to the present (Mwanyuma, 2016). As T2M, one of the older teachers in my observation sample noted, if teachers have been in the system for any length of time, they will be more likely to use ASL because that is the language they were using when the curriculum was based around Signed Exact English. The introduction of KSL came without accompanying technical support so there are still teachers practicing who may never have received formal training (NDFG1).

More fundamentally, the government's special education policy suggests there is still a lack of understanding over what constitutes sign language because the wording in the policy is misleading. It could be that the 2018 Sector Policy for Learners and Trainees with Disabilities may have taken a retrograde step in

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[5] Simultaneous Communication or SimCom is the practice by which both spoken language and a manual version of the spoken language (such as English and Sign Supported English) are used simultaneously with deaf children. Total Communication is an educational approach that aims to make use of all available modes of communication including signed, oral, auditory, written and visual aids to meet the individual needs of the child.

relation to the use of KSL in education because, as detailed below, it directly refers to KSL as a mode of communication.

Adopting the same wording as in 2009, the 2018 Sector Policy defines Sign Language as a 'Visual language that uses manual signs that have structure and meaning like other languages.' (p. viii). It somewhat confusingly suggests however, that Kenya Sign Language is: '…the primary or first language of deaf children in Kenya… which is used for instruction and communication within and outside the environment of institution of learning (*sic*).' (Ministry of Education, 2018, p. viii).

As is common globally, most deaf children in Kenya come from hearing families. Only 2.1% of deaf children have deaf parents and can therefore be expected to have acquired a primary sign language by the time they reach school. This is reflected in the fact that most deaf children enter school with no structured language – signed or spoken (Adoyo, 2007). The definition used in the 2018 Sector Policy therefore could be misleading because it fails to acknowledge that most deaf children have no primary or first language on entry to school. It seems to assume that all deaf children will have KSL as their primary language rather than recognising that if it is to become their primary language, they need exposure to fluent language models.

The current Sector Policy, like its predecessor once again misses the fundamental lack of primary language acquisition amongst young deaf children in the Policy's Implementation Guidelines even though it has recognised that deaf learners are likely to have problems (Ministry of Education, 2018). Under Section 4.6 Capacity Building and Human Resource Development for example it re-emphasises the need for 'disability-related personnel, such as sign

language *interpreters*....' (Ministry of Education, 2018, pp. 21, my italics) but says nothing about fluent KSL role models, family sign language programmes or of the need for specialist teachers of deaf children to be fluent in KSL.

In fact, in a real retrograde step it mentions sign language not as a language of instruction but as a mode of communication on a par with Braille and augmentative communications, in the sentence: 'Promote the use of alternative modes of communication... such as sign language, braille and augmentative alternative communication.' (Ministry of Education, 2018, p. 29). Unlike previously, there is no specific mention in the 2018 Sector Policy of utilising KSL as a language of instruction for deaf learners at any level in the education system. This contrasts considerably with the approach taken in 2009 whereby it made a clear statement that the Ministry of Education will promote and use KSL as an official language and ensure information is put into the public domain to learners in KSL (p38).

Regardless of the discrepancies found in the two most recent special education policies, the use of KSL in deaf education is consistent with Kenya's general policy of permitting the use of Mother Tongue (MT) as the language of instruction in schools from Grades one to three. From Grade four the language of instruction switches to English and Kiswahili with the Mother Tongue language retained only as an option. The original 1976 Grachathi commission report that recommended use of Mother Tongue, did so in response to the challenges faced by children living in linguistically homogenous communities but speaking minority languages. This was mostly to accommodate the needs of children in rural communities whose families spoke traditional languages at home as a way to help ease the transition from home to school and support the development of early literacy skills (Mweri, 2014). In the linguistically

heterogeneous communities found in urban areas the option to use English or Kiswahili was retained. In the debates around Mother Tongue instruction, deaf children were never a consideration, and their language of instruction needs remained unspecified right up until the 2009 Special Needs Education Policy (Mweri, 2014).

A key consideration in the effectiveness of language policies in education such as the one promoting use of KSL, is whether teachers have sufficient fluency in the target language to be effective language role models for children and whether they have sufficient time and resources within the curriculum to be able to support the individual language development needs of their students. Whilst the 2018 special education policy reports that special schools are staffed by those with specialist training it also highlighted that there were concerns around skills in KSL. A survey undertaken in 2018 by KISE found teachers working in special schools for deaf children who '...lacked competency in Kenya Sign Language...' (Ministry of Education, 2018, p. 22). This was in fact the case for almost all the teachers I saw during my field observations and informs a large part of this thesis.

The gap between the skills of teachers and the needs of young deaf learners may be a key reason for the fact that results in the national exams at the end of primary school (the Kenya Certificate of Primary Education) continue to show very poor average scores for deaf children with deaf schools often being found amongst the worst performing schools in the district. From a possible total of 500, deaf children average a KCPE score of around 130, well below the national average of 250 (Mwanyuma, 2016).

At the education systems level the situation in relation to deaf children and their language requirements remains contradictory. Whilst KSL is recognised as a language, and there is some acknowledgement of its importance in education the overall impression you get from reading the 2018 special education policy is that it is largely considered as an accommodation – alongside Braille or wheelchairs. So, the emphasis is on sign interpreters not KSL role models with no specific recognition of the language deficits experienced by young deaf children or the need for primary language acquisition opportunities.

4.1 National early grade reading programme (Tusome)

At this point it is also important to mention Tusome which is Kenya's flagship national education programme for improving primary grade literacy levels (Wilichowski, et al., 2020). As a result of pressures from a relatively sudden influx of children into primary schools after introducing Free Basic Education in 2003, concerns were growing that the quality of education was declining. By 2009 the Kenyan government had become aware that less than 10% of Grade two children in public schools were able to read English and Kiswahili at nationally standardised levels. The response came in 2011 in a collaboration with the US Agency for International Development (USAID) and the UK Department for International Development (DFID) which funded implementation of a pilot Primary Math and Reading programme (PRIMR) run by RTI International (Laser Pulse, 2019).

The intention was to find an evidence-based, scalable methodology which could impact on improving the foundational learning skills of children in Grades one and two. The pilot proved highly successful and once it ended in 2014 a

much larger scale five-year programme, Tusome, was developed. Its purpose was specifically to improve literacy at Grades one through to three in public schools and Alternative Provision of Basic Education and Training (privately managed schools in informal settlements around major cities) institutions (Educational Links, 2018; Laser Pulse, 2019).

Tusome, which in Kiswahili means "let's read", was built around five focus areas which include: enhancing teacher capacity; improving schools' access to and use of core reading materials and resources; improving instructional support; increasing the use of modern technology in classrooms; and improving collaboration between agencies delivering literacy programmes. The government of Kenya began taking over the resourcing of Tusome in 2018 with the intention to fully transition to MoES funding and oversight by 2020 (Educational Links, 2018). A review for USAID in 2019 (Laser Pulse, 2019) concluded that Tusome had led to improvements in reading fluency (as well as reducing absenteeism and improving learning in other subjects) and was successfully making the transition from being an NGO-led initiative to a government-owned education programme (Laser Pulse, 2019; Wilichowski, et al., 2020).

The 2019 review did not specifically report on its impact in special needs education contexts although it mentions that Tusome materials were eventually adapted for use by visual and hearing-impaired children sometime after the programme was underway. The review concluded that special needs education should be integrated from the beginning with a suggestion that interventions should be '...robust and well-thought out, and....adequately guided by existing evidence.' (Laser Pulse, 2019, p. 50). Unfortunately, there was no recommendation made for a specific review into Tusome's impact on deaf

learners, or those with other impairments which means the evidence required for improving such interventions remains elusive.

From my perspective Tusome is a significant factor to consider because all three schools in which my research was carried out followed the Tusome Early Grade Reading programme. As my observations will highlight (see Chapters Six and Seven), I became increasingly concerned about the impact this programme was having on the way teachers were approaching language and literacy instruction. As a result, I decided that I needed to interview RTI International representatives about what level of consideration had gone into the development of the curriculum for deaf children (in fact any child with a disability) because being a phonics-based programme it appeared ill-adapted for use with this group of learners. I will explore the implications of this in more detail in Chapter Seven.

5. Conclusion

In this chapter I considered the international and national context in which deaf education is being provided. It highlighted the fact that the lack of a coordinated hearing-screening programme in many low- and middle-income countries means that children with severe to profound deafness and their families, remain unsupported during the most significant years for primary language development. I noted that Kenya has a relatively progressive education policy for children with disabilities and that whilst previous policies were positive in their acknowledgement of KSL as a Mother Tongue for deaf children, there continues to be a lack of recognition of the primary language needs of deaf children in any policies. This theme will be picked up more broadly in Chapter Three when I consider the implications of a lack of exposure

to language in the early years of development. I also noted that the national programme for improving literacy at primary level, Tusome, has been extremely influential in shaping the curriculum and materials in use by teachers in the schools covered by this research. Tusome is a topic that is revisited several times in discussions detailed in Chapter Seven and again in my Concluding recommendations.

In the next chapter I will consider the literature available around international development and the inclusion of deaf and disabled children in education programmes to see what evidence exists on how to effectively include deaf and disabled children in quality education interventions.

Chapter 2: The education of deaf and disabled children in the context of international development: reviewing the literature

The nature of this research requires that I consider available literature related to both international development and the inclusion of deaf children in education interventions, and early language development in deaf and hearing children. Given these are two, usually quite distinct fields of study I have broken the literature review into two chapters. I will present the review of the literature on language development in Chapter Three and will turn now to focusing on international development.

In this chapter I will review the literature available more broadly in relation to deaf education within the international development discourse. My research is focused on Kenya as an illustrative example, but the wider literature on deaf children's' inclusion in education is of significant interest. Overall, reviewing this literature has highlighted the very substantial gap in evidence-based research and practices related to inclusive education for children with disabilities with very little academic analysis coming from the global South specifically related to deaf children.

1. Introduction

Over the past twenty years the global development sector has increasingly focused its attention on education, recognising the key role it can play in reducing poverty (UNESCO, 2009). The World Education Forum on Education for All (UNESCO, 1990) proved to be a major stimulus, culminating in a powerful statement (later to be adopted by the Millennium Development Goals) on

achieving Education for All (EFA) by 2015 (Kalyanpur, 2011; UNESCO, 2000). The Dakar Framework for Action: Education for All (2000) signed by 164 governments (including Kenya), set out six major education goals to be achieved by 2015 including for example the establishment of universal primary education and improving the quality of education (increasing literacy and numeracy skills in particular) and became an important influence on the way low- and middle-income countries subsequently developed their education systems.

A review of progress towards these goals was carried out in 2015 (UNESCO, 2015) and concluded that significant progress had been made, for example in halving the numbers of children out of school, improving gender parity at primary level and increasing the capacity of governments to monitor education results nationally. However, significant concerns remained, most notably around the quality of education being delivered.

To some extent the intensive focus on ensuring all children could enrol in school came at the expense of considerations around the learning environment (UNESCO, 2015). The report found no improvement in the numbers of children reaching the last grade of primary school (global survival rate predicted at 76% for 2015) and 34 million children were still leaving school early every year (UNESCO, 2015). The Global Partnership for Education (GPE) referred to this as a 'learning crisis' noting that in 2012 less than half of the school age population reached Grade four and gained the minimum level of learning for that grade, amongst its low-income partner countries (Global Partnership for Education, 2013).

It is possible to see that the demands made by the Education for All movement, Universal Primary Education and the Millennium Development Goals unquestionably improved access to education for significant numbers of children in low income countries but concerns were being raised over the quality of the education they were receiving (Arbeiter & Hartley, 2002; Marschark, et al., 2011).

While the international development sector was increasing its attention towards mainstream education there was also a significant shift happening regarding special education although it was to receive considerably less international recognition. In 1994 the Salamanca Framework for Action articulated for the first time the role that education should have in eliminating discrimination and improving social justice. Its focus was to encourage governments to discontinue the practice of segregating educational provision for children with special educational needs (most notably, though not exclusively, disabled children) and to promote their inclusion in mainstream schools (Kuippis, 2014).

Although originating from within the special education sector it also challenged the notion that special educational needs related only to disabled children. The Salamanca Framework introduced the concept of inclusive education as a way to highlight that specific educational needs can arise from a range of different vulnerabilities such as poverty, family circumstances or home language for example, not just from impairments. Indeed, it also pointed out that learning needs may vary even between children who have the same impairments, which brings into question assumptions that label all disabled children as having special needs that require specialist education (Kuippis, 2014). Inclusive education therefore originated as a way to encourage schools to be aware of

and meet the needs of all its children within a more child-centred pedagogy (Kuippis, 2014).

It was unfortunate that whilst special education was being transformed by the inclusive education movement, the mainstream Education for All framework failed to pick up the change so that for most of its implementation, Education for All never formally incorporated the concept of inclusive education (Kuippis, 2014). Even though intuitively it's possible to see that Education for All and inclusive education are borne of the same intent, that is to provide education that is accessible and available to all children, the Education for All agenda did not actually promote the inclusion of disabled children (Miles & Singal, 2009).

As a consequence of both a failure of Education for All to seriously incorporate the needs of disabled children and the philosophical shift of the special education sector away from its previous focus on disability towards inclusive education, the actual needs of disabled children in education disappeared from the development radar (Kuippis, 2014). This implies that whilst Education for All has brought considerable benefits, the lack of intent to be inclusive of children with disabilities may have had a negative impact on their overall access to education (Bakhshi, et al., 2013; Lei & Myers, 2011). Along with donor preferences for the promotion of inclusive education, with its broad concept of encompassing barriers to education experienced by children from a whole range of different circumstances, it has made it very challenging to find the space within international development discourse to talk about the specific needs of disabled children (Kalyanpur, 2008; Urwick & Elliott, 2010; Kalyanpur, 2011; Lei & Myers, 2011; Kalyanpur, 2014).

2. Literature review methodology

In total seven databases were searched during the initial phase of the literature review (which was carried out in 2015), including EMBASE, ERIC, JSTOR, ProQuest, PubMed, SCOPUS, and the UCL library catalogue. The following terms were included in a three phased search:

Table 2 Literature search wording

Phase 1	Phase 2	Phase 3
Education*	Deaf*	"attainment"
School*	Hearing impair*	"qualify*"
Teach*	Hard of hearing	"grade*"
	Primary / elementary / first school	"deaf unit" and
		"mainstream" and
		"special school" and
		"integrated class*"

This generated a body of literature which was then screened against country specific search criteria including all current low- and middle-income countries (LMICs) and/or the terms developing countr*, least developed countr*, low income countr*, middle income countr*.

2.1. Study selection

EPPI-Reviewer 4.0 software was used to store, screen and code the information ready for analysis. All articles were screened initially by title, then by abstract and finally via the full text to ensure eligibility. To be included the studies had to be:

• Peer reviewed.

• Available in English.

• Available to download.

- Related primarily to LMICs (LMICs identified using the UNDP 2014 Human Development Index: http://hdr.undp.org).

- From 2005 onwards.

- Reporting on research related to deaf or hearing-impaired children.

- Reporting on research related to mainstream, inclusive, special, segregated, or home-based education (i.e., there were no exclusions based on type of educational placement at this stage).

2.2. Search results

The database search identified 2,488 articles, which on title screening was reduced to 1,931. Of these, 64 were found to be duplicate studies, 66 were not available for downloading and a further 402 were excluded on the basis of relevance (not LMICs, outside the date, not in English, not related specifically to education and deaf children). A total of 25 documents were then assessed for eligibility on first reading of the full text with 6 subsequently being excluded (they were found not to be focused specifically on teaching deaf or hard of hearing children). For the purpose of this literature review therefore 19 articles were analysed in full (**see Figure 1**).

This highlighted a serious gap in the evidence base around education for deaf children in low- and middle-income contexts. I was able to supplement information by reviewing grey literature reports produced by international agencies including UNICEF, UNESCO, the Global Partnership on Education and from my own connections with organisations such as Deaf Child Worldwide, International Disability Alliance, Leonard Cheshire Disability, VSO, and the World Federation of the Deaf. For Kenya specific information I reviewed the education and special education policies in detail along with the

curriculum material for the early grade reading programme, Tusome, produced by RTI International.

Figure 1 Flowchart of search results

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┌─────────────────────┐          ┌─────────────────────┐
│ Records screened    │ ·······> │ Records excluded    │
│ by title            │          │ by title            │
│ (n=2,488)           │          │ (n=1,931)           │
└─────────┬───────────┘          └─────────────────────┘
          │
          v
┌─────────────────────┐          ┌─────────────────────────────┐
│ Records screened    │          │ Records excluded on abstract │
│ by abstract         │ ·······> │ (n=532)                      │
│ (n=557)             │          │   • Duplicates               │
│                     │          │   • Non-retrievable          │
│                     │          │   • Relevance                │
│                     │          │   • Country                  │
└─────────┬───────────┘          └─────────────────────────────┘
          │
          v
┌─────────────────────┐          ┌─────────────────────────────┐
│ Full text reviewed  │          │ Records excluded on eligibility │
│ for eligibility     │ ·······> │ (n=6)                        │
│ (n=25)              │          │   • Target group             │
└─────────┬───────────┘          └─────────────────────────────┘
          │
          v
┌─────────────────────┐
│ Final sample included │
│ for analysis        │
│ (n=19)              │
└─────────────────────┘
```
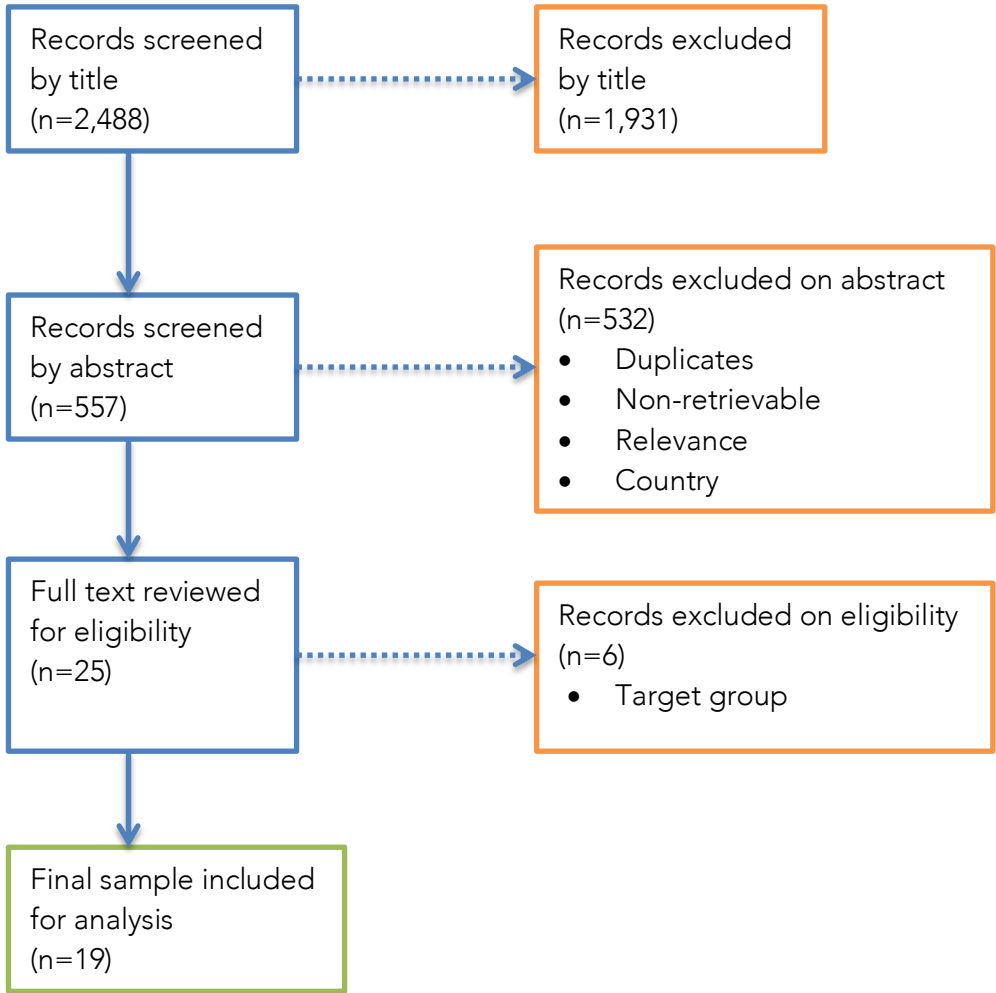
3. Education and disability in global development

The literature on the impact of global development trends on education for disabled children in general shows there are several important challenges. There is strong evidence to suggest that regardless of whether deaf or disabled children are being educated via special schools, in mainstream schools or in a hybrid version of both, their needs have not been adequately addressed

because at international level they have not been regarded as a priority (Urwick & Elliott, 2010; Bakhshi, et al., 2013; Lei & Myers, 2011). As highlighted above, the absence of deaf and disabled children from global education initiatives like Education for All and the Global Partnership on Education, made it difficult for national governments supported by donor programmes to allocate the levels of resources required since the education of disabled children has not been a development priority.

The literature suggests that whilst in general all teachers are increasingly aware of the rights of deaf and disabled children to education and are broadly supportive of their inclusion in mainstream classes, there are significant concerns (De Boer, et al., 2010; Emman & Mohamed, 2011; Hettiarachchi & Das, 2014; Donohue & Bornman, 2015).   Both pre- and in-service teacher training is often described as being inadequate for preparing teachers for the practical inclusion of deaf and disabled children (Emman & Mohamed, 2011; Nketsia & Saloviita, 2013; Hettiarachchi & Das, 2014). Much of their training is theoretical and does not properly address the realities of inclusion in contexts where there are large classes, poor infrastructure, inflexible curriculums, a lack of teaching and learning materials and results-based systems that rely on standardised testing formats (Oswald & Swart, 2011). Moreover, when specialised training is provided it often focuses more on the identification and aetiology of impairments rather than on pedagogical implications, so teachers find themselves ill-prepared to adapt their teaching practices to the needs of the children (Ahsan, et al., 2012).

3.1. Deaf education in low-income countries

As noted earlier, there is very little peer reviewed research available that specifically documents the educational performance of deaf primary age

children in low resource contexts. A key motivating factor for this research was therefore to provide deaf children and their teachers with the visibility needed to ensure their rights to receive a quality education are being upheld.

Within the limited scope of studies available for review a few key themes have emerged. Overall, most of the studies focused on the inclusion of deaf children in mainstream education programmes; relatively few looked at the situation for deaf children in special education which is consistent with the overall shift towards inclusive education. Much of the analysis concludes that there is a lack of understanding around what adaptations and accommodations are needed for meaningful participation (Wadesango, et al., 2014).

In Zambia for example, a study by Nkolola-Wakumelo & Manyando (2013) reported that only 65.5% of deaf people complete primary education, compared with 68.6% of those with physical impairments or 72% of those with 'mental retardation'. They reported that whilst the government has policies in place which support equality in the provision of education for all children and promotes mainstreaming for deaf children, the main problem is that schools lack specific information on how to practically accommodate deaf children. Hence overall deaf children's level of achievement remains weak (Nkolola-Wakumelo & Manyando, 2013).

Several studies noted that negative attitudes towards the capabilities of deaf people in education can lead to the lower prioritisation of deaf children in low resource contexts. In this regard, governments are not allocating sufficient funding for the development of more specialist educational services for deaf children, irrespective of whether that provision is via special or inclusive education (Abosi & Koay, 2008; Storbeck & Martin, 2010). Moreover, policy

implementation is often weak with a tendency for governments to overly rely on charities and the international development sector to deliver core educational services and training to deaf children (Storbeck & Martin, 2010). This means deaf education has become highly dependent on the approaches promoted by the international development sector, with provision fragmented within countries as different international agencies and charities take up its delivery.

The lack of specialist teacher training and poor teacher skills (both in special and mainstream education settings) are often reported as being a barrier to quality education with several articles raising questions about the quality of classroom teaching. Problems exist around negative attitudes (making assumptions that deaf children are poor at literacy); weak skills in deaf-related communication and language strategies; and a lack of ability or willingness to work in cooperation with other specialist services and/or support staff (Adoyo, 2002; Nkolola-Wakumelo & Manyando, 2013; Mukhopadhyay & Moswela, 2010; Ngcobo & Muthukrishna, 2011; Branson & Miller, 2004; Johnstone & Corce, 2010; Musengi & Musengi, 2014; Sibanda, 2015).

Teachers in both special and mainstream classrooms are frequently reported to have low expectations of their deaf students, not anticipating they will achieve much academically and therefore accepting poor results (Charema, 2010; Johnstone & Corce, 2010; Musengi, et al., 2013; Wadesango, et al., 2014). The effects of this are for teachers, and those quality assuring delivery, to pay less attention to reviewing and adapting classroom practices, training, and curriculum support materials because the underlying assumption is that poor results are a consequence of deafness rather than a problem with the way education is provided.

In general teachers tend to report wanting to include deaf children whilst at the same time recognising that they lack sufficient skills to effectively teach them (Miles, et al., 2011). The lack of focused research which looks specifically at the skills needed by teachers to be effective at including deaf children is why this research is so important.

Many of the articles reviewed for this research focus on the communication skills of teachers and the central role sign languages play in helping promote literacy in deaf students (Arbeiter & Hartley, 2002; Branson & Miller, 2004; Johnstone & Corce, 2010; Magongwa, 2010; Miles, et al., 2011; Musengi, et al., 2013; Nkolola-Wakumelo & Manyando, 2013). There is a huge gap in the research however when it comes to sign language development in deaf children themselves.

What I noted most strongly in my review of the literature was an absence of analysis around the extent to which deaf children have sufficient primary language skills to begin formal education. In low-income contexts, the lack of early identification and family communication support for deaf children means they are often coming into the education system with very little language. Storbeck and Martin (2010) note that a significant problem in education for deaf children around Africa is late identification and intervention. Typically, children are not identified until age three to four years and sometimes as late as seven years. This means that many children are arriving in school with little or no functional language skills (Musengi & Dakwa, 2011). Learning a language after the age of four is not a natural process (Marschark & Hauser, 2012) which has significant implications for the educational needs of deaf children overall. The literature however does not pay attention to this specific educational need.

Teachers need to be well equipped to assess and support a very diverse range of language stages amongst deaf children in the early years of formal education along with idiosyncratic social skills and general knowledge because of the potential lack of accessible language during their formative years. Yet this aspect of deaf education in low- and middle-income contexts is not well analysed or discussed.

If primary language proficiency is poor this can have a negative impact on a child's cognitive development and their ability to learn other languages (Cummins, 1989). Part of the issue here is that children who are born or acquire a significant hearing impairment early on, will lack access to language if their families do not use a signed language (Marschark & Hauser, 2012). An overall lack of understanding around both the nature and value of signed languages and the role they play in providing the language framework deaf children need to succeed in education is a significant gap in the inclusive education literature.

Misunderstandings and negative attitudes towards signed languages also impact on educational provision, an issue which is rarely addressed in the literature. An exception to this is the study by Nkolola-Wakumelo & Manyando (2013) which documented the confusions raised by a new teaching initiative in Zambia which failed to take account of the unique language needs of deaf children in early education. In 2003 the Zambian government introduced a new literacy initiative that allowed for children to be taught in their home language for the first few years. This was designed to build skills and confidence in their primary language before going on to learn English, the language of instruction in Zambia.

However, the way this initiative was applied to deaf children only increased their difficulties. Rather than using this as an opportunity to focus on developing the children's skills in Zambian Sign Language, teachers instead taught the children a manually coded version of the local language, before going on to teach them a manually coded version of English: in effect treating them as though they were hearing children and completely misrepresenting the role of signed languages (Nkolola-Wakumelo & Manyando, 2013).

Part of the resistance towards a greater focus on sign language in education in these contexts comes from common misunderstandings which are often expressed by hearing teachers, parents, and other specialists (Musengi, et al., 2013). These can be summed up as:

1.   Sign language inhibits development of spoken language.
2.   Sign language is inferior, not designed for conceptual learning and only helpful at lower levels of education.
3.   Sign language is a way to communicate spoken language to deaf children.

Musengi, et al. (2013) found that special education trainees and their experienced mentors in Zimbabwe had quite negative attitudes towards sign language and exhibited poor signing skills. The emphasis in Zimbabwe is on the use of spoken language in the classroom – by teachers and by the students. Despite one trainee noting that the oral/aural approach they were learning seemed not to be working, the reason given for the failure was that the children simply needed more time. There was no reflection on the fact that perhaps the overall approach was not appropriate.

As Nkolola-Wakumelo & Manyando (2013) report, Zambia trains specialist teachers of the deaf but Zambian Sign Language (ZSL) is not a core component of their training. Graduates therefore have very limited, if any ZSL skills. Furthermore, there is no standardised curriculum for Zambian Sign Language and no specific materials available to support its teaching. Whilst it can be taught up to Grade four, schools are under no obligation to do so, and beyond that its active teaching stops (Nkolola-Wakumelo & Manyando, 2013).

Observations made by Nkolola-Wakumelo & Manyando (2013) of teachers using 'sign' also revealed that in most cases ZSL was not being used or taught. They reported seeing manually coded English with an emphasis on the children learning iconic signs (essentially English nouns) and a manual alphabet. They found no obvious attempts to use the grammar of ZSL or to develop its fluency. This is something that I have seen occurring in classrooms reportedly using 'sign language' in Uganda, India and Bangladesh (see for example Miles, et al. (2011)) and is reported on in the literature from Kenya (Adoyo, 2002; Johnstone & Corce, 2010), Botswana (Mukhopadhyay & Moswela, 2010), and Indonesia (Branson & Miller, 2004).

Research from both Zimbabwe and Zambia noted that teachers often express frustration over not understanding the children's signs and believe that sign language is too limited for effective teaching (Musengi, et al., 2013; Nkolola-Wakumelo & Manyando, 2013). No groups of teachers put the issue down to their own limited understanding of and competency in their local signed languages.

Examples of how mainstream teachers cope with the inclusion of deaf students in their classrooms are rare in the literature. One study from Uganda focused

on the impact that Universal Primary Education was having on educational experiences of disabled children in general and made some observations in relation to deaf children (Arbeiter & Hartley, 2002). They noted that in terms of accommodation, mainstream teachers in Uganda reported tactics such as ensuring deaf children were seated at the front of the class; using communication strategies such as 'sign language', gestures and simplified language; providing them with more individual time and attention and giving them lots of positive encouragement. However, actual observation of lessons revealed very little of this was being practiced (Arbeiter & Hartley, 2002). Again, the significant question of the deaf children's own language capacity was not reported on in the study.

Finally, having access to appropriate technology and habilitation/rehabilitation services also makes a difference. However, even though about 80% of deaf and hard of hearing people live in low-income countries only 1 in 40 has access to hearing aids and cochlear implants are not yet making any impact. A lack of appropriate assistive technology, and early family support services appears to contribute to poorer outcome levels overall. The non-availability of these services is having an impact on the range of educational interventions available to teachers of deaf children (Storbeck & Martin, 2010).

3.2. The role of language in deaf education

As I will explain in more detail in Chapter Four, early language fluency is important for social and cognitive development. Children who have gained confidence in their primary language find it easier to navigate the challenges of learning in school (Marschark & Knoors, 2012; Marschark & Hauser, 2012). Primary language capacity plays a key role in children's acquisition of further languages (Cummins, 1989). Moreover, using a primary language (also referred

to as Mother Tongue) to teach early literacy skills has been shown to be more effective and to reduce overall psychological stress in children (Cummins, 1989; Mweri, 2014). In linguistically diverse countries like Kenya where the language of the school may be different to the language at home and in the community, this is a particularly important consideration. Children are arriving in school with a host of different primary languages which teachers need to accommodate during early years education.

The implications of this linguistic diversity for the education of deaf children are important. Deaf children face very specific learning needs around primary language acquisition because they rarely have access to a fluent language at home or in their communities (Storbeck & Martin, 2010; Knoors & Marschark, 2014). So, for many deaf children arrival at school offers the first opportunity they have for developing primary language skills.

In Kenya where there are at least 46 major and minor languages used[6], there has been significant attention paid towards promoting the use of Mother Tongue in early years education, in recognition of the need to bridge the language divide between home and school (Mweri, 2014). However, whilst deaf children in Kenya are included in the Mother Tongue policy, in that Kenya Sign Language is permissible as a Mother Tongue language, what is missing is explicit acknowledgement that deaf children are most likely to arrive in school with no or very limited primary language – in other words, no Mother Tongue.

There is an assumption made that KSL is the Mother Tongue of deaf children which is politically positive and empowering for the Deaf movement, but it does

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[6] See https://en.wikipedia.org/wiki/Languages_of_Kenya which lists 45 spoken and one signed language, although it notes that there could be up to 68 languages in use.

not reflect the reality of the situation for most deaf children. Most deaf children in Kenya are born into hearing families and will never have been exposed to fluent KSL (Adoyo, 2007). Moreover, where there is a lack of assistive technology and early years support, they will have had limited or no exposure to the voiced language either.

4. Conclusion

In this chapter I reviewed the available literature on research relating to the education of young deaf children in low- and middle-income contexts. Having originally identified 2,488 articles the screening process reduced this to just 19 papers which were directly relevant. The very small number of papers that contained evidence-based knowledge and practice related to the education of young deaf children in low- and middle-income contexts highlighted the alarming gap in research of this nature.

Overall, the literature finds that there are considerable weaknesses in the way young deaf children are educated in both mainstream and special education contexts. The most disturbing finding from this review was that most evidence for poor quality delivery of education comes from within the special education sector, with very little research being carried out on educational outcomes for young deaf children in inclusive education settings. This is surprising given the focus of the international development community on pursuing an inclusive education approach in low- and middle-income countries. It suggests that much of the practice being promoted by international development agencies is not based on evidence around what is effective.

This literature review found that even within a special education context, that there is a lack of specialist teacher training for those working with young deaf children leading to poor levels of pedagogical skills amongst this sector of the education workforce. There is also a lack of in-class support for teachers and little in the form of co-teaching, team-teaching or peer support networks.

Overall, there has been insufficient attention paid to reviewing or promoting the development of deaf-focused teaching techniques, materials or curricular with an overreliance by national governments on the international development and private / charity sector for the delivery of education to deaf children and the training of teachers. Teachers were found in many studies to lack key skills in sign language fluency and to have quite negative attitudes towards the capabilities of deaf children as learners. This has led to an underestimation of deaf children's educational potential and a tacit acceptance of low academic achievement. Signed languages are still misunderstood and often considered as an impairment accommodation rather than a language for education.

Finally, there is a gap in research with regards to representing the primary language deficit of deaf children as a learning need. The following chapters will seek to highlight why this is significant and how that is having an impact on the learning outcomes of deaf children in low- and middle-income countries.

Before moving on to a more detailed analysis of the impact of language on learning, I will use the next chapter to review the literature on early language development in deaf and hearing children.

Chapter 3: Early language development and school readiness: reviewing the literature

The purpose of this chapter is to review the literature which explores how early life experiences shape the development of children's primary language before they begin school. It will touch on a range of theories and observations from the fields of linguistics and psychology, around what happens during the complex process of acquiring a primary language during the first few years of life. As I will demonstrate, whilst the process of language development in both typically hearing and deaf young children is similar in family situations where the main language (or 'Mother Tongue') is accessible – that is where a deaf child is born into a signing family – there are significant implications for primary language development in deaf children where that language is not accessible. Where for example, there is no early diagnosis and family support for raising a child with a hearing impairment; where there are no hearing technologies available; and/or where the primary caregivers are not fluent signers themselves. In these situations, there are significant barriers to acquiring primary language which this research will show has implications for how ready deaf children are for school.

In understanding how typically hearing children acquire their primary language alongside how deaf children fare in families where there is limited or no accessible language exposure, I will provide a contextual framework for interpreting the challenges that teachers of deaf children in early years education settings face. As the introduction noted, most deaf children in Kenya are born to hearing families, there is as yet no systematic hearing screening of infants leading to late diagnosis and there are no formal family support services available. This means language exposure in the early years will have been

limited for most deaf children entering formal education in Kenya and it is the implications of this on the pedagogical practices of teachers that will be a key focus of the field observations and conclusions.

1. The nature of language and its emergence in infancy

George Orwell understood the influence language and words have in shaping and manipulating thoughts when he wrote his dystopian novel Nineteen Eighty-Four. The power of 'Newspeak' lay in the way it limited vocabulary which as the character Syme reveals to us, was exactly the point. It was specifically designed to reduce human's capacity to think (Orwell, 1949). Here we are confronted with a powerful assumption – that language and thought are interdependent. Much as Wittgenstein (1922) described: 'The limits of my language are the limits of my world'. This 'strong' version of the linguistic relativity approach championed by Edward Sapir and then Benjamin Whorf in the early part of the 20th Century suggested that language determines how we see the world. What we perceive as the objective world is constrained by the propositions we have available to us from the language we use. Perception being relative to language, suggests that our cognitive worlds expand along with our language (Whorf, 1956).

This view of the role of language has since been largely refuted, especially through the extensive research conducted by Ekkehart Malotki on Hopi language and culture which debunked Whorf's assumptions that Hopi Americans had no concept of time because they had no words for its concept. However, it raises an interesting question about exactly what the link is between language and thought. Language appears to provide us with the

vehicle through which we think – through categorisation, memory, reasoning, and decision-making (Gleitman & Papafragou, 2005). But does language influence cognitive development or is it a product of our cognitive processes? More recent theorists such as Chomsky, Carruthers and Pinker (Chomsky, 1975; Carruthers & Smith, 1996; Pinker, 2002) suggest that sub-conscious thought cannot be language specific. As Chomsky noted: 'Language is a mirror of mind in a deep and significant sense. It is a **product** of human intelligence...' (Chomsky, 1975, p. 4 my empasis). This universalist perspective suggests that language in all its varied forms originates from within our cognitive structures rather than being something that creates cognition.

Given the central nature of language in our lives, how it develops during infancy has been a subject of interest for a very long time. Empiricists like Locke in the 17ᵗʰ century and Hume in the 18ᵗʰ century, were very certain that children learnt through direct experience – you show a child an orange and the child learns this is the form and substance of an orange along with the word 'orange'. From then on the child will have the idea of an orange even when there is no such fruit present: 'If we observe how children learn languages, we shall find that, to make them understand what the names of simple ideas or substances for, people ordinarily show them the thing whereof they would them have the idea; and then repeat to them the name that stands for it...' (Locke, 1690, Book 3.IX.9 quoted in (Gleitman & Papafragou, 2005).

The constructivist theories of language development that arose out of these early observations, in which children are assumed to acquire language through 'target matching' (matching the structure of the language around them through constant interactions with fluent adults), are important although they may not fully reflect the complex nature of language development. The drive to create

language, or at the very least structured communication is very strong and there are some situations which can be seen to challenge constructivist assumptions. Carrigan and Coppola (2017) raise the possibility that language is more of an innate characteristic, as demonstrated in their study of language emergence in deaf people who had never been exposed to accessible language. This directly challenges constructivist-based theories because in these cases linguistic structures appear to develop in the absence of linguistic inputs.

Carrigan and Coppola, (2017) studied four deaf adult homesigners, each of whom had developed their own homesign systems – manual gestures which they used with their immediate family. All four had hearing parents and non-signing wider families with no history of early intervention or special education programmes for deaf children. They had no spoken or signed linguistic inputs and no reading ability. Each had nevertheless developed a communication system based on unique homesigns.

Given there were no structured linguistic inputs, these homesign systems could not have arisen through the target matching process assumed by constructivist theories. For this to have occurred the significant caregivers would have had to have developed unique but complete languages for their children and then used them consistently to enable their children to acquire them. But observations showed that the deaf participants produced signed communications that were more complex and structured than those of their hearing family members from whom they were assumed to have learned their language. Somehow, the deaf homesigners were signing better than those around them suggesting their language was not entirely dependant on that of their caregivers. It appeared therefore that as children the deaf individuals had

been imposing linguistic structure onto language inputs which were inherently very poor, much in the way that pidgin languages develop amongst first generation immigrant children (Perez, 2021).

I will pick up the discussions around how infants and children develop primary language later in this chapter but for this research I will not delve any further into the discourse around the nature of language, other than to remark that complex debates continue. In the context of my research there are potential insights which this discourse brings to deaf education, especially in the context of Kenya where deaf children are most likely to enter formal education having not been exposed to an accessible language. If there is, as suggested by writers as diverse as Whorf, Chomsky, and Pinker, some relationship between language and thought (whichever way that is understood to arise) then we might anticipate this to have significant implications for children who have not developed primary language by the time they enter school.

Understanding how language is acquired in infancy will have a bearing both on how this research conceptualises the challenges young deaf children face and on how prepared teachers are in contexts such as Kenya, for supporting this natural process. If for example, teachers and the education system were cognisant of the nature of language development then it might be conceivable to create as natural a learning environment for young deaf children as possible.

2. Language and communication

Language and communication are important aspects of the human condition - a vital part of communal living which allow us to build and sustain relationships; share experiences; express our own thoughts and feelings and to understand

those of others. Of particular interest is the fact they are also key to education and learning. Whilst language and communication are closely related, they nevertheless retain a few distinctions. Communication enables us to convey our ideas and thoughts to those around, but we can do this is in a variety of different ways - through symbols, sounds, signs, words, gestures, or graphics for example. As Spencer and Marschark point out: 'communication is the exchange of meaning: ideas, thoughts, directions, and emotions.' (Spencer & Marschark, 2010, p. 20).

A specific form of communication is language (Spencer & Marschark, 2010) which in essence is a rule-governed system of symbols - typically spoken but also expressed in manual forms, as in the case of signed languages, and in more recent human development as writing. As humans we use language for thinking, planning, remembering and as part of our communications because it is a particularly efficient way for us to express what we experience about the world around us to others (Levine, et al., 2016).

Language is so fundamental to the human condition that the right to communication and language and their concomitant rights to participation, freedom of expression and to access information are enshrined in numerous international treaties and national legislation. In the Universal Declaration of Human Rights (UN 1948) Article 19 enshrines the right to freedom of expression with UN Resolution A/Res/61/266 calling on Member States to '…promote the preservation and protection of all languages used by peoples of the world'. The UN Convention on the Rights of the Child (1990) includes two key articles of relevance to language (Article 12 - the right to be heard; Article 30 - the right to use her/his own language) and the UN Convention on the Rights of Persons with Disabilities (2008) reiterates that children with disabilities retain the right

to freedom of expression in Article 7, with Article 21 (freedom of expression and access to information) and 24 (access to education and in particular the right to learn sign language) underpinning the key role language plays in fulfilling wider rights.

Just as a reminder of the importance of language for children as they enter education, the Salamanca Framework for Action determined that: 'Educational policies should take full account of individual differences and situations. The importance of sign language as the medium of communication among the deaf, for example, should be recognized and provision made to ensure that all deaf persons have access to education in their national sign language.' (UNESCO, 1994, p. 18).

These are all very important normative frameworks for protecting the right to language and for setting out how education should be provided for. The Salamanca Framework was progressive in its recognition that deaf persons should have the option to learn through their national sign language. But what I find interesting is that this fails to recognise that in many parts of the world, including Kenya, deaf children are most likely to enter the education system having never been exposed to their national sign language. So, the right to access education would seem compromised if this fundamental aspect of language development is not addressed through the education system.

3. Language learning in infancy

The relationship between communication and language is complex because communication plays such an important role in stimulating language learning: it is through the environment established by caregiver communications that young children first learn that language has a structure (MacWhinney, 2005).

Levine et al., (2016) describe the 'parent-infant' dyad as being especially influential in facilitating the acquisition of a primary language (also sometimes referred to as 'Mother Tongue', native, or natural language).

Through a regularised communication environment typically developing infants show a preference for the sounds of language over all other auditory inputs by around six months of age. By 12 months they will have become aware that speech communicates information about objects whereas the sounds of a cough (for example) do not (Levine, et al., 2016). This is helped by the fact that even before birth, at around 25 weeks' gestation the auditory system typically comes online. New-born babies are sensitive to the specific rhythms of speech used by their mothers and will already be able to distinguish the sound of their mother's native language from the sounds of other languages.

Infants are primed to pay attention to the majority language around them and through their first year of development they learn to pick out native phonemes (i.e., the individual sound units that make up a language) over non-native ones whilst at the same time becoming increasingly sensitive to word ordering (Spencer & Marschark, 2010; Levine, et al., 2016). Within just six months, typical infants have the ability to isolate new words if they follow a familiar one, such as their name.

Young infants also learn that they can influence the world around them with the sounds they produce. Babies naturally produce spontaneous vocalisations which increase in response to caregiver interactions. It is caregiver responses to these spontaneous sounds that help infants establish early communications. At the same time, caregivers modify their own vocalisations to match the ability and interest of the developing infant.

All forms of communication are employed by caregivers during these early months including eye gaze, vocalisations and gestures to reinforce the link between sounds and meaning (Kyle & Woll, 1994; Levine, et al., 2016). What is noted to be of key significance at this time is that the infant's language is developing through conversation. That means the role of the caregiver in relation to the infant is important in providing a positive, interactive environment in which language can develop. Enabling an infant to take the lead in interactions, with the caregiver responding according to the child's capacity, becomes a means through which they can develop and expand their language: moving from early 'pre-speech' communications to more linguistic based conversations (Kyle & Woll, 1994).

Conversations like this emerge very early in the child's development following improving motor and visual coordination. From an early age infants learn to recognise facial expressions and start to reach out for objects that fall into their visual field giving caregivers the opportunity to hold their attention. Caregivers use these actions to drive and prolong interactions such that the infant begins to lay down the foundations for later language development based around these model 'proto-conversations' (Kyle & Woll, 1994; Spencer & Marschark, 2010; Levine, et al., 2016). The quality of these early interactions is regarded as an important predictor for later language ability (Levine, et al., 2016). Essentially language development occurs in this early phase as a result of generalised cognitive development, exposure to adult language models and frequent, positive adult-child interactions (Kyle & Woll, 1994; Levine, et al., 2016).

This more detailed consideration of the constructivist perspective asserts that the child is developing language because of the inputs that it receives through

interaction with native users (Tomasello, 2007). Effectively the language learner is matching the structure of the majority or target language which it achieves through the communication environment – that is, in interaction with native language users. Solving the communication problem, to understand and be understood, is what appears to drive early language development. Notwithstanding the interesting observations of Carrigan & Coppola (2017) which suggest that some primary language capacity may be innate, this is a key perspective for this research. It is underpinned by the assumption that access to native language users is an important element in promoting primary language development in infants and young children.

4. Language emergence in deaf infants

Being born deaf only affects an infant's ability to acquire *spoken language*, it doesn't affect language acquisition *in toto* (Gregory, 2004). Deaf babies born into Deaf families begin their primary language development soon after birth (a little later than hearing infants), first through tactile communication and then as visual acuity increases, through visual communication (Spencer & Marschark, 2010).

Significant barriers exist only for those born into non-signing hearing families where there are limited linguistic experiences, spoken or visual on which to build (Levine, et al., 2016). In this situation there is considerable potential for delays in the natural language acquisition process which could be protracted if the caregivers are not using any form of visual communication as might happen in situations where a formal diagnosis has not been made (Spencer & Marschark, 2010).

Between one and two babies per 1,000 are born annually with bilateral sensorineural hearing impairment (Mitchell & Karchmer, 2004), with most of these children being the only deaf member of the family. In Kenya for example, only 2.1% of deaf children have deaf parents (Adoyo, 2007). This provides a linguistic challenge because the child will be surrounded by language role models to which they do not have full access.

As noted previously babies come primed to acquire their first, primary language with innate behaviours which in social interactions, especially with close caregivers, shapes and reinforces language development (Kyle & Woll, 1994; MacWhinney, 2005; Tomasello, 2007; Spencer & Marschark, 2010; Levine, et al., 2016). Deaf babies require the same parameters as hearing babies for their language to develop – that is the cognitive development that comes along with growth and nutrition; exposure to adult language models; and appropriate adult-child interaction experiences (Kyle & Woll, 1994; Levine, et al., 2016).

A key milestone of early language development in all infants is 'reference' – acquiring a shared understanding of the information and intention behind linguistic messages. In other words, knowing what is being described or talked about. Early forms of 'reference' come in the form of establishing and maintaining eye contact during face-to-face interactions. In hearing infants this soon progresses to use of vocal prompts for gaining attention, such as using the child's name. For deaf babies in Deaf families the same process occurs except that rather than using a vocal prompt, the caregiver typically waves a hand across the babies visual field.

What is important about 'reference' in its earliest presentation is that the baby is able to see the object being spoken about (the referent) by the caregiver. The caregiver talks about an object whilst the baby is looking and perhaps touching it. Deaf babies face a key challenge in this scenario because as soon as their eye gaze moves to the object, they can no longer focus on the visual information being provided by the caregiver. Deaf caregivers naturally overcome this challenge firstly by referring to objects just before engaging with them (picking them up for example) and by using fewer signs during the interaction than a hearing caregiver would verbalise. The Deaf caregiver first gains eye contact, refers to the object in sign, then points to it (or picks it up). The deaf child takes this as a signal to shift their eye gaze from the caregiver to the object. Whilst the child is looking at the object the caregiver stops signing, resuming once the child returns their gaze with additional information.

In hearing and deaf babies in signing families, this process establishes an important attention routine which then forms the basis for increasingly more complex conversations as the child develops. Eventually, around the age of two years the child will understand complex turn taking and will be able to manipulate adult attention to become more of an initiator of language interactions.

What is critical is that hearing caregivers of deaf babies do not naturally modify their early interactions to the same extent as Deaf caregivers although they have been observed making efforts to direct their babies gaze at objects of interest (Waxman & Spencer, 1997). More typically they tend to follow the routines used with hearing babies, that is continuing to verbalise information whilst the infant looks at objects. So from the very earliest communication interactions deaf babies with hearing caregivers miss important linguistic cues,

routines and information (Waxman & Spencer, 1997). The infants own attempts to use eye gaze may go unnoticed by hearing caregivers who are less used to maintaining eye contact during linguistic interactions. The effects of this are that deaf babies in hearing families may struggle to initiate communications (Kyle & Woll, 1994). Whilst hearing adults (and Deaf adults of hearing babies) do modify their communication strategies to some extent their relative lack of experience of the differing communication needs of their infants constrains their abilities in this regard and so they are not as effective. This is what can lead to longer term language and communication deficits (Waxman & Spencer, 1997).

Other accommodations are also made naturally by Deaf caregivers with deaf babies. So, just as hearing caregivers adjust their speech to match the cognitive development of their infants, Deaf caregivers adjust the way they sign. The Deaf caregivers form their signs more slowly, and deliberately and change their location to ensure the baby maintains its attention on them. This even happens when reading where the Deaf caregiver will sign above the page so the child can see the signs and the pictures (Kyle & Woll, 1994; Waxman & Spencer, 1997). When the child starts to sign themselves the Deaf caregiver will modify the signs so the right handshapes are formed as the child's motor skills develop. Overall Deaf caregivers tend to ask fewer questions during communication interactions than their hearing counterparts but spend more time naming things, resulting in children who are more object-oriented.

Deaf infants in a signing family naturally begin to sign themselves from around the age of one year but these early signs are quite gestural. In fact, they appear quite similar to the spontaneous gestures produced by deaf infants in hearing families. These early gestures only become more regularised into signs through

careful observation and correction by signing caregivers, attentive to the handshapes, locations and movement required for the gestures to become signs (Kyle & Woll, 1994). Just as with hearing infants starting to talk, deaf infants naturally begin to combine individual signs into two and three sign phrases as their cognitive and motor skills progress.

5. The impact of delayed language exposure

It is important for this research to understand the implications of what happens to deaf babies who do not have full access to adult linguistic models. What happens in the absence of a natural language acquisition process and does that have any lasting impact on children's cognitive development that could affect how prepared they are for formal schooling? The Carrigan and Coppola (2017) study mentioned previously, whilst very small provides some insights into the experiences of deaf people who have grown to adulthood with no accessible language models. In Kenya where most deaf children are born into non-signing hearing families (Adoyo, 2007), and have a tendency to enter formal schooling later than hearing peers (Kimani, 2012) we might expect that many deaf children will arrive in school with ideosyncratic homesign systems rather than a recognisable primary / Mother Tongue language (Adoyo, 2002; Johnstone & Corce, 2010; Kimani, 2012).

In fact, my fieldwork found this to be the situation across the schools I visited. In terms of age, whilst headteachers reported that many children start school around the ages of five or six years, what I found was that across all PP2 classes the median age of children was 10 years (modal age 10 years) with the oldest child aged 12 years. There were three deaf students in early grade classes who were already teenagers (ranging from 14 to 16 years all in Grade one classes).

Teachers from each of the schools noted that most children do not have any KSL when they first arrive in school and often begin learning from their peers once they settle into boarding life. A PP2 teacher explained to me after an early observation, that a key role she plays is to 'turn the children's homesigns into KSL'.

Kenya specific research on the impacts of early language deprivation on deaf children is not yet available and is an important motivation behind this study. International studies point to there being significant long-term effects associated with early language deprivation which Morford summarised as part of her longitudinal study of two deaf adolescents who were acquiring ASL as a first language as teenagers (Morford, 2003). She noted that a number of studies on deaf adults show that those who acquire American Sign Language (ASL) naturally during infancy attain higher levels of fluency than those who acquire it as a first language in adolescents. Whilst delayed first language signers perform better than chance they tend to be highly variable in their fluency. Late first language signers have difficulty in acquiring more complex grammatical structures (just as do those with delayed spoken language acquisition) as well as with their ability to read signs. By contrast deafened teenagers who learn ASL as an *additional* language do not experience these same limitations.

Johnson et al., (1989) had priviousouly found that deaf children in the US who acquired American Sign Language during infancy '…showed more consistent grammars and richer command of the complex structures of the language than did those who acquired it later.' Ibid (p. 16). Johnson et al., (1989) noted that deaf children from hearing families in the US were not as advanced in their language development as their hearing peers by the time they attended school. Moreover, they were also behind their deaf peers who came from Deaf

signing families. They concluded that inaccessible communication environments had put them behind their hearing peers in language, cognitive and social development skills as well as in the acquisition of more generalised knowledge and information.

Morford (2003) found that whilst the late first language learners she followed could comprehend ASL sentences in ideal scenarios, in real world situations they really struggled. So their ability to comprehend ASL during high processing load scenarios (such as during a real-time conversation) was compromised. Rather than the issue being one of comprehension Morford concluded that this is much more likely to relate to processing. Whilst they could understand and improve their comprehension through practice and repetition they were never able to reach the levels of fluency attained by their native Deaf signing counterparts.

This suggests to me that delays in the acquisition of a first language can impact general language processing skills which could make it difficult for children to learn additional languages and even to progress confidently in their primary language. As Morford noted: '...one of the effects of isolation is continued isolation.' (2003, p. 715). Overall, comprehension and processing errors occur in much greater levels amongst those who learn a first language later, whether in the case of hearing individuals learning a spoken language or deaf individuals learning a signed language.

Early grade teachers in Kenya are faced with a situation in which most of their deaf children are likely to have experienced severely restricted language exposure not only during infancy but for much of their childhood (Adoyo, 2002; Johnstone & Corce, 2010; Kimani, 2012). This will influence the children's ability

to develop fluency in language regardless of whether that is signed, or spoken (Johnson, et al., 1989; Morford, 2003) as well as impacting on the early socialisation process that happens as infants and young children interact with caregivers and their wider families (Kyle & Woll, 1994; Waxman & Spencer, 1997; Woll & Ladd, 2011).

Studies such as these highlight the critical links between early language acquisition and more generalised cognitive development and the role that first language learning plays in supporting additional language acquisition. Where primary language acquisition has been delayed, there is significant potential for language fluency to be compromised, and for there to be increased challenges in learning additional languages (Johnson, et al., 1989; Morford, 2003; Ramirez, et al., 2012).

6. The classroom environment and language development

A key area of interest for this research is understanding the extent to which the language used in classrooms to deliver the curriculum can also be used to help young children acquire language. In Kenya there is an apparent assumption that children's primary language will develop at the same pace as the curriculum is being delivered because as I found in my observations, children are being given knowledge content alongside vocabulary. There were no instances where I observed any explicit teaching of language (beyond vocabularly) whether that was KSL or English.

In this respect research by Hopwood and Gallaway (1999) conducted in mainstream education contexts is critical. Their analysis showed that classrooms operate using quite specific language interactions because of the

need to create learning environments. Class teachers necessarily tend to talk more than students, and students generally are not encouraged to initiate conversations. A lot of teacher-pupil dialogue is quite functional with teachers asking pseudo-questions for pedagoic reasons. The language used by teachers is much more defined for educational purposes, used as a way to control and manage group situations and to foster reasoning or questioning. It is not designed specifically to facilitate language acquisition.

Research by Wood, et al. (1991) looking at the nature of the teacher-student interactions in deaf education contexts, also highlight the restrictive nature of language in the classroom. They too observed quite high levels of teacher control with a tendency to ask closed (yes/no) questions of deaf children with lots of repetition, allowing far less time for the children to initiate or develop conversations. They reflect that some of the issues around language development differences in deaf children could be down to didactic teaching methods which would seem to leave little room for modelling conversational language development (Wood & Wood, 1991).

Hopwood and Gallaway (1999) concluded that for deaf children with significant language delays, which is certainly the situation in Kenya, normal pedagogic practice will not be sufficient to build language competency. That's because functionally, the language of the classroom is not designed for the purpose of primary language acquistion. Most et al., (2006) also noted that young Israeli deaf children at pre-school level benefit significantly from specific interventions designed to improve early literacy skills beyond those given to hearing children. Again, this comes about because unmodified pedagogical and curriculum approaches do not take enough account of deaf children's language deficits.

The language environment of the classroom therefore would seem to be very different to the language environment created by caregivers (MacWhinney, 2005; Levine, et al., 2016). Contrast the conversational interactions that dominate communication at home or with peers, with the functional, closed and controlling language used by teachers and its possible to anticipate that the language of schools and classrooms may, if unmodified, fail to support deaf children who present with early language deficits (Hopwood & Gallaway, 1999).

These studies are really significant in the context of this research because they are indicating that gaps in early language development are being left untreated if deaf children are in schools without specific adaptive strategies and pedagogical approaches which pay attention to the primary language deficits.

7. Early language deficits and literacy in education

The early language deficits identified previously create difficulties in first language fluency and in the acquistion of additional languages. If left unaddressed, this may then impact children's abilities to develop literacy skills which in turn influences educational attainment.

In non-verbal intelligence tests deaf people are shown to have the same average intelligence and range of cognitive abilities as hearing subjects so that whilst there may be cognitive differences these are not deficits. Deaf children do show differences in short term memory functioning and sequential learning whilst sign language users have enhanced visual spatial functioning (Spencer & Marschark, 2010; Gregory, 2004). Unfortunately, the pedagogical implications

of these differences in the way deaf and hearing children process information have not been well studied in terms of what teaching practices might provide the most effective learning environment for deaf children (Gregory & Watson, 2018). This research will add something to the literature available by considering what the pedagogical implications are within a low income context and through focusing on the language interactions that occur within early years classrooms which might contribute to learning opportunities.

The fact of deaf children's lower attainment in literacy, as well as other academic subjects across their school experience in comparison to hearing peers is well documented (Power & Leigh, 2000; Kyle & Harris, 2006; Kristoffersen & Simonsen, 2016; Most, et al., 2006; Powers, 2011). Despite ongoing research, in the UK deaf children continue to do less well in key literacy and maths assessments with less than half (around 44%) reaching expected standards in reading and writing by age 11, compared with 74% of their hearing peers (National Deaf Children's Society, 2020). Print literacy skills remain challenging for deaf students but as Bennett et al., note '...a hearing impairment does not alter the essential steps required for a child to learn how to read.' (Bennett, et al., 2014, p. 45).

Gregory (2004) reviewed research from the UK focused on identifying why deaf learners continue to perform below their hearing counterparts in some aspects of the curriculum, especially in regard to English literacy skills. Deaf children in the UK tend to have relatively small spoken language vocabularies and experience difficulty with some aspects of English grammar. Whilst all children vary, deaf students can face challenges in developing literacy skills if they have limited access to sound. This is partly down to not having the opportunity for incidental learning – knowledge about the world picked up from the TV, radio,

internet, overhearing adult or peer conversations. The lack of exposure to incidental learning can impact on literacy development because with a more limited vocabularly and knowledge of the world the deaf child can struggle to understand the words and concepts being used in the written stories they are learning from (Gregory, 2004; Marschark, et al., 2011; Bennett, et al., 2014).

In their 2006 study looking at correlates and predictors of literacy in deaf and hearing children in the UK, Kyle & Harris (2006) summarised a good number of studies which show that pedictors for reading can be different between deaf and hearing children. So whereas spelling and age are good predictors for reading amongst hearing children this is not the case for deaf children. In hearing children there is a well established link between reading and spelling development and phonological awareness (that is being able to distinguish between and manipulate the component sounds of words). Reading and writing build on early language development such that language skills (especially vocabularly) often underpin reading ability alongside short-term memory, grammar and other writing skills (Kyle & Harris, 2006).

By contrast very little formal information exists around what predicts reading skills in deaf children. The studies summarised by Kyle and Harris (2006) show there is a tendency for research to focus on single aspects of the process rather than looking holistically at the range of potential strategies deaf children use when they learn to read. A lot of focus has traditionally been on phonological awareness – do deaf children have phonolgical awareness and is it related to their ability to read or spell in the same way that it is for hearing children? (Kyle & Harris, 2006)

Some research suggests that deaf teenagers use phonological awareness as a reading strategy but it is difficult to appreciate whether phonological awareness develops as a result of learning to read or as a precondition for reading. It is more likely that young deaf children are relying on orthography (knowing the rules of writing) since spelling and phonological awareness do not seem to be as clearly associated in young deaf children's reading strategies (Kyle & Harris, 2006). Kyle and Harris (2006) found by ages six to seven years deaf children display an average delay in single word reading of 13 months but the range of delays were considerable (from six to 37 months) meaning this population is highly heterogenous. Whereas hearing children at this age were more accurate on phonological awareness and productive vocabularly deaf children were more accurate at speechreading (silent lipreading).

A key point to take from this research is that whilst spelling and reading are highly correlated in hearing children and can be used as good predictors of progress (and therefore in the design of literacy curricula) this is not the case for deaf children. Speechreading and productive vocabularly together were much more likely to predict reading ability and would therefore seem to be skills which are important in literacy development amongst deaf children (Kyle & Harris, 2006). Speechreading is a strong predictor for single word recognition with productive vocabularly important for sentence comprehension.

Hearing children therefore are using phonological awareness, verbal memory and verbal processing when they read novel words and sentences. They utilise their ability to detect and manipulate the phonemes making up the sounds of words in order to decode what has been written down. What is less obvious is the extent to which deaf children use these strategies when they learn to read and write. Signed languages also have phonology in the sense that

handshapes, movement, location and orientation of hands all play a part in constructing the meaning of words and sentences of sign language. But no sign language exists in written form so there is no direct equivalent between hearing and deaf childrens' literacy development. Therefore it is difficult to separate out whether deaf children are using phonological awareness skills learned through developing sign language to transfer to the spoken language or whether decoding in this way is specific to spoken language literacy.

This is no small question. If I take the view that phonological awareness as a skill can be transferred from one language mode to another then the focus of literacy programmes involving deaf students should be on improving their sign language skills and metalinguistic knowledge. If however, there is no transfer then literacy would need to be approached very specifically firstly through teaching the patterns of speech phonology before then moving on to reading (Kyle & Harris, 2006). There is evidence to suggest that children with better ASL skills do better in literacy irrespective of age or other intelligence markers. Cormier et al (2012) and Rudner et al (2015) both demonstrated that deaf adults with well developed sign language grammar are also better at reading comprehension. So a focus on ensuring young deaf children are developing signing fluency in the earliest years of education could help later on when it comes to literacy.

8. The impact of a lack of early literacy exposure

Another potential challenge deaf children face when learning to read can be connected to their early literacy experiences. Early literacy includes linguistic

knowledge, phonological awareness and orthographic awareness. The early literacy experiences children have prior to formal education seem to influence later academic success (Most, et al., 2006). Kristoffersen and Simonsen (2016) highlighted the lack of exposure to 'significant literacy events' in family and pre-school settings which make deaf children less familiar overall with the concept of stories. In hearing family units there are constant 'literacy events' occuring which are highly social. Take for example reading a book together. During these interactions young children explore their emerging language skills with adult language role models. Taking part in shared events like this helps lay the foundations for later reading and writing proficiency because of the opportunities they provide for developing vocabulary, concepts, and ideas as well as learning how to engage socially with others. Cannon and Guardino (2012) found that deaf students in the US were not read to as much as their hearing counterparts thus limiting exposure to both stories and writing.

In their study of mixed hearing and deaf pre-school classes in Norway, Kristoffersen and Simonsen (2016) saw that deaf children were not participating in literacy events in the same way as their hearing peers. The need for a shared language between peers, and between teachers and students alongside the fact that deaf children are visual learners meant that in mixed settings with hearing teachers, the deaf children were interacting far less. So although during formal story / circle time teachers were able to direct their attention to ensuring deaf students were included this did not extend into follow-up activities. For example during craft lessons the deaf children would be focused on the things they were making with their hands whilst hearing children would be working whilst also talking to their peers or to the teacher.

Kristoffersen and Simonsen found that whilst the deaf children were getting good language experiences during formal circle time, the interactions were far less progressive because they were relatively formalised. Whilst being good for reinforcing routine, structure and for introducing new letters, words and numbers they were less developmental because the language event went from teacher to student – with limited if any peer-to-peer engagement. As they note: '(T)hese types of events offer limited possibilities for developing language and literacy skills...' (Kristoffersen & Simonsen, 2016, p. 144). Similar issues occur when hearing teachers attempt to read storybooks because there is a tendency to read whilst pointing to the illustrations. Deaf children then have to make a choice between looking at the picture or the signs. Any loss of information will inevitably result in the overall meaning of the story being lost to that child. Essentially therefore, the types of methods typically used by hearing teachers with hearing students are often not sufficient for deaf children. In a mixed class it is the deaf children who tend to miss out because hearing teachers prioritise the spoken language they are most comfortable using.

A similar point was noted by Power and Leigh (2000) in their historical review of educational approaches to literacy, who noted that poor literacy teaching techniques could be contributing to deaf childrens' difficulties in reaching parity with their peers. Drawing on research carried out in the mid 1980's by Wood et al (1991) they highlight how reading lessons differ between hearing and deaf children because exposure to language and contextual information is much more limited for deaf children. This has the effect of turning reading into language and speech-training sessions for deaf children. The seemingly simple act of reading is so often subject to interruptions as teachers stop to ask questions, that the overall sense of the story is lost. Teachers are stopping in order to explain the meaning of individual words that hearing peers are already

very familiar with (Power & Leigh, 2000; Gregory, 2004). The act of reading for meaning therefore gets lost in the need to review vocabulary, syntax and context.

This observation is a powerful one in the context of my research in Kenya because all of the lessons I sat in on, whether they were timetabled as English, Maths or KSL were in essence vocabulary lessons. As I will discuss in Chapter Six, there were very few fluent language moments, where stories were read in their entirety by teachers or children or where teachers used rich explanations of concepts for the children to listen to. This also leads into further discussions about the extent to which classrooms encourage or hinder language development in deaf children.

9. Representing sound visually in the classroom

In an attempt to improve the language and associated literacy skills of deaf children globally, various efforts have been made to represent the sounds of spoken language visually. This has led to the development of very specific sign systems used in the education of deaf children around the world (Scott & Henner, 2020). Sign systems (including Simulataneous Communication, Sign Supported English and Sign Exact English) are manually coded versions of the majority spoken language, sometimes based on novel gestures or more often based on signs borrowed from a local natural sign language (Wood & Wood, 1991). Whilst they continue to be widely utilised and popular around the world in the education of deaf children, including as I frequently observed, in Kenya, their educational effectiveness has never been robustly proved (Scott & Henner, 2020).

Sign systems were developed partly as a response to consistently poor language and literacy outcomes experienced by deaf children. The assumption behind adoption of manually coded languages is that by providing visual representations of the spoken language, deaf children will be in a better position to produce and understand that language for themselves. Underlying this assumption is an implicit belief that because natural sign languages do not have written forms, they cannot effectively support literacy development (Scott & Henner, 2020).

But sign systems themselves are not language and there is some question over how effective they are in situations where primary language competencies are low. Some of the concerns raised by Scott and Henner imply that the way I observed teachers using Sign Supported English in Kenya might be having a negative impact on the language development of the children. Their concerns included the issue that sign systems overall are less comprehensible to those who rely on signs; where employed, they tend to be used inconsistently by teachers; and they sometimes inadvertantly include features of natural sign language grammar which means they are not in fact accurately representing the spoken language. Scott and Henner warn therefore that sign systems are neither good signed or spoken language models (Scott & Henner, 2020).

Moreover, sign systems only exist in classrooms they are not used within natural signing communities. Whilst they borrow handshapes from natural sign languages they also contain contrived signs – for example, handshapes created to represent English grammatical functions like 'to' or 'the'. As Wilbur and Petersen (1998) also noted, manual forms of English are linear in nature because English is a linear-sequential system. But natural sign languages (like British or Kenyan Sign Language) occur in three dimensions – they are visual-spatial-

gestural in nature with grammer that is layered. Grammatical information is provided through the placement, movement and direction of specific handshapes rather than through a sequence of individual signs (Scott & Henner, 2020). So the single sign GO, can be manipulated in many different ways to produce information such as who is travelling, where they are travelling to, when they travelled, how far they went, how fast and so on. Sign Supported English however contains none of this information when the single sign GO is used.

This was exactly the problem that teachers in Kenya faced. I can illustrate the difficulties they had with one particular observation from a Grade two KSL / literacy class. In this lesson the teacher wrote several word pairs onto the board including:

Play / plays

Help / helps

The children were asked to finger spell each word, then to sign them. The children were confidently able to finger spell the words as the teacher pointed to them. Most of the children were also able to sign PLAY and HELP.

There was confusion however when it came to the plural forms. In this case the teacher was unable to sign the plural forms. She made an initial attempt to show the children the difference by producing the original verb followed by A LOT and CONTINUE but this confused the children and didn't actually reflect the meaning of the English words. In the end she simply signed the original word and told them to add an 's'.

What was problematic in this language example was that the teacher made no attempt either to modify the original signs from PLAY to PLAYS, or from HELP to HELPS, or to explain the difference between singular and plural verb forms in the English language. It is hard to determine exactly what information the children would have learned from these examples. So whilst the signs were accurate for HELP and PLAY, simply adding an 's' to make them appear plural, as would be the rule for written English, was not an accurate representation of the KSL plural form which would have required three-dimensional movement of the signs by the signer. When we chatted after the lesson the teacher revealed that she had no experience in how to modify KSL signs from singular to plural forms.

Similarly many signs are iconic in nature, especially those learned early in language development. But sign systems often disrupt the iconic nature of signs by using initialisations to change the meaning of a sign. This can make it hard for a child to recognise and recall a specific sign in different contexts because it no longer appears in its natural form. If the shape is disrupted too much the meaning and concept is lost making it difficult for the child to engage and remember. Scott and Henner found that when deaf students were tested in ASL-only communications they exhibited better recall and comprehension scores compared to those tested using a sign system. Intensive one to one tuition on sign systems can improve students ability to recall sentences but they are rarely 100% accurate.

Whilst English can be represented manually, in the classroom teachers using sign systems tend to use fewer complex grammatical structures than those working in spoken English (Wood, et al., 1991). Concerns have been raised that it is not just the nature of sign systems that might be constraining deaf students'

language development, but the extent to which teachers are actually producing them accurately and consistently. Luetke-Stalman (1991) noticed that the teachers in her study commonly did not follow the rules of the sign system they were supposed to be using, with signs being omitted or simply invented. Wilbur and Petersen (1998) also found issues in language fluency and complexity in adults attempting to use speech and signs at the same time with a tendency to omit function words. This is a serious issue when considering that without the function words, English grammar is not being accurately modelled to deaf students. Scott and Henner (2020) found that teachers speech was often ungrammatical in both English and ASL with teachers unaware of their inconsistencies.

Overall, research by Scott and Henner indicated that deaf students taught using sign systems were exposed to less complex and less accurate English grammar compared with those taught in oral only environments. They conclude that sign systems can represent English but should be used in a controlled environment where the goal is to learn English literacy skills. In other words, they should not be used as a way to help young deaf children acquire language.

Moreover, sign systems should be used alongside ASL (or the natural sign language equivalent such as KSL) where the purpose is to explain content and structure. So, on their own sign systems should not be confused with natural sign and need to be used for the specific purpose of teaching literacy as a second language.

10. Bilingual-bimodal classroom communication strategies

Since the 1980's various approaches to bilingual-bimodal eduction have been gaining attention in Europe and North America where natural sign language is

used alongside the written and spoken majority language (Swanwick, 2016). What sets these approaches apart from the oral-aural and sign-system based ones is that they are rooted in a rights-based framework which recognises the validity of natural sign languages and their importance in cultural transmission and social identity whilst helping to promote greater social inclusion (Gregory, 2004; Swanwick, 2016).

Implicit in this is that deaf children have a right to education in a form they can access. Since the signing of the UN Convention on the Rights of Persons with Disabilities deaf children have been afforded the right to education which is: '..delivered in the most appropriate languages and modes and means of communication for the individual...' (Article 24.3(c)). Moreover States Parties are obliged to facilitate '...the learning of sign language and the promotion of the linguistic identity of the deaf community;...' (Article 24.3(b)). This was a hard fought statement by the Deaf community who were taking the meaning of inclusion beyond the need for accessible communication strategies to embrace Deafness as a cultural and linguistic minority status (de Beco, 2019). In reality there is very little awareness of this statement beyond Deaf education activists and the situation for many deaf and disabled children around the world, is that they remain one of the largest single populations excluded from general education systems (de Beco, 2019; UNICEF, 2021; International Disability and Development Consortium, 2022).

The key idea behind sign bilingual education, which the CRPD reinforces, is the opportunity for deaf children to have full access to the curriculum in a form that is accessible and reinforcing of identity and independence. However, in many current education systems, including Kenya, bilingual education for deaf children is a complex undertaking since sign languages are rich cultural

languages (Moores, 2012) and there are few native signers who work as teachers (Johnson, et al., 1989; Johnson, 2004). To be effective implies teachers need a high level of fluency in both the majority spoken and signed languages or that support is provided via in-class language assistance (Johnson, et al., 1989; Spencer & Marschark, 2010).

Teaching in sign language also requires different classroom practices and approaches, including different resources and learning materials (Swanwick, 2016). Effectiveness at this level requires teachers who have specialist knowledge and skills or who are able to make use of appropriate in-class support (Swanwick, 2016). To date in my opinion, most of the focus around mainstreaming children with disabilities, especially in low- and middle-income contexts, has focused on making system level changes (such as legislation that promotes inclusive enrollment, inclusive data collection, and reasonable accommodations   policies) rather than looking closely at the teacher and classroom-level changes required to make inclusion effective.

In countries such as the US and the UK, the move to bilingual approaches in deaf education improved the situation but has not eliminated the gaps in attainment. The reasons for this are complex and in part are associated with the natural language acquisition deficits created by a lack of accessible language role models during early childhood (Marschark, et al., 2011). In particular the fact that deaf children enter school with less developed academic knowledge of the world as well as language; they have cognitive differences as a result of experiencing the world primarily visually and interacting with others, including teachers, differently; and as a result of pedagogic decisions made about their education (the where, how and what of their education).

Deaf children are also much more heterogenous in their cognitive abilities than hearing peers making generalised interventions more unpredictable (Kyle & Harris, 2006). There is no suggestion that deaf children are significantly different or necessarily require a different education only that there will be some teaching approaches that are more likely to facilitate learning by deaf children – regardless of whether that is delivered in mainstream or segregated contexts.

11. Discussion

This review of some of the existing literature on early language development and language in the classroom has underscored the extent to which primary language skills form the foundations for learning which are exploited in formal education systems (Swanwick, 2016). This is why I believe a focus on language acquisition support is so critical for many young deaf children in Kenya and other low- and middle-income countries in the early years of their education. As my observations highlight, most deaf children arrive at school having had very limited exposure to accessible language because of a combination of late diagnosis, lack of communication support for families of newly identified deaf children and a lack of exposure to KSL from the community. There are therefore multiple factors which could contribute towards primary language deficiency in deaf children in Kenya, which I illustrate in **Figure 2**:

Figure 2 Factors impacting on primary language development in deaf children in Kenya

Late diagnosis (6+ years is not unusual)

Limited access to hearing technology

Lack of early intervention programmes

Potential primary language deficit
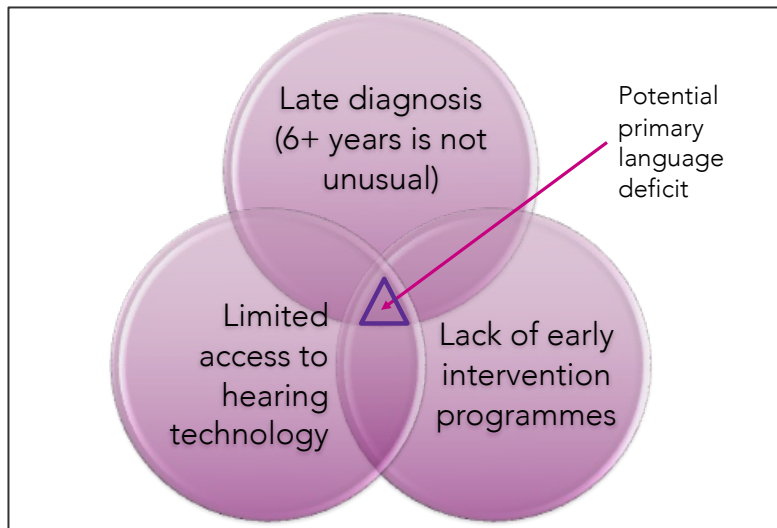
In terms of this research, there are a number of perspectives which I will use to shape my analysis of the observations and the conclusions drawn. Fundamentally I take a rights-based approach to development, disability and deafness and so I frame this research as one in which language and communication are recognised as a human right. All deaf children retain the right to an education that is fully accessible to them regardless of their primary language capacity. The centrality of language is important in the early years education of young deaf children. As I review classroom environments and practices I will be looking at the extent to which this right to accessible language is being upheld and the ways in which teachers approach language acquisition in young deaf children.

Studies of early language acquisition highlight the interactive nature of this process. Infancy is a critical time for language development which is stimulated through frequent proto-conversations between the caregiver and the child. The caregiver responding to the infants vocalisations helping to establish language structure and routine which are gradually expanded in line with the infants developing skills.

There are three key aspects to natural language development which are evident from the literature. Firstly, language follows the infant's general cognitive development. As the infant's mental and physical skills develop so too does their capacity to produce language. Secondly, exposure to adult language models helps ensure they acquire the form and structure of the majority language. Finally, this is done most effectively through frequent, positive adult-child interactions.

This natural process happens in very similar ways in typically hearing families as well as Deaf families. Disruption occurs when the infant cannot access the language used by caregivers such as in families where deaf children are born to non-signing hearing families. In this situation the infant is not fully exposed to adult language models which in turn impacts on the effectiveness of adult-child interactions. This is the situation faced by most of the deaf children included in this study and therefore they are arriving at school with the potential for very significant primary language deficits.

The implications of these studies from an educational perspective, suggest that deaf children with significant language deficits would benefit from an early years school environment which promoted accessible adult language role models with frequent and positive adult-child interaction. This is highly suggestive of the dialogic approach championed by the educationalist Robin Alexander (2018). Whilst Alexander's approach is not specifically designed to promote primary language development (or as an approach in the education of deaf children) so much as improving the use of language in the classroom as a tool for learning, it nevertheless offers a pedagogical approach which encourages more expansive use of language by teachers and students. Key findings from a recent trial of its use in primary schools across the UK, included

evidence that teacher-student exchanges were longer, deeper and more sustained than they had be prior to adoption of this approach with teachers reporting improvements to student vocabulary and better discussions (Alexander, 2018, p. 22).

I will take the ideas behind the dialogic approach and use them to assess the extent to which there are sufficient *dialogic moments* built in to the pedagogy of early years classrooms in Kenya capable of supporting language acquisition. My assumption here is that natural language development occurs primarily through accessible and positive conversations, or dialogue, with adult language models. Therefore frequent use of *dialogic moments*, where the teacher actively models language and seeks ever deepening responses from their students should at least encourage greater language fluency.

Building on the rights-based approach I will also focus on the extent to which a deaf-centric approach is being taken towards the education of deaf children (Skyer, 2021). That is the extent to which classroom practice pays full attention to the biosocial aspects of young deaf children's lived reality. A significant part of this is looking at whether teachers have the skills and knowledge to support language acquisition in ways that promote the visual learning potential of young deaf children (Skyer, 2021). In this regard I will also be looking at the way teachers engage with students in a visual way – the extent to which they seek and maintain eye contact during *dialogic moments*, how they gain attention, and how they set up their classrooms for visual learners.

For me the work of both Alexander and Skyer are important in helping shape my interpretation of what is going on inside the classrooms and the extent to which they are supportive of young deaf children who have significant primary

language deficits. It's also about the extent to which the deaf education approach itself is designed with deaf children at its centre. Deaf children are not school-ready in many different respects – the lack of access to and development of primary language leaves them without many of the skills normally associated with entry into school. The impacts of this go beyond language acquisition and touch aspects of socio-cultural understanding, self-esteem, and friendships for example which in turn affects how well prepared they are for learning.

12. Conclusion

In this chapter I have been able to review some of the vast literature available related to language, its development in early infancy and how this can be disrupted in the absence of accessible adult conversations. I then reviewed studies outlining the potential impacts of primary language deficits in deaf children once they enter the education system. I covered a range of pedagogical implications associated with teaching deaf children, including the challenges experienced in literacy and how that can impact on wider educational outcomes. In reviewing this literature, I was able to set the theoretical framework that will underpin my classroom observations and interactions with teachers. In this respect, I will be following a rights-based approach that is deaf-centric and pays particular attention to the ways in which teachers have the ability and opportunity to create *dialogic moments* with their students to encourage and develop language fluency.

Before moving on to a more detailed analysis of the impact of language on learning, I will use the next chapter to outline my research methodology.

Chapter 4: Methodology

In this chapter I will outline the underlying theoretical frameworks that I used to situate my research and detail the main methods for primary data collection and the analysis strategy. As a deaf researcher it has been important for me to place my research within a rights-based and post-modernist social model perspective of disability, emphasising the way in which it is the interaction between an individual's impairment and their social environment that creates disability. The Disability Studies in Education framework is particularly useful in this context because it enabled me as the researcher to co-create meaning around what the experience of teaching deaf children is like for teachers in Kenya. Using participant observational approaches and an action research group, I was able to come some way towards capturing how teachers conceived of the main challenges in teaching young deaf children and how that affected the way they designed their lessons and interpreted the curriculum. It helped to ensure that at all times I was conscious of how young deaf children were experiencing lessons, providing insights into the impact of teacher beliefs and practices on the learning potential of children (Slee, et al., 2021). Moreover, it meant I could follow Skyer (2020) in ensuring the research remained deaf-centric.

1. Theoretical framework

This research is situated within a framework provided by the Disability Studies in Education (DSE) approach (Ferri, 2009; Slee, et al., 2021) and guided by the Constructivist paradigm (Guber & Lincoln, 1995). It felt important to me to be able to acknowledge and take advantage of my unique position as a deaf researcher with significant experience in highlighting ableist structures. As Steven Taylor noted in his foreword to Danforth and Gabel's book on Vital

Questions in Disability Studies in Education (Taylor, 2006) the DSE approach is one that is accepting of a broad range of disciplines but with an underlying recognition of disability as socially constructed not purely impairment based. Emerging as it does from Disability Studies it encourages research methods which privilege the experiences of disabled people, most especially in any study which touches on disability (Gabel, 2005).

In constructing my research question, I wanted to highlight the experiences of deaf children in education because, as noted in the literature review much of the research and accompanying practice that is available within the international development sector, focuses on deafness as an impairment to be accommodated. When it comes to responding to the language development needs of young deaf children within formal education structures, I was concerned that hearing-focused, inclusive education-based research and practices were potentially missing the Deaf perspective: that there is a need to surface how deaf children experience curriculums designed for their hearing peers and the extent to which these can meet the specific needs of deaf learners. DSE enabled me to utilise emancipatory methods which I discuss in detail in Section 5, acknowledging the important contributions those with lived experience of deafness have in the research process (Gabel, 2005).

The participatory nature of this approach also offered the opportunity for me to build a research process that utilised the skills and experiences of Kenyan teachers of the deaf, alongside Deaf research participants and those working closely with the Deaf community. The field research was designed primarily as a participant-as-observer study but in practice it became action research oriented as I collectively explored some of the underlying beliefs and knowledge teachers were bringing into their pedagogical decision making with

a locally constructed action research group. Drawing on the descriptions of action research discussed by McNiff and Whitehead (2011) I came to appreciate that my research process had been greatly influenced by my experiences as a practitioner in the field of international development and inclusive education. I drew on that experience as I designed the tools, constructed my action research group, made reflections, facilitated discussions, and engaged the teachers. The practical nature of my research lent itself really well to this kind of collective enquiry (McNiff & Whitehead, 2011).

2. Conceptual framework

Of course, the participatory nature of this research means my own perspectives are important to define since they introduce a potential level of bias that needs acknowledging (Groenewald, 2004). I trained and practiced as a teacher in the UK for several years before moving overseas to work in international development. My personal experience of deafness inevitably shaped my interest in the desire to ensure development interventions, especially those in education, were inclusive of the needs of disabled adults and children. Recognition of disability as the result of social processes, rather than as something that is located within the body was extremely empowering to me and has continued to influence my perspective on disability in the context of development. Just as the early proponents of the 'Social Model' of disability and the resulting Critical Disability Studies approach emphasized, this way of looking at the 'problem' of disability was helpful in providing me with a political perspective from which to advocate for social and economic inclusion (Oliver, 1990; Barnes & Mercer, 1997; Barnes & Mercer, 2004).

Shifting the 'problem' from being one located in the disabled body, as characterised by the individual approach, to one that arises from the interaction between a person's impairment and barriers in society creates the possibility for structural changes (Oliver, 1990; Barnes & Mercer, 1997; Barnes & Mercer, 2004; Goodley, 2017). Advocacy for inclusion becomes a matter of identifying attitudinal, environmental and institutional barriers and working with service providers (as duty bearers) and disabled people (as rights holders) to overcome them.

Being able to define disability in this way helps forge a sense of 'otherness' that in the short term provides for the possibility of seeing disability not as an individual experience but one that has parallels with other minority groups – such as those based on class, race, or gender for example. Joining together with other disabled people, regardless of their impairments, provides a voice which becomes powerful enough to challenge even the most deep-rooted socio-political norms (Meekosha & Shuttleworth, 2009).

Disability is experienced in a multitude of ways: not just because of differences between impairments but also because our sense of self is shaped by a wide range of different factors like gender, race, age, and sexuality for example (Corker, 1999). This research moves beyond the Social Model towards a postmodernist approach which enables greater account of the dependent and dynamic nature of the sense of self - the self as embodied rather than stable and autonomous (Meekosha & Shuttleworth, 2009; Shildrik, 2012). As Shildrik (2012) noted, the postmodernist approach enables us to conceive of all human conditions as being permeable and unfixed, 'deeply intersectional, intrinsically hybrid and resistant to definition' (p. 34).

This approach helps acknowledge that distinctions between disabled and non-disabled are provisional rather than absolute identities which disrupt the overall idea of what is 'normal' (Meekosha & Shuttleworth, 2009; Goodley, 2017).

In the context of this research, the DSE approach proved extremely useful because it offered possibilities for understanding and articulating how teachers might be conceptualising deaf children. I reasoned that if teachers were conceptualising deaf children as 'children who cannot hear', then they would risk setting up a framework within which to understand and respond to their learning needs which would increase the possibility for missing their identity as primary language learners. This is a theme that will be explored in more detail throughout my research.

3. Research design

Qualitative tools were used for the collection of most of the primary data. As many others before me have recognised, research in special education is complex and does not lend itself well to quantitative methods (Odom, et al., 2005). There are numerous components to consider when setting up research within special education, not least the fact that impairments vary considerably. As Odom et al. (2005) note, '*(O)ne feature of special education research that makes it more complex is the variability of the participants'* (p. 139). Even though this research is focused only on deaf children, each child's own experience of deafness will be unique – not only in the sense of measurable decibels of hearing loss (dBHL) but also in the age of onset (pre- or post-lingual), cause (genetic, trauma, disease) and presentation (conductive, sensorineural, mixed) for example. The heterogeneity of participants makes the

use of a control or equivalent groups highly problematic and expensive in low incident populations such as deaf children.

I also included a very small quantitative element in the research design, in the form of a novel language assessment process (see Section 5.3). This not only complemented my participant-as-observer approach but also took on the role of a small intervention element. Its novelty in the classroom provided important stimulus for the action research component. Originally, I wanted a relatively unbiased way of articulating the level of language deficits that my previous observations (gained during my work evaluating inclusive education programmes for international development agencies) suggested existed in young deaf children in Kenya. Since there were no standardised testing protocols or tools in place at pre- and primary school level in Kenya, I had the opportunity to gather a unique data set on the language capacity of deaf children in early years educational settings whilst also introducing teachers to a language assessment tool which they could use in their classrooms. Their reactions to the tool, and its results proved powerful in eliciting the 'jolt moment' McLean suggested could happen when deep-rooted assumptions are challenged by new ideas (McLean, 2008).

4. Study population

The two counties of Kwale (Coastal region) and Nandi (Rift Valley region) were identified as fieldwork sites for this research. Both locations were part of an ongoing Community Empowerment for Deaf Inclusion project being managed by Deaf Child Worldwide with technical support from VSO Kenya. They were chosen as research sites primarily because Deaf Child Worldwide has strong links to several schools which cater for deaf children making the logistics and

engagement processes easier. Three schools were included in the observational and tool testing study: two in Kwale County and one in Nandi County.

Kwale County includes four schools for the deaf, all of which are residential. This research targeted two of these schools (referenced as Kwale and Kinango), which I selected randomly. Nandi County includes one residential school for the deaf and several small deaf units connected to mainstream schools. For consistency I chose to focus the study on the residential school (referenced as Nandi).

The fact that all three schools were residential was coincidental rather than purposive and whilst it is a factor that needs to be acknowledged I do not specifically focus on the overall school environment in my analysis. Further research will be required to understand the differences in impact on language development of residential schools compared with day schools.

4.1. Sampling procedure

I employed a purposeful sampling method to ensure that I was able to engage with informants who had relevant experiences to share (Patton, 2002). All key informants were selected on the basis of their role in deaf education in Kenya. Teachers within the selected schools were approached individually and invited to participate in the research on the basis of briefings from Deaf Child Worldwide and research group members. Parents were briefed on the research by Deaf Child Worldwide as part of their regular Parent Group meetings. They were invited to participate in the research on the basis of these briefings. VSO Kenya engaged with other external stakeholders, including local and national

education officials, EARC staff, special needs educators and local Deaf activists via letters and in-person conversations to brief them on the research and invite them to take part as key informants.

4.2. Sample population description

In total, the qualitative study population was limited to 36 main adult participants. This included 12 classroom teachers in pre-primary and grades one to three classes across the three schools, all of whom had experience with teaching deaf children; three Educational Assessment and Resource Centre staff; seven caregivers of deaf children in education; nine young Deaf people; two representatives from the Kenya Institute of Special Education; and three representatives from RTI International.

For the language assessment component, 48 young deaf children were sampled in total. Four children from each of the 12 classroom teachers were randomly selected. The method I used for this was firstly to remove any children from class registers that were known to have additional disabilities (in line with the original research). Two lists of names were created (one for boys the other for girls) with each child being allocated a number. I then used a random number generator programme on my smartphone to identify each child for inclusion in the language assessment.

This resulted in a total of 45 students who were described by the schools as being 'profoundly deaf', with three described as 'partially hearing' (by which teachers meant they expected the students could hear some sounds in at least one ear). These descriptions were not followed up objectively with audiometric testing – I relied on the teachers' own descriptions (see Table 3 below).

Table 3 Profile of the children undergoing language assessments in Kenya

Grade level	Age range by sex		Number of children by sex		Total number of children assessed
	Male	Female	Male	Female	
Pre-primary	9-11 years	6-12 years	4	8	12
Grade 1	9-14 years	8-16 years	6	6	12
Grade 2	10-13 years	9-12 years	6	6	12
Grade 3	8-15 years	11-14 years	6	6	12
Total participants			22	26	48

5. Data collection process

The participant-as-observer approach I had chosen relied on a set of qualitative tools designed to capture observed classroom interactions, individual and group-based reflections. Several qualitative tools were identified including open-ended interviews, classroom, and language observations, and focus group discussions (see Appendices 4, 5 and 6) alongside less structured post observation discussions with teachers and the research group. In addition, I was trialling use of a novel language assessment tool with teachers which will be outlined in Section 5.3 below (see also Appendix 1) with the results discussed in Chapter Seven.

5.1. Creating the action research group

Part of the strength of this research came from my decision to create a local action research group. As a deaf researcher from the UK looking specifically at issues around access to language and communication for young deaf children in Kenyan classrooms, I was very keen to ensure it would be a Deaf-focused and accessible research process. I knew that whilst I have a basic conversational level of comprehension and productive skills in Kenyan Sign Language, for this research I would need additional support from native KSL-users in order to appreciate the full richness of the language interactions I was hoping to observe. It was also important that everyone in the action research group could communicate freely together and that we could bring complimentary experiences to the analysis of observations.

In addition, my view of Kenya and the events I was observing was shaped by my own cultural background. Whilst I have spent many years living and working in East Africa my experience has inevitably been shaped by being a White, expatriate researcher. Ensuring that both hearing and Deaf Kenyan people formed the majority of the action research group helped me to overcome some of the inherent biases I would have faced should I have attempted to conduct this research alone.

The whole action research group also came from a social model of disability perspective with strong beliefs in Deaf rights. Both Deaf and hearing members of the group appreciated my need to focus on the nature and quality of the language interactions between teachers and students, as coming from a concern about deaf children's potential for primary language deprivation. We were very much a Deaf-centric action research group – analysing and discussing observations from as close to the deaf child's perspective as we could bring.

Overall, once constituted, we were a group of six people, five of whom were Kenyan, four were D/deaf and two were trained teachers. My role as lead researcher was to ensure that everyone felt included in the process, could identify with the research questions, and had the tools and support necessary to contribute towards the collection, interpretation, and analysis of the data.

5.1.1. Selection of action research group members

Through the connections I had with Deaf Child Worldwide I was able to hire two young male Kenyan KSL-users, H. and M., who were working as Deaf mentors within the deaf education project being run by Deaf Child Worldwide and VSO Kenya at the time. These two individuals joined the action research group primarily to assist with in-class observations but as participants in the research process they provided me with a rich source of information when it came to analysing the classroom observations we did together. H. especially was good at highlighting the poor KSL productive skills of teachers, the mismatch between the lip-patterns and signs when teachers used SSE and the lack of attention teachers paid to eye contact and maintenance of attention with the children. He was often able to interpret the children's communications and helped me understand more accurately when the children were using their own gestures and school-signs rather than more formal versions of KSL.

Acknowledging that they themselves came through a similar education experience meant they were often forthcoming with personal anecdotes during our research group discussions, and we used these insights to discuss the implications of some of the observed behaviours. The bias inherent in this needs to be acknowledged but given the diversity of the overall group, I believed this to be part of what made the research unique and productive.

Given I am an outsider to the Kenyan education context I also required local support to help me navigate the system and allow me to situate findings within a wider context. To this end, the action research group also included two Kenyans whom I came to rely on for their rich and insightful reflections. R. (Deaf) and J. (hearing) were consultants working with Deaf Child Worldwide with experience in the deaf education sector. J. was qualified as a teacher of the deaf and had worked for a short time as a teacher. She was invaluable as an action research participant because she had insight into the challenges experienced by teachers of the deaf within the Kenyan education system. She was also acutely aware of what was involved in special needs education training and was able to suggest where teachers were relying on recognised training approaches or where they had developed their own in response to their particular situation. J. was also familiar with the general education system and was able to advise when approaches might have been borrowed from mainstream techniques. J. and I spent the most time together, discussing and analysing all of the data in real time and reflecting on things as the number of observations increased.

R. was part of the group as a critical friend. He was there at the start to help orient me into the Kenyan education context and I was able to talk to him at length about the situation facing Deaf young people as they come out of the education system. Our conversations were always good for exploring Deaf perspectives on life in Kenya and he was a good source of information when it came to government decision-making and the historical view. R. also helped us to validate our findings at the end of the research phase. During the last week I spent in Kenya, J. and I spent time talking through all of our analysis and observations with R. who helped us to focus on areas he saw as being indicative of the wider system.

The final member of the group was a highly experienced KSL interpreter, B., who had worked with Deaf people throughout his career. Whilst he was originally hired to help ensure the whole research group could communicate freely and to assist the two young Deaf research team participants to use the observation tools (which were in written English), in fact his insights provided another source of valuable information. He was also able to interpret the children's communications and was acutely aware of the KSL skills exhibited by teachers. He was able to help me to know what teachers were talking about when they turned away to face the board or moved behind my line of sight. Inadvertently he also found himself becoming part of the class on occasion when teachers struggled with finding KSL signs and phrases for English words. Whilst he never volunteered himself to provide KSL interpretation for teachers he always responded when teachers asked for his help. His insights helped the team when we came to discussing and analysing the observations at the end of each day allowing us to experience the lessons from many different perspectives, making sure that as individuals we were not missing aspects of classroom activities that were either not accessible to us or had not been seen.

5.2. Class observations

In order to address the overall research question on the extent to which special education teachers in Kenya are equipped to assess and support the language needs of deaf children, I set up two types of observations to run during class visits: **classroom observations**, and **language observations**. Classroom observations noted areas such as classroom set-up and general accessibility for deaf learners; lesson structure and content; models of teaching and learner engagement (see Appendix 4). The main purpose of these observations was to elicit evidence for sub-question i) How do the concepts of deafness and

language held by teachers impact their pedagogical choices and feelings of self-efficacy? Most of the results obtained from these observations are discussed in Chapter Five.

Language observations included noting the language and mode of communication used by teachers and students; the type and quality of language interactions; and the use of language by students and teachers (see Appendix 5). These observations were designed to enable me to draw evidence that would help address sub-question ii) How do teachers approach the assessment of language capacity and progress in deaf children as individuals and as a class? These results are primarily discussed in Chapter Six.

Work on the classroom and language observation guides was done in collaboration with the action research group as part of the initial fieldwork phase (see Figure 3 below). I felt it was important to design these tools locally, partly to ensure they would take full account of the school and classroom contexts but also to ensure that the DSE approach underpinning the research was taken up by the whole group.

Figure 3 Designing the research process

Figure 3 Designing the research process
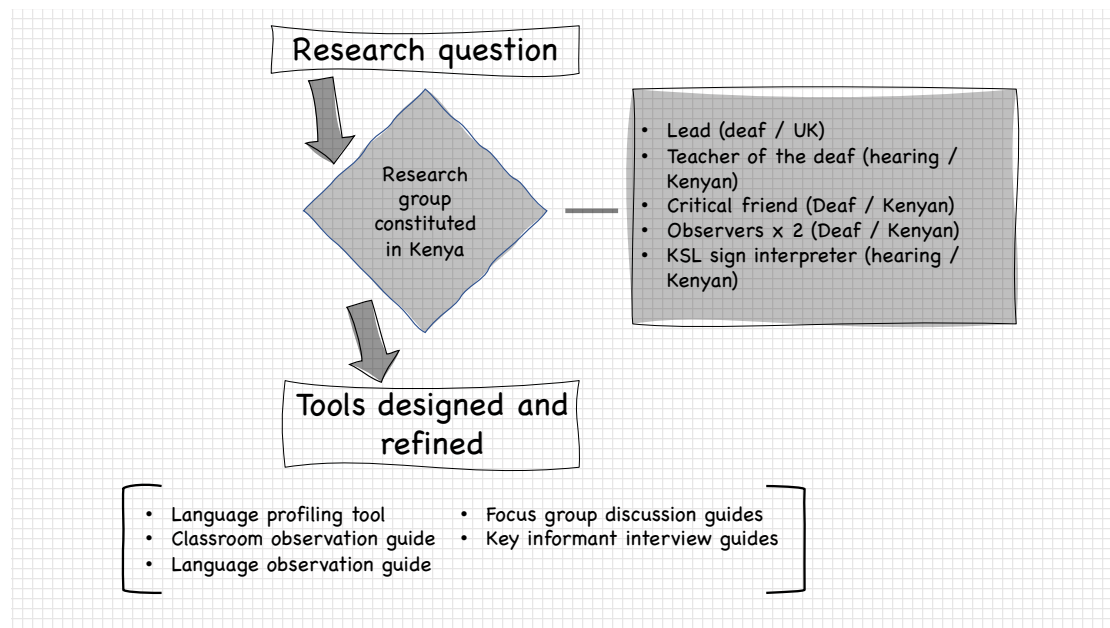
All three schools followed a very similar daily routine for children in the earlier years, with lessons divided into two morning sessions with a tea-break (for teachers), followed by lunch with less structured activities happening in the afternoons. This gave me the opportunity to set up four class visits each day – with myself and J. observing two lessons each morning accompanied by our Deaf observers and KSL interpreter. J. and I concentrated on using the classroom observation guide whilst the language observation guide was always completed with support from members of the group who were KSL first language users / fluent KSL users.

At the end of each morning session, we would come together as a research group to verify findings, discuss our observations and identify key emerging themes (see Figure 4). This provided the group with a rich picture of events inside the classroom seen from different perspectives and enabled everyone to reflect critically on the quality of the language interactions in each

observation as well as exploring the impact of deaf children as visual learners on teachers' pedagogy.

Figure 4 Daily observation routine
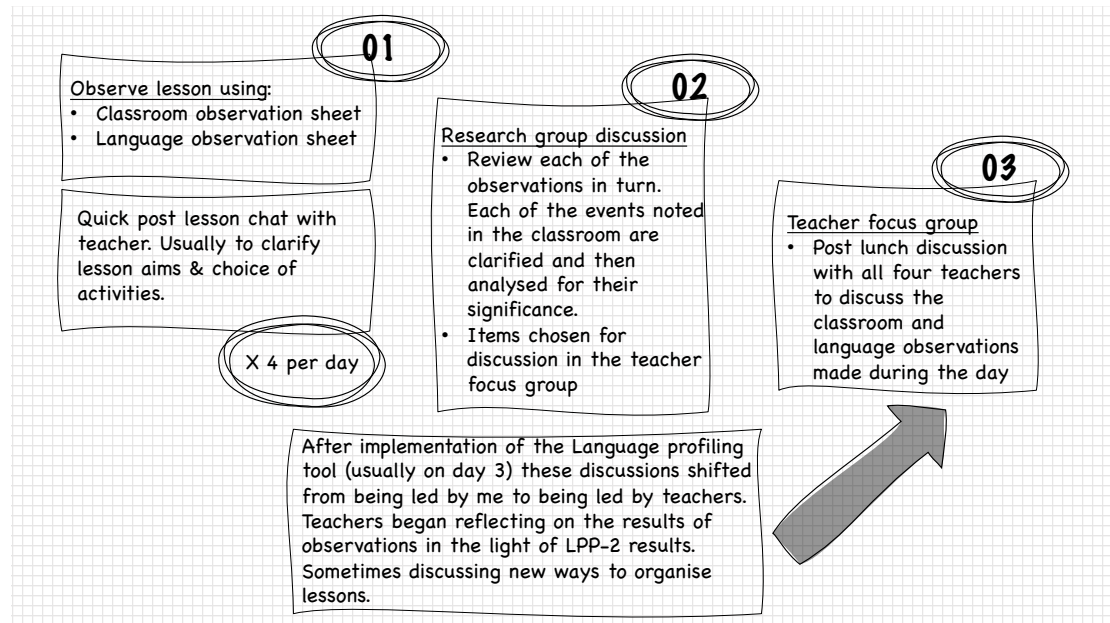
J. and I then met with all four teachers for focus group discussions each day after lunch to review the days observations with them and to talk in more depth about early language development in deaf children. During the first few teacher focus group discussions I also used a discussion guide (see Appendix 6) to find out more about the teachers experience, training and approaches to pedagogy. As our time together progressed these discussions became much more teacher-led, reflecting their experiences around the language assessment tool and our conversations around deaf children as language learners.

These sessions were critical in helping me to interpret their behaviours and actions in the classroom as well as providing us all with a chance to critically reflect on what we were seeing. I include many of the comments and insights

we reached during these discussions in the main fieldwork Chapters (Five and Six) since they add a richness to the narrative which I could not have achieved through observation alone.

I spent two weeks in each school which gave us enough time to visit each of the four teachers several times. This had the effect of enabling me to become familiar with the routines of the school day and each member of staff, as well as helping the teachers and children to get to know us to the point where we stopped becoming something unusual in the classroom.

I created a schedule to guide each day's activities across the two weeks in each school, which teachers consented to before the observations began (see Figure 5). This helped teachers to know when classroom observations would be happening, when the LPP-2 tool was going to be used and when we would be convening focus group meetings. The schedule provided a practical guide for the action research group to ensure that between us we were able to cover four class visits each morning. Just as importantly the schedule also helped me to make sure the action research group discussions focused on different aspects of the research question each day.

Figure 5 School observation schedule

Monday – week 1	Tuesday – week 1	Wednesday – week 1	Thursday – week 1	Friday – week 1
AM: Session 1 With Headteacher Tea break Introductory session with senior staff & teachers	AM: Session 1 C/m obs. & language obs. PP2 & G1 Teacher debriefs	AM: Session 3 C/m obs. & language obs. G2 & G3 Teacher debriefs	AM: Session 5 C/m obs. & language obs. PP2 & G1 Teacher debriefs	Focus group discussion with parents of deaf children
AM: Session 2 Informal class visits PP2, G1, G2 & G3	AM: Session 2 C/m obs. & language obs. G2 & G3 Teacher debriefs	AM: Session 4 C/m obs. & language obs. PP2 & G1 Teacher debriefs	AM: Session 6 C/m obs. & language obs. G2 & G3 Teacher debriefs	
	Action research team debrief & discussion	Action research team debrief & discussion	Action research team debrief & discussion	
PM: Meet with 4 teachers to explain research & obtain agreement & consent.	PM: Teacher focus group discussion on findings from observations in sessions 1&2 Explore teachers skills and assumptions around their practices.	PM: Teacher focus group Discuss key observations from sessions 3&4 Introduce the LPP tool and discuss the process. Explore skills and assumptions around language development.	PM: Teacher focus group Discuss key observations from sessions 3&4. Allow time for teachers conduct the LPP tool with their 4 randomly identified children.	PM: Action research team debrief & discussion from the week's observations Collect LPP-2 results from teachers
Main objectives Settle into the school Meet the teachers Ensure the research is understood	Main objectives Observe the teacher-student language interactions Check school records for exam results / gender / age etc	Main objectives Introduce concept of primary language skills to teachers. Ensure identify children to profile.	Main objectives Observe the teacher-student language interactions. Support implementation of LPP.	Main objectives Gather views on raising deaf children in Kenya. Debrief results from the week.

Monday – week 2	Tuesday – week 2	Wednesday – week 2	Thursday – week 2	Friday – week 2
AM: Session 7 C/m obs. & language obs. G2 & G3 Teacher debriefs	AM: Session 9 C/m obs. & language obs. PP2 & G1 Teacher debriefs	AM: Session 11 C/m obs. & language obs. G2 & 3 Teacher debriefs	AM: Session 13 C/m obs. & language obs. PP2 & G1 Teacher debriefs	Focus group discussion with deaf youth
AM: Session 8 C/m obs. & language obs. PP2 & G1 Teacher debriefs	AM: Session 10 C/m obs. & language obs. G2 & G3 Teacher debriefs	AM: Session 12 C/m obs. & language obs. PP2 & G1 Teacher debriefs	AM: Session 14 C/m obs. & language obs. G2 & G3 Teacher debriefs	
Action research team debrief & discussion	Action research team debrief & discussion	Action research team debrief & discussion	Action research team debrief & discussion	
PM: Key informant interviews	PM: Teacher focus group Discuss key observations from sessions 7 to 10. Explore reactions to LPP tool.	PM: Teacher focus group Discuss key observations from sessions 11&12 Explore any changes in assumptions / practices.	PM: Teacher focus group Discuss final round of observations. Discuss overall experiences and ideas for the future.	PM: Action research team debrief & discussion. Review final thoughts, learning and experiences.
Main objectives Observe the teachers pedagogy in relation to language. Gather more background info from EARCs/HTs	Main objectives Observe the teachers pedagogy in relation to language. Discuss thoughts & feelings with teachers. Help teachers plan continued use of LPP	Main objectives Observe the teachers pedagogy in relation to language. Discuss thoughts & feelings with teachers. Help teachers plan continued use of LPP	Main objectives Observe the teachers pedagogy in relation to language. Discuss thoughts & feelings with teachers. Help teachers plan continued use of LPP	Main objectives Gather views from deaf youth. Debrief results and experiences from the school observations

Whilst the schedule was agreed at the start of each school observation, inevitably there were changes and interruptions to the plans. In Nandi for example the school was closed for exams towards the end of our schedule limiting the number of classroom observations and focus group discussions we could undertake. There were also occasional teacher absences when planned sessions had to be cancelled.

Across a period of six weeks, J. and I (accompanied by our Deaf observers) carried out a total of **39 class visits**. During those visits we conducted **30 classroom observations** – eight in Nandi; 12 in Kinango; and 10 in Kwale. That represented eight at G1 level; seven at G2 level; eight at G3 level; and seven at PP2 level. In addition, there were **26 language observations** – eight in Nandi, nine in Kinango and nine in Kwale. That represented seven language observations with Grade one (G1) teachers; six with Grade two (G2) teachers; six with Grade three (G3) teachers; and seven at Pre-Primary two (PP2) level across all research sites (see Table 4 below).

Table 4 Summary of classroom and language observations by location and grade levels

Location	Classroom observations				Total	Language observations				Total
	PP2	G1	G2	G3		PP2	G1	G2	G3	
Nandi	2	2	2	2	8	2	2	2	2	8
Kinango	3	3	3	3	12	3	2	2	2	9
Kwale	2	3	2	3	10	2	3	2	2	9
TOTAL	7	8	7	8	30	7	7	6	6	26

Overall, whilst this was slightly fewer than I had originally planned for, I believe that this was a sufficient number to provide valid data. There was not a huge variation in the way teachers approached lessons across the week or between different grade levels so repeated classroom and language observations began to yield less novel information during the second week. The main benefits of the observations then became the relationships I built with the teachers which helped to make our focus group discussions much more reflective.

5.3. Assessing language levels

For the last part of the research, I had chosen to introduce a small intervention in the form of a language assessment process. The motivation behind this was to help address sub-question iii): Would the introduction of a novel set of standardised language assessment tools result in changes to the way teachers approach deaf children as language learners and the formulation of teaching strategies?

As mentioned in the literature reviews, there is a shortage of appropriate tools available to teachers and researchers globally, who want to assess the primary language skills of young deaf children. I did not want to simply adapt formats used with hearing children because I was concerned the language levels in young deaf children in Kenya were too low to have been able familiarise the child with the activity in the time available. Formats that exist specifically for deaf children are also rare and limited to high-income countries where not only is the language different to Kenya, but also the early years development experiences.

The tool that seemed to have the most potential for being applicable to my research was the **Language Proficiency Profile (2) tool** (LPP-2) first developed by Bebko and McKinnon in 1993 (Bebko, et al., 2003). What made it of particular interest was that this was a language assessment tool designed specifically for young deaf children. Since its focus was on mapping the basic building blocks required for language and communication development it seemed particularly relevant in the early year's context. Whilst the tool is universal, in the sense that it can be used to assess language development in any young child, the fact it had been designed with deaf children as the primary target made it interesting as a potential tool for use by teachers of young deaf children, a point well noted by Bebko et al: '....*teachers should be able to use the pattern of a child's*

strengths and weaknesses on the various subscales to inform the next developmental stages of programming for the child.' (p. 449)

I chose the tool not just because it was developed specifically for assessing the early language acquisition of young deaf children although this was of significance, but also because it is not specific to any one language. In essence it is designed to assess language function rather than vocabulary and therefore can be used in any language context without modification or the need for local psychometric validation.

It also takes into consideration all language modalities used by the children – this is not a tool that relies on spoken or signed responses but can accommodate whichever modality the child uses. Deaf children enter the formal education system with idiosyncratic language and communications skills (home signs, speech, gestures, a signed system, or a formal sign language for example), meaning tests based around one modality (signed or spoken for example) or language may miss their primary abilities (Bebko, et al., 2003; Knoors & Marschark, 2014).

A final important consideration in choosing this tool was the fact that the children themselves are not required to take part and it is relatively easy to complete (in the sense that it does not require specific testing conditions). This was a key consideration given the limited language capacity of deaf young children in Kenya which would otherwise make it difficult to get them to undertake any kind of directed test. Not having to assess the child directly made this tool particularly useful. Moreover, the LPP-2 assessment is done by either a teacher or parent/caregiver based on their day-to-day interactions with the child. So, whilst the assessor must be familiar with the child and their

language preferences, this is not a tool that requires any specific technical inputs (beyond familiarity with the tool itself) or testing conditions.

5.4. The Language Proficiency Profile Tool

The original tool is based around five language domains, starting with the basic building blocks of form, content and use, followed by cohesion and reference (see Figure 6). The latter two skills demonstrating the child is not only understanding language but is also becoming aware of the language environment. That they are gaining awareness of the needs of the listeners and are becoming more sensitive to specific communication situations just as predicted by Tomasello (2007).

Figure 6 Language domains in the LPP-2 tool

Language domain	Characteristics
Form	Captures the structure of the language being expressed. At its earliest levels it allows the child to express single words or signs and goes on to capture how well the child can code all the elements of what s/he wants to express.
Content	Captures the kind of objects, actions and relationships that are reflected in the child's communication. For example, the existence and disappearance of objects; rejection, denial, and causality
Use	Captures the functional aspects of language including the child's ability to gain attention, interact with others, describe events and actions, create make-believe worlds, and influence the thoughts of others.
Cohesion	Captures how and how effectively the child links her/his communication with the things that precede it. This means being more able to control use of syntax, as well as understanding different perspectives, knowledge and the ideas of the other.

Reference	Captures the ability to describe or talk about things that are not in the room or are beyond the current context. Eventually that will include things that have no form at all such as rules or abstract relationships.

Each domain is sub-divided into individual stages which mark the progress made towards achieving competency in the domain. Assessors are required to go through each stage and record if the child has achieved or surpassed the stage (awarding two points); shows signs of this stage emerging (one point); or is not yet showing evidence of this stage (zero points). Each domain has a maximum score ranging from 18 to 28, depending on the number of stages and the tool overall has a maximum score of 112.

Beyond the write up in the 2003 article by Bebko, Calderon, & Treder, this researcher could find no further references to the tool having been used in any other context. In the original research, the tool underwent validation with a sample of 28 deaf American children (aged between three and nine years), 35 deaf Canadian children (aged between seven and thirteen years) and 104 hearing Canadian children (aged between two and seven years). Their research concluded that the LPP-2 tool accurately identifies language competency in deaf children and that teachers can use the domain results to provide specific language support to individual children. It also established concurrent validity with tools used to measure pre-reading skills in deaf children which means the results provide a reasonable predictor for reading potential (Bebko, et al., 2003, p. 450).

Since the original sample was so small, it was not possible to see the results as any kind of generalisable benchmark, in fact they noted that more data is required before being able to: '...*compute stable age norms for deaf children as a standard against which individual scores can be compared.*' (Bebko, et al.,

2003, p. 444). With no further examples of this tool being used with deaf, or hearing children, it suggests that any results obtained from using it in Kenya would be of interest but would not lead directly to establishing age-related norms.

Prior to using the tool in Kenya (see Appendix 1 for a full description of the LPP-2 tool), the action research group went through each of the domain stage statements to make sure they were contextually relevant (see Figure 7).

Figure 7 Examples of modified domain stage statements

Original statement	Modified statement for use in Kenya
Content domain	
C6 combine several ideas into a single expression? (Example: "Jeff needs a blue crayon" expresses Jeff's need and some detail of what he needs)	combine several ideas into a single expression? Example: 'I need a red pencil' expresses the child's need and the detail of what they need.
C8 communicate about things or events that are linked in time or that are near one another? (Example: "Go to the library and get a book and come back" or "There's a dog and there's a horse")	communicate about things or events that are linked in time or are near each other? Example: 'Go to school and play and come home'; 'There's a dog and there's a chicken'
Reference domain	
R3 communicate one part of the message using words or signs and a further part by using nonverbal means? (Example, saying/signing "Book", then sitting on your lap and opening the book for you to read to him/her)	communicate one part of the message using words/sign and a further part nonverbally? Example: saying/signing 'dress', then taking your hand and leading you to help them get dressed.

To make recording the results as easy as possible for teachers, I created an LPP-2 Score Card (see Figure 8).

Figure 8 Sample from the LPP-2 score card

5.5. Implementing the LPP-2 tool in the classroom

The Language Proficiency Profile Score Card

Name of child		Date of test	
Age		Name of teacher	
Class		Total score out of 112	

Scoring
Record the number for each language area and level

Past this level	Give 2	Mark this option if this item <u>no longer</u> applies to the child (in several places this column is marked 'n/a'. This means that 'Past this level' does not apply to this question.)
Yes	Give 2	Mark this option if the child currently has this skill (you will easily be able to think of examples where the child has demonstrated this skill).
Emerging	Give 1	Mark this option if the child is beginning to show this skill (you have seen some <u>examples</u> but they are not yet consistently using this skill).
Not yet	Give 0	Mark this option if the child does not yet show this skill.
Unsure	Give 0	Mark this option <u>ONLY</u> if you've had no opportunity to observe this in the child.

FORM - This section is concerned with the general form of the child's communication. In addition, we are concerned with how easy it is to talk to the child, and how easily he/she communicates with others.

F1	F2	F3	F4	F5	F6	F7	F8	F9	Total /18

The four teachers from each of the three school study sites that had agreed to take part in the research were oriented in the use of the LPP-2 tool over the course of several days. Towards the end of the first week in each school I held two sessions on consecutive days, to discuss the LPP-2 tool. All teachers were given this briefing before consenting to carry it out.

During the first briefing session I focused our discussions broadly around how children typically acquire language and the differences in the process when a child is deaf but lives in a hearing environment. Many of the teachers remarked during feedback discussions, that this information had been new to them, and all confirmed that no such language evaluation process was currently in use. In

the second session I took them through the tool itself, how to record the score for each child and then summarise the results at the end.

The first time I ran the briefing sessions they took several hours, a lot longer than anticipated. I had to take teachers through most of the 56 domain stage statements, talking about situations and scenarios where a child might demonstrate competency. For subsequent sessions, I developed a visual representation of the LPP-2 tool to help teachers to distinguish between the different domains more easily and used this before having them read through the actual tool (see Figure 9 below).

Figure 9 Visual representation of the LPP-2 tool
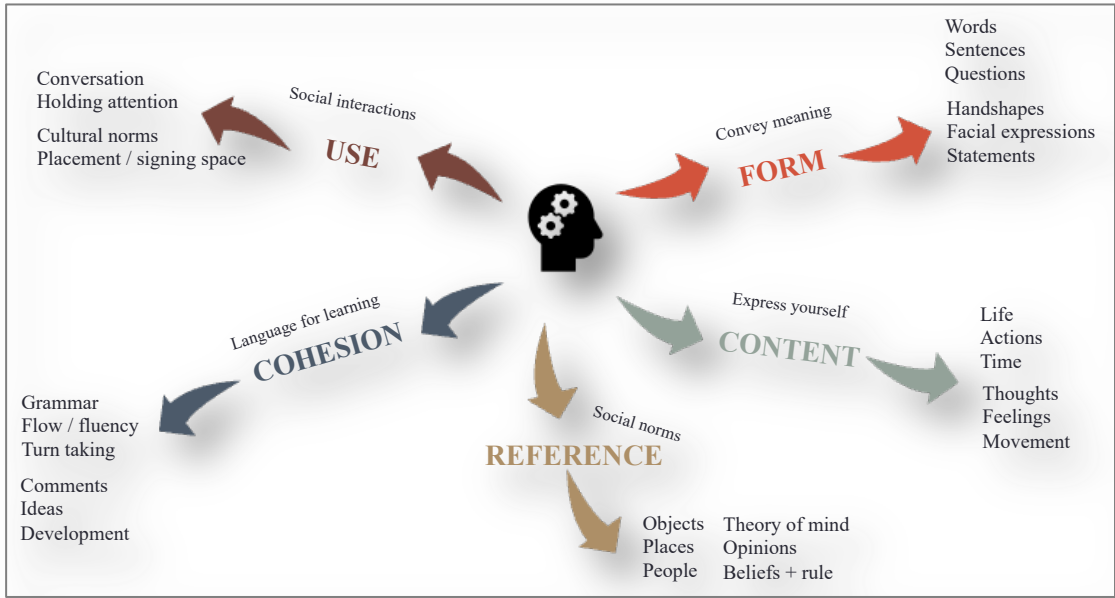
Once teachers appeared comfortable with the tool, they were then tasked with conducting the review in their own time after which we analysed the results together.

5.6. Key informant interviews and stakeholder focus groups

To provide additional contextual information key informant interviews and focus group discussions were held with the schools' headteachers; with members of the local Education and Assessment Resource Centres; young deaf people (18-25 years); caregivers of deaf children in the observation schools; and representatives from the Kenya Institute of Special Education (see Table 5).

Table 5 Summary of key informant and focus group participants

Location	Individual interviews				Focus Group Discussions	
	Headteachers	EARC staff	KISE staff	RTI staff	Deaf youth	Parents / caregivers
Nandi	1	2			4	4
Kinango	1	0			0	0
Kwale	1	1			5	3
Nairobi			2	3		
TOTAL	3	3	2	3	9	7

Questions for the interviews and focus group discussions comprised three main types – descriptive, contrasting, and structural. The descriptive questions formed the initial part of interviews whereby the participants were asked to talk about what they do; what it is like to teach deaf children; how they plan their lessons; and how do they assess language levels and progress for example. Contrasting questions were used to find out what key informants thought and knew about the learning needs of deaf and hearing children. So, for example, what is the difference between teaching young hearing and deaf children early language skills; and what is the difference between the early language acquisition process for young hearing and deaf children.

The structural questions focused more on what informants thought about what they do. For example, what they thought the main challenges are in teaching

young deaf children; what they regarded as being the main learning challenges faced by deaf children; how they defined deafness; and, how prepared they felt to support the learning needs of young deaf children.

Focus group meetings held with parents and Deaf young people were used to triangulate attitudinal understandings and beliefs around deafness, disability, and language. Four caregivers participated in a group discussion in Nandi and three took part in Kwale. I was unable to engage caregivers in Kinango because, being a relatively remote residential school meant that the children lived a long distance from the campus. The schools in Nandi and Kwale by contrast were both in urban areas where caregivers lived much closer. It is important to note that the caregivers involved in the focus group discussions were not related to any of the children we observed in classes. They were identified through Deaf Child Worldwide's parent group network and volunteered to spend an hour talking with us about their experiences raising deaf children in Kenya. This means that whilst their insights were extremely valuable in providing additional context, especially in regard to what kinds of support they had available to them as families and caregivers of deaf children, I am unable to directly link those experiences with the children in the study.

I also held two focus group discussions with young Deaf people – a group of four in Nandi and a group of five in Kwale. All nine young people volunteered to take part in the discussions having been briefed by Deaf Child Worldwide during their regular community meetings in the month prior to my arrival. Deaf Child Worldwide did not have a community outreach programme in Kinango at the time of the research and once again, being a remote rural area young people did not often remain in the location once their education had finished. I was therefore unable to reach young Deaf people in this location.

Key informant interviews (open-ended) were held with two county level Education Assessment Resource Centre (EARC) officers based in Nandi and one EARC officer based in Kwale; and two lecturers experienced in deaf education from the Kenya Institute of Special Education (KISE). Finally, I arranged to talk with three representatives from RTI International[7] (a US-based research organisation) who managed the Tusome education programme in Kenya.

5.7. Ethical considerations

The main ethical considerations I addressed were in relation to the participation of teachers in the study, confidentiality of information gathered and in relation to safeguarding since myself and my observation team were spending time in classrooms. Prior permission to carry out the research had been given by schools in a process facilitated by Deaf Child Worldwide, VSO and the Ministry of Education and Sport. However, each time I arrived at a new school I met with the head teachers and senior team members to go through the details of the study. I first gained their verbal consent to continue and left them with a written description of the study for future reference. Together we then recruited teachers from amongst the early years staff who were willing to take part in the classroom observations. I then met with the teachers individually to talk them through details of the study and gained their written consent before continuing. They were also provided with a summary of the research and a contact name and phone number. They were informed of their right to withdraw consent at any time, and that all information collected would be anonymised (see section 6.1 below).

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[7] See https://www.rti.org/about-us for more information

Verbal consent was obtained from all key informant and non-teacher focus group discussion participants before conversations began. This was obtained by each participant in turn after I had provided them with a briefing on the research. There were no refusals to consent, and no one withdrew their consent.

In relation to child safeguarding, my research was structured so that no individual child was the subject of any observation, test or interview carried out by myself or members of the team. At all times we were accompanied in the classroom by teachers or teaching assistants. I also obtained a Disclosure and Barring Service (DBS) Basic Certificate from the UK government.

The other potential ethical issue related directly to the use of the novel language assessment tool. Its use raised the potential for creating negative experiences for teachers, families and ultimately young deaf children because of the likelihood it would produce very low baseline scores. It was also not possible during the immediate research period for teachers to develop differentiated learning strategies based on individual results.

To help mitigate against these outcomes I made sure that all of those involved in implementing the tools were fully briefed by the research team on the overall nature and purpose of the tool. I stressed that knowledge of the child's language capacity, even if this appears very low, is a highly positive step in being able to prepare a more accessible learning environment. In relation to teachers, knowledge of the children's actual primary language capacity did prompt some re-assessment of the way they approached lessons which we reflected on together during post lesson chats and the wider focus group

discussions. In all cases I held post-assessment focus group meetings with teachers to talk through the results and the pedagogical implications which also provided space for them to talk about their feelings of self-efficacy.

Deaf Child Worldwide and I have continued to work with teachers and with KISE on developing the assessment tool – now reworked into an Early Language Profiling Tool – building on my original findings from its testing during this research. Since then, we have reduced the overall number of stages required by teachers in the profiling process to make it a little easier and quicker to use. Deaf Child Worldwide have also now produced an accompanying teachers pack full of resource ideas for how to bring language learning into the classroom, based around the Tusome curriculum. As of mid 2022, Deaf Child Worldwide and KISE have been in consultation over a plan to trial the Early Language Profiling tool alongside the new teachers pack in several more schools across Kenya.

Ethics approvals were obtained from University College London's Research Ethics Committee (#8285), and the Kenyatta National Hospital, University of Nairobi's (KNH-UoN) Ethics and Research Council (P65/02/2018) (Appendix 2).

6. Data processing and analysis

My analysis was descriptive, analytical, interpretive, and recursive with the collection and analysis being done concurrently throughout much of the fieldwork process (Evans, 1998). It drew heavily on the interpretive framework defined by Hatch (2002) with the action research group spending much of its time reflecting and making sense of the teachers observed actions in relation to the key research questions. My role as primary researcher within this

framework was an active one. I sought to gain insights, make inferences, refine understandings, and generate conclusions and lessons for wider dissemination through the discussion process with other members of the research group and the teachers themselves.

Initially a lot of the classroom data focused on contextual descriptions – mapping the layout of the classroom, how and where teachers interacted with students and how and where the students interacted with each other. Sequencing of events was also recorded – noting what activities happened when and where; how the pace of the activities changed; and how novel information was introduced to the students. Just as both Evans (1998) and Groenewald (2004) describe in their expositions of qualitative research methodologies, over several visits with each teacher these observational notes changed in nature to become more theoretical. Patterns of behaviour became evident which I was then able to get teachers to reflect on in our afternoon focus group discussions. This enabled me to get more of a narrative from teachers around their actions, and underlying beliefs.

Since the research also introduced a novel language assessment tool, I was able to use this a way to stimulate teachers to talk about language, and approaches to language development in young deaf children. Learning about and implementing the LPP-2 tool became a great way to elicit reflections from the teachers around language whilst also prompting them to reflect on their current pedagogical practices (see Chapter Seven).

As is really important in this kind of research I also kept a field journal, in the form of memos, in which I noted down the reflections and positions taken by myself and the research group after each days discussions (Evans, 1998;

Groenewald, 2004). This was an important aspect of the analysis process because it allowed me to document my impressions and feelings alongside the descriptive notes coming out from the observations and helped me to build up the coding strategy I would later rely on when reviewing the data (Groenewald, 2004). At the end of each day, I was meticulous in typing up the notes into a word processing programme called 'Scrivener'[8]. This programme allowed me to create individual pages for each observation and separately create pages for my memos which were then very easy to display simultaneously.

Through repeated reflections on these pages of notes I was able to draw together significant 'units of meaning' (Groenewald, 2004) into a set of critical themes which I labelled as: managing the teaching environment; delivering the curriculum; deficiencies in the language learning environment; teachers' confidence in language development; using the LPP-2 tool in classrooms; and teachers' knowledge and attitudes towards language development (see Figure 10 below). Whilst there were lots of overlaps between these themes, breaking the data down in this way enabled me to craft an analytical narrative of teacher experiences in addressing the language needs of deaf children in special education classrooms. As might have been anticipated, it was difficult to map these themes neatly onto my original research sub-themes. A lot of the observations and discussions focused on the language environment and the way teachers interacted with their deaf students. It became clear early on that teachers had very limited knowledge of and capacity to focus on language development and were constrained to a large extent by the curriculum and by an overall lack of deaf awareness. This created a lot of overlap in information between research sub-themes i) and ii) because of the way in which the attitudes and skills of teachers impacted so directly on how language was used

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[8] https://www.literatureandlatte.com/scrivener/overview

in the classroom. Nevertheless, the critical themes that I developed served sufficiently as analytical units for me to be able to use as reference points for addressing the main research question. These are presented in full in Chapters Five to Seven.

Figure 10 Analytical process

To what extent are special education teachers in Kenya equipped to assess and support the language needs of deaf children?

Research sub-themes	Critical themes	Analytical narrative
i) How do the concepts of deafness and language held by teachers impact their pedagogical choices and feelings of efficacy?	• Managing the teaching environment • Delivering the curriculum	Teachers and pedagogy
ii) How do teachers approach the assessment of language capacity and progress in deaf children as individuals and as a class?	• Deficiencies in the language learning environment • Teachers' confidence in language development	Teachers' approaches to language development
iii) Would the introduction of a novel set of standardised language assessment tools result in changes to the way teachers approach deaf children as language learners and the formulation of teaching strategies?	• Using the LPP-2 tool in classrooms • Teachers' knowledge and attitudes towards language development	Implementing a new language profiling process

6.1. Data management

All classroom and language observations and interviews were given a unique code so that the personal data collected (which included, full name, work location, gender, age, highest teaching qualification gained, relationship to the child) could be anonymised for the final study.

No video or digital audio recordings were made during the research. Whilst unusual in the context of qualitative research, I decided not to record any of the discussions or interviews because I could not find audio-recording equipment that produced a high enough level of clarity for me to be able to listen back and transcribe the information. I never use audio recordings in the field and instead rely on notes made at the time, written up as soon after the

event as is feasible. For this research I made sure that I was always accompanied by at least one other member of the action research group who could also take notes. The final presentation of findings therefore has very few direct quotes, but rather relies on summaries of people's contributions.

I also avoided using video equipment in classroom observations. Conditions in schools are unpredictable (they often lack power; can be very hot/dusty and/or wet) and I did not want to rely on a technology that could fail. I felt too that it would be intrusive for teachers who were already having to get used to being observed and might impact on their willingness to engage with the research.

6.2. Data handling

All handwritten notes and subsequent electronic data, in the form of interview, discussion and observation notes were kept secure by me. The action research group were each given notebooks which I collected at the end of each day and once the fieldwork had been completed. All electronic forms of information have been encrypted and stored by me. Teachers maintained paper copies of the language assessment using their own file storage protocols. Results from the individual language assessments were entered and stored electronically by the me, with personal data anonymised for the analysis process. Once the research has been concluded all personal data will be wiped from the electronic records, but anonymised results and field observations will be made available as an open access dataset using UCL's Digital Collection Service.

6.3. Quality control

I took full responsibility for ensuring that all consent forms were signed prior to engagement and was available to provide any additional information or

clarification. The forms were collected and reviewed at the end of each data collection period.

7. Study limitations

This study is confined to working with a small number of special education teachers in residential deaf schools in Kenya who teach children in pre-primary to Grade three classes. It was limited by the willingness of teachers to accept the presence of a deaf researcher from the UK and to feel comfortable about sharing and exploring attitudes and perceptions. Focus group discussions with parents were conducted using local language interpreters which will have limited the dialogue to some degree (Temple & Young, 2004).

As a deaf researcher who had previously conducted evaluations for Deaf Child Worldwide (in India and Uganda) and from mid-2018 had become a Board member for the UKs National Deaf Children's Society, I am clearly motivated by a strong desire to champion the voice of deaf children in education. Even my choice of methodologies, primarily qualitative, participant-as-observer, was influenced by my beliefs and values, rooted as they are in disability rights (Brantlinger, et al., 2005). Collectively this represents obvious implications for the reliability and validity of my research, but only if left unarticulated. It is extremely important to recognise that I could not achieve total objectivity in what details I chose to focus on during observations and discussions nor in regard to the conclusions I drew from the information. However, I feel that in explicitly taking up a Disability Studies in Education position, my personal experiences, accumulated knowledge, and inevitable biases have enriched this research (Connor, et al., 2008). It has become, as Brantlinger, et al. fittingly

describe, a thesis '...designed to document rather than discover phenomena.' (Brantlinger, et al., 2005, p. 197).

Having understood the potential bias in this research I took steps to mitigate against them primarily through the construction of my action research group (which I described in detail in Section 5.1) and by spending several weeks embedded in classrooms across multiple research sites with a view to achieving a level of saturation that would suggest my conclusions were valid (Brantlinger, et al., 2005). I endeavoured to triangulate my observations with individual interviews and focus group discussions and with the broader literature.

8. Conclusion

In this chapter I outlined the theoretical framework that was used to collect and analyse data from the field observations. I described the way in which a post-modernist interpretation of the social model of disability shaped both my choice of methods and the selection of the action research team. I also described my choice of the Language Proficiency Profiling Tool (LPP-2) as a novel instrument for assessing the primary language capacities of a selection of young deaf children and explained the basis on which it was developed. There will be more detailed discussions of this tool and the results it generated in Chapter Seven.

Having identified the gaps in existing literature around research on deaf children in the context of education in the Global South in Chapters Two and Three, and described the main methods I developed for conducting the fieldwork which will contribute much needed evidence here in Chapter Four, I will now use the next three chapters to present and discuss the data in relation

to my main research question: To what extent are special education teachers in Kenya equipped to assess and support the language needs of deaf children?

In the next chapter specifically, I will focus on the evidence collected in relation to how deaf-centric the classrooms were. It will explore the ways in which teachers use of the environment and teaching methods hindered the learning process of children who are primarily visual learners and highlights again how ill-prepared teachers are for responding to the learning needs of young deaf children.

Chapter 5: Teachers and pedagogy

This chapter explores the research sub-theme on how the concepts of deafness and language held by teachers impact their pedagogical choices in the early years of formal education in Kenya. I will outline the results of the classroom observations and focus group discussions which looked specifically at how teachers interacted with students, how they set up their classrooms and planned their lessons specifically with the needs of deaf students in mind. It draws together analysis of two critical themes, classroom management and teaching styles, and in doing so will touch on observations related to teacher attitudes, curriculum, resourcing, and child behaviour. It will highlight where there are gaps in training and preparation for teachers, in materials and curriculum adaptations and in resources and support.

1. Managing the teaching environment

How the classroom space is designed and set up can impact on the experiences of the children and on the styles of teaching that are available to teachers (Guardino & Antia, 2012; De Raeve, 2015). In the early part of each set of observations in classes therefore we focused on what the classroom felt like visually. So, for example we noted down how the furniture was arranged, how the children were seated in relation to each other and their teacher, and how the light fell within the room. We were also concerned with how interesting and visually stimulating the rooms were and how the teachers were using the space to maximise opportunities for their visual learners.

1.1. Seating arrangements

In 90% of the observations the students were seated in an adapted form of a circle as illustrated below (see Figure 11).

Figure 11 Typical classroom seating arrangements

As the above photographs show, whilst the students can see each other relatively easily, most must look sideways-on to see the teacher standing behind the teacher's desk or at the board which, as I experienced, becomes uncomfortable when sitting for any length of time. Some of the children also had to look past those seated beside and ahead of them to get a clear view of the teacher. With this arrangement the children cannot easily sign with the students sitting next to them without turning their chairs and most importantly, the teacher cannot provide one-to-one help to students whilst facing them because it was not possible for the teacher to get inside the circle of desks.

In a PP2 class, which was shared with a PP1 group divided by string with some pictures hanging down, space was so limited that the desks were pushed together so that all the children sat around the edge. Whilst this ensured all the children could see the teacher standing at the board it did mean the teacher could not interact on a one-to-one basis with any of the children. There was no

opportunity for the teacher to review any child's work whilst they were writing or trying to work out maths sums.

Whilst a circular seating pattern is certainly a recognised classroom adaptation for deaf children (Guardino & Antia, 2012; De Raeve, 2015; Kelly, et al., 2020) this particular set up with large heavy desks, low chairs and a teachers desk across the end (which was seen in all observation sites) was not conducive to group work nor teacher one-to-one interaction – all of which were rarely observed. In this way, the classroom set up and use of space was having an impact on the style of teaching available (De Raeve, 2015; Kelly, et al., 2020).

The impact of this inability to work with individual children became apparent in one example observation of a Grade two maths class where I had the opportunity to monitor a child whilst she was doing a maths problem. T2L had put a few single digit maths problems onto the board and the children were working through them individually. T2L sat at the teacher's desk and waited for the children to come to them once they had completed the task.

I noticed one girl was visibly struggling to complete the task. This seemed at odds with what I had observed earlier in the lesson when this child had been quick to correctly solve the same type of problem when T2L had used visual stimuli (in this case stones) to represent numbers. I took some of the stones the teacher had used over to her and knelt in front of her across the desk (I'd had to move some empty desks out of the way to do this). From this position I was able to assist her to use the stones to help solve the problems on the board before writing them down in her book. Working visually and using KSL she had no difficulty in solving the maths problem but took a long time to translate that into writing. T2L did not provide any one-to-one assistance to any child during

this or other observed lessons, instead remaining seated at the teacher's desk once their initial explanations had been completed and the children were set to working individually.

In a study of the impact of the classroom environment on deaf students, Guardino and Antia (2012) specifically noted that a centrally placed teacher's desk tended to limit interactions between students and their teacher. That happens because the teacher can visually observe all the students whilst seated at the desk reducing the apparent need to walk around and monitor students individually. Placing the desk in a more inaccessible corner had the effect of encouraging more movement on the part of the teacher. I did see some classrooms where the teacher's desk was placed in the corner, but this did not alter the behaviour of the teacher in any of my observations. In fact the observation group rarely witnessed any examples of teachers providing individual attention to the children whilst they were working on written tasks.

1.2. Lighting levels

An additional problem with the seating arrangement in most classrooms was linked to poor lighting. Whilst 80% of observations noted that the light levels were adequate the difficulty came in the teachers not being aware of how light levels had an impact on students' ability to see them. As illustrated previously in Figure 11, in most classes at least half the students were seated facing the windows. Light levels from outside were often extremely intense which made seeing the faces or signs of anyone standing or sitting in front of the windows almost impossible. As Figure 12 shows, often the classroom door was left open providing another source of light and cooler air but because of where the chalk boards were placed this tended to make viewing the teacher very difficult.

Figure 12 The issue of light in classrooms

Teachers were largely unaware of the impact that lighting had on the students' ability to see them and follow their communications. Teachers would often continue instructing the class whilst standing or walking in front of the windows and doors. The picture above was taken to help show one teacher how difficult it was for students to see them when they stood in their favoured spot at the board (which is just behind them in the photograph). This photograph was then used as a prompt during one of our afternoon discussions to deepen our exploration around the impact of lighting and other visual considerations on the opportunities deaf children have to take in information. This enabled us to cover a broad range of issues around why it is important to limit movement whilst talking, avoiding talking in front of windows or whilst writing on the board. The novelty of these discussions to teachers was an indication that their levels of deaf awareness were surprisingly low. It was interesting to note that in the very next observation with this teacher they closed the door for the lesson and paid a lot more attention to where they were standing when they were teaching. After the lesson we talked positively about this change, and they admitted that until it had been raised they had simply not thought about how their physical position in the class could make such a difference.

The physical environment can make a significant difference to the way deaf children engage with the learning process. Guardino and Antia (2012) noted how in a school for ASL-users in the US, changes to the physical surroundings increased the academic engagement of deaf students. Seating and lighting had an impact on behaviour and attention because deaf children are influenced by visual distractions. Poor light levels, glare from lights and obstructions to line of sight can create problems as can being seated by windows and doors where things are moving within the visual field. Things happening within their peripheral vision can affect the children's ability to attend to what's going on in the class to the extent that they miss information: attention is lost. If the child is not looking at the teacher then they are not receiving information. It is therefore extremely important that teachers pay attention to the classroom environment and how they move within it (Guardino & Antia, 2012; De Raeve, 2015; Al-Dababneh, et al., 2016).

1.3. Teacher positioning in the classroom

The way the teachers used the classroom space was often distracting and not specifically tailored to meet the needs of visual learners. For example, it was extremely common for teachers to talk at the board whilst they were writing words, sentences or sums: an example of what Skyer calls 'phonocentrism', a privileging of sound-based communication over the visual (Skyer, 2021). When we discussed this issue after the lessons the response was often that this is such a 'natural thing to do' that most of the time they were unaware they were doing it. It was certainly not an issue that any of them remembered having been raised during their special needs education training. This behaviour was so ubiquitous that it made us feel as an observation group, that teachers really were not fully appreciative of the visual nature of the children's learning needs.

Teachers also had a habit of moving around the classroom whilst they were explaining things to the children which meant to stay engaged the children had to keep turning their heads to track the teacher. This was a very common observation and it led to intermittent attention from the children. Even as observer, I found it tiring to track the teachers' movements around the classroom.

In a PP2 class for example T5L had wanted the children to turn to face the child sitting next to them and greet them with a HELLO and a GOOD MORNING. This could have worked well but T5L did not set the activity up for the children before having them turn to their partners. So, they were asked to face their partner *then* T5L continued to move around the room explaining how the children were to greet each other. All through the activity T5L continued to sign the greetings they wanted the children to use. As a result, the children couldn't look at their partners and carry out the activity as intended because they were so preoccupied with watching the teacher as they continued to walk and sign around the room. In the end the children just signed the greetings to themselves, copying the teacher.

In terms of overall classroom management this research identified that in the main, classrooms were not deaf-friendly; they were not spaces designed to promote visual learning. In this aspect of their pedagogy, teachers would acknowledge that the children were deaf but were not reflecting on the point that this meant they were visual learners. Other than the fact the desks were arranged in a circular pattern, no other visual-spatial considerations were in evidence. Teachers did not pay attention to the fact that to listen and

comprehend, the children had to physically track them as they walked around talking.

Part of what often made me and the research group feel uncomfortable was that this primacy of aural communications over the visual plays a role in devaluing Deaf language and in promoting deafness as *the* barrier to communication and learning. In the act of turning towards the board mid-sentence, moving and talking behind children and standing in front of windows with strong sunlight streaming in, teachers were shutting down visual communication and the opportunity the deaf children had to learn. Just as significantly, they were signalling the value of their own audio-centric world over that of the deaf children. This is important because it has an impact not just on the immediate learning environment but also on psycho-social development of the child, of their Deaf identity and the language that goes with that growth. Skyer (2021) talked in strong terms about the harm that is done when hearing teachers do not engage with deaf children as visual learners. Not only in the sense that information is inaccessible but also in the damage it can do to Deaf identity, self-worth, value and belief.

Teaching deaf children, especially those that are very young and have significant primary language needs, should not be limited to the need to make the spoken word visible through use of visual accommodations such as SSE or SEE. This as Vygotsky cautioned and Skyer reminds us, is a 'defectology' approach (Skyer, 2021); deafness as deficiency. It should also be about providing a good language and communication role model through which children can develop the language and socialisation skills they will need as they grow. By not putting themselves into the place of the visual-focused child, something that I was closer to achieving, the teachers were focused instead on

their own mode of communication expecting the children to try and access their world.

This area of observation became a central topic during our research group discussions and in the teacher focus groups. Teachers reflected a lot on these observations, often explaining that this was a pedagogical approach that was new to them, but which nevertheless seemed fundamental to providing a successful educational environment for deaf children. They quite readily admitted that it made sense to ensure their communications were accessible but that their experiences and training had not focused on such details. The overall deficiencies in specialist teacher training, alongside a lack of deaf-focused resource materials and appropriate curriculums contributed towards teachers lacking confidence in promoting deaf-centric pedagogy. Even in schools for the deaf therefore, there was still a strong sense that deafness is a barrier to educational attainment.

2.   Delivering the curriculum

Another aspect of pedagogy that has an impact on children's experiences of education are techniques teachers employ as they teach – their teaching styles. Especially the extent to which teachers are responding to children as visual learners (Al-Dababneh, et al., 2016; Skyer, 2021). During each set of classroom observations therefore we also focused on how teachers structured their lessons and what methods they used for things like gaining and maintaining attention and monitoring progress. How the children interacted and behaved in class was also an area of interest, since it was the main way in which I could document their experiences.

2.1. Organisation of lessons

It became apparent after the initial few observations in each school that teachers across the study sites were following similar pedagogical practices when it came to organising lessons. Essentially this took the form of: orally announce the new target word in English; fingerspell the English word; sign the word using an individual KSL sign (when this is known, sometimes this stage would be omitted); write the word in English on the board. The class would then be required to copy this process starting with a visual look at the written word followed by fingerspelling. In general, this format would be repeated with two to three target words.

The whole process would commonly conclude with the children copying the written words into their exercise books (see Figure 13). Whilst the format could change slightly, in some cases for example the KSL sign would be used before fingerspelling took place, or the children would be expected to use the words to complete sentences rather than just being copied, overall, the focus of most lessons was expanding the children's English vocabulary one word at a time.

Figure 13 General lesson format

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┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  ┌──────────┐    ┌──────────┐    ┌──────────┐    ┌──────────┐    ┌──────────┐  │
│  │ Announce │    │Fingerspell│   │ Sign new │    │          │    │ Children │  │
│  │ new word │ ▶  │ new word │ ▶  │word using│ ▶  │Write new │ ▶  │  repeat  │  │
│  │ in spoken│    │  in KSL  │    │   KSL    │    │ word in  │    │individually,│  │
│  │ English  │    │          │    │phonology │    │ English  │    │ then as a│  │
│  │          │    │          │    │  (when   │    │          │    │  class   │  │
│  │          │    │          │    │  known)  │    │          │    │          │  │
│  └──────────┘    └──────────┘    └──────────┘    └──────────┘    └──────────┘  │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
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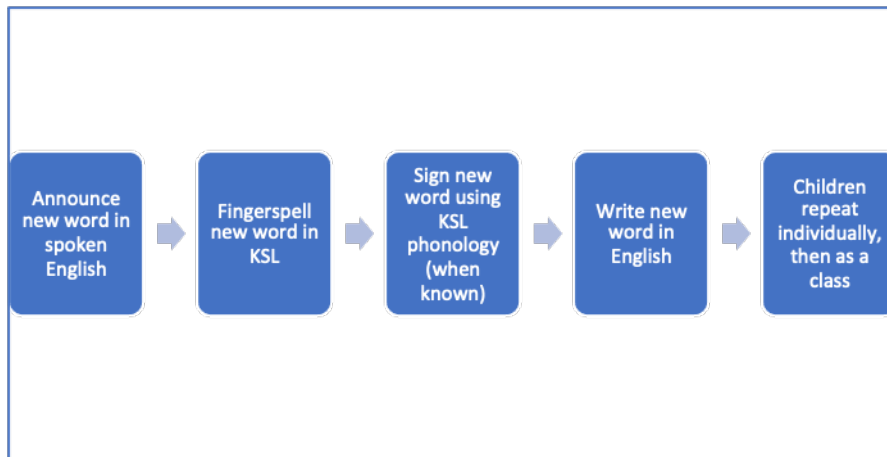
The children were obviously following a well-practiced routine because the use of direct instruction by the teachers was limited. Commonly it would just take the teacher to sign BOOK before everyone would reach for their workbooks and begin copying everything on the board. Some very new students were observed looking unsure about what was happening and holding back to see what their classmates were doing [e.g., T1LO1 & T2LO1]. As observers we sometimes missed the teachers' intentions (possibly because of the teacher giving vocal instructions whilst still facing the board) and were left slightly unsure about what was happening.

In most observations there was no clear purpose or focus to each lesson. It was common across all observations at all grade levels to find lessons beginning with no obvious topic or theme being shared with the children. It was not unusual for me as observer to have to wait until the class had concluded before checking with the teacher whether the lesson had been English, maths, KSL or something else. Although I had asked specifically to observe English, KSL and Maths lessons and I was in possession of a timetable which detailed what lessons were running each day, I did not always know what the lesson was about. As one of the action research group noted during post-class discussions:

'…it was hard to know if I was sitting in on an English, maths or KSL class. It could have been any one of them…'.

Sometimes the lessons would run into each other without a break - so whilst the timetable might have shown a ten-minute break between English and Maths there was no formal break in practice. I would guess the lesson had moved on because the teacher wiped the board and started a new discussion. I quite quickly discerned that completion of the written tasks signified the lesson was over for that student. In no class did the teacher formally end a lesson by recapping information, talking about what they will do next or asking for questions from the students. From my perspective, there were no opportunities being taken by teachers to create dialogic moments around stories, questions or recapping to check learning and understanding from the lesson. Completion of the written task was the main review point for the teacher which gave them only a limited indication of the primary language development their children were experiencing.

The start and ends of lessons are important points at which teachers can assess the overall progress of students and set out expectations for the students learning. For young deaf students with limited language capacity, it is particularly important to have a clear structure to the lesson, to be aware of the topic or theme of the lesson and to feel comfortable in knowing the routine of the class. Having such a structure enables children to focus on the content without the distraction of anticipating what might be coming up next (Scott & Kasun, 2021). The start of lessons is also a good time for the teacher to re-engage children with previous learning, to check on understanding and then build from that point at the most appropriate pace and level. This practice of 'scaffolding', as applied to pedagogy (Stone, 1998) is a dynamic process in

which the teacher gains feedback from their students on what knowledge and information they have retained from previous sessions which then helps shape how the lesson progresses. In turn the students gain confidence in their learning through positive reinforcement of ideas and suggestions (Malik, 2017).

In only 30% of the classes observed did the teacher formally introduce the topic of the lesson to the students. And in only 37% of the observations was there a clear attempt made by the teacher to illicit learning from the previous lesson from the students. However even when this technique was used, it almost always consisted of one word / letter / number recall activities. The children would be asked to recall what words they had learned the during the previous lesson with no prompts or contextual support to help them remember. Sometimes the English words would still be on the board, but even then, it was often a struggle for the children to recall the words for themselves.

There were no observed examples of teachers using the start of lessons to enable students to demonstrate *use* of the knowledge they had gained previously (Malik, 2017). A typical format would be for the teacher to write the previous days words on the board which the students would then be asked individually, or as a class, to sign and fingerspell as the teacher pointed to each word. The same format was observed to be in use whether the lesson was English, maths or KSL. There were no examples of teachers using the target words embedded into sentences and the children were not seen being tasked with using the target words in novel constructions of their own. They were only ever seen repeating individual words (letters or numbers). There was no apparent conscious effort on the part of teachers to develop conversations with the children at the start of end of lessons and therefore little opportunity for the creation of dialogic moments.

2.2. Instructional approaches

In 77% of observations the teachers used a whole class listen and repeat technique (teacher-**students**-teacher) for most of the lesson, whilst writing on the board/referring to the board was used in 91% of lessons. Another common technique, whole class question with individual answers (teacher-**student**-teacher) was utilized in 50% of classes observed.

Observations noted that in these interactions the students were eager to get things right. Most of them would be excited to show their fingerspelling to the teacher or to go up to the board to write out the word / number or solve the maths problem during the whole class sessions. These moments in the lessons were where individual students were seen to be at their most engaged, with their attention focused on the teacher. In the main these were positive interactions with lots of individual praise for the students, lots of smiling and thumbs up gestures.

However, teachers struggled to maintain attention of *the majority* of students during these demonstration sessions and observers noted that in all classes there were lots of moments like this when many students were not looking at their teachers, even when key pieces of information were being delivered.

By contrast more student-centred techniques were rarely observed. No class observed used group work, and pair work was only observed in 5% of lessons (n=1). One of the main areas of discussion amongst the observation group was around how passive the students were during the lessons, which seemed at odds with how they behaved during break-time. The main activity of students in 100% of observations was listening, followed by answering direct questions

from the teacher (91% of observations), copying from the board (63% of observations), and working on tasks individually (50% of observations).

2.3. Maintaining attention

Keeping and maintaining the attention of students during instruction was a key problem for all the teachers observed (the exception being the lesson led by a Deaf teaching assistant). In most cases teachers did well at the start of lessons where it was common for them to begin by standing in front of the board. This had the effect of turning the gaze and attention of children to the teacher and was often followed by some of the most language interactive moments of the lesson. Sometimes to gain attention teachers would bang the desk in front of them, wave their arms or on some occasions simply shout.

A good illustration of the problem hearing teachers would have in maintaining attention came from an observation during a PP2 class. Midway through the lesson a small group of children were brought to the front of the class to demonstrate signing the numbers one – to – ten to everyone. The problem arose because whilst the children were standing at the front of the classroom T1L was stood at the back, opposite the group. That meant the rest of the class were very unsettled because they didn't know where to look. They were looking at their classmates then shifting to look at the teacher in case T1L was saying something (which on occasion they were). T1L themselves had been completely unaware of the difficult communication situation they had created.

Another factor in disrupting attention came from the way in which teachers were using visual materials. It was common to observe teachers signing and/or speaking at the same time as trying to hold up or point to a picture or some

text. In most cases teachers were signing and/or speaking whilst also writing on the board or showing a page from a textbook. At other times it took the form of pointing to a wall chart, holding up flashcards or manipulating objects like stones, straws, or bottle tops. In each case, the flow of information would be constantly disrupted by the teacher turning their attention (and often their whole body) away from the children to the visual.

A good illustrative example of the difficulty teachers created when manipulating visual materials came in a PP2 class. T5L wrote the numbers 1-10 on the board and then tried to use a long and quite heavy board ruler to point to each number in turn. Each time T5L pointed to a number they asked the children what number it was, but by now T5L was facing sideways on to the children and had a board ruler in their hand making visual communication extremely challenging. The children were having to look at T5L, look to where the ruler was pointing and then look back to T5L to confirm the question. Visually this was quite demanding on the children, and it was not helpful in maintaining attention or promoting good dialogic exchange. It would have been much easier if T5L had first explained the task to the children and then used the ruler, or their hand, to point to the numbers.

The Deaf observers and I found the way teachers talked and signed at the same time visually distracting, often exacerbated by their tendency to move around the room in random ways, pick up objects and keep them in their hands and turn to and from the board. The lack of consistency teachers had for maintaining attention and focusing on the visual space, made it hard for the observation group (and of course the children) to anticipate where to look and on many occasions, I as observer missed information leaving me unsure of what was happening.

Being in this situation and experiencing how hearing teachers consistently disregarded the importance of the visual space reminded me of the situation described in the Norwegian study by Kristoffersen & Simonsen (2016) which I mentioned in Chapter Three. This study of mixed hearing and deaf pre-school classes highlighted the problematic nature of the fact that the children and the hearing teachers did not all share a common language between them, made more complex by the fact that deaf children favour visual learning. In mixed settings like that, the deaf children interacted far less than their hearing peers whose language and mode of communication matched that of their teacher and many of the other students. This put the deaf children at a constant disadvantage when attention was not paid to their visual communication preferences.

Kristoffersen & Simonsen described how hearing teachers would point to pictures whilst they were reading stories which had the effect of shifting the attention of the deaf children from the teacher to the book. This is exactly what was happening in my classroom observations, and it too was having the effect of limiting interactions. As I will mention a little later in this chapter, one thing the observation group were consistently struck by was how little interaction was happening in classes. The children rarely engaged with each other during lessons, were seldom misbehaving and only talked with teachers when they were specifically invited to do so.

It was possible to see the extent to which the flow of information was consistently being interrupted because I was experiencing it myself. I often found it hard to keep track of teachers and to discern meaning from their communications. In this sense the lack of a modified pedagogy, of hearing teachers continuing to teach without regard to the visual space, was creating

barriers to learning. The teachers were not focused on developing an environment in which primary language acquisition could be promoted – that is providing full exposure to adult language models with appropriate adult-child interaction experiences (Kyle & Woll, 1994; Levine, et al., 2016). Much in the way hearing caregivers of deaf babies often fail to modify their communication strategies to accommodate for the visual needs of their child (Waxman & Spencer, 1997). It seemed surprising to me that teachers who were experienced in deaf education and were operating within a specialised school for deaf children were not modifying their behaviour, or pedagogy to accommodate for the visual learning needs of children who were so obviously language deficient. Teachers were not focused on primary language development, even whilst acknowledging that the children's language skills were very low.

In the early grade classes, it was not uncommon for teachers to use quite physical methods for gaining attention including tapping a child on the shoulder or cheek, physically standing behind or beside a child or physically moving them from one seat to another. In one example, a PP2 class T1L went up behind one boy with the intention of moving him to the front so he could be part of a small group that were signing the numbers one – to – ten in front of the class. The problem was the boy had not been looking when T1L was introducing the lesson, so he didn't know what was happening. When he didn't move to join the group T1L went up behind and lifted him up. He physically jumped, shocked because he was unaware the teacher was behind him.

Whilst T1L was one of the only teachers I observed who consistently used sign names to get the attention of children at the start of the lesson, T1L did not continue to use this as a technique during the rest of the lesson. In fact, most

teachers did not pay attention to who was watching them whilst they were teaching making it difficult for them to monitor who had missed information. The very repetitive nature of the lessons seemed in part to stem from the fact that at any one time not all the children were watching the teacher.

Not paying attention to or being able to see the teacher implies that the children were not receiving information, and this would seem to be a significant factor in why it was taking so long for teachers to make their way through the syllabus (Matthews & Reich, 1993; Guardino & Antia, 2012). During focus group discussion and lesson feedback sessions teachers were able to articulate that they believed deaf children to be primarily visual learners. At the same time, they didn't talk at all about having any methods or techniques for gaining and maintaining attention during lessons and were not observed structuring lessons to make best use of attention for key learning moments.

This tendency for hearing individuals to privilege sound over the visual, Skyer's phonocentrism (Skyer, 2021, p. 456), was pervasive across all the observations involving hearing teachers, even those that had KSL or ASL skills and long-service histories. The outcome of this phonocentrism is not just that children's comprehension and learning opportunities are reduced although this is a significant outcome. Just as importantly it disrupts the potential for positive communication to develop within the class between the children and their teacher and therefore limits the potential for language development.

2.4. Use of visual materials

All classrooms had some form of visual material on display however none of the material observed was current and none had been produced by the students. In only 7% of the observations did the teacher reference any of the material on

display. There were no observed examples of teachers preparing materials for use during the lesson and students were not observed making anything for display.

Teachers made very little use of additional teaching and learning materials. Despite deaf children being visual learners (Knoors & Marschark, 2014; Skyer, 2021), only 30% of observations noted the use of visual objects. These almost exclusively consisted of straws, bottle tops and rocks which were used as aids in counting. In only 13% of observations did the students make use of these objects for themselves. In the main the objects were used by teachers during maths demonstration activities – particularly for counting (bottle tops), addition (straws) and subtraction (rocks). Only 42% of English lessons were observed to include use of alphabet flashcards by teachers during demonstration activities and in only 33% of English lessons were the students observed using the alphabet flashcards themselves. There were no observed examples of teachers using whole word flashcards.

It was clear from the observations that the use of teaching and learning materials by students or teachers to enhance or reinforce concepts or to help visualise intangible things like feelings, was not widespread practice (De Raeve, 2015). Where it was observed it almost always involved bottle tops, straws and rocks suggesting these were 'standard practice' for the teaching of early grade maths. In discussions with the teachers most cited a lack of time and materials as the main reasons why visual tools were not used. There was also a general lack of experience and working examples of how such resources might be produced or utilized within lessons. In a significant number of cases teachers claimed they were not using visual materials at this stage in their lessons because it was not regarded as being appropriate for that part of the

curriculum. As one PP2 teacher explained: '…*that comes later – first the children have to learn how count and write numbers before they will be allowed to use the rocks and straws for counting.*' The idea of students using alphabet flashcards to create words for themselves was also considered to be '*too advanced for students*' by a Grade one teacher.

2.5. Monitoring and differential learning levels

Teachers were infrequently noted spending one-to-one time with students, this was observed in just 27% of classes. So, whilst teachers were seen marking students work there was no time set aside for talking with them about their mistakes, or their achievements.

Marking the children's written work was the main technique used by teachers to formally monitor the progress of individual students although in 32% of observations the teachers did not review the children's books during the lesson. Marking mostly involved ticking correctly completed tasks. Teachers did not annotate their marking or discuss results with the children. All the teachers observed had a habit of leaning over the backs of students to mark work, leaving no opportunity for communication between the student and the teacher.

In a typical example, T5L tasked the children with copying today's words down from the board once they had finished the whole class explanations but did not monitor them as they worked. T5L went to sit behind the desk at the front of the class and waited for individual children to present their books to them. Marking involved ticking correctly copied words whilst leaving blank those that

were incorrect. T5L provided no individual assistance or feedback during this exercise.

During post lesson discussions, teachers explained that marking books gave them the opportunity to assess how much each student had understood from the lesson alongside observations they made during the whole class question and answer sessions. However, knowing how well the students were progressing, or not, did not alter the level of individual attention given to students. There was no differential learning observed and in fact during one focus group meeting with teachers one remarked: '…*no, we don't differentiate tasks for the students…*'[NDFG3]. Students who completed tasks quickly and easily were not given extended tasks and those that failed to complete tasks were simply left until they did (or allowed to go if time ran short).

Generally, post-lesson discussions around these observations revealed teachers who were feeling they did not have the right tools available to them to adjust their teaching practices for the specific learning needs of their children. For example, when T2L and I talked about one maths lesson, they explained that whilst class was mixed in terms of individual learning abilities, they faced challenges because they had no tools to help plan differentiated lessons (T2L03). In this observation some children finished the activity quickly and were left with nothing to do whilst others, like a girl I sat with, were unable to complete the task at all. T2L explained that if some of the children got through the activity then the overall aims of the lesson had been achieved. Sometimes, T2L explained, they would provide one-to-one support but if the child didn't pick it up after a few repetitions then there was not much to be done.

T2L expressed frustration because they did not have a solution as to how to differentiate learning. There was a sense that they were not trained to cope with such mixed abilities (it was explained that three of the children were known to have additional disabilities and these are the ones who would mostly just be left), there was a lack of materials for them to use and a syllabus that did not allow flexibility in approach.

Several staff commented spontaneously that they had students with additional needs in their classes – in fact all classes included children with additional needs – but they did not provide these students with any differentiated learning materials. This is not a unique situation with around 30-40% of deaf children globally reported to have additional disabilities (De Raeve, 2015). One teacher described how they simply separated out children with additional needs by seating them together, but no further support was offered to them. Observations concurred with this approach, those children who had been identified as having additional learning needs were seated together and teachers were not observed including them in any of the whole class question and answer sessions or providing them with any differentiated learning materials or activities. In all cases the teachers reported not pushing these students or expecting them to complete tasks because of their additional learning needs.

Even though all three schools were taking on students with additional needs, there was no in-class support provided to teachers to assist with students who had complex needs such as autism or visual/physical impairments. Some staff were visibly struggling to control the behaviour of students with complex needs whilst at the same time trying to maintain their planned lesson. In discussions with teachers there was a sense of fatalism about the situation – teachers were

aware that they were not providing the students with the best opportunities for learning but felt they had no way to change this situation. During interviews, two head teachers mentioned the difficulties faced by the schools in accepting children with multiple disabilities with one explaining that a dip in the school's national examination results in a previous year had been due to several exam entrants with additional disabilities (KG1HT, WL1HT).

The issue, as discussed with the Education Assessment and Resource Centre officers (EARCs) centred around lack of expertise to teach children with complex disabilities. Schools for children with physical, visual or cognitive impairments do not accept children with hearing impairments so this is often the only option parents have if they want their child to have a formal education (KII1, KII2).

The fatalism that many of the teachers expressed seemed to point in part to a system which was not designed with the learning needs of deaf children at its core, even though I was researching in schools for deaf children.

2.6. Student behaviour

This study did not intentionally focus on the behaviour of students in lessons however, the observation group could not help but note that on the whole children were extremely passive whilst in the classroom. Generally, the levels of bad behaviour were minimal (examples observed included small play fights, punching and scribbling with pencils on other students' books), it was more common to find children simply sitting passively; children were much more likely to be not watching/listening.

In 77% of observations the students were noted to rarely or never talk with their classmates and in only 4% of lessons were students observed to be actively misbehaving. Despite not much activity happening in class there was very little misbehaviour. Most of what was observed as deviant behaviour (but not recorded because it was too low level) was signing whilst the teacher was writing on the board; looking through textbooks whilst the teacher was demonstrating/modelling information to the class; or simply not doing anything at all – not looking at the teacher or other students. In only a very few cases did observers note the teacher reprimanding a student for poor behaviour – usually related to students leaving the classroom to use the bathroom without asking.

3.   Discussion

Pedagogy in deaf education usually focuses on language modes and models with far less attention paid to general classroom practices (Gregory, 2004). Overall, there is much less research and support available for helping teachers to consider how to prepare a conducive environment in which deaf children can learn (De Raeve, 2015; Al-Dababneh, et al., 2016). The relationship between the classroom setting, the behaviour of the teacher and the resulting language learning environment has not typically been researched from a Deaf-centric perspective which is why my research is of significance.

It was clear from the practices of and discussions with teachers in Kenya that they were not considering the role of the classroom environment or their behaviour in the way language was modelled and used during lessons. Indeed, representatives from the Kenya Institute of Special Education (KISE) confirmed that teachers are taught about the aetiology of deafness and how to measure

hearing loss, about auditory and speech training, speech reading techniques and sound discrimination but not on setting up a good language learning environment (KII4). The main advice given to specialist teachers on how to adapt their pedagogy to be inclusive of deaf learners is to teach in KSL and to sit the children in a horseshoe. No specific attention is paid to considering the implications of deafness on early childhood development and the role early years teachers have in socialising young deaf children (Johnson, et al., 1989; Andrews, et al., 2017).

This research has identified that more attention is needed to adapt and change the pedagogical practices of teachers who are expected to teach through sign language rather than relying on sign language *as* the adaptation. Greater priority should be given to the fact that deaf children are primarily visual learners in all aspects of education not just in terms of language and communication. The implications of this are that classroom environments and the way in which teachers move around and use the space should receive greater attention during initial teacher training and in subsequent monitoring of teaching standards (Skyer, 2021; Al-Dababneh, et al., 2016; Kelly, et al., 2020).

Teaching through sign language, requires the development and use of specific teaching resources designed for visual learners (Gregory, 2004; Swanwick, 2010; Skyer, 2021), rather than simply being an accommodated version of hearing-based materials. For language acquisition to be promoted, classrooms require higher levels of interaction between adult language role models and students than the more typical didactic teacher-to-pupil approach allows. Deaf children benefit from having a teacher who is consciously aware of the need to maintain the visual attention of everyone when they are providing key pieces of information and to use short dialogic moments to check understanding. The

way in which the classroom is set up can significantly impact on the ability of deaf children to maintain concentration and listen to their teacher. As Guardino and Antia noted: '...*with proper and careful classroom arrangement, teachers may be able to increase student engagement and, consequently, academic achievement.*' (2012, p. 529)

One of the main issues experienced by teachers in Kenya appeared to be that their perception of what it meant to be a good teacher was linked to didactic practices which made it much less likely that they would utilise something like dialogic moments or be comfortable with a deaf-centric approach. When T2L and I talked about how I assisted the girl who had been struggling with her single digit maths problem what struck them the most was the way in which I had knelt in front of her. T2L felt this was a very respectful way to interact but it challenged what they felt to be the role of the teacher which for them involved being in control and dominant. Even though T2L could see that it made sense for deaf children since it enabled the girl and I to share attention and maintain good eye contact, this was not seen as typical teacher behaviour and therefore was not something that T2L would ever have practiced for themselves.

One key point to mention here was that as we talked through this scenario with the other teachers during a focus group discussion, they all felt that whilst this was not typical teacher behaviour, for deaf children it could be important because it allowed them to maintain eye contact and share attention. All of them admitted it was hard for them to keep good eye contact with the children and to maintain their attention. Interacting at the level of the child challenged their perceptions of what it means to be a teacher, but they were open to trying techniques like this because all of them wanted to do the best they could for their deaf children.

Teachers were reflecting on the implications of these observations and discussions continued around how much repetition goes on in class with teachers themselves making the link between time taken up repeating things and children not paying attention or being able to see them. Many comments were generated at this time, that the training they had received had not prepared them enough for teaching deaf children with much of what they do on a day-to-day basis representing their own attempts to adapt standard teaching practices.

In many respects teachers in Kenya were experiencing similar issues to those identified by teachers of the deaf in Jordan. Al-Dababneh, Al-Zboon and Akour (2016) looked at the core competencies required for teaching deaf children in this context and noted something of a mismatch between what they were provided with during specialist training and what they needed in practice. Teachers were very often using the same techniques for deaf children as they were for hearing children. As Al-Dababneh, et al, note: '*Teachers in this study felt that they did not have enough experience in establishing a Classroom Environment that would facilitate the learning process for children who are DHH. The result could indicate that the teachers need a similar training programme to develop their competencies specifically for this purpose.*' (2016, p. 183)

It seemed from my observations that in part, teachers were experiencing challenges because the role of the teacher in the context of deaf education had not been explored with them during their specialist training. All the teachers in the study were experienced teachers who had gone on to do a specialist course in teaching deaf children. However, the focus of the training had been much more on deafness as an impairment or deficit as Skyer notes (Skyer, 2020) with

assumptions that using KSL signs were sufficient adaptations. At no point, until our discussions ensued, had teachers been directly challenged around their audio-centric approaches and therefore they had not had the opportunity to consider how their concept of deafness (as a hearing deficiency) were impacting their teaching practices.

Nevertheless, whilst some adaptions such as coming down to the level of the child seemed to challenge the nature of what it is to be a teacher in Kenya most teachers were willing and keen to take on new approaches if they believed they were in the best interests of the children. So, as I mentioned earlier in this chapter, T1L began to modify their classroom practices after we discussed the importance of understanding the visual environment. They closed the door, they made eye contact with all the children at the start of the lesson, used a lot more facial expressions and engaged a couple of children in some short dialogic moments. During a counting exercise T1L moved away from the board and engaged directly with individual children using eye contact and facial expressions to encourage communication. When asking a child to show them the sign for a number T1L first pointed to them, as was usual practice, but then used the child's sign name which is not something that I had observed happening previously. Whilst I was not able to spend much more time with this teacher, I had at least witnessed a small shift in the way they were interacting with the children which was repeated with some of the other teachers in the study.

Part of what teachers were expressing to me during post lesson discussions was a lack of confidence, or a lack of self-efficacy around how best to engage deaf children. They generally felt underprepared and lacked confidence in their KSL language skills (see Chapter Six) which affected the extent to which they were

actively seeking to engage the children as individuals. In this regard, teachers were showing a lack of preparedness, techniques and deaf awareness many of which are easily addressed through exposure to new skills and deaf focused practices.

Whilst research that focuses on the interactions between deaf children and their teachers is not common, there is some evidence to suggest that the beliefs of teachers can significantly influence approaches used in the classroom (Brown & Paatsch, 2010). Teacher sense of self-efficacy can also be a factor (Garberoglio, et al., 2012). Self-efficacy refers to the beliefs people have about their capabilities to bring about a particular course of action (Bandura & Schunk, 1981). There is some evidence to suggest that where people have higher levels of self-efficacy they are more willing to take on challenging tasks as well as being better able to evaluate their performance (Garberoglio, et al., 2012). For teachers this means the extent to which they can feel successful at achieving good outcomes for their students. Garberoglio et al., (2012) note that where teachers self-efficacy is greater they make more effort and will work through difficult situations with more persistence, indicating that this is a factor in teacher practice. Teachers with high self-efficacy will believe that what they do can make a difference to how well the children succeed in their classrooms. So, even when children present with complex needs if teachers believe their interventions are making a positive impact on the outcomes of the children then they are less likely to pass responsibility on to others.

A key issue facing teachers of deaf children, especially in contexts like Kenya is the consistently low achievement levels of deaf students. Marschark et al., (2006) even suggest that teacher factors may be responsible for some of the high levels of variability in deaf students' outcomes across the education

system. Where teachers have lower levels of self-efficacy they tend to use more authoritarian behaviour with students, relying more on extrinsic rewards, and negative sanctions. This kind of approach has been found to be quite prevalent as a classroom management strategy used in deaf education teacher training programmes with teachers of the deaf being more likely to view students as being in need of supervision (Garberoglio, et al., 2012). Rather than focusing on education, teachers are seeing themselves more in the role of guardian with those having been teaching longer holding lower expectations of their students.

An important part of the research around efficacy in deaf education is linked to language. The beliefs teachers have about language and communication methods could be influencing them to quite a significant degree. Given the wide range of possible methods, from purely oral through to sign only, there is considerable scope for variations. Not only does the language used make a difference but also the extent to which teachers are fluent. As Garberoglio et al., note: '...*the deaf educator's primary challenge is often that of language and communication with their students, which is an essential factor in the teacher-student relationship.*' (p. 371).

Garberoglio, et al., (2012) highlighted that studies from mainstream education show that when a non-native English speaker teaches English students they increase their percieved efficacy for motivating students and designing interventions as their own levels of English proficiency improve. Although this is not in the context of deaf education it nevertheless suggests that where a teacher shares the language of their students their confidence and practices improve. In particular Garberoglio et al., identified student engagement as being an area that teachers of the deaf found most difficult to overcome even

as their years of experience increased with a tendency for them to focus on classroom management and instructional techniques. This seems to be in direct contrast to mainstream teachers who decrease their focus on classroom management and increase their student engagement techniques as their experience increases.

The classroom observations identified significant gaps in teacher skills around the impact of deafness on the learners' experiences. Specialist teacher training had not specifically addressed hearing teachers' attitudes towards deafness nor prepared them with deaf-centric teaching approaches. As a consequence classrooms were highly audio-centric spaces that were ill-adapted for visual learners whose primary language skills were limited. Teachers were didactic in their approaches and were using KSL signs as an impariment accomodation to help them progress through a rigid, unadapted curriculum. As I will discuss more fully in the next chapter, the primacy of young deaf children as language learners was not apparent in teaching practices. Classrooms and lessons were not set up to promote primary language learning and KSL itself was utilised as a curriculum adaptation, not valued as a rich accessible language.

Taking these conclusions more broadly I can also see gaps within the inclusive education discourse. There is a great deal of focus on the political need for physical inclusion, but this comes without paying full attention to the biosocial aspect of young deaf children's lived realities. My overall concern is that even within specialist deaf education there are skills gaps in relation to pedagogical approaches. Much talk is around using sign language as an accommodation to enable deaf children to sit in mainstream classes but as this research highlights, there is a fundamental lack of attention being paid to understanding how to accommodate visual learners within classroom environments and a continued

devaluing of Deaf-identity through language and communications strategies which remain unchallenged for their audio-centric nature.

4.   Conclusion

In this chapter I outlined what classroom observations, post lesson discussions and focus group meetings reveal about the way teachers interact with deaf children, how they set up their classrooms and plan the format of lessons. Most strikingly, the observations noted a lack of basic deaf awareness amongst teachers such that it was common for teachers to talk to the children whilst facing the board, whilst moving around the room behind the children and when standing in front of windows and open doors. They were observed using primarily didactic teaching methods with very limited one-to-one interaction despite having learners with a wide range of abilities.

It was surprising to find that teachers had limited deaf awareness, paying very little attention to how the visual space was organised within their classrooms and not monitoring their own habits and behaviour to ensure that their communications were accessible. KSL was described as the main adaptation teachers used to teach deaf children. Visual aids were rarely used and in the main, these were only manipulated by teachers - they were not used by the children. No curriculum-based teaching and learning materials designed specifically for use by deaf children and their teachers were found or used. Teachers expressed frustration at the lack of materials and support available to them and the impact this had on their ability to effectively teach young deaf children.

Conversations and discussions revealed an overall lack of preparedness amongst the teachers for teaching deaf learners. No considerations were put in place regarding deaf children as primarily visual learners indicating significant gaps in training, classroom materials and curriculum adaptions.

In the next chapter I will review the evidence I collected specifically in relation to the language environment. It will outline the extent to which teachers were aware of their own language use and how effectively they were able to engage deaf children in the process of primary language development.

Chapter 6: Teachers approaches to language development

This chapter explores the research sub-theme on how teachers approach the assessment of language capacity and progress in deaf children as individuals and as a class. I will use the results from the language observations to provide detailed descriptions of the language learning environment created by the teachers, and the extent to which this responded to the primary language needs of young deaf learners. It starts with general descriptions of the language environments created and uses reflective material gained from discussions that I had with teachers during post lesson and focus group discussions and with the wider research group to further explore their underlying attitudes and pedagogical choices. It will specifically draw together analysis of the critical themes including language environment, pedagogical approaches to language and teacher attitudes.

1. Deficiencies in the language learning environment

When analysed from a primary language acquisition perspective, observations revealed that in all contexts, in each of the diverse schools visited, from PP2 through to Grade three classes, the overall language environment to which the children were exposed seemed incongruously deficient, with very few sustained dialogic exchanges observed and language use which appeared inconsistent with early language development. The opportunities for creating dialogic moments and thus for deaf children to be able to acquire language from adult language models (MacWhinney, 2005; Levine, et al., 2016) was not obviously prioritised by the teachers or the curriculum – even in the earliest classes. Several gaps and inconsistencies were identified through the language

observations which alongside the findings from the previous chapter, reinforce the conclusion that teachers are ill-prepared and supported to focus attention on developing primary language skills of deaf children. The following areas were identified as being key contributing factors to the language deficient environment.

1.1. Lack of systematic focus on language use

Results from the language observations revealed that the main language being used in classes by teachers was English. Across all observations, 73% (n=19) of classes were taught with English as the main language of instruction. Typically, this took the form of the teacher using Simultaneous Communication (SimCom) in which they used speech (with English lip patterns and voice) supported by manual signs (based mostly although not exclusively, on Kenyan Sign Language [KSL] sign phonology[9]). Whilst English was the main language of instruction observed across all classes, in 58% of cases where English was used, the teachers also made occasional use of KSL, thus over half of classes observed (n=15) mixed English and KSL to some extent. On four occasions (15% of lessons) English was used exclusively with no other language inputs modelled, whilst in 12% of observations (n=3) the lesson was given exclusively in KSL, one of which was given by a Deaf teaching assistant whose own first language was KSL. In 15% of the observations (n=4) other languages were in evidence including American Sign Language, Kiswahili and in one case 'sheng' (which is an informal version of Swahili).

Close analysis of the language observations revealed that there was no

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[9] Some teachers were noted to use American Sign Language at times. This was noted to be a feature of teachers who had trained before the government switched to KSL as the main language of instruction recommended for deaf learners.

systematic pattern of language use by teachers either by class or grade level (see Figure 14). So, for example, at PP2 level one lesson was given exclusively in KSL (by a Deaf teaching assistant), two were given with a mix of English and KSL, one was given exclusively in English (in this case SSE) with three making no systematic use of any single language. In Grade three, four lessons were given using a mix of English (Sign Supported English [SSE]) and KSL, one in KSL and one exclusively in SSE. In Grade one, three lessons used a mix of English (SSE) and KSL, one used KSL, one used SSE and one had no discernible main language (using a mix of ASL, spoken Swahili, spoken English and gestures). All Grade two classes were observed to have been given in a mix of English and KSL, (independent of school or class teacher), but this seems to have been unintentional since interviews and focus group discussions with headteachers and teachers did not uncover any systematic language modelling strategy by grade level.

Figure 14 Analysis of the main language used by teachers in their classrooms by grade level
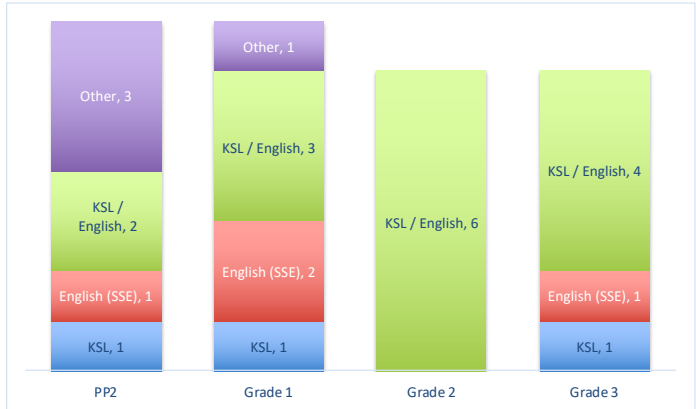
The predominant use of English with KSL was broadly in line with the school's policies on language. Interviews with the headteachers confirmed that in two of the schools English was promoted as the language of instruction supported by KSL. Whilst the other claimed to use KSL, this was later qualified by saying that in lessons teachers use Signed Exact English (SEE) and KSL. From a school

perspective, this is in general compliance with government policy which since 2009 has permitted the use of KSL and English in the education of deaf children in lower primary school as part of its Mother Tongue commitment (Ministry of Education and Sport, 2009, p. 6).

Whilst it might have been anticipated to find more exclusive use of KSL at the earlier levels given the governments language policy commitments, or more extended use of SEE or SSE during English lessons as a way to help visualise the language (Scott & Henner, 2020), this was not observed in practice. The varied nature of the language and communication methods employed by teachers reflected more the strategies teachers had developed individually rather than being implemented as pedagogical practice (Kimani, 2012). There simply was no consistency in approach which might have signified teachers responding to the children's language ability levels, their grade level or to suit the timetabled subject (for example if it was an English or KSL lesson).

This strongly suggests that even in the earliest years of pre-schooling there was no deliberate focus by teachers (or by implication, the education system) on primary language acquisition. As I noted in Chapter Five, teachers were not paying conscious attention towards creating a classroom space or teaching style that would promote language interactions with and/or between deaf children. This fitted with the language observations in the sense that teachers also did not appear to be consciously focusing on their language delivery. Teachers were not seen adjusting their language choices to respond to the language needs of either the children or the subject matter. Instead, what I observed was that the language of the classroom was teacher focused – it was the way in which teachers felt comfortable communicating. In many regards the classroom was *audist* in its structures – set up with the needs of hearing

teachers in mind not deaf children (Skyer, 2021).

As noted previously, the government of Kenya first introduced the concept of Total Communication (or Simultaneous Communication) as a method of instruction in schools for the deaf back in 1986 having formerly relied on oral methods. During this period, the main sign language in use was American Sign Language but this changed when the government mandated use of KSL in 2009. Whilst this was an empowering change from the Deaf community's perspective, since it acknowledged KSL as a language it nevertheless introduced technical and resourcing issues because the workforce itself was not prepared for this change (Mweri, 2014; Mwanyuma, 2016).

During a focus group discussion with teachers (NDFG3) one teacher who had been observed using a lot of ASL, described how they had been trained to use ASL when the system transitioned to use of SEE for teaching English but there had been no additional support provided when the policy changed to KSL. Hence, they concluded there is likely to be a lot of teachers who still rely on ASL because their KSL skills are not yet sufficient. Moreover, the group agreed that overall, there was not enough pre-service training provided for KSL even since the policy change which made it hard for many of them to teach more complex curriculum content.

The varied nature of the approaches to the language of instruction by schools and individual teachers seems to reflect the historical changes in policy rather than being deliberate pedagogical choices. It suggests that whilst the government may have positive policies in place, there remain implementation issues that were already evident back in 2016 when Mwanyuma (2016) first raised the problem of the lack of KSL skills and resources in a school for deaf

children. It also touches on issues linked to pre- and in-service teacher education, quality assurance oversight, curriculum and testing which I will discuss in more detail later in this chapter and again in Chapter Seven.

1.1. Lack of language learning opportunities in the classroom

What was perhaps one of the most surprising findings was to observe an overall lack of *any* fluent language being modelled in classrooms by teachers (regardless of the language) in their interactions with children. Deaf children were not being encouraged to converse, to develop their language interactions with peers and teachers, or to manipulate words to form novel sentences and explore ideas. Moreover, the explicit teaching of language, either signed or spoken/written, as opposed to vocabulary was entirely absent from the observations even when the lessons were timetabled English or KSL. I noted very limited use of opportunities for promoting dialogic moments by teachers with a lack of conscious direction on their part to do this.

In essence, almost any of the language observations could have been used to illustrate the overall lack of specific language learning opportunities because it was something that the research group encountered on a daily basis. This seemed to exemplify to us that language acquisition and development was not a priority focus of the teachers or the wider education system since it was seen so rarely. The following observations provide good illustrative examples of the nature and extent of the missed language learning opportunities.

In the first example, the observation took place during a PP2 maths lesson (observation TL101). The lesson began with T1L emptying a box full of different coloured bottle tops onto the table. Gathering up handfuls of bottle tops, T1L

placed them on the desks in front of some of the children. T1L then physically moved two to three neighbouring children so they were sitting side-by-side. Whilst this was happening all the other children sat passively either watching the teacher, looking around the room, or glancing at the bottle tops in front of them. Once all the bottle tops had been disbursed T1L stood at the front of the class and picked up two bottle tops of the same colour and placed them down on the desk in pairs. Up until this point T1L had remained silent, saying nothing to the children. As soon as this happened though several children started to do the same, very excitedly. Some picked the same colours used by the teacher, but others were picking two of a different colour. For some children the activity naturally moved on to them sorting all their bottle tops into groups of the same colour even though this was not what T1L had done. The lesson progressed with most children trying to match coloured bottle tops from amongst those in front of them.

One child however did not move, but simply looked at the bottle tops in front of him. T1L noticed this and gained the child's attention by taking his hand. T1L then picked out two green coloured bottle tops from amongst his pile and placed them in front of the child and used the KSL sign for SAME. T1L did this repeatedly. The child smiled and made eye contact with T1L and then proceeded to pick up two random bottle tops. T1L showed him again that they needed to be the same colour, and, on this occasion, he also went for two green bottle tops. T1L then walked away at which point the child simply grabbed all his bottle tops and started to put them into a line. It did not seem from my observation, that this child had understood either the task, or the KSL sign.

The rest of the class were more engaged in the activity and a few of them

started to help others by actively demonstrating that the bottle tops needed to be paired by colour. Some children were able to do this using the KSL signs for SAME and GREEN or RED, but others were quite effectively using gestures like pointing.

What was surprising about this lesson was the fact that T1L had not actually said anything to the whole class (in English/SEE or KSL) in fact as observers we had to guess that pairing the bottle tops by colour was probably what T1L wanted the children to do although we didn't know for sure. Throughout the entire lesson very little structured or fluent language had been modelled by the teacher because T1L hardly said anything at all to the children. In the exchange with the boy, T1L was observed only using the sign SAME and relying on demonstration to help him comprehend what they wanted him to do. Whilst the boy appeared to have very limited language skills himself, T1L responded to this by limiting their own language use.

In many respects this is reminiscent of early language acquisition studies which note that the way hearing and Deaf adults interact with deaf babies differs to some extent (Kyle & Woll, 1994; Jamieson, 1994; Waxman & Spencer, 1997). Since hearing adults are generally not familiar with the process of language development their early interactions can inadvertently restrict linguistic development in deaf babies. The unfamiliarity between the different modes of communication between deaf and hearing individuals can leave hearing adults unsure about how and to what extent they can converse with deaf children. Early language acquisition studies show there can be a tendency for hearing caregivers to limit interactions with deaf babies by missing eye gaze cues which are a much greater part of deaf communication than they for hearing interactions (Kyle & Woll, 1994; Bartnikowska, 2017). T1L and almost all the

teachers I observed, used eye gaze inconsistently with children often cutting off interactions with individual children by looking or turning away whilst continuing to talk.

Another difference is that hearing adults may fail to tailor their communications to the level and needs of the child, due in part to unfamiliarity with the language and the mode of communication (Bartnikowska, 2017). In this particular observation I noted that whilst some children were really trying to communicate with their classmates during the bottle top exercise this was not being utilised or built upon by T1L. Overall, there was very little communication happening between the children who for the most part sat passively in their seats. Across all the observations held with T1L (n=4) most of the children in these classes did not actively communicate with the teacher or with each other during formal lesson time instead remaining impassive.

In a post lesson discussion, T1L explained that this class was relatively large and included children with a wide range of ages - the youngest at four years and the oldest at 16 years. T1L explained that in education terms many of the class were 'very young' meaning they had only been in formal education for a couple of weeks. Some had transferred from mainstream schools whilst others were attending school for the first time. T1L reflected that their own limited use of language, whilst surprising (they had not been aware of how limited it was) was probably an attempt on their part to establish communication with children who had extremely diverse language experiences. In these situations, T1L felt they were trying to rely more on matching the children's home signs to establish communication. However, whilst the reflections T1L offered into the situation were incisive, the observations did not reveal this to be happening in practice. There appeared to be a lack of insight on the part of T1L into the level

of language need amongst the students and the manner in which they themselves were communicating with the children.

In practice, T1L was observed using a mix of gestures, written and spoken English with individual KSL signs used to support English words (SSE) but this did not seem to correspond in any systematic way to the language efforts of the children. Much of the communication was teacher directed with little initiating from the children to the teacher or from child to child.

T1L started one lesson (observation TL102) by saying in spoken English that today was Tuesday whilst simultaneously pointing to the English word which had already been written onto the board. This was followed by T1L demonstrating how to fingerspell T-U-E-S-D-A-Y using the KSL alphabet, but they never utilised the KSL sign TUESDAY. At no point did T1L go on to use the word Tuesday in a full sentence (signed or spoken) or attempt to elicit the children's prior awareness of time broken into days of the week for which some of them might have had their own signs or gestures. In other words, this simple looking observation revealed potentially significant gaps in teacher response to the language deficit of the children in the class. The teacher had made a significant assumption that the English word Tuesday carried meaning for the children - a point which was never actually tested.

In another observation, this time a Grade one class, T6L was running an English lesson which was timetabled for 30 minutes but in fact ran for 45 minutes (T6L01). The purpose of the lesson was 'to learn new words' as T6L explained to me after the lesson. There were seven students in attendance, which was typical for this class. T6L formally started the lesson by standing in front of the board and announcing, in SSE 'today we are doing English'. T6L then asked the

students to 'remember words we learnt last time'. The children were largely passive at this point but a couple of them got the idea and began to fingerspell words they could recall. The ones they had learned during the last lesson (last week in fact) T6L wrote on the board in English and ignored those that seemed to come at random.

Once again, the language used by the teacher was minimal and did not seemingly match the capabilities of at least some of the children, nor attempt to develop language capacities. So for example, T6L did not provide any context around which to prompt the words from the previous lesson and did not engage the children in any dialogic exchange which might have elicited a memory of the words they were looking for. T6L appeared content to receive single-sign or fingerspelled responses and made no attempts to engage any of the children in conversations linked to the words being produced. In this case however, some of the children were more confident in KSL and were adding more information into their responses beyond one-word signs. However, T6L did not show the children any interest in these efforts because as soon as the child provided the sign T6L was looking for they turned away and wrote it onto the board thus closing down the opportunity for conversation.

A little later in the lesson, T6L was introducing the children to five new words (none of which were obviously related to the words they had just been recalling) including 'swim, play and cry'. T6L at this point started to create the basis for a dialogic moment around the words 'swim' and 'cry'. T6L went around the class asking each child in KSL if they could swim, which was repeated for the word 'cry'. T6L made good use of a question by asking each child in KSL - *child's name*, CRY? - at which point almost all the children were engaged, animated and closely observing the teacher and their classmates. But T6L did not

develop the language moment any further because once the child answered YES or NO, they moved on to the next child even though some of the children were very excited to talk more about where they went swimming or when they last cried. Therefore, some of the children were having their attempts at conversation cut short by the teacher, which had the overall effect of limiting the language environment for both individual children and their classmates and discouraging dialogic exchange with the teacher.

Nevertheless, conversations were happening. Whilst T6L was writing English sentences on the board for the children to copy and complete, many of them were having KSL-based conversations centred around what other students in the school had been up to, what was happening in the classroom, wondering who the visitors were for example (T6L had not at this point introduced the research team to the children). When I observed the next lesson, the children were asked to recall and spell these words, which they had great difficulty in doing despite the fact they were still written on the board.

What I observed across most lessons was the teacher limiting the dialogic exchange to single-sign responses from the children with no further attempts made to engage the children in meaningful conversations. During these formal instruction times, neither the teachers nor the students were modelling full sentences (in KSL or SSE). On many occasions teachers would indicate that they wanted the children to copy words or sentences from the board by simply signing BOOK. The children would then get out the relevant exercise book and copy what they saw from the board.

These observations are consistent with the literature focused on language in the classroom that comes from high income contexts. Indeed, towards the end

of the last century as Wood & Wood (1991) noted in a UK study of the use of Signed English in a residential school for the deaf, children who already had significant language deficits were: '... *more likely to meet a fast, highly controlling, didactic style of teacher interaction than older, higher scorers. Thus, children who, one suspects, are most likely to face problems in communication are also most likely to meet a style of teacher talk that is unlikely to promote initiative and loquacity.'* (Wood & Wood, 1991, p. 214). They had also observed quite high levels of teacher control with a tendency to ask closed (yes/no) questions of deaf children with lots of repetition, allowing far less time for the children to initiate or develop conversations. They concluded that some of the issues around poorer educational attainment could be down to didactic teaching methods that did not promote language development (Wood & Wood, 1991).

As Hopwood & Gallaway (1999) describe in some detail, mainstream education research has shown that classrooms operate using quite specific language interactions based around the need to create learning environments (Hopwood & Gallaway, 1999). Class teachers will necessarily tend to talk more than students, and students generally are not encouraged to initiate conversations. A lot of teacher-pupil dialogue is quite functional with teachers asking pseudo-questions for pedagogic reasons. The language used by teachers is much more defined for educational purposes, to control and manage group situations and to foster reasoning or questioning. It is not designed specifically to facilitate language acquisition. So, in this sense it is very different to the language used by caregivers before children start school. Contrast this to the conversational interactions that dominate communication at home or with peers as described previously, and it's possible to understand that the language of schools and classrooms may on their own fail to support deaf children who present with

early language deficits (Hopwood & Gallaway, 1999).

Hopwood and Gallaway (1999) conclude that for deaf children with significant language delays, normal pedagogic practice will not be sufficient to build language competency because the function of language in the classroom is not designed for this purpose. This research identified that teachers were largely unaware of the way in which their pedagogical approaches were limiting opportunities for dialogic moments to occur. As a result, they were restricting the chances children had for developing their primary language skills.

1.2. Complexities in the classroom language environment

Another key component emerging from the observations is that not only are classrooms providing few opportunities for language learning, but paradoxically they are complex communication environments. A significant gap in the language learning environment I noted was that the children and their teachers did not share a common language. In contrast to the fact that most teachers used English and SSE, the students in 73% of classes observed (n=19) used KSL as their main language when either interacting with the teacher or their classmates (see Figure 15). In only 8% of observed classes (n=2) did the students use the same English/KSL mix as their teacher (observed in a Grade one and Grade two class [observations T4L01 and T5M01]) and in only 12% of classes (n=3) did the students use English exclusively (observed in two PP2 and one Grade three class [observations T3L01, T3L03 and T6M01]). In two classes (one PP2 and a Grade one class [observations TL103 and T6L02]) the language of the children was not discernible as a formal language because most children used their own home sign systems or did not communicate during the observation.

Figure 15 Graph showing results from classroom observations comparing the language used by teachers with that of their students
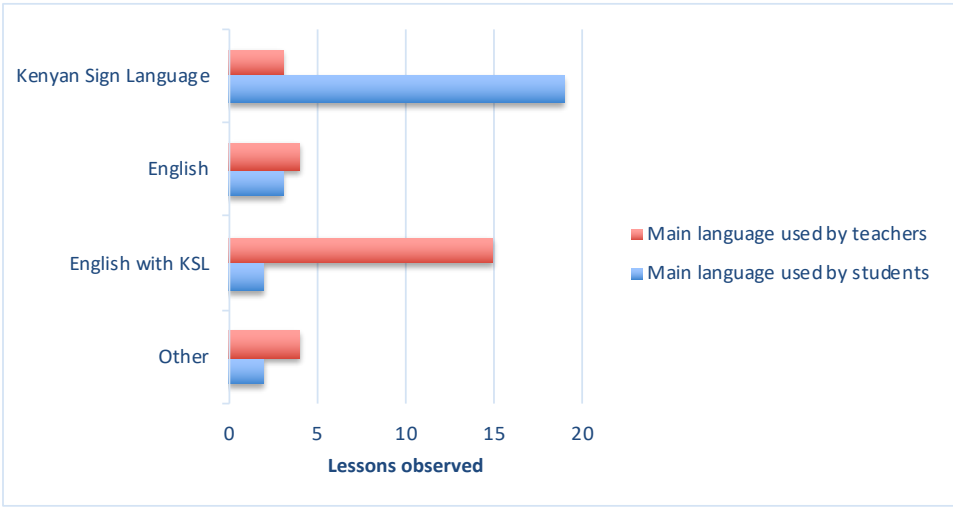
In relation to language mode the disparity was even greater. Although Simultaneous Communication (SimCom) was used by teachers in 92% of the lessons observed (n=24) the students were exclusively manual in their mode of communication (see Figure 16). The only time students were observed to use their voice was when they became frustrated by teachers not responding to their signed attempts to gain attention.

Figure 16 Graph showing results from classroom observations comparing the language modes used by teachers with that of their students
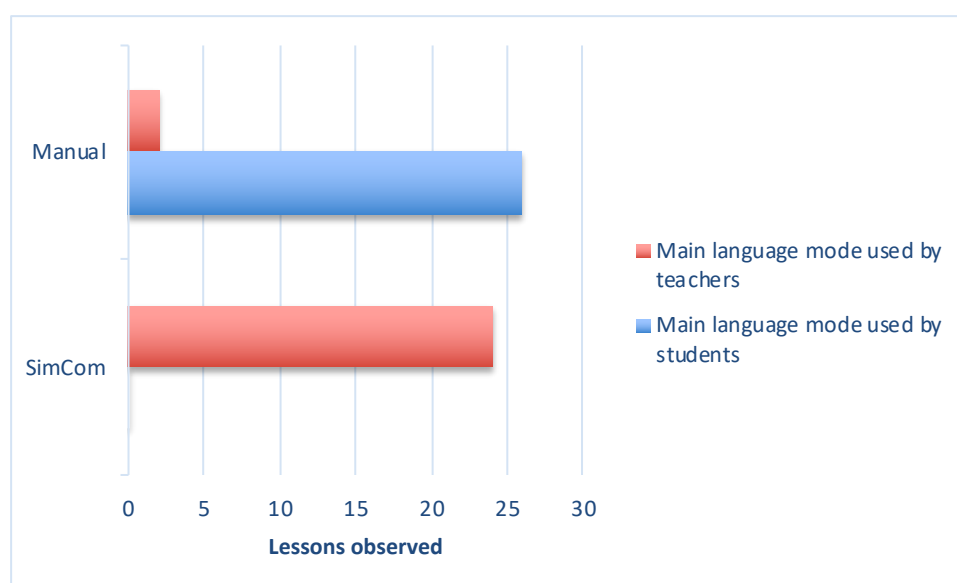
There was a striking mismatch in language use between teachers and students in most classes. Two of the schools were described by their headteachers as using "sign language" as the main mode of communication for children in the early grades. Only one headteacher described Total Communication as the main mode of instruction [interview WL1HT]. Whilst no child was observed to use speech whilst they signed, it was common to observe teachers speaking and attempting to sign at the same time (Swisher, 2000). In fact, teachers were observed using their voice constantly throughout lessons and in very many individual communication moments the observers noted teachers using only voiced English with no signing at all (see Figure 17).

Figure 17 Sample language inconsistencies

Examples of the difference in content when teachers signed and spoke simultaneously:

Teacher says in English: Ok today we are going to be learning some new words

Teacher signs: NEW WORDS

Teachers says in English: Add together 2 and 2 and we get 4. 2 plus 2 equals 4.

Teacher signs: 2 WITH 2 SAME AS 4

Teacher says in English: Ok, now take out your English workbooks and copy down the words from the board.

Teacher signs: BOOK

In only 23% of observations (n=6) was there a clear and discernible attempt made by the teacher to let the students know they were now doing an English lesson although as mentioned above, this was almost always conducted in SimCom using SSE. In just one Grade three class did the team observe use of Signed Exact English (SEE) to support the reading of a short story [observation TM203]. Typically, it was hard for the observers to understand if the teacher was using English as the language of instruction or as the topic of the lesson. Even in classes that were focused on KSL, the teachers did not make any distinction between English (represented visually using KSL signs) and KSL as distinct languages. At no point during any of the lessons did the observers see teachers explicitly teaching KSL or English to students. In most classes, whether it was timetabled as English, maths, social studies or KSL the teachers were observed using all or part of the lessons to instruct students on the spelling / meaning of individual English words.

A good illustrative example of how complex the language environment could become occurred in a Grade two English lesson [observation T2L01]. T2L switched from KSL to English in the form of SSE and spoken English constantly throughout the lesson without any warning. Some questions were asked entirely orally, sometimes T2L used KSL signs and mouthed English (speechreading) which resulted in mismatched lip-patterns. Whilst English was the topic of the lesson, this was being taught alongside KSL vocabulary because in many cases the children did not know the KSL signs for the English words.

In a Grade one maths class T4L was signing the numbers 1-10 for the children in KSL but used ASL for the number 6 which the children all copied [observation T4L02]. Observations noted that whilst the children would respond by copying the T4L's number signs when answering questions from the teacher, when they were doing their own maths problem solving, they were consistently counting for themselves in KSL, an observation the teacher afterwards admitted they had not been aware of. In a PP2 class T3L was observed speaking Swahili but fingerspelling English on many occasions which meant that their lip-patterns were inconsistent with their signs [observation T3L03].

In a PP2 class T1L set up the lesson to focus the children's attention on learning to fingerspell the letters A-P, which had already been written in English on the board [observation T1L02]. However, T1L began the lesson by saying in spoken English: 'today is Wednesday', whilst pointing to the word Wednesday which had also been written on the board. T1L demonstrated how to fingerspell W-E-D-N-E-S-D-A-Y and then tasked the children with doing the same. At no point did T1L use the KSL sign for Wednesday, and they did not conceptualise it by showing where Wednesday falls in the week. So, it looked simply as though T1L

was showing the children how to fingerspell the written letters. This seemed problematic however since Wednesday has three letters in it which go beyond the letters A-P which was the aim of the lesson. This situation was quite common, teachers were using quite complex words and sentences all the time in their spoken and written explanations and instructions (although never in KSL) which seemed to contrast starkly with the vocabulary they were directly introducing to the children.

Issues around whether teachers can accurately sign and speak English concurrently are well debated in the literature (Wood & Wood, 1992; Birky, 1993; Wilbur & Petersen, 1998; Scott & Henner, 2020). Just as I was observing in Kenya, there can be issues with hearing teachers omitting important function words (Wilbur & Petersen, 1998), making-up signs (Luetke-Stahlman, 1991), and communicating ungrammatically when attempting to speak and sign simultaneously whilst remaining unaware of their inconsistencies (Scott & Henner, 2020).

The literature notes that various efforts have been made to represent the sounds of spoken language visually to improve the language and associated literacy skills of deaf children. This led to the development of very specific sign systems used in the education of deaf children around the world (Scott & Henner, 2020). Sign systems (such as Simultaneous Communication, Sign Supported English and Sign Exact English) are manually coded versions of the majority spoken language, sometimes based on novel gestures or more often based on signs borrowed from a local natural sign language (Wood & Wood, 1991). Whilst they continue to be widely utilised and popular around the world in the education of deaf children, including Kenya, their educational effectiveness has never been robustly proved (Scott & Henner, 2020).

The assumption behind adoption of manually coded languages is that by providing visual representations of the spoken language deaf children will produce and understand that language for themselves. Underlying this assumption is the implicit understanding that because natural sign languages do not have written forms, they are not suitable for supporting literacy (Scott & Henner, 2020).

But sign systems themselves are not language and may be less supportive in the classroom than might be anticipated. Scott and Henner (2020) noted that overall, sign systems are less comprehensible to those who rely on signs; are used inconsistently by teachers; and inadvertently include some features of natural sign language grammar which do not therefore accurately represent the spoken language. Hence, they are neither good signed nor spoken language models, yet this is in fact the language model that I saw in practice in all the classes I observed in Kenya. It was also confirmed during interviews with headteachers, teachers and teacher trainers at the Kenya Institute of Special Education as being the main mode of instruction for use with deaf children [KII4].

The situations I was observing in Kenyan classrooms appeared remarkably similar to those previously noted by Wood & Wood (1992) when they looked at what information was being portrayed by teachers in SSE in classrooms in the UK. Their research found that none of the teachers in their study produced full Signed English when communicating with their deaf students in this way. They were most likely to sign verbs, nouns, adjectives and adverbs and less likely to sign verb inflections, contracted morphemes and any word that had to be fingerspelled.

An important finding here is that fingerspelled words are the ones most likely to be dropped. However, the technique of using fingerspelling to replace words that don't have a direct sign is one that is in common use in Kenya with KISE tutors specifically recommending teachers adopt this strategy when they don't immediately know or recall a sign in KSL [KII4]. Wood & Wood (1992) note the use of fingerspelling whilst speaking English should be avoided because any technique that lengthens the time required to shadow a spoken word is most likely to be dropped anyway in the interests of maintaining speech flow.

A key issue here is that it takes around two-and-half times longer to express an English phrase manually as compared with spoken English (Birky, 1993). Since SSE/SEE are constructed communication systems the signs used are imposed onto the structure of spoken English which means it takes a great deal longer to express things in this way. Wood & Wood (1992) found that the rate of signing in Supported English was 56% of spoken morphemes because the speaker is omitting signs to achieve something close to a regular speaking rate. The speaker will tend to drop what they consider to be less relevant / critical words and hence focus on verbs, nouns and adjectives at the expense of syntactic information: exactly as I was observing in the classrooms in Kenya.

Unfortunately, this also means the language visible to deaf children then falls short on grammar and structure (i.e., verb inflections and plural markers) which Wood & Wood (1992) note is often mirrored in the structure of deaf children's written English. For the children I was observing in Kenya, this also seemed to be limiting their opportunity for primary language development as we will see noted by the relatively low scores the sample achieved in the LPP-2 assessment reported on in Chapter 7. Without a fluent adult language role model, the children were not being exposed to a language from which they could develop

their own skills.

Sign systems only exist in classrooms. They must be explicitly and intensively taught and are not used in natural signing communities. Whilst they borrow heavily from natural signed languages, they also contain contrived signs – for example, handshapes created to represent English grammatical functions (like 'to' or 'the'). As Wilbur & Petersen (1998) noted, English is a linear/sequential system which means manual forms of English necessarily have to be linear. But natural sign languages (like British or Kenyan Sign Language) are visual/spatial/ gestural in nature with grammar that is layered. Grammatical information is provided through the placement, movement and direction of specific handshapes rather than through a sequence of individual signs (Scott & Henner, 2020). So the single sign GO, can be manipulated in many different ways to produce information such as who is travelling, where they are travelling to, when they travelled, how far they went, how fast and so on.

In fact, this was an issue the teachers in Kenya faced constantly and one for which their specialised training had not prepared them adequately. During a teacher focus group discussion, the challenge of reconciling English with KSL via SEE was raised [WLFG3]. One teacher noted: '...*the other day I had a sentence: "Tom is going to do his homework". So when it came to the SEE for "to" I had to change it to -T-O- but the children had read it as TO (going to) and were signing GO TO. Then I had to say no this is a different "to" and it got them confused and annoyed. How are they supposed to understand the difference? But they had read the word correctly! So English is a very complicated language for them to be learning in so early when they have no mother tongue to connect it with.*' [WLFG3].

Whilst many parts of English can be represented manually, in the classroom teachers using sign systems to teach more generally tend to use fewer complex grammatical structures than those working exclusively in spoken English (Wood & Wood, 1991; Scott & Henner, 2020). This was being reflected in the language observations I was encountering in Kenya. Wood & Wood (1991) concluded that sign systems should only be used in controlled environments where the goal is to learn English literacy skills yet in Kenya it was being used as the main method behind all instruction. The children were not getting fluent English or fluent KSL and whilst teachers were able to articulate the fact their children were struggling with learning through English, they appeared to have no pedagogical responses available to deal with the primary language deficit.

1.3. Conceptually poor language environment

A final gap noted as a deficiency within the language learning environment was the lack of attention paid by teachers to reinforcing the children's conceptual understanding of the new vocabulary to which they were being constantly exposed. Every lesson we observed, included the introduction of new words (or letters / numbers) and this was always approached in the same way. The word(s) would be written on the board, the teacher would fingerspell them one by one and get the children to copy, first as a whole class, then individually. Then the teacher would show the children the KSL sign for the word (if there was one) which the children would have to copy and sign back.

In many lessons teachers would attempt to illicit some understanding from the children about the words, but almost always in the form of direct questions. For example, if the new word was 'dress' the teacher might ask the children – 'do you have a dress?', or 'what might you find in a cupboard?', but these were

generally closed questions requiring the child to simply agree/disagree or provide single-word responses. If a child responded with an 'incorrect' answer then the teacher would move on to a different child, until someone provided the 'correct' response. Moreover, there were many occasions whereby the teacher would simply introduce the KSL sign for the English word and assume the children knew what the sign meant without any attempts to check understanding.

What the team did not observe was any teachers spending time exploring what children understood to be the meanings behind the words they were learning. Teachers were not observed engaging individual children, for example by encouraging them to use the new words in novel sentences of their own making. There was no checking of comprehension when a child responded with an 'incorrect' word and therefore no opportunities for the teachers to know if the children had the same conceptual understanding of the vocabulary as they had. In the lessons that we observed the free use of language by children, for example through the use of pictures to stimulate stories or time allocated for play-acting was never planned. Teachers did not demonstrate use of approaches or learning materials which might have provided them with opportunities to check how much of the new vocabulary the children were comprehending.

In fact, the language environment was conceptually very poor because whilst the children were constantly being exposed to new vocabulary there was no discernible pattern to the words being introduced. There was no continuity to new vocabulary, no opportunity for teachers to build conceptual understanding and only limited chances for teachers to check whether the children shared the same meaning of the words they were being asked to copy or remember. The

successful recall of a target word was enough to satisfy the teacher that the child had learned the word.

A Grade two English class observation demonstrates how difficult the situation could be for the children [observation T2L03]. T2L started the lesson in a very familiar way by asking them to recall all the words they had learned the previous lesson. Having done that T2L then introduced four new words: 'clean, bath, teeth, shoes' which to me as observer appeared completely unrelated to the words they had just been asked to recall. Having written the words up onto the board in English, T2L really tried to engage the children by asking them a question in KSL - YOU GET DIRTY WHERE? At this point many of the children became really animated, with a couple of the boys describing to the class how they get dirty when playing football. Other children joined in with examples including, when they are working in the garden, when big trucks come past you on the road or when they are playing in the fields. This represent a good dialogic moment and T2L was doing well to engage many of the children, listening to their examples and encouraging others to follow. It was done in KSL throughout and it really seemed as though for this short amount of time teacher and students were sharing language and concepts.

The problem T2L had however was that the focus of the language exchange had been around the word 'dirty' but the main word T2L wanted them to focus on during the lesson was 'clean'. All the words T2L had written on the board were in some way related to getting clean. The disconnect came because T2L did not make an explicit conceptual link between the words 'dirty' and 'clean', they simply moved straightaway from having a discussion around being dirty to the words on the board. T2L moved the lesson forward abruptly by writing on the board: 'I wash my face', followed by several other sentences including: 'I

take a ___' and, 'I clean my ___'. T2L then said in SEE, 'now you answer these ones…', pointing to the sentences with blank spaces. The expectation being set up (which I only learned in my conversations after the lesson) was that the children would choose a word from the list on the board to fill in the blank space although T2L's explanation didn't make that very clear and just to make things trickier, their instructions at this point were done in English (SEE) not KSL. A significant problem in this exchange had come about because T2L had tasked the children with answering sentences that didn't have questions in them – they were statements with words missing. At this point, I was briefly confused.

Assuming the children understood the instructions, this was anyway a complex task to complete because the children had to read the English sentences and the list of words and know the meaning of them all to anticipate which words might fill the blank spaces. In this case it was further complicated by the fact that several words could have been used to complete the sentences, so it relied heavily on both conceptual understanding and literacy skills.

Unfortunately, the words were not easily related to the conversations they had just been having together and it was clear the children had become very confused. They went from being really animated to being completely passive. All of them struggled to complete the task, even the children who had been really talkative during the previous activity. In fact, almost every child simply copied everything on the board including the blank spaces, without attempting to use the words to complete the sentences. I noticed one child intently copying each letter from the board and I observed another using the KSL sign for one, whilst writing the word 'I'. This indicated to me that neither of these two children were reading the sentences or even whole words.

Despite repeated attempts by T2L to explain they wanted the children to copy the sentences and fill in the missing words with those on the other side of the board, this just led to more confusion. In the end because the children were taking such a long time to complete the task, T2L simply wrote in the 'correct' words and got the children to copy the complete sentences into their books.

There was no reflection on the part of T2L as to why the children were struggling with this activity. During a post-observation discussion, I mentioned how complex the task had been and in particular that they had not made any explicit links between the words used during the KSL discussion and those that were the focus of the written exercise. I also noted the shift in language use between KSL and SSE and the fact that the instructions had confused the children because they had introduced the task as answering questions when in fact, they were required to fill-in missing words.

T2L did agree that it was a complex situation but felt the main problem was a lack of flexibility in the way the curriculum was designed which did not allow for a slower pace. Our discussions did not venture into consideration of the children's language or conceptual deficits, only that it took a long time for them to learn new words.

Another important example illustrates well how deaf children, unlike their hearing peers, enter formal education with a much greater variation (less consistent or predictable level) in their early socialisation experiences affecting their experiences of even apparently fundamental everyday situations. This observation follows a PP2 class in which the teacher was focused on common local greetings [observation T5L01]. In preparation for the lesson the teacher had written in English on the board: 'Common Greetings: hallo, good morning,

good afternoon'.

The teacher signalled the start of the lesson by moving to the board and read what they had written on the board to the children in spoken English. The teacher then gave the KSL greeting HELLO, followed by fingerspelling in English H-E-L-L-O. The teacher did this with each phrase - hello, good morning and good afternoon. The children copied everything exactly as the teacher had signed and fingerspelled which included when the teacher used the KSL sign HELLO repeatedly (HELLO, HELLO, HELLO) - the children copied the exact same number of times the sign was used. As the teacher continued to repeat the sign HELLO, they got faster and faster with the children matching their speed. This pattern was repeated for each of the greetings. As the teacher got faster their ability to sign GOOD MORNING and GOOD AFTERNOON deteriorated so that it was no longer possible to sign correctly. The children continued to copy the signing, now including the incorrect handshapes.

At this point the teacher then cycled through the greetings: HELLO, GOOD MORNING, GOOD AFTERNOON getting faster each time with the children trying to copy and keep up. The teacher then wanted the children to greet each other using these three phrases but it was at this point that the children became lost. The teacher was unable at this point to explain to the children that they should turn to the person next to them and sign the greetings to each other. They tried explaining in spoken English, in SSE and with a few KSL signs but the children were completely confused. A couple of children started to cycle through the three different greetings again on their own and others soon followed their example until all the children were repeating the signs to themselves randomly. It became apparent that the children had not understood that the teacher wanted them to greet each other using the signs.

So, this part of the lesson ended, and the children were told to sit and take out their writing books. They were then instructed to copy the English words from the board into their books. Once again I was able to observe that the children were not reading and copying English words because they were copying each individual letter of each word, which took them the rest of the lesson to complete. The teacher then 'marked' the children's work by putting a tick against the words that had been copied correctly but leaving those that were incorrect blank.

During a post lesson discussion, the teacher revealed they felt frustrated at not having any specific strategies for dealing with children who have such limited language. When the teacher was trying to get the children to greet each other they expressed feeling frustrated that the children were not understanding the task. This is why they used spoken English, Swahili, and written English as well as KSL to try and get their message across.

What I observed however was a more fundamental deficit - the fact that the children may not have been aware of how to articulate the passage of time, from morning through to afternoon or whether they had any experience of greeting people. This seemed rather more than just an issue with vocabulary, it was more around the extent of the children's socialisation experiences. The children certainly enjoyed engaging with the teacher, copying the gestures, and getting very excited about speeding things up and mixing up the different signs. However, I did not get any sense that the children knew what the signs represented. The idea that they could greet each other in different ways; the sense that time passes from morning to afternoon and that this can be communicated through different signs (and English words). Moreover, I also felt that the teacher missed a fundamental learning opportunity by not first

considering whether the children had acquired any of these concepts before introducing them to the words.

Whilst a group of young hearing Kenyan children may come into class with little or no English having been socialised through their local language the teacher would nevertheless assume that whilst they may not know the English words used in popular greetings, they would nevertheless be aware of when and how people greet each other. In the case of deaf children this assumption needs testing because without access to the language around them they will not necessarily be familiar with any of these concepts (Marschark, et al., 2011). So, simply providing a sign, followed by English letters and words misses a fundamental part of the language learning process - shared meaning (Gleitman & Papafragou, 2005; Spencer & Marschark, 2010). In this case the teacher was unaware as to whether or not the children had a shared meaning of concepts such as 'morning', 'afternoon', or 'hello'.

This situation was not limited to English lessons, it also occurred frequently in maths and social studies session. Another illustrative example comes from a PP2 maths observation [T5L02]. T5L started the lesson by standing in front of the board, banging on the table and calling for attention using spoken English. Once T5L had gained the attention of most of the children (although not all) they held up flash cards (one at a time) with random numbers written on them from 1-10. The children signed each number and T5L watched and where necessary, corrected them. T5L then ran the cards in order from 1-10, this time T5L signed each number and waited whilst each child signed the number back. At the end of this activity T5L wrote the numbers on the board for the children to copy into their exercise books.

What was interesting about this observation was that the children were never encouraged or supported to count from one to ten themselves, or even to demonstrate to T5L how far they could count. T5L did not count from one to ten themselves in a fluent manner but relied instead on holding up the card, signing then placing it on the desk ready to sign the next number.

In this particular instance I was aware that four of the children in the class could count fluently in KSL at least up to 40. That's because a couple of days earlier this class had been taken outside for some activity play whilst I was observing. I spent a bit of time with a small group of girls who were skipping. As they were skipping, I had been counting in KSL to see who was achieving the most skips before they made a mistake. This proved to be a popular game and before long several of the girls had started to count themselves and it turned into a bit of a competition. I watched four girls count accurately up to 40 which was the longest skip I witnessed.

I knew therefore that several girls in this class could count fluently well beyond ten but T5L did not provide them with the opportunity to demonstrate what they knew. There was no attempt by the teacher to build on the knowledge the children had around numbers and counting before moving on to how to write them. Had this happened T5L might have been able to move the lesson on a bit faster and the children might have been encouraged to use their counting ability in a more active way which would have provided more language opportunities as well as reinforcing their growing mathematical awareness. As it was, the lesson became about copying the numbers one to ten into their exercise books without really checking whether the children were mapping this onto their existing counting ability (Gleitman & Papafragou, 2005).

I also observed many instances of where teachers introduced English words to the children without explaining their full meaning or checking to see if the children had understood. Often because the teachers themselves had difficulty in communicating the meaning of words in an accessible way (Kimani, 2012; Mweri, 2014; Mwanyuma, 2016).

A good illustrative example of this came from a Class three observation with T4M [observation T4M03]. After completing a maths exercise, T4M announced to the class in SSE that 'now we are finished doing maths and we are doing English'. T4M then began with 'now we are going to learn the meaning of the words we learned yesterday.'. On the board T4M wrote a list of four words: 'housework'; 'water tank'; 'trough'; and 'remind'. Having apparently learned these words in the previous lesson (in the sense that they had been shown how to fingerspell them) T4M continued today's lesson by using SEE and KSL to articulate each word in turn. This proceeded until T4M got to the word 'trough' at which point they announced in spoken English, 'there is no sign for this (I don't know this sign) so we write it in English and fingerspell it'.

T4M did attempt a drawing on the board but this was the extent of the explanation offered to the children. In fact, 'trough' can be signed in KSL (however it requires several signs as there is no literal translation), and at the request of T4M our interpreter provided the class with the appropriate signs. The interpreter then spent a few moments explaining what a 'trough' is to the children so they could come some way to comprehending the meaning of the word. After the lesson T4M admitted they often come up against the problem of not being able to provide the children with KSL signs for words and was quite surprised to learn that many English words require several KSL signs to provide meaning. T4M was by no means unique in this, the groups deaf research

assistants and interpreter were called upon on several times to provide teachers with KSL signs for English words they did not know.

Aside from not having all the requisite KSL signs however was the issue of teachers not considering whether the children were aware of the concepts underpinning words and phrases. What our interpreter was doing in addition to showing the children the KSL sign was responding to their lack of comprehension. He was able to explain to the children where they might find a trough, which animals might use one so that in the end it appeared as though many of the children actually knew what 'trough' meant both as an English word and in KSL.

This observation is important because it illustrates how the lack of a shared language between the teachers and the students led to situations in which teachers were not able to pay attention to the children's knowledge gaps. Teachers were relying on the idea that by knowing how to spell and sign a word that the children would pick up the concept of that word without actually testing these assumptions. They were effectively using KSL signs to interpret English (English being their starting point) rather than as a language through which to explain English words. In many respects this is a further example of how teachers were approaching deaf children like hearing children from a pedagogical perspective, providing visual translations of words they are assumed to know.

Post lesson discussions touched on this issue many times, with the teachers and I talking about the challenges of determining whether or not children had understood the words they were being asked to copy. However, despite recognising the problem none of the teachers were able to offer any immediate

solutions although some began to talk about their own limitations in KSL as being a potential problem (see Section 5 below). I suggested they might consider finding ways to enable the children to place new words into novel sentences of their own devising, but the general consensus was that this was an approach they wouldn't expect to use with classes until Grade four.

In the context of English literacy skills this may well be the case, but for deaf children the issue is more fundamental. They need the opportunity to develop primary language skills through dialogic exchange which includes shared meaning, concepts and vocabulary (MacWhinney, 2005; Spencer & Marschark, 2010; Levine, et al., 2016). Not allowing the children to use or manipulate new vocabulary seems to be at odds with how children acquire primary language (Kyle & Woll, 1994; Levine, et al., 2016) and is illustrative of how the early years curriculum for deaf children is not enabling teachers to pay attention to the development of deaf children's primary language skills (Musengi, et al., 2012). It is effectively treating them like hearing children who need visual translations rather than as language learners.

Linking concepts to words and then embedding them within novel sentences is an important step in language development. It helps promote an understanding of grammatical rules and enables the child to express their thoughts, ideas and feelings and eventually supports their ability to learn – inside and outside the classroom (Kyle & Woll, 1994; MacWhinney, 2005; Spencer & Marschark, 2010; Levine, et al., 2016). Deaf children in the classes I observed were not being supported to learn language in this way, with a curriculum and pedagogy that had been designed around the needs of hearing children. The children were not being exposed to fluent adult language models and their classrooms offered very little in the form of *dialogic moments* on

which to build primary language skills.

2.   Teachers confidence in language development

It was evident from all the observations and conversations that took place during the fieldwork that teachers and students did not have a shared language with which to work from in the classroom and this was having a significant impact on the quality and quantity of language exchanges happening (Cummins, 1989; Kristoffersen & Simonsen, 2016). From the child's perspective this is mainly the result of having not had access to the language learning process in their early years the majority having come from hearing, non-signing families. From the teacher's perspective, it would in part seem to be that their own skills in signed languages, in this case KSL were insufficient to be able to talk comfortably and fluently with the deaf children in their care. The teachers own lack of KSL abilities appeared to be seriously limiting the children's opportunities for learning.

2.1. Insufficient levels of KSL fluency

A Grade one class provides a good illustration of how a teacher's lack of confidence in KSL resulted in a confusing and at times frustrating environment which was essentially limiting the children's opportunities to progress their learning [observation T4L01]. In this example I was observing a social studies lesson on 'safety in the home'. T4L had written the topic in English on the board. T4L started the lesson by asking in spoken English 'what is a home?'. None of the children responded. T4L continued with the same question this time asked in SSE, still with no response. One child tentatively signed HOUSE but T4L either did not see this or did not understand this was a response.

Another child signed HOME to which T4L replied, this time in SEE, 'a home is a home? No'. T4L continued in SEE this time asking, 'how many rooms does a house have?', but the sign they used for 'room' was in fact SQUARE which seemed to confuse the children further.

The lesson proceeded at a slow pace with the teacher repeating the questions unchanged, several times. Eventually one child responded by tentatively signing KITCHEN to which T4L responded positively. After that most of the children then freely began signing various rooms in and outside the house. But T4L stopped this language exchange and further confused the children by asking in SEE, 'what things we find in the home?'. By this point T4L had been using the word 'house' and 'home' interchangeably with no apparent differentiation made. The situation deteriorated further because none of the children seemed to know the meaning of the word 'things'. Some children copied T4L by fingerspelling -T-H-I-N-G-S, mirroring the way new words are usually introduced but it was clear this was not what T4L wanted. The lesson appeared to be stuck at this point until another child signed FOOD. Having apparently got the question right, once again the children actively engaged by signing all manner of things they could find in their homes. One child was quite fluently explaining all the things that can be found inside a kitchen cupboard but T4L did not appear to be following the conversation and did not engage the child in KSL at all.

I noticed that even though many of the children were quite fluent in their KSL responses to T4L, T4L never responded back to them in KSL. Their responses were always SSE/SEE even though this was a social studies class not an English lesson. T4L did not use any child's name during the interactions but just pointed to them, and as with most other observations was always satisfied with receiving

single-signed responses after which they ended the exchange by turning away. Given the way in which the children were able to respond once they understood what T4L wanted this suggested to us as observers that they probably had stronger KSL skills than their teacher.

A Grade two teacher had problems with KSL fluency to the extent that they would often revert to spoken English when it came to technical explanations. In one example T5M began the observed lesson with word recall [T5M02]. In this instance T5M used SEE to introduce the lesson – 'I will write words...' after which they wrote 11 words in English onto the board. This part of the lesson proceeded well with T5M listening to some of the children who were narrating some fun stories based around the vocabulary on the board. The children were doing well using clear KSL and most of the class were listening attentively to each other and taking turns to talk. T5M encouraged this language exchange to happen using some basic KSL and maintained interest, although T5M never intervened, or added to any of the stories themselves. Nevertheless, the language exchange was exciting to watch.

Things changed quite dramatically however when it came time to move the lesson on to maths. At this point T5M stopped using even basic KSL and reverted to spoken English with broken SEE which they used for most of the rest of the lesson. The change in the children was stark. They went from being animated and engaged to being very quiet and passive. After the lesson T5M explained that they had been aware of the switch to English. When I asked why they had made this decision, T5M replied: '*Because I am introducing a new topic to them. They need to know the details... I have to tell them in very strong words.*' I remarked that when they switched to English the children went very quiet and did not engage in the lesson in the way they had at the start when

KSL was being used. T5M responded by saying: '*People fear maths*' which I took to be their explanation for why the children went quiet. Immediately after this comment T5M changed the topic of our discussion.

As a research group, we never observed a teacher explicitly teaching KSL – even though some lessons were timetabled as KSL. There were very few examples of teachers paying deliberate attention to how the children were signing in terms of handshapes and the team noted no examples of teachers improving or correcting KSL grammar (even when the timetabled lesson was KSL). Even in the very earliest grades the teachers were not focused on how clearly the children were forming letters or numbers. It was very common for teachers to talk to the children whilst holding things in their hands, like chalk, sticks or books. This always had the effect of limiting the clarity of teacher's handshapes leading to signs that were either unclear or incorrectly produced. It was clear therefore that in none of the schools I observed was KSL being taught as a language in its own right.

As noted previously, the lack of teacher competency in signed languages has been a subject of a number of studies in low-income contexts (Adoyo, 2002; Branson & Miller, 2004; Johnstone & Corce, 2010; Mukhopadhyay & Moswela, 2010; Miles, et al., 2011) and it was certainly an important factor in the pedagogical choices teachers were making in Kenya. Conversations with staff during focus group and post lesson discussions revealed many of them felt their own KSL skills were insufficient and therefore they tended to revert to English when they wanted to explain things or provide more detailed instructions. They were not taking the decision to use KSL or SSE or spoken English in response to the children, or the demands of the curriculum, but as a consequence of their own language limitations.

In terms of classroom interactions and the language environment, the consequences of poor KSL skills meant teachers were reluctant to engage students in conversations. The opportunities for creating the kind of positive dialogic moments recommended by Alexander (2018) therefore were extremely limited. I saw and, often, experienced how linguistically poor the environment was for the children. I saw and experienced the frustrations on both sides where the lack of a shared language was limiting the possibilities for dialogic moments to exist in the classroom. Paradoxically, I found a situation where children who require a rich, fluent, participatory, and encouraging language environment instead faced one which was extremely limited.

2.2. Language assumptions held by teachers

During early conversations some teachers revealed a misunderstanding around the difference between KSL, SSE and SEE assuming that they were all the same. This is where the introduction of the LPP-2 assessment process made an impact, especially around our conversations on the nature of language and primary language acquisition. I will highlight in Chapter Seven how our discussions around language impacted on the way in which teachers in two of the three observation schools regarded some of their own assumptions around the role of KSL in their teaching. They came some way to realising that when they mixed spoken English with KSL signs and then switched to written English, they were creating a complex language environment for the children. But underlying their pedagogical approaches were strong assumptions that English literacy and KSL could be taught simultaneously without regard to the children's lack of primary language capacity. This was manifested in the way that teachers were constantly trying to teach the meaning of English vocabulary, as dictated to them by the curriculum, word by word using complex

multiple language and language mode instructions. As a consequence, any level of fluency was being lost (Power & Leigh, 2000; Gregory, 2004).

Teachers were equating the matching of written English words and KSL signs with reading/comprehension. The underlying assumption was that these languages and language modes could exist simultaneously, in a form of bimodal-bilingualism. But this was happening without attention being paid the fact that the children's own primary language capacity in either form was not being supported and the teachers had poor KSL skills. As I outlined in Chapter Three, the bilingual-bimodal education approach is a popular rights-based response to deaf education that retains the primacy of both the local signed and spoken languages (Gregory, 2004; Swanwick, 2016). It should provide deaf children with the opportunity to learn both the local signed and spoken languages within an environment that champions Deaf identity and broader social inclusion (Spencer & Marschark, 2010; de Beco, 2019). But as noted by several researchers, this kind of approach is intensive because it requires teachers to have high levels of fluency in several languages (Johnson, et al., 1989; Spencer & Marschark, 2010; Moores, 2012) and necessitates classroom practices which are built around visual learning (Swanwick, 2016; Skyer, 2020; Skyer, 2021).

As Swanwick (2016) points out in her extensive review of research into deaf children's bimodal-bilingualism in high income contexts, deaf children can be adept at code switching between sign and spoken languages, effectively ending up with a blended communication approach that may exceed their abilities in either language. However, there is still much research to be done in this area since little is really understood about whether or not this specific approach helps or compromises the development of the individual languages

(Swanwick, 2016, p. 15). Moreover, this was not a context in which bimodal-bilingualism was actually being practiced.

The language environment I encountered in Kenya was simultaneously under-stimulating and overly complex. There was a focus on literacy and numeracy but not on the development of primary language. The teachers themselves did not have sufficient fluency in KSL to be able to use this language as a medium through which to engage with the children and so the learning environment was a struggle for both teachers and students.

2.3. Where the language model is accessible

Unintentionally I was able to observe one lesson in which the children and the teacher did share a language and the contrast was striking [T3L02]. In this instance the regular PP2 class teacher was absent, and a Deaf teaching assistant was taking the class. This school was part of an international development project and had been trialling the use of Deaf teaching assistants to support their pre-school classes. The absence had been unexpected and so the lesson itself had not been planned by the teaching assistant. Building on the words introduced to the class during the previous lesson the teaching assistant was getting the children to match pictures, carefully drawn on the board, with English words from their word list.

What was most revealing about this short lesson was the rich language exchanges that were happening which seemed to contrast so starkly with all the other observations. As usual the teaching assistant had written the task in English on the board, but rather than pointing to it or using SSE/SEE to read the task they explained it in fluent KSL – no English and no voice were used.

The teaching assistant (TA) made the instructions very clear: their KSL was deliberately paced, visible to all the children and matched well to the children's language level.

In a technique I never saw replicated by any other hearing teacher, the TA ensured all the children were looking before they started any explanation. Moreover, the TA noticed when any child's gaze started to wander, at which point they stopped the explanation and used hand waves and body positioning to refocus the child back on them. Then the explanation was repeated from the start with instructions that the children had to 'listen'. As Bartnikowska (2017) noted, establishing eye contact is essential for initiating conversations within the Deaf community but it can be an area that is largely unfamiliar to hearing people. Hearing teachers of deaf students need to learn the importance of eye contact not just to ensure that information is being transmitted but as a central part of Deaf culture. In this instance, the TA was modelling both good language and key social skills transferring linguistic and cultural information.

During the demonstration part of the lesson the TA used KSL to help the children learn the spelling *and meaning* of the English words listed. The TA was constantly asking the children questions, getting them to talk about examples from their own experiences, and encouraging them to think about other related words. Individual children were engaged for much of this lesson, and they were enthusiastic in their efforts to respond to the TA's questions. The TA always listened to the children, letting them finish before turning to another child, shifting back to the board or asking a new question. The TA was paying close attention to the children's language and using their responses as an opportunity to model good signing practice for example, by correcting handshapes and positioning when these were incorrectly produced.

The TA maintained this level of attention from the children throughout the lesson which lasted around 20 minutes. Although they made quite extensive use of the board, referencing the pictures and the letters there was no talking at the board. The TA would write or draw on the board and then return to the front of the class again, gaining everyone's attention before asking them questions. When it came time for the children to write answers on the board, or to complete word tasks in their exercise books they had no problem in understanding what needed to be done. The TA provided a full explanation of the task to the children and then stopped talking to them so they could focus on the activity without being interrupted by more instructions. Whilst the children made mistakes and needed individual help in some cases, it was clear that everyone understood the activity and were not simply copying shapes from the board.

In this observation it was clear the children and the teaching assistant had a shared language. The TA was constantly creating dialogic moments with individual students and the class, which allowed them to develop their conversational skills in a Deaf-centric way. The fluency through which the TA delivered the lesson ensured the children were able to see KSL in all its grammatical detail and richness. It also paid respect to a Deaf visual pedagogical approach (Skyer, 2020) creating a learning space that was fully accessible to the children (and incidentally to the research group!) and one in which deafness was not a problem to be overcome (Skyer, 2021).

This lesson provided the research group with a positive example of an accessible language learning environment which we could juxtapose with all other observations. We often came back to this short, accidental observation

and in my subsequent analysis it served to remind me of the extent to which the deaf children we observed were so often excluded from the learning process by a system that was not designed or evaluated from a deaf perspective.

As Skyer states very clearly: '*Without ocularcentrism, deaf students are disempowered. Hegemonic power flows are unethical and contribute to the forceful adaptation of the deaf student to suit the majoritarian desires of a nondeaf society and biopower institutions.*' (Skyer, 2021, p. 468). I see this as implying that deaf children, even in schools for the deaf can be subject to integration rather than inclusion when hearing teachers continue to rely so extensively on spoken language. That the pedagogical approaches, the curriculums, syllabi and teaching materials that are not devised from a deaf-learners perspective risk excluding them from the learning process.

I see this as being fundamental to the problem facing early years deaf education in Kenya because their early language deficit needs are in no way considered in the training and preparation of teachers, in the syllabus they are using or in the materials and resources available to support them. As Skyer continues: '*When deaf education systems refuse to adapt, they actively maintain harm in biopolitical regimes of oppression.*' (op cit.)

Having observed this lesson, the group also came to appreciate why the children in this school appeared to have KSL skills that were beyond those of their teachers and the children in the previous school. It was a situation that had perplexed the whole observation group from the first set of observations. Throughout the first week none of us could understand how the children were able to use KSL so fluently with teachers who were amongst those we'd

observed with the weakest skills and the most likely to teach using spoken English. In fact, unbeknown to us at the start, the school had two Deaf teaching assistants who were attached to the pre-school classes. It seemed from this observation that it was their presence in the children's lives that was providing them with an opportunity to access a fluent language at a relatively young age.

This observation led me to recall a not entirely dissimilar situation I had observed in Uganda (Miles, et al., 2011). In this instance, an international development project had been setting up units for deaf children attached to local primary schools to improve access to education. Rather than having them move away from home to board at one of the few schools for the deaf, the project was supporting a small number of teachers to work with deaf children from surrounding villages in their local primary schools. Although the teachers in this project were being given training to develop their skills in Uganda Sign Language, none of them were fluent and just as in Kenya, the children's own language and interpersonal skills were extremely limited. Except in one class where all the children were vocal, engaging and demonstrated very high levels of fluency in USL. In this instance, the children's fluency was being driven by the presence of older children in the class who had joined them from a school for the deaf where they had been taught in USL. Miles et al (2011) noted the important role exposure to fluent sign language in early years schooling had in developing functional language skills in deaf children who had come from non-signing families.

3.   Discussion

In their efforts to communicate with the children, teachers were inadvertently creating quite complex communication environments with written and spoken

English being used alongside Kiswahili, fingerspelling and KSL signs. The lack of a shared language in the classroom meant the teachers were having to rely on idiosyncratic ways to communicate with their students resulting in these complex environments. Teachers often expressed to me that they were not consciously aware of how complex this situation was until we discussed the issues during our regular post-lesson and focus group discussions. Their inconsistent approach to building concepts and language across the observations (and illustrated by the examples in this Chapter) reflects the fact that the existing early years curriculum is not set up specifically to support the primary language development of deaf children, the teachers are not trained to support language development and there are no tools or materials available for them to use in the classroom.

In practice my observations revealed that most language interactions remained teacher directed, with limited to no attempts to prolong or develop dialogic moments with the children. This partly reflects the way teachers expect to teach (through didactic means) and is influenced by a lack of confidence in KSL (Wood & Wood, 1991; Wood, et al., 1991; Hopwood & Gallaway, 1999). Overall, the early years education I saw being provided in no way responded to the primary language deficiencies experienced by these deaf children.

These findings are significant because they provide direct evidence that special education teachers in Kenya lack the skills and resources necessary to assess and support the language needs of deaf children. As I noted on many occasions, teachers were relatively restricted in their pedagogical choices, partly due to the demands of the curriculum and a lack of appropriate materials, but also due to their lack of fluency in KSL which left them unable to confidently create dialogic moments which might have promoted language development.

The contrast between the lesson led by the Deaf Teaching Assistant who used fluent KSL throughout, and the hearing teachers was so revealing because it demonstrated, albeit briefly just how conversational the lessons could become. In this situation the dialogic moments I observed were much closer to the natural language learning environments created by fluent adult language role models that researchers like Kyle & Woll (1994) and Levine, et al., (2016) suggest are so important for early primary language development.

The role primary language plays in laying the foundations for learning which are exploited by formal education systems is significant, which is why a focus on early language support is so critical for young deaf children (Swanwick, 2016). As Adoyo (2007) noted and I confirmed in my sample, most deaf children in Kenya come from non-signing hearing households which means they are arriving in school with idiosyncratic homesign-based language skills. This is a complex situation for teachers to face because the heterogenous nature of the children's language skills means there is no obvious shared language with which to begin formal instruction. However, despite this complexity my research has found that this situation is not recognised as a learning need and therefore teachers are not trained to respond to the situation nor provided with the resources and materials required to support the children.

Morford (2003) noted that whilst late first language learners can achieve good levels of competency, they retain difficulties with processing language in real time. Late first language learners find it hard to acquire the complex grammatical structures needed for fluency which also then impacts on their ability to learn additional languages (Johnson, et al., 1989; Morford, 2003; Ramirez, et al., 2012). What this research found were language environments which were at the same time complex, with multiple languages and modes in

use, but deficient in fluency and content. Environments therefore which were not sufficiently structured around supporting the development of primary language skills in deaf children.

It is already known from studies that focus on hearing children whose families use a different language to that in formal education, that multiple language environments place high cognitive demands on children in early years education. As Pinnock (2009) noted in her review: '*International learning outcomes assessments show that for children who manage to stay in education, there is a strong negative impact on achievement if their first language is not used for teaching and learning.*' (2009, p. 8). Pinnock found that it was cognitively demanding for children in pre-school and early primary grades to be taught in a language that was not familiar to them. This stress is exacerbated by other external issues such as poverty, hunger and poor learning conditions. Interestingly Pinnock also concludes that: '*Teaching through a language which a child does not already know well also fails to give children adequate skills in that language, despite being intended to do so.*' (Pinnock, 2009, p. 8).

Signed languages such as KSL are often the most accessible to deaf children in contexts in which aided/replaced hearing and acoustically optimal classrooms are not the norm. However, learning via constructed communication systems such as SSE or SEE places significant cognitive demands on both deaf children and their teachers much in the way that Pinnock (2009) discusses. Birky (1993) highlighted that the situation facing deaf children is quite similar to those faced by non-English speaking hearing children in English medium classrooms where the children are having to use instructional material that is written in a foreign language.

Deaf children's ability to do well in school is being unnecessarily constrained

by the lack of attention to developing primary language and using this in their classrooms. As Birky (1993) noted, *'For young deaf children who are not exposed to a natural sign language at all, but only to Signed English, there may be more serious effects. That is, if the method of communication used with the children is not a complete language but is instead an incomplete system that taxes cognitive processing capabilities and memory, there should be serious concern about its effects on the intellectual development of these children.'* (p. 27).

This research found that deaf learners in Kenya are being approached primarily from a special educational needs perspective with the lack of hearing identified as their central educational need, not their primary language deficiencies. At the level of education planning, this has created a situation in which a policy that mandates Kenya Sign Language as appropriate for use in classrooms with deaf students has translated into KSL being used as an accommodation by teachers not as a focus for primary language development in the deaf children.

Education for deaf children should balance the need for children to develop language alongside delivery of the curriculum. This research found however that the language used by hearing teachers is geared towards delivering the curriculum rather than focusing on developing the primary language skills and hence it is insufficient to meet the learning needs of deaf children.

4.   Conclusion

This chapter has demonstrated that currently, there is no specific recognition of the unique primary language needs of deaf children in the early years of education. Teachers were inadvertently creating complex language

environments which were conceptually poor through their constant code switching between spoken English, written English, SSE and KSL. Results from language observations revealed teachers and students who did not share a common language or language mode with very few instances of *dialogic moments* being created during which fluent language was modelled.

The assumptions made by education policies and curriculum guidance and support mechanisms such as early grade reading schemes, is that material and pedagogy designed to meet the needs of hearing children can be adapted for use with deaf children. Rather in the way that ramps can be added to school buildings and washroom facilities to increase accessibility, sign language is used as an accommodation to bridge the gap between hearing teachers and deaf children. It is not the focus of pedagogical practices, teacher education, curriculums or learning materials. Whilst it is possible to say that Kenya has an early grade reading programme which has been adapted for deaf children, in practice this means teachers are permitted to use KSL signs and to fingerspell words whilst they are working through a curriculum designed for hearing children.

As this chapter demonstrated, this is an entirely inadequate response. Rather, deaf children in these early years require a curriculum designed around their needs as first language learners, with teachers who are trained to support the acquisition of their first language alongside helping to broaden their knowledge and experience of the world and culture in which they live.

In the next Chapter I will report on findings from implementing the novel language assessment process. It will demonstrate how significant the primary language gap is for deaf children in Kenya and illustrate how well teachers

responded to learning more about this gap and what they can do in response.

Chapter 7: Implementing a new language profiling process

This chapter explores the research sub-theme on whether the introduction of a novel set of standardised language assessment tools results in changes to the way teachers approach deaf children as language learners. In the previous chapters I noted how observations were revealing that across all classes and Grade levels the way the teachers set up their classrooms and structured their lessons were having a limiting effect on the language interactions that were happening between teachers and students. It was striking to observe lessons across the study sites which repeatedly lacked fluent language exchanges taking place between teachers and students. The communication and language environment in most lessons observed was poor, with teachers making limited obvious attempts to hold the attention of students to promote dialogic exchanges. In this chapter I will provide information on the results from applying the LPP-2 tool and then utilise reflective material gained from discussions that I had with teachers after implementing the tool to discuss how teaching practice may have been influenced. It will draw together analysis of the critical themes including using the LPP-2 tool in classrooms and teachers' knowledge and attitudes towards language development.

1. Using the LPP-2 tool in classrooms

As mentioned in Chapter Four, a total of 48 young deaf children were assessed by 12 teachers using a contextually adapted version of the Language Proficiency Profile tool (LPP-2).

The mean age of the children assessed was 11 years, ranging from the youngest at six years (in PP2) to the oldest at 16 years (in G1). The boys in the assessment sample were very slightly older than the girls with an average age of 12 years. With the exception of children in Grade one classes, overall, the sample assessed showed the mean upper age limit broadly increased with the grade level: PP2 -12 years; G1 -16 years; G2 -13 years; G3 -15 years. The age range of G1 was unusually wide since two of the sample were aged 16 years.

In terms of family situation only three of the children sampled had close family members who were also deaf however in only one of these was the main language of the family described as being KSL (the family included a deaf father and brother). In two cases where the children had no deaf family members, the family were nevertheless described as using 'some KSL'. Therefore 94% of the children assessed had no history of KSL use with their families.

1.1. LPP-2 assessment results

Aggregated data from the three schools showed that the mean given score achieved by the children was 55 (from 112). Six students reached the 80+ threshold, all of whom were over the age of 10 years. The most significant clusters of scores are seen at 40-60 for students between eight and 16 years, and between 60-80 for students between nine and 14 years (see Graph 1).

Graph 1 Results of the LPP-2 assessment in Kenya

Graph 1 Results of the LPP-2 assessment in Kenya
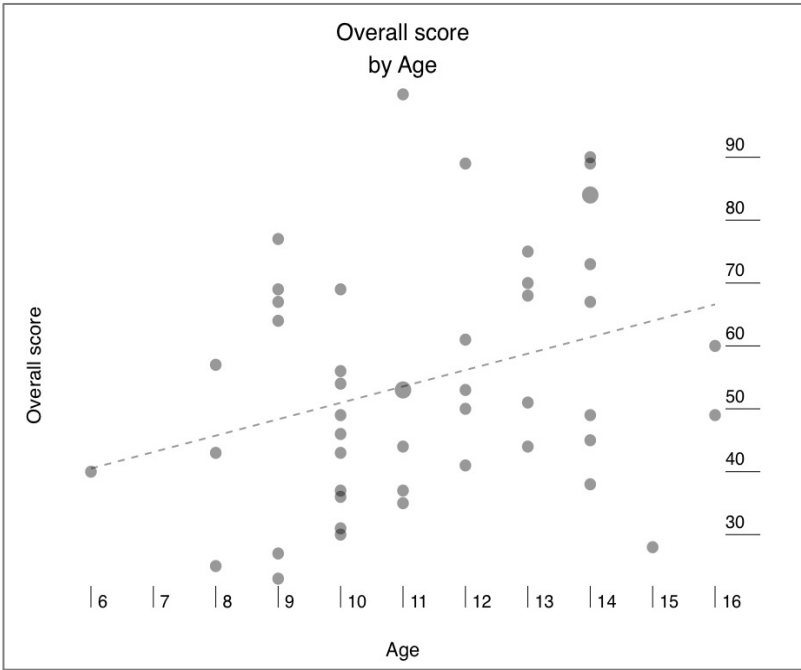
Results show a gradual but clear progression in mean given scores across all domains as the grade level increased (PP2=37; G1=53; G2=62; G3=69; with 112 representing the maximum score) (see Graph 2).

Graph 2 Average LPP-2 score across each grade level
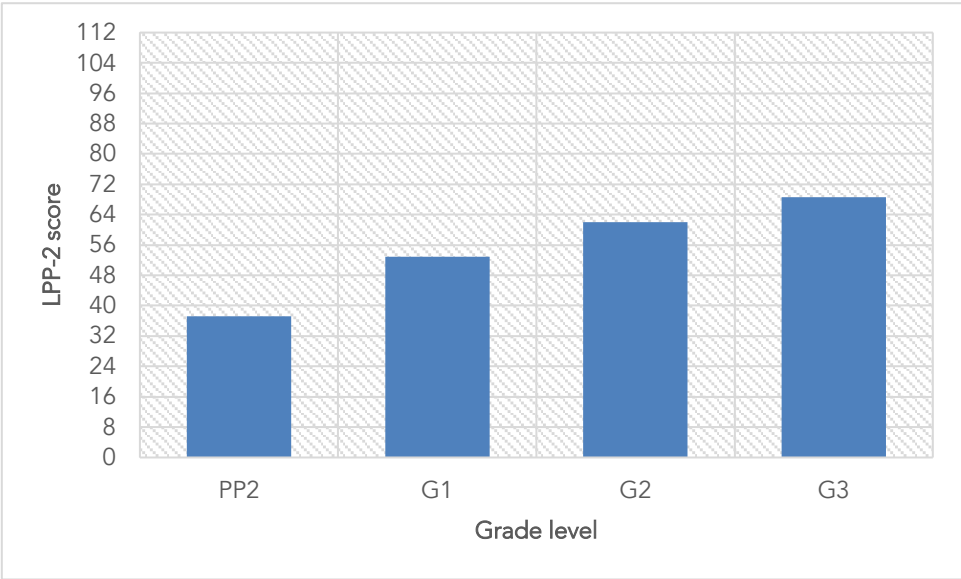
When broken down by domain and grade level the mean progression shown in total scores was broadly repeated, meaning that as the grade level and age of the children increased so too did the maximum score levels. Combined mean scores for the domain Cohesion showed the greatest level of difference between the total possible score and those given to the children (maximum total 22). This was therefore identified as the weakest domain overall for all children (see Graph 3).

Combined mean scores for the domain Form showed the smallest level of difference overall between the total possible score and those given to the children (maximum total 18). This presents the strongest domain overall for most children (see Graph 4).

Graph 4 Average score for each grade level in the Form domain
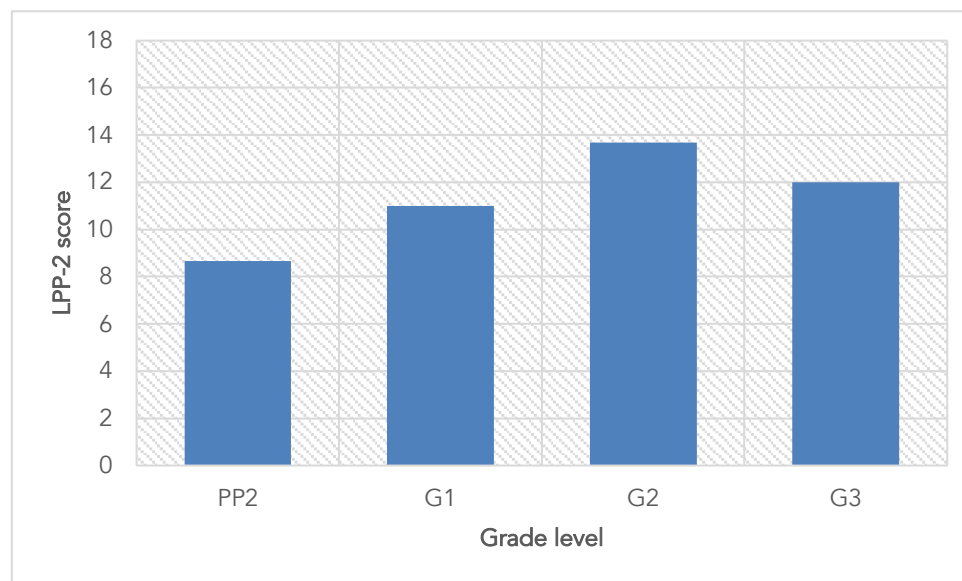
1.2. Discussion of LPP-2 assessment results

The main purpose of using this tool was not to produce a comparison of LPP-2 score levels with the original research samples or to interpret the data as a baseline for deaf children in Kenya. Rather it was being tested as a potential method for teachers to use in their classroom practice to identify what basic language competency their children had achieved to plan more specific language-based interventions. But the results do raise interesting observations around the potential extent of language needs in this group of deaf children which warrant a little more discussion. Whether or not this is representative cannot be determined until further research is undertaken with a much larger sample of hearing and deaf children in Kenya.

The original study noted that hearing students approached maximum scores much earlier than deaf students – on average hearing students would achieve this at four years whereas most deaf students were averaging LPP-2 scores of 80+ by the age of eight years. This sample from Kenya showed that very few

children were achieving an 80+ score (only six from 48), even though the mean age was 11 years (modal age 10 years). This is suggesting that the deaf students in this study experience considerable delays in their language development. Even though the LPP-2 tool was designed to pick up a wide range of children's expressive communications to demonstrate their communication and early language skills they nevertheless appear to lag significantly behind the deaf students in the original study.

The scale of the deficit here seems considerable but is consistent within a context in which opportunities for acquiring early language is restricted. Without accessible language in infancy and early childhood the children have missed two of the three key parameters needed for language to develop naturally – that is exposure to adult language models and appropriate adult-child interaction experiences (Kyle & Woll, 1994; Spencer & Marschark, 2010; Levine, et al., 2016). During focus group discussions with parents of deaf children at the research sites it was apparent that most children did not receive an official diagnosis of deafness until around three to four years of age. Kenya does not have a new-born or early years hearing screening programme so it is up to parents and caregivers to request testing if they suspect there could be hearing difficulties. Generally, caregivers expressed suspecting there were problems when their child failed to talk or respond appropriately to people and sounds around them. In some cases, the child's behaviour became aggressive and difficult to manage prompting caregivers to seek help and advice.

Parents expressed feeling unsupported in the early years with little help available either from health or education services or the community. Attitudes towards disabilities of any kind can be negative and some caregivers reported

experiencing isolation which was only relieved once the child had been allocated a place at a school for the deaf.

None of the caregivers in the focus group discussions had experience of deafness prior to the child's diagnosis and there was no specific language support provided to them. In descriptions which very much echoed those of Carrigan and Coppola (2017), each household unit described developing its own way of communicating, usually guided by the child. One parent described how his son points to things that he wants, whilst he tended to demonstrate and physically guide his son to the things he wants him to do, much in the way Tomasello described happening in the communication strategies used by infants (2007). In fact, this father went on to note that the boy's infant sibling was starting to catch up with him in communication ability [ND1PT]. Another caregiver concurred and said when their child needed something they would take your hand and guide or point to what they wanted.

For these caregivers, language did not obviously start to emerge from their children until they went to the school for the deaf where there were opportunities for them to learn KSL. Their challenge however is that they themselves are not proficient so whilst they can observe the child's language developing, they were not confident about being able to play an active part in communicating with them.

What these results highlight is that the deaf children in the sample appeared to be at significant risk of not being school ready in relation to their primary language skills. Having not had structured, accessible language inputs from caregivers at home the children are relying on language inputs from their interactions at school, especially from teachers as potential adult language role

models (Kyle & Woll, 1994; MacWhinney, 2005; Tomasello, 2007; Spencer & Marschark, 2010; Levine, et al., 2016). But these results are indicating that the language support they are receiving is inadequate for helping them develop primary language skills.

As noted by a number of different studies, primary language acquisition delays have implications for how well children go on to develop a fluent language and in their ability to learn additional languages (Johnson, et al., 1989; Morford, 2003; Ramirez, et al., 2012). It is also important to recall that unmodified classrooms are ill-equipped for promoting primary language development in young children because the language environment is functional, and relatively restricted since its focus is instructional rather than conversational (Wood, et al., 1991; Wood & Wood, 1991; Hopwood & Gallaway, 1999).

The children in the sample may already be showing signs of difficulties in relation to achieving language fluency in a primary language which implies they would also find it hard learning further languages. Yet, as I discussed in Chapter Six, the classrooms I observed were complex language spaces with many languages and modes of language in use.

The primary language deficits noted by this assessment also suggests that the children are at risk from limited exposure to incidental learning. This means their general knowledge of the world and culture around them is likely to be restricted making it more difficult for them to place the ideas and words used by teachers in their general instructions and through stories (Gregory, 2004; Marschark, et al., 2011; Bennett, et al., 2014). In Chapter Six I described situations in which children were being introduced to new English words and phrases such as 'good morning' or 'hello' without teachers first exploring with

the children how much they understood about the passage of time through a day, week or year or whether they were aware of the culture norms around greetings.

If the children in the study are representative of deaf children across Kenya then the findings have significant implications for the way early years education is structured. It would appear that not enough focus or time is being given to developing either the children's primary language skills or their socio-cultural knowledge. Instead the system is effectively treating them as 'children who cannot hear' and trying to compensate for their physical impairment by introducing manual signs as a way to visualise spoken language (Wood & Wood, 1991; Scott & Henner, 2020). The fundamental language deficit the children have is not being acknowledged.

1.3. Teachers experiences of using the LPP-2 tool

In terms of the teachers' use of the LPP-2 tool, I made some important observations. There were no formalised tools in use for measuring initial language capacity or the progress of children's language in any of the observation schools. Undertaking a specific language assessment process therefore was a novel experience for which teachers needed reflection time. The teachers in the sample were not familiar with the idea of breaking down the components of language into different domains. This meant each domain had to be explained in detail with lots of illustrative examples (see Figure 18). Taking time to work through each domain prompted discussions which helped later when they came to implementing the tool, but it did mean the introductory briefing had to be spread over two one-hour sessions.

Figure 18 Example of an LPP-2 tool introductory session
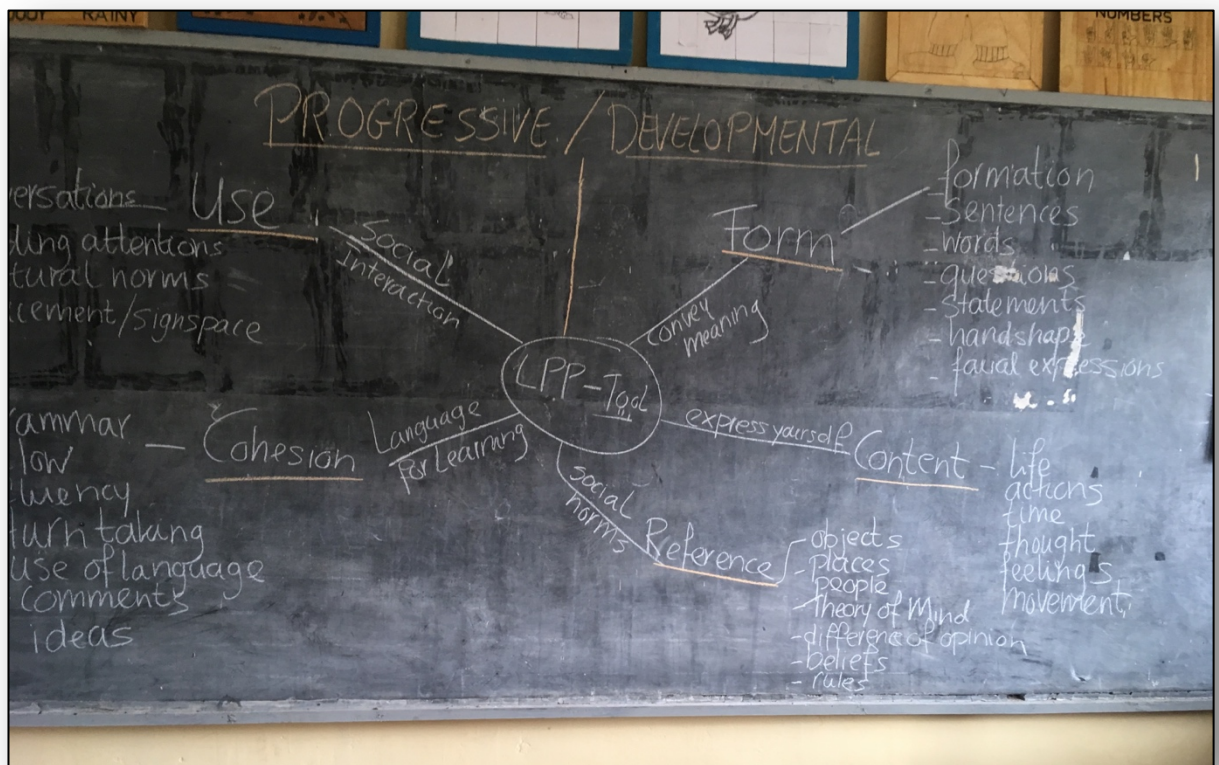
Initially teachers had assumed they would be observing the child whilst completing the profile. This prompted concern that they would not have the time or resources to be able to implement the tool. Once they realised that the profile could be completed at any time, whether the child was present or not, then there was a high level of engagement. Since the child does not need to be observed the teachers had to be familiar with them making this tool applicable only once the child has been in class for several weeks.

In two of the three study locations the teachers initially misunderstood the scoring system. For each domain the teacher was required to rate whether the child currently had the skill (score two), is beginning to show the skill (score one) or has not yet shown the skill (score zero). Teachers took a long time to decide whether the child should be given a one or a two and there was much debate

around to what extent the child had to show the skill for it to be rated as a two. As a way to reduce the time taken to complete the tool, I noted that in future it might be better to simplify the scoring by having a zero or one only (the child has confidently demonstrated the skill, or they have not). This is something which needs further testing.

The second issue I encountered highlighted a more fundamental lack of confidence with the tool and unfamiliarity with the concept of language development – it was common, in the early stages for teachers to score a child a one or a two after they had already scored a 0. So, for example, taking the domain Content, one teacher scored a child as follows (see Figure 19):

Figure 19 LPP-2 scoring example

The Language Proficiency Profile Score Card

CONTENT – This area is concerned with what the child communicates about. That is, what kinds of objects, actions, and relationships are mentioned by the child?

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	Total /24
2	2	2	1	0	2	0	1	0	0	0	0	

The highlighted scores show the way most teachers initially approached each level of the domain as a discreet skill rather than one that is progressive. Hence, they were happy to rate the child as two for Content level six after having already said the child did not show skill at Content level five.

Focus group discussions revealed that teachers had not appreciated the progressive nature of the tool and were tending to use the examples provided in each of the levels as more prescriptive than I had intended (NDFG4). In the above example, teacher T1L noted that they had not in fact seen the child asking someone to stop others from doing something (level C5) but had

observed them combining several ideas into one communication (level C6). On further discussion teacher T1L agreed that since the child had demonstrated a higher skill (C6) the fact they had not observed the lower one did not mean it was not present.

The issue occurred again between level C7 (expresses something they would like to do in the future) and C8 (communicates about things or events that are linked in time or are near each other). On reflection teacher T1L noted that since they now understood the nature of the tool, they would not score the child a one for level C8. Whilst this is used as an illustrative example, it occurred frequently when teachers first implemented the tool. In subsequent briefings I tried to highlight more explicitly the progressive nature of the domain levels.

Another key concern raised by teachers was in what language the child should be assessed. Again, this seemed to highlight a perceptual misunderstanding of the tool in that it is not meant to focus on any specific language. The open-ended nature of this however, proved too ambiguous and teachers themselves decided they would focus on the child's KSL skills.

A final more fundamental problem that came up in two of the three study schools was teacher suspicion around the nature of the tool. Whilst this was never an overt conversation, there was a sense that the tool might expose their own lack of confidence in KSL. In one school, teachers had initially wanted to rate the children in English rather than KSL and during discussions after the tool had been implemented there were concerns raised by some around whether in fact, teachers would recognise some of the language expressions in KSL.

This represents one of the main limitations in the use of the tool in this context. Bebko et al noted in the original study that those with limited signing skills (in their case the parents of deaf children) tended to *overestimate* the child's communication skills in comparison to teachers whose skills were more proficient. In this study, the teachers themselves were not proficient KSL users and this may have impacted on the extent to which they could observe the subtle differences in the children's KSL-based communications. Discussions with the Deaf observers in the research group suggested that in this case, teachers were likely *underestimating* the skills of the children because they were basing their ratings only on interactions that happened between them and the child in the classroom. Given the limited language interactions that were happening it did not allow for much generation of spontaneous communication which the teachers could use as evidence.

Reactions to the results of the LPP-2 profiling from teachers were significantly positive. Once teachers had completed the scoring, I took the results and created individual results profiles for each class. This showed in summary form where the children in their class were strongest and weakest. The teachers themselves took the individual scores to assess the differences between the children. In all study locations, the first focus group discussion after implementation of the LPP-2 profiling generated detailed conversations around language.

2. Teachers' knowledge and attitudes towards language development

When the teachers and I first discussed what does language mean their primary responses were varied; *'it's a way to communicate'*; *'it's a two-way exchange'*; *'it's about vocabulary – we need to teach signs to the children...'*. When asked

about how they check their students understand them, in the main teachers tended to say they relied on how the children responded. So, if the response was wrong or unexpected then they assumed the child had not understood the question. However, as I noted in Chapter Six, they could not easily discern whether the child had not understood because of a language problem or a conceptual problem, a situation that has been previously highlighted by a number of researchers in similar contexts (Adoyo, 2002; Branson & Miller, 2004; Mukhopadhyay & Moswela, 2010; Miles, et al., 2011; Musengi, et al., 2013; Nkolola-Wakumelo & Manyando, 2013).

Prior to undertaking the LPP-2 assessment teachers admitted there was no formal tool available to them for assessing the language skills of the children and this was not something that they had ever undertaken [NDFG1]. In the absence of any formalised language development process, they were instead focused on getting the children through the curriculum in line with their hearing peers. Moreover, they were under considerable pressure to get through the early years English literacy syllabus provided to them via the standardised phonics programme called Tusome. The ubiquitous list of English words each teacher produced at the start of lessons all came from Tusome, which in the absence of any formal language assessment, the teachers were using as a kind of proxy measure for language progress. If the children could recall the words, then they assumed they had learned them.

What the teachers were expressing to me during our discussions represented a complex situation because whilst they understood the children lacked language capacity, the nature and extent of that deficit was not something they had been used to talking about. It was not explored as an issue during their training, nor did it form any part of the curriculum they were expected to

implement. The early years curriculum is focused on literacy and numeracy, but it assumes that children have a primary language on which to build – whether that is a local or national language - and one which the teachers would mostly be expected to share with their children.

To explore this complex problem, in an early teacher discussion group in one of the schools I asked them what they regarded as being the main challenges in teaching deaf children. Everyone agreed very quickly that their main challenge was language [WLFG1]. When I probed a little more into this, it transpired that language in their explanations, equated to English. Teachers expressed that for them language and English represented the same thing because they were teaching in English. Teachers could see their children struggled with English, but it seemed evident from the discussions that they were not linking this in any way to issues around primary language acquisition: at least not without prompting. They were explaining to me that the children's poor *English* skills were the root language challenge preventing them from doing better because the education system itself is constructed around English (a view that was commonly expressed across all research sites). This is a logical conclusion, but only if you assume that primary language acquisition has already been accomplished, since English is a second language for most people in Kenya.[10]

Encouragingly after our lengthy discussions, teachers did gain greater insights into the language problems of deaf children. Towards the end of one discussion a teacher announced '...*but we can't use two languages at the same time, it's confusing the children...*'. This was the only time any of the teachers

[10] As of 2019, only 4.6% of people use English as a primary language spoken at home in Kenya (https://www.statista.com/statistics/1279540/primary-languages-spoken-at-home-in-kenya/)

verbalised to me the difficulties they faced in communicating effectively with their children, showing some indication that a new appreciation of the language problem was emerging [KGFG3].

Other group discussions revealed teachers who were thoughtful around how their own experiences of learning English might be useful [WLFG3]. One teacher described how as a child his family had used a different language to the one officially used in school (which was English). But to help the situation, his teacher had used his Mother Tongue quite a lot in the classroom. So, when introducing a word in English the teacher would first introduce the sentence in their local language and then explain – this is the word(s) we use in English. The children would then say the word in English and then learn the spelling. What was key to this discussion was his reflection on the fact that as children they already knew the concept behind the English words. As the teacher explained, '*I already knew what the word meant in my local language, so it was easy for me to make that translation.*' He mused that in the case of deaf children, '*... we are trying to use the same teaching process but actually the children are getting all the languages at the same time without the chance to think about the concepts*'. I commented that currently it was not so much learning languages as learning the *vocabulary* of two languages (their lexicons) without the associated concepts.

In further conversations, I asked whether teachers felt KSL was appropriate as a language for education, whether it was sufficient for them to be able to teach the content required by the curriculum. All the teachers responded positively believing that it was more than sufficient, but they then admitted the limitation was their own lack of skills and knowledge. They know the language is sufficient but they themselves do not have the fluency to be able to cover subjects like

social science or science (or as I commented, KSL), but they know they could if they had more language skills themselves. Many talked about being frustrated by the confines of SSE and know from experience that it's not an effective way to educate deaf children [WLFG3].

What I found in my observations and discussions were teachers who were not drawing on any explicit pedagogical practices for the teaching of language. Instead, they were making assumptions that producing the correct KSL sign or English spelling of a word was in itself a prerequisite to demonstrating understanding of the concept. In fact, T1L explained to me after a PP2 maths class in which the children had 'learned' the KSL signs and English written words for the numbers one to twenty by copying the teacher, that learning the *concept* of the numbers one to ten would come later in the term. For now, the focus was on introducing them to the signs and written symbols with number values to be introduced later.

As we have seen, in a natural language development environment, the child and the adult carer engage in a dialogic exchange which the adult can manipulate according to the response levels of the child (Levine, et al., 2016). In this situation, as I discussed in Chapter Three, the child would be expected to initiate more language exchanges as they gained confidence with the adult carer responding at a pace and level determined by the interests and focus of the child. We know already that the deaf children in this study, had limited exposure to this language learning process because they mostly came from non-signing hearing families but overall, my observations and discussions revealed that their teachers had only a partial appreciation of the impact this would have on the children's knowledge of language and the world around them.

2.1. Initial impact of the LPP-2 testing protocol on teaching practices

In Kapsabet and Kwale the introduction of the LPP-2 tool provoked an almost instant reframing and repositioning of teachers understanding of the children's language needs. They were genuinely surprised by how low the scores appeared to be and could instantly recognise that 'cohesion' was very poor. This provoked a series of questions – why are they this low? can we do anything about this? where would we expect children to be? how do our children compare with others?

This was a significant finding – the LPP-2 tool was giving teachers a new way to approach their young learners. In focus group WLFG3 teachers described the tool as being useful because '...*it helps us to see the differentiation in the children's language ability*'. This was an important insight because whilst the scoring appeared to match the teachers' own instinctive ranking, they remarked that what was different was they were now able to see the gaps in language for each child. T6L suggested this tool acted like an Individual Education Plan (IEP) and in fact could easily be integrated into the process.

When considering the results themselves teachers were reflective and, in a few cases, quite shocked. On observing the results for their class and for all observations combined, T2L commented that they were really surprised by the low levels of language, especially around the domain Cohesion. T1L expressed surprise at noticing that it was one of their youngest children that showed the greatest competency across all domains by some margin. During one focus group discussion (NDFG4) teachers began to consider the impact of their own pedagogical practices on the language development opportunities available to their young deaf students. T2L noted that they now realised they used language in a way that was a lot more complex than the functional levels of the

children in their class to the extent that many perhaps would not understand them. On the other hand, T1L commented that their language use was somewhat less complex than the level at which many of their children could function and was therefore not encouraging them to develop further.

Whilst the research did not have time to study the full potential impact of the LPP-2 profiling tool on teachers' pedagogical practices, nevertheless there were some notable incidents suggesting that it could have some influence in the future. In the next session I observed with TL1 after discussing the LPP-2 results some changes had taken place. From the early moments of the lesson TL1 made great efforts to seek eye contact with the children with whom she was communicating. There were also several extended conversational moments with two of the children who had scored quite high in the LPP-2 profile. When the lesson shifted to a counting exercise, T1L moved away from the board and directly engaged with the children. This time T1L pointed to a child, then used their sign name before asking them to show the sign for a selection of numbers.

Having introduced the numbers T1L then carefully explained they were now going to try working in groups. T1L made good use of SSE to explain the change but needed to use quite a lot of physical manoeuvring to get the children sitting in groups. Nevertheless, the children were engaged and interested in what was happening. Of note, was that T1L placed three of the most language confident children (two of whom had done well on the LPP-2 profiling) with groups who contained some of the least communicative children. Then T1L specifically tasked the more language proficient children with assisting the quieter children. The observation team noted that the children responded well to this way of working and although still very limited,

there was an increase in direct attempts being made by the children to talk with others in their group. A further benefit was that the children completed the maths exercise quicker in this lesson than in any previous observations.

This is a level of interaction which had not been observed prior to the LPP-2 profiling discussions and the children responded with great enthusiasm. It was one of the most engaging lessons I observed both in terms of the teacher and the children. T1L was using more KSL, not just SSE and attempting to move beyond individual KSL signs to slightly longer sentences with questions for the children. There was also an increase in levels of eye contact.

T1L was particularly reflective after the lesson and continued to be struck by how limited the dialogue was in their classroom. They also noted how important eye contact was in engaging the children and keeping the conversation going. We discussed ideas about how the lesson could be structured to offer more opportunities like this perhaps using small groups more often to encourage the children to interact with each other as well as considering how she might base conversations around simple stories.

These individual teacher discussions often fed into the regular focus group discussions which by the end of my observations had started to become more spontaneous. In one school the teachers informed me that they had created their own internal group to carry on the discussions (NDFG4). In this instance, in this observation site, the LPP-2 tool acted as a catalyst for prompting discussions and thinking around language skills from amongst the teachers. It was regarded by staff as being a useful tool for use with individual children but more than that, it seemed to provoke reflections from teachers about their own behaviour in the classroom. There was an explicit realisation that deaf children

were not the same as hearing children to the extent that techniques used with hearing children don't always work with deaf children because of the nature of their language deficit and because they are visual learners (NDFG4).

In another post LPP-2 profiling focus group discussion (WLFG1) the teachers were interested in why the scatter graph results didn't seem to show an upward trend (relating increased scores to age). This prompted discussions around the challenges that young deaf children face in acquiring language in the context of Kenya. Some key barriers identified by teachers included starting school relatively late, children having additional impairments due to the nature of deafness in the region (for example because of brain injuries caused by trauma or illness), and generally having less access to language role models. The discussion then focused on the isolated nature of deaf residential schools where children are not exposed to much language that is representative of the wider community.

In this respect, whilst the children can develop their language skills from older children there are very few adults with whom the children are socially interacting. Their exposure to information from other sources such as the radio, TV or other outsiders is limited so the language they are exposed to comes mostly from teachers or older children. This would suggest that more of the lessons or recreational time should be focused on wider learning about the communities in which they live than would usually be expected within the curriculum. So not only is the language structure limited but so too is the content.

It was beyond the scope of this study to understand the way in which deaf children conceptualise and know about the wider world and community in

which they live but it would certainly be a good line of investigation to help ensure the language environment is both rich and informative. To design a good pre-school curriculum that was focused on the needs of deaf children, both structure and content should be well planned.

My being in the classroom asking lots of questions around language prompted deep discussions with all the teachers I observed. During a post lesson discussion group session with teachers towards the end of my observations in one school, T2M commented:*'...the challenge deaf children face is that they don't have a primary language when they come to school... We are teaching English and KSL at the same time.*' [NDFG4]. This comment prompted a general reflection amongst the group who concluded that their deaf students are not like their hearing peers in this respect and that they should really be paying more attention to giving the children more language learning opportunities in the early years.

In another school a similar discussion ended with T5L saying '*...what we should be doing in the early years in Kenya is allowing deaf children to use only KSL up to Grade 3. There should be no English, no writing so that we can focus on building their language skills before introducing them to another language*' [WLFG1]. Teachers in two schools changed their position during my time with them towards acknowledging that children needed to learn KSL and English separately at different times and in different ways so that they stop becoming confused and overloaded by multiple languages and concepts.

In two schools therefore the explanation of the language challenge went initially from relating it to difficulties with learning English (which may well have been more of a reflection on the broader education system although I did not

specifically pursue this), to one that was much more focused on the unique situation of deaf children and their primary language deficits. Much of this change seemed to be connected to the use of the LPP-2 assessment tool because prior to using it we had to talk at some length around the nature of language and how it develops in young children. The teachers in these two schools, also responded to the results of the assessments and I saw some changes in their pedagogical approaches once they had become more explicitly aware of the children's primary language capacities.

In one school however, teacher's views on language were more intransigent. Even by the end of my time with teachers here there was an insistence from amongst staff that whilst they would agree KSL was the language of deaf people in Kenya, that KSL was most useful for supporting deaf children to learn English. In this school KSL was not accorded status as a full language, it was being used as a mode of communication to support the learning of English although teachers found it hard to make this distinction and often referred to their own use of KSL in the classroom. At this school, teachers were observed relying heavily on SEE and overall, their confidence and use of KSL was minimal. When they wanted to get across a new concept or word to the children they would quickly revert to spoken and/or written English and finger spelling. One teacher here remarked that it was good to sign and speak at the same time because: '*It helps deaf children if you sign and speak at the same time. For those that can hear a bit they get the English. For those that are totally deaf they get the signs.*'

I probed this group a little more and asked if it was possible to speak English and Swahili at the same time which everyone agreed would be impossible and wouldn't make sense. I then asked, so is it possible to sign KSL and speak

English at the same time? Initially people stuck to their original claims that this was the best approach until one teacher remarked, '*Actually no, you need one language first then the other, you can't use them at the same time.... but you can sign and speak at the same time.*' I suggested that they were talking about KSL as a *mode* of communication, not a language. In other words, using signs borrowed from KSL to translate English words into manual form. When I asked whether that really was KSL the group responded, '*no, that's English*'. We finally got to the point where teachers agreed that if they were using KSL signs at the same time as speaking then they were teaching in English not KSL.

At this point teachers were starting to think again about some of the language issues their children were facing. There was agreement that KSL is a language that is accessible to the children and that it could be used as a bridge on which to build an understanding of English. However there did not seem to be the same level of understanding about the nature of the children's primary language deficit. The group conceded that if two languages were being introduced concurrently then there was a danger that the overall language input would be deficient since neither English nor KSL could be modelled fluently (Luetke-Stahlman, 1991; Wood, et al., 1991; Wilbur & Petersen, 1998; Scott & Henner, 2020). We continued to talk through the challenges this presented to teachers, but their focus always shifted away from primary language acquisition concerns back to English. Repeatedly a key challenge they would return to in discussions and in the classroom, was what to do when there is no direct translation of an English word into a KSL sign.

All the teachers across the three study sites struggled to some extent with the issue of direct translations between KSL signs and English words. Whenever it came up in discussions, I used it as an opportunity to talk more about their

approaches to the children's conceptual understanding. This question would often trigger discussions around whether they were teaching English vocabulary, thereby assuming children would attach meaning to individual words, or teaching the children concepts to which vocabulary could be assigned.

This was a complex discussion and it got us all closer to understanding why the teachers were finding it so difficult to progress through the early years curriculum. Despite the significance of the discussion, it was new to the teachers in my study, and many found it uncomfortable to talk about. We followed through on the view that language develops through shared meanings (Spencer & Marschark, 2010; Levine, et al., 2016), but that deaf children most likely will have missed a great deal of early incidental learning due to inaccessible language environments (Gregory, 2004). This makes it important for the early years curriculum in contexts such as this, to focus time on ensuring deaf children understand the concepts behind the vocabulary being introduced. Going back to my earlier example of the teacher who introduced a PP2 class to the word TUESDAY – that means becoming aware of whether all the children have the same *concept* of Tuesday as that of the teacher and each other.

For the deaf children in this study, that might be achievable if they were given sufficient time and exposure to fluent KSL since this is the language that is most accessible to them. Paying attention to developing their primary language skills in KSL before introducing English as a second language, especially in relation to literacy skills, could help the children progress more confidently (Kyle & Harris, 2006; Cormier, et al., 2012; Rudner, et al., 2015). Indeed, if the curriculum made it explicit that English was to be approached as a second language then

it would be possible for teachers to be supported to develop pedagogical approaches that were much more in line with the primary language needs of these deaf children and for teaching materials to be better targeted (Swanwick, 2016).

3. Conclusion

In this chapter I have been able to address the last of the sub-themes, that is how teachers assess the language capacity and progress of children as individuals and as a class. Through classroom observations and the time that I spent with teachers during conversations and in the discussion groups I was able to confirm that formal measurement of children's primary language skills was not happening in schools for the deaf in Kenya. As this chapter has highlighted, teachers were largely unaware of the extent of the primary language deficit experienced by deaf children even as they were conscious of the fact that the children struggled with learning English literacy and numeracy. Whilst teachers were cognisant of the difficulties they faced in getting through the Early Grade Reading programme (Tusome), they had not appreciated the extent to which their students struggled with primary language acquisition.

The Language Proficiency Profiling Tool (LPP-2) proved relatively straightforward for teachers to implement once they had gained greater familiarity and confidence with its content. As this chapter noted, it took some teachers several briefing sessions before they gained confidence in its use, partly due to the novelty of the exercise and in some cases partly due to their own concerns about how competent they were in KSL. Overall though, all teachers completed the tool so we were able to generate a data set that included 48 children at PP2 to Grade three level.

Results showed that mean given score achieved by the children was 55 (from 112) and whilst the research was not designed specifically to compare this sample with the original it did suggest that they were experiencing very considerable delays in the primary language development.

A significant finding from this research was that the introduction of a specific language assessment tool prompted teachers to think about language and language development in new ways. It provided them with a relatively objective way of understanding the language capabilities of their deaf children in ways which they had not been able to access previously. This gave them a little more confidence to think about what they could do to address the primary language deficits whilst also coping with the need to implement an ill-designed curriculum.

I will now summarise my research in the final, concluding chapter.

Chapter 8: Conclusion

In this final chapter I seek to summarise the main motivations behind this research and highlight some of the most significant contributions it brings to the study of education for deaf children in the context of international development. I will review and reflect on the methodology I employed for this study and discuss the strengths and limitations this presented. Finally, I will look at the implications of my findings for the field of deaf education within the international development context and the promotion of inclusive education programmes. I will provide some key recommendations for policy-makers and researchers in this sector.

1. Summarising the research process

Over the twenty plus years I have been working in the international development sector, I had become increasingly concerned that whilst the values behind inclusive education being promoted by international development programmes and supported through rights frameworks like the UN Convention on the Rights of Persons with Disabilities, were incontrovertible, yet deaf children were still being excluded. Accommodations provided within inclusive education programmes seemed wholly inadequate, typically consisting of ensuring deaf children were placed at the front of classes, that teachers wrote clearly on the board and that teachers 'learned some sign language' (Arbeiter & Hartley, 2002).

This research grew from my own increasing concerns, alongside those of researchers such as Marschark & Knoors (2012), and the government of Kenya (Kenya Ministry of Education, Science and Technology, 2014), that deaf children

were consistently performing at lower academic levels than should be expected given that deafness is not a learning disability (Maller & Braden, 2012; Marschark & Knoors, 2012). Kenya has progressive education policies which for example, since 2009, have recognised Kenya Sign Language as a language of instruction and yet deaf children continue to pass through the system achieving very poor average scores in comparison to their hearing peers (Mwanyuma, 2016).

There are several factors which have been identified as contributing towards the poor performance of deaf children which others have documented including low expectations, inadequate resources, lack of deaf-specific teaching materials, inflexible curriculums, and insufficiently adapted exams (Kimani, 2012; Mweri, 2014; Mwanyuma, 2016). However, a key factor which had until this research was undertaken, not been addressed through primary research is the extent to which deaf children's primary language learning needs are being adequately attended to in the way early years education is delivered.

Studies of early language fluency point to primary language being especially important for broader social and cognitive development (Cummins, 1989; Marschark & Knoors, 2012; Marschark & Hauser, 2012), as well as helping prepare children for learning in schools (Johnson, et al., 1989; Morford, 2003). In low-income contexts such as Kenya where deaf children are identified late, and have no access to language support, their opportunities for developing fluent primary language before entering formal education are limited (Storbeck & Martin, 2010; Knoors & Marschark, 2014). All of this implies that primary language capacity issues could be a central factor in limiting academic progress if it is not being directly addressed through early education programmes.

Currently, in Kenya and more broadly in the discourse around education within the international development sector, the primary language deficits experienced by young deaf children are not explicitly recognised as an educational need and as a result, there remain questions around the extent to which even specialist teachers of the deaf in schools for the deaf have the right skills and resources available to adequately promote early language development. By specifically focusing on primary language capacity, this research set out to fill a significant gap in both the academic literature around deaf education in a low-income context and in the evidence-based research practices of international development programmes delivering inclusive education.

In formulating my response to these concerns, I devised a research process that would address a key question: *To what extent are special education teachers in Kenya equipped to assess and support the language needs of deaf children?* In order to tackle this question, I focused on three sub-themes:

i.   How do the concepts of deafness and language held by teachers impact their pedagogical choices and feelings of self-efficacy?

ii.   How do teachers approach the assessment of language capacity and progress in deaf children as individuals and as a class? And,

iii. Would the introduction of a novel set of standardised language assessment tools result in changes to the way teachers approach deaf children as language learners and the formulation of teaching strategies?

2. Key findings

In addressing the first sub-theme on the impact of conceptual beliefs around deafness and language I focused my analysis on teachers and pedagogy. Significantly, I found that teachers most commonly conceptualised deaf children's lack of hearing as their primary educational need rather than focusing on their primary language deficits. This directly impacted on teachers pedagogy in the sense that their main accommodation centred around making the spoken word visible, but interestingly it had far less influence over how they approached classroom management. There was a lack of attention paid to developing the language fluency of children through pedagogical choices and little awareness of the need for accessible communications.

Overall, I found teachers delivering lessons heavily reliant on a didactic approach, including in how they set-up and used their classroom spaces, how they structured the learning process and how they utilised teaching materials. In the main, classrooms were not well suited for visual learners and most teachers were found to lack basic deaf awareness in the way they interacted with the children. I identified classrooms which were highly audio-centric, not deaf-focused, and therefore not conducive to facilitating accessible communication with deaf children. Teachers were surprisingly poor at manging an effective visual learning environment which was having an impact on how successful they were at delivering the curriculum. Teachers lacked awareness of the extent to which they were privileging spoken language and were not explicitly responding to deaf children's needs as visual learners by adapting or changing their pedagogy (Skyer, 2021).

In reflecting on these observations with teachers they would often return to a lack of confidence and self-efficacy around how best to engage deaf children

and a lack of insight into the importance of the visual environment. Feeling underprepared by their specialist training and lacking in confidence around their KSL language skills affected the extent to which they could create positive experiences for the children. Specialist teacher training had not specifically addressed hearing teachers' attitudes towards deafness and language development nor prepared them with deaf-centric teaching approaches. Teachers used unmodified didactic approaches and employed KSL signs as an impairment accomodation, not as a focus of language instruction. This left very little opportunity for creating dialogic moments with or between the children. The overall lack of deaf-centric pedagogy, teacher training, curriculum development and resource materials for visual learners, all reinforced the sense of deafness as the barrier to educational attainment.

In addressing the second sub-theme around how teachers assess and build the language capacity of young deaf children, I exposed a number of very significant findings. By focusing specifically on the language environment within classrooms I was able to determine that they were highly deficient language learning environments for young deaf children with teachers who did not have appropriate early language development skills.

In this regard, I found teachers and children who lacked a shared language or even language mode with the result that there were very few opportunities for the creation of dialogic moments during which any fluent language could be modelled (Kimani, 2012; Kristoffersen & Simonsen, 2016). The lack of priority given to considering young deaf children as primary language learners during training and its absence in the early years and primary level curriculums, led to situations where teachers were unaware of how to monitor language development in the children.

The lack of awareness also led to an inability by teachers to monitor the consistency and levels of their own approach to language use in the classroom. As many teachers explained, their training had not provided them with an appropriate level of awareness around language development and there were insufficient opportunities provided for them to develop fluency in KSL. Teachers lacked confidence in using KSL as a medium of instruction and had no formal skills for teaching this as a primary language to children.

As a result of the overall lack of language awareness, I found that teachers were inadvertently creating complex language environments which were also conceptually poor, through constant code switching between spoken English, Kiswahili, written English, SSE and KSL. The lack of curriculum focus on building the primary language skills of deaf children at this early level of education, meant teachers were reliant instead on idiosyncratic and unsystematised ways of communicating with their children.

Teachers were rarely observed entering into extended dialogue with the children which severely limited the opportunities children had to experience fluent language (signed or spoken), and for the teachers to take more explicit responsibility for progressing language skills. Paradoxically, children who would most benefit from the kind of rich, fluent, participatory, and encouraging language environments suggested by Alexander (2018) instead faced ones that were extremely limited. In this regard, teachers use of language was limiting the learning opportunities of young deaf children: teachers were limiting learning by limiting language exchanges.

Much in the way reported by Wood & Wood (1991), Wood, et al. (1991), and Hopwood & Gallaway (1999), most language interactions that I observed were

teacher directed with limited or no attempts made to prolong or develop dialogic moments with the children. Whilst this did reflect the way teachers expected to teach it failed to respond to the considerable primary language deficits experienced by the young deaf children they were teaching.

When I had the opportunity to view a Deaf teaching assistant the difference in the language environment was unmistakable. There were multiple dialogic moments happening throughout the short lesson, with fluent KSL used to build conversations with individual children alongside the modelling of good KSL handshapes, facial expressions, and eye contact. The TA was constantly creating dialogic moments with children enabling them to develop their conversational and primary language skills in a Deaf-centric way. The fluency of the Deaf TA's KSL meant the children were exposed to an accessible language in all its grammatical detail. The way the Deaf TA engaged the children also paid respect to a Deaf visual pedagogical approach (Skyer, 2021) creating a learning space that was fully accessible to the children.

It highlighted a fundamental problem facing early years deaf education in Kenya – that neither the training provided to teachers of deaf children nor the early years curriculum and its associated teaching and learning materials have been designed to meet the primary language deficits that are present in young deaf children. This research has established that special education teachers in Kenya are not adequately equipped to assess or support the language needs of deaf children. I would also argue that whilst more research will be needed, deaf children in contexts which are similar to Kenya – in having late diagnosis, a lack of community-based family support services and limited access to hearing technology – will be experiencing similar educational exclusion due to the lack of focus on their primary language acquisition needs.

To address the final sub-theme, I introduced teachers to a novel language assessment process, the LPP-2 tool. This had the advantage of both providing a baseline indication of the children's primary language capacity (a unique data set for this context) and giving me the opportunity to carry out a very small-scale intervention. I wanted to assess if by having a relatively objective measure of language capacity, that teachers might be prompted to reassess their approach to young deaf children. That is to see if they would be more inclined to take primary language acquisition as being a key educational need for this group of children.

I made several important findings under this sub-theme. In undertaking the LPP-2 assessment process I was able to demonstrate that the level of primary language deficit in the sample was considerable – significantly greater than the levels found by Bebko, et al. (2003). Even after four years of formal education the children's primary language and communication skills remain underdeveloped with gaps in components such as 'cohesion' and 'use'. Given these two components are most strongly associated with the foundations for use of language for learning (cohesion) and for building and maintaining social interaction (use), it is highly significant that this research found these specific domains to be underdeveloped in most of the sample.

Whilst this profiling exercise was not designed to produce a direct comparison of LPP-2 scores with the original research samples in the Bebko, et al. study (2003) nevertheless the results did raise key concerns around the potentially very low primary language capacity of the sampled children in Kenya. More research will be needed to verify these results and to determine if they are representative of a potentially much wider problem. An increase in the sample of children covered will help determine if the scores remain relatively low and

a broader sample incorporating deaf children in other types of education programme will help to provide a more detailed picture of the extent of deaf children's primary capacity in contexts such as those in Kenya.

This research also evidenced that implementation of the LPP-2 tool in Kenya was successful in providing teachers with an objective measurement of primary language capacity in a way that had not previously been possible. Whilst its introduction was a much lengthier process than I had anticipated, in two out of the three schools it had an observable impact on teachers' understanding of their children's' language needs. Many of the teachers became reflective and started to question their pedagogical practices and its impact on language development. There was growing realisation that perhaps their language use was often too complex for their children, hindering their learning. Some teachers started to make changes in their approach, such as seeking more eye contact, and using KSL to engage children a little more effectively. The opportunities for creating dialogic moments with the children were increased.

In many respects this was an example of what McLean (2008) refers to as a 'jolt' moment – where teachers are presented with new possibilities that essentially disrupt established beliefs and assumptions. Much in the way McLean proposed, I was able to observe special education teachers becoming more critically aware of their own ableist views having been presented with something that created a dissonance in their understanding of the moment. The LPP-2 tool worked as a very effective catalyst for discussions among teachers about language skills and the unique challenges faced by deaf children. It prompted reflections on the need for more language learning opportunities in the early years and the importance of developing primary language skills before introducing a second language like English. Teachers

recognised the limitations of relying so heavily on spoken and written English and acknowledged the value of KSL as a language for deaf children.

This research found that in most cases, teachers had not been familiar with the language learning process nor the concept of breaking down language into component parts. There was recognition by some that as hearing adults, their experiences of language and language learning were very different to that of their deaf children. It precipitated conversations about the differences between KSL and SSE and the extent to which speaking English whilst visually representing it with KSL signs might contribute to unnecessarily complex language environments for the children. They had been prompted to start considering language from the perspective of the deaf child.

In answering my overall research question, I have demonstrated that special education teachers in Kenya are significantly underprepared to assess and support the language needs of deaf children. This adds an additional consideration to the existing body of research which typically ascribes the poor performance of deaf children to low expectations, inadequate resources, lack of deaf-specific teaching materials, inflexible curriculums, and insufficiently adapted exams (Kimani, 2012; Mweri, 2014; Mwanyuma, 2016).

Whilst these findings apply most directly to Kenya, I believe that they would be relevant to any context in which you have a potential primary language deficit. That means in contexts similar to Kenya where there is late diagnosis of deafness, limited access to hearing technology and a lack of early intervention programmes. It implies that international development programmes focused on the inclusion of disabled children in education need to approach young deaf children much more specifically as primary language learners, with

interventions targeted at providing them with accessible language learning opportunities.

3. A reflection on my methodology

Reflecting on the methodology I chose for this research, I can see that it had its roots in my own experiences, firstly as a trained teacher in the UK and then as an international development consultant tasked with evaluating inclusive education projects around the world. Being deaf had always created some logistical challenges for me as a freelance researcher (travelling with a sign language interpreter added to costs and required meticulous planning) but it also provided me with a unique perspective through which to evaluate programmes. I believe my deafness often allowed me to connect on at least some level with deaf and disabled stakeholders, giving me the kind of insider researcher status perceptively described by Hayfield & Huxley (2015) in their reflections on conducting research with lesbian and bisexual women. I got to communicate directly with deaf young people around the world, often in a kind of pidgin or contact sign (Supalla & Webb, 1995) that allowed us to make brief connections that gave me small insights into their experiences. Often these deaf and disabled stakeholders seemed unafraid to reveal truths to me about their experiences which had not been disclosed to my non-disabled, hearing colleagues.

As a deaf researcher I felt it was important to place my research within a rights-based and post-modernist social model perspective of disability, emphasising the way in which it is the interaction between an individual's impairment and their social environment that creates disability. The Disability Studies in Education framework proved particularly useful in this context because it

enabled me as the researcher to co-create meaning around what the experience of teaching deaf children is like for teachers in Kenya. Using participant observational approaches alongside an action research group, I believe I was successful in being able to capture how teachers were conceptualising their main challenges in teaching young deaf children and how that affected the way they designed their lessons and interpreted the curriculum. Throughout the process I was conscious of how young deaf children were experiencing lessons, providing insights into the impact of teacher beliefs and practices on the learning potential of children (Slee, et al., 2021). Moreover, I felt confident in being able to follow Skyer (2020) in ensuring the research remained deaf-centric.

Another important perspective I brought to this research was as a trained teacher. I have always approached my education consultancy research from a teachers' perspective which has made me interested in classroom practices, how teachers interact with deaf and disabled students and how well resourced they are for implementing inclusive pedagogy. This research has placed the classroom at the very centre of the analysis with the voices of teachers very much framing the narrative. Their interactions with the children, their professional motivations, and the everyday challenges of balancing the demands of national teaching programmes with the reality of classes of young deaf learners with significant primary language deficits. Swanwick & Marschark (2010) noted that in the field of deaf education research there is a real need to move away from linguistic, audiological, and psychological approaches to focus more on teaching and learning. I hope that this research plays a small part in bringing attention to the very important need teachers have for greater *pedagogical* support that relates specifically to young deaf learners.

This research was mostly qualitative in its approach, but it also included a small intervention based around the introduction of a novel language assessment process. I wanted to utilise a language assessment process to see if it prompted any changes to the way teachers approached deaf children as language learners. As I have documented however, this in itself was not a straightforward process since I discovered there were very few tools available which could measure language skills in deaf children with those that did exist, firmly built around western languages such as British and American Sign Languages.

In the end there was only one tool available to me, the Language Proficiency Profile (LPP-2) tool developed by Bebko & McKinnon (2003) which had been designed specifically for young deaf children and was not language specific. A definite appeal of the LPP-2 tool was that it can be carried out by a teacher or caregiver who is familiar with the child on the basis of their day-to-day interactions: it is not an assessment that children have to perform themselves. The obvious advantage of this was in reducing ethical issues around testing a group of young children who, due to their reduced language capacities would have been unlikely to be able to consent in any meaningful way. It also avoided the potential negative effectives of labelling individual children with quantifiable test scores.

The original LPP-2 tool required a few adjustments to the wording to ensure it was contextually relevant for use in Kenya, but overall, the tool remained true to its original format. The LPP-2 tool proved relatively straightforward for teachers to implement once they had gained greater familiarity with its content. Some teachers needed several briefing sessions before they gained confidence in its use, but it did prove successful in generating a data set that included 48 children at PP2 to Grade three level.

It has proved to be a very effective tool for assessing language proficiency and since the research was conducted, I have continued to advise Deaf Child Worldwide (DCW) on implementing it in Kenya. Whilst the COVID-19 pandemic delayed things somewhat, as of September 2022, KISE and DCW have developed a project to pilot an updated version of the LPP-2 – now called the Early Language Profiling Tool. In response to the learning from this research, the tool has been simplified by reducing the number of domain levels and my original briefing materials have been consolidated into a helpful guide for teachers on how to implement the tool.

In addition, and in direct response to the demand from the teachers in this study, DCW have been working with local teachers and early education specialist to develop an accompanying teachers pack full of activities and resource ideas on how to bring language learning into classrooms, based around the Tusome curriculum.

A key area of focus of my research was on how effectively teachers could create language learning environments through their pedagogical choices. I chose to look specifically at the extent to which teachers were able to create dialogic moments during their interactions with the children, borrowing a concept from Alexander (2018) who had suggested that where teacher-student exchanges in the classroom were longer, deeper and more sustained the children's vocabulary improved and they became better at participating in discussions. I understood from the literature on early language development that primary language learning happens most effectively where there is exposure to accessible adult language role models and through frequent, positive adult-child interactions. Being able to almost recreate this environment in the classroom through dialogic moments, seemed to be at least a partial step

towards increasing the opportunities deaf children had to acquire primary language. However, this challenges pedagogical assumptions held by teachers in Kenya and beyond, not least for the fact that Alexander and I both approach teaching from a UK context.

The Disability Studies in Education approach I used has allowed me to reflect on the extent to which a focus on dialogic moments in teaching is an appropriate model. I appreciate that the debate in education in the global North (and within international development) has for decades been focused on child-centred learning approaches moving away from the so called traditional didactic approaches where children are essentially passive recipients of the knowledge of the teacher. Group work, projects, creative play alongside teacher-directed learning are pedagogical approaches I was exposed to during my teacher training back in the 1990s and are familiar techniques to me. But as my discussions with teachers in Kenya confirmed, these are not core approaches they were familiar with.

In this respect I am mindful of the current work by critical disability study scholars such as Xuan Thuy Nguyen and Helen Meekosha. They seek to remind researchers like me that unchallenged and unarticulated Eurocentric perspectives can reinforce colonial assumptions that theories and practices from the global North have value over those originating in the global South (Meekosha, 2011; Nguyen, 2018).

I believe that a key strength of this research was in the creation of an action research group made up from Deaf and hearing Kenyans, all of whom had a direct interest in promoting understanding of deaf children's linguistic needs. I spent a lot of time in discussion with teachers and with members of the action

research group whose reflections and experiences form the basis of my findings. Moreover, many of the original academic sources I used when establishing my research question came from the global South, and Africa in particular.

Reflecting on my assumptions was a really important component of the participant-as-observer approach I had chosen. I vividly remember for example, T2L talking to me after one lesson when I had knelt down in front of a child to help them with a maths problem. I had not been conscious of this act nor the impact that it might have had on what the teacher or the child thought about me as an educator. To T2L it represented an entirely different approach, one that to them really challenged the authority and even dignity of the teacher role as they understood it to be. I just did it, as a deaf person to a deaf child, because it made it easier to communicate and as a teacher from the global North who had been used to using this approach with her own students. But it was an incident that sought to remind me of the many assumptions I was bringing to this research.

Further research from a critical disabilities perspective would benefit studies like this, by spending more time identifying what cultural and contextual practices would work best in enabling teachers to improve the language learning environment within early years classrooms. I feel that the creation of dialogic moments, that are accessible and meaningful for young deaf children is an approach that could fit many contexts, but this needs to be challenged by more localised research.

4. In summary

There are multiple factors which will be contributing towards the primary language deficit found to exist in Kenya. This research confirmed that Kenya does not have a new-born or early years hearing screening programme so that it is the responsibility of caregivers and allied health workers to request testing if they suspect there could be hearing difficulties. This leads to late diagnosis of hearing impairment, typically according to parents in my research, happening around the age of three to four years. This already means that opportunities for acquiring a primary language during infancy have been lost. Essentially the children are at risk of missing two of the three key parameters needed for language to develop naturally – that is exposure to adult language role models and appropriate adult-child interaction experiences (Kyle & Woll, 1994; Spencer & Marschark, 2010; Levine, et al., 2016).

The implications of the LPP-2 results were considerable in the sense that my sample of teachers all had children who were apparently functioning with low levels of primary language capacity. Whilst additional research will be needed to establish more rigorous protocols to improve the accuracy of the results for Kenya, nevertheless it provided evidence that in contexts such as this where screening and early years support is not routinely available, children can be entering formal education with significant primary language deficits.

Studies of early language fluency point to primary language being especially important for broader social and cognitive development (Cummins, 1989; Marschark & Knoors, 2012; Marschark & Hauser, 2012), as well as helping prepare children for learning in schools (Johnson, et al., 1989; Morford, 2003). This implies that primary language capacity issues could be a central factor in

limiting academic progress if it is not being directly addressed through early education programmes. By specifically focusing on primary language capacity, this research fills a significant gap in both the academic literature around deaf education in a low-income context and in the evidence-based research practices of international development programmes delivering inclusive education.

What I have established through this research is that there is urgent need for a change in approach towards conceptualising the early educational needs of deaf children. Policies, training, curriculums, teaching materials and all the programmes set up to promote the inclusion of deaf children in education need to move away from focusing on deafness as a barrier to learning, alleviated through the provision of 'sign language', towards acknowledging language learning as being the fundamental educational need for young deaf children. Funding, resources, and technical expertise are urgently required to develop deaf-centric, primary language focused early years curriculums which respond to the educational needs of deaf children in time to be able to address some of their language deficits.

5. Recommendations

Since this research is applied in its focus the recommendations that follow are aimed primarily at those working in the international development sector. They nevertheless also challenge the research community to continue diversifying teams to include those with lived experiences in the development and analysis of research.

The research has demonstrated that the introduction of a way for teachers to objectively profile the primary language levels of young deaf children by using

tools such as the Early Years Language Profiling tool helps highlight gaps in language acquisition. A key recommendation therefore is to expand the use of this assessment tool whilst continuing to gather data on results to build up a more accurate normative framework against which to measure language progress in deaf children.

This research showed that once teachers became consciously aware of the language deficit in the sample children, they were able to respond with more language-focused attention. However, their responses were limited because they had few tools or knowledge on which to draw. A further recommendation therefore is to support primary language focused interventions in early years education by developing techniques and resources for teachers to use. Currently, there is a pilot programme underway in Kenya being delivered by Deaf Child Worldwide in collaboration with KISE to further test the use of the Early Language Profiling tool alongside the provision of additional primary language focused teaching materials. The results of this pilot should be closely monitored because if successful, there would be scope for broadening out use of the tool and teaching materials beyond Kenya. More research on the implementation of the language profiling tool in different contexts would help to increase the evidence base around just how much primary language deficits are potentially influencing the academic journeys of deaf children.

A key factor in the creation of complex language environments which were harming the children's opportunities for developing primary language skills, came from the pressure teachers felt from following the national early years literacy curriculum. International education programmes such as RTIs influential Tusome early years literacy curriculum must in future be developed with the specific needs of deaf and disabled children built in from the start – not as an

accommodation to be retrofitted subsequent to formulation. The Tusome team admitted that their recommendations around using KSL signs to represent English spoken words was an inadequate response that had to be hurriedly put in place well after the programme had been devised. As this research has demonstrated, rushed and ill-considered accommodations have real world effects on teachers and deaf children and should not be repeated.

In the future it is recommended that those responsible for implementing Tusome, should properly evaluate the effect this curriculum is having on deaf children ensuring that Deaf researchers are part of the team. Deaf academics in the education sector in Kenya should be included in any team which is tasked with revising or developing curriculums for deaf education: a recommendation which would also apply to any country or development programme that is seeking to implement a curriculum which is inclusive of the needs of young deaf children.

Another key recommendation is focused around ensuring early years environments are set up to provide young deaf children with access to fluent adult language models with frequent and positive language interactions. The pre-primary school years are an excellent opportunity for schools to immerse young deaf children in fluent language to provide them with the essential language skills to take with them into their formal education. At this level the focus should be on helping the children catch up on the very early language experiences which they are likely to have missed. Deaf teaching assistants and teachers with fluent local sign language skills could make a significant difference by providing a single, consistent accessible language from which the children can build their primary language skills. With plenty of opportunities for

exposure to the stories, *dialogic moments*, and social interactions which they will most likely have missed in their earliest years.

Some opportunities are now being offered in the form of education technology. Programmes such as eKitabu's Digital Story Time initiative[11], which is helping to produce short, digital stories in KSL for use with young deaf learners, is a good example of where new technologies can help improve access for disabled children to education. This particular programme is significant because the focus is on modelling fluent KSL and they use Deaf children and adults in the production of stories, all of which closely follow the early grade reading materials already in use. These initiatives do offer a lot of potential and in the context of the schools for the deaf I observed, such materials would be of considerable advantage. The stories would certainly enable the deaf children to see fluent KSL modelled and if it was used as a central part of lessons by teachers, then it could certainly promote primary language development.

In and of itself however, this technology should not replace the need for a deaf-centric early years curriculum that focused on primary language development. Deaf children still require ongoing access to fluent adult language role models who can provide them with feedback, in the form of *dialogic moments*, conversations and interactions that enable them to build their confidence in using language whilst gaining important psycho-social skills.

Finally, going back to the original motivations for this research, there is a gap in inclusive education practice around the role of signed languages in the education of deaf children. 'Sign language' instruction to teachers, not deaf

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[11] See https://www.ekitabu.com/studioksl

children, continues to be promoted as a way to ensure classrooms are inclusive with the implicit (and sometimes explicit) assumption made that 'sign language' is an impairment accommodation. I would like this research to stimulate further evidence gathering, particularly by teams that are inclusive of Deaf academics, around what good education practices can address the considerable primary language deficits faced by deaf children in contexts where they are entering formal education with limited prior exposure to fluent language.

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APPENDIX 1 The Language Proficiency Profile – 2 protocol

The Language Proficiency Profile – 2 tool was developed to systematically evaluate the full range of language and communication skills gained by young deaf children (Bebko, et al., 2003). It's a tool for use in early language acquisition to help map out the extent to which deaf children have gained the basic building blocks required for further language and communication development. It was developed specifically for deaf children although due to its design, can also be used to assess language development of children with other language impairments.

Of interest to this study (and Deaf Child Worldwide) is not just the fact that it was developed specifically for language assessment of young deaf children but also that it is not specific to any one language. In essence it is designed to assess language function rather than vocabulary and therefore can be used in any language context without modification or the need for local psychometric validation.

It also takes into consideration all language modalities used by the children – this is not a tool that relies on spoken or signed responses but can accommodate whichever modality the child uses. This means it can work with children who have had a range of language inputs which is a common experience for deaf children of hearing parents. Once parents become aware their child is deaf there are different communication possibilities - local natural sign language, signed version of the local language, gestures (home signs), speech or a combination of any of these. So any single modality or language system assessment may not be adequate to cover the child's language

experience and therefore may not fully capture the child's linguistic and communication skills.

Many deaf children therefore have idiosyncratic language and communications skills before they enter the formal education system, so this tool was created as an assessment process that is essentially independent of language modality ('modality of expression').

The tool itself is based around five domains of language development, starting with the basic building blocks of form, content and use, followed by cohesion and reference. The latter two skills demonstrate the child is not only understanding language but is also becoming aware of the language environment. That they are gaining awareness of the needs of the listeners and are becoming more sensitive to the specific communication situation. A summary sheet enables the results to be easily referenced for later comparisons.

- Form - captures the structure of the language being expressed. At its earliest levels it allows the child to express single words or signs and goes on to capture how well the child can code all the elements of what s/he wants to express.
- Content – captures the kind of objects, actions and relationships that are reflected in the child's communication. For example the existence and disappearance of objects; rejection, denial, and causality.
- Use – captures the functional aspects of language including the child's ability to gain attention, interact with others, describe events and actions, create make-believe worlds, and influence the thoughts of others.

- Cohesion – captures how and how effectively the child links her/his communication with the things that precede it. This means being more able to control use of syntax, as well as understanding different perspectives, knowledge and the ideas of the other.
- Reference – captures the ability to describe or talk about things that are not in the room or are beyond the current context. Eventually that will include things that have no form at all such as rules or abstract relationships.

Introduction

The Language Proficiency Profile[12] is used to identify the developing language skills of children. Questions are presented in a sequence which reflects increasing language skills. The questionnaire is designed for use with children who may use a variety of means to communicate. Expressions like 'saying / signing' or 'words / signs' are used so that the questions can be used regardless of the mode of language used.

For each question, please mark the current abilities of the child.

The rating scale for each question has 5 options explained as follows:

Past this level	Give 2	Mark this option if this item <u>no longer</u> applies to the child (in several places this column is marked 'n/a'. This means that 'Past this level' does not apply to this question.)
Yes	Give 2	Mark this option if the child currently has this skill (you will easily be able to think of examples where the child has demonstrated this skill).
Emerging	Give 1	Mark this option if the child is beginning to show this skill (you have seen some examples but they are not yet consistently using this skill).
Not yet	Give 0	Mark this option if the child does not yet show this skill.
Unsure	Give 0	Mark this option <u>ONLY</u> if you've had no opportunity to observe this in the child.

NOTE: Please remember that some of the earlier items may no longer apply to an older child; these items represent the developing skills of a younger, less language proficient child, and should simply be marked 'Past this level'.

If you have questions regarding any of the items on this checklist, please make a note of them. We will address these questions as soon as possible.

---

[12] This tool was first designed by Bebko & McKinnon (2003) and has been culturally adapted for use in Kenya

FORM - This section is concerned with the general form of the child's communication. In addition, we are concerned with how easy it is to talk to the child, and how easily he/she communicates with others.

	Does [name]…	Past this level [2]	Yes [2]	Emerging [1]	Not yet [0]	Unsure [0]
F1	produce only single words / signs? Example: 'mama' or 'dog' or 'eat'					
F2	report what is really new or interesting with a single word/sign? Example: child says/signs 'dog' if a dog enters the room.					
F3	put two words/signs together? Example: 'Daddy bowl' or 'bowl fall'.					
F4	get their message across, even though important parts of the sentence are left out? Example: 'you chair there' meaning you [sit] in the chair over there'.					
F5	communicate a full and meaningful message, with nothing obvious missing (a positive response can be given even if they leave themselves out of the message). Example: 'we go to school'; 'go and play with Jo'.	n/a				
F6	have little or no difficulty being understood by strangers who use the same language?	n/a				
F7	tell short stories or narratives? Example: stories can be understood without the need for further questions					
F8	sometimes use a roundabout way of referring to things or events which they may not have words for? Example: 'the thing that you sit on' meaning a 'chair'; or 'when we saw that animal with the long neck?' to mean a 'giraffe'					

F9	usually keeps up a steady flow of conversation using accurate word-choices and common expressions?					

CONTENT – This area is concerned with what the child communicates about. That is, what kinds of objects, actions, and relationships are mentioned by the child?

	Does [name]…	Past this level [2]	Yes [2]	Emerging [1]	Not yet [0]	Unsure [0]
C1	discuss only things and actions which are visible and present in the current environment? Example: 'mama play' when Mum is in the room but would never communicate this if Mum was not present.					
C2	communicate about an object's disappearance or reappearance, but nothing more? Example: 'ball gone' when the ball goes behind the door.					
C3	comment on their own actions, or those that affect them directly? Example: 'I play ball'; or 'I want eat'					
C4	communicate about what other people are doing with objects? Example: 'Dada take ball' when Dad picks up a ball; or 'Mama have spoon' when Mum is cooking.					
C5	comment on actions he/she wants others to do or to stop doing? Example: 'Jess, stop holding dog'; or 'want mama give me banana'.					
C6	combine several ideas into a single expression? Example: 'I need a red pencil' expresses the child's need and the detail of what they need.					

C7	express something they want to do in the immediate future? Example: 'I want to go play with Jess'					
C8	communicate about things or events that are linked in time or are near each other? Example: 'There's a dog and there's a chicken'; 'Go to school and play and come home.					
C9	communicate about the cause and effect relation between two events? Example: 'She did it because she was angry'; 'I can't go to play until I finish my chores'					
C10	communicate about their own knowledge, beliefs and uncertainties? Example: 'I don't know how long it takes to get there'; or 'I am sure they are home now'.					
C11	communicate a wide range of experiences and any ideas within their intellectual capacity? Example: 'it was fun to play with the puppy and I wish I could have one of my own'.					
C12	describe clearly and completely the details of abstract systems, or things that have no observable form? Example: they can describe the rules of a game, or can describe how to multiply numbers.					

REFERENCE - This section is concerned with the child's ability to communicate about things which may or may not be present.

	Does [name]…	Past this level [2]	Yes [2]	Emerging [1]	Not yet [0]	Unsure [0]
R1	use only single words/signs usually when the person or object is present? Example: 'mama' when Mum is in the room.					

R2	use physical or other nonverbal ways to give more information about a single word/sign? Example: pointing at or holding a banana whilst saying/signing 'banana'.					
R3	communicate one part of the message using words/sign and a further part nonverbally? Example: saying/signing 'dress', then taking your hand and leading you to help them get dressed.					
R4	sometimes leave out the name of an object, assuming the listener knows what has been left out? Example: says/signs 'eat' but doesn't mention any food.					
R5	have the ability to express an entire message verbally or through sign? Example: 'I like playing with Molly'.	n/a				
R6	try to refer to things that are not present at the time? Example: when asked what did you do this morning they sign/say: 'ball play', meaning I played with the ball					
R7	refer confidently to things in both the past and the future? Example: 'I went to school yesterday'; or 'we are going to market tomorrow'.					
R8	describe several related events in both the past and the future? Example: 'Yesterday we went swimming in the river and tomorrow we will visit Grandma'.					
R9	refer to imagined situations and their outcomes? Example: 'If I had a lot of money, I could….'					
R10	give enough background information to help any listener understand a message that has a lot of new information? Example: being able to describe what they did at school today					

			Past this level [2]	Yes [2]	Emerging [1]	Not yet [0]	Unsure [0]
R11	describe clearly and completely the details of complex systems or things that are not present, to a person who doesn't know this information? Example: being able to describe how seeds germinate to produce plants and then fruit which can be harvested and eaten						

COHESION - This section is concerned with how the child maintains the flow of conversation. This includes the child's ability to take into account the perspective, knowledge and opinions of the other person.

	Does [name]…	Past this level [2]	Yes [2]	Emerging [1]	Not yet [0]	Unsure [0]
Cn1	mainly maintain the flow of conversation by repeating parts of what the other person has just expressed? Example: If Mum comments 'look, there's Grandma!' the child repeats 'Grandma'.					
Cn2	participate in the conversation by paying attention to and referring to the same object as the listener? Example: Dad is talking about how they are going to wash the dog whilst the child is looking at, maybe pointing to the dog and sometimes saying/signing 'dog'.					
Cn3	use parts of the questions asked by someone else to build their answer? Example: to the question 'what colour is the ball?', the child answers 'the ball is yellow'.					
Cn4	keep others in a conversation by asking questions about objects or people even though they may already know the answer?					

Cn5	volunteer new information about a topic that others have started in a conversation? Example: in a discussion about dinner the child says 'my friend Jo likes rice'.					
Cn6	ask others for more information about topics being discussed? Example: in a discussion about the weather the child asks 'where does rain come from?'.					
Cn7	participate in and follow, with ease, a one-to-one conversation as it moves from one topic to another?					
Cn8	have the ability to participate in and follow a conversation among many people, although they may not understand and/or remember specific details? Example: when sitting together with adults who are talking about their work, the child may occasionally make a relevant comment or ask a relevant question.					
Cn9	chat even with strangers, showing full understanding of the general meaning and details being discussed?					
Cn10	fully understands even unfamiliar details on topics of interest after they have been discussed? Example: after learning about how chicks grow inside eggs, then hatch, they can talk about this with others.					
Cn11	use a number of methods to fix conversations if there is a misunderstanding? Example: they can reword/re-sign or expand on a comment when it is clear the other person doesn't understand; or they can ask for more information if they do not understand.					

USE - This section is concerned with what the child uses language for, or what functions the language serves for the child at this age.

	Does [name]…	Past this level [2]	Yes [2]	Emerging [1]	Not yet [0]	Unsure [0]
U1	use language as if communicating with themselves or simply practising language and not expecting a response? Example: the child may repeat single words to themselves, 'mama, dada, nana'.					
U2	do any of the following: a) identify objects when asked? b) ask for objects or simple services? c) greet others spontaneously? d) protest the actions of others?					
U3	describe a broad range of their own actions on objects? Example: 'I play dog'; or 'I doll bed'.					
U4	identify objects and actions in pictures? Example: 'the girl is pushing the cart'; 'the children are running'.					
U5	describe people and objects in terms of both temporary (an emotional state) and permanent (size or colour) characteristics? Example: 'the man with the big hat is sad'.					
U6	communicate about the actions and intentions of others? Example: 'She wants to go, too'					
U7	use language to create and maintain made up worlds, such as play acting giving roles to different people and acting out their part in the play?					
U8	use language in active searches for information? Example: 'How do you make biscuits?' or 'What is the biggest animal?', or 'Where does Dada work?'					
U9	use language to report and question how one event contradicts another? Example:					

	'she cut her foot, but she didn't cry'.					
U10	use language as a tool for thinking? Example: when they are working through a maths problem, or working out what they are going to say to their friend tomorrow who they upset today.					
U11	try to influence others by expressing personal preferences? Example: 'Don't do that! I don't like it!'					
U12	try to influence others by giving reasons which relate to more general principles? Example: 'Don't play that game! It's against the law!'					
U13	use accurately any of the following verbs: a) apologise b) invite c) leave					

APPENDIX 2   UK and Kenya ethics approvals

UCL RESEARCH ETHICS COMMITTEE
OFFICE FOR THE VICE PROVOST RESEARCH

31st January 2018

Professor Nora Groce
Division of Epidemiology and Public Health
UCL

Dear Professor Groce

Notification of Ethics Approval with Provisos
Project ID/Title: 8285/001: Determinants of quality education outcomes for deaf children in low income countries. Language and the role of teacher and parental attitudes, expectations and skills in shaping educational attainment

I am pleased to confirm in my capacity as Joint Chair of the UCL Research Ethics Committee (REC) that I have ethically approved the data collection element of your study until **21st September 2021**. Ethical approval is granted on condition that recruitment does not commence until local research/ethics approval has been obtained in the study country with written evidence provided for our records. Also, it should be noted in the Participant Information Sheets and Consent Forms that confidentiality cannot be guaranteed in a focus group setting.

Ethical approval is also subject to the following conditions:

Notification of Amendments to the Research
You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an 'Amendment Approval Request Form'
http://ethics.grad.ucl.ac.uk/responsibilities.php

Adverse Event Reporting – Serious and Non-Serious
It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator (ethics@ucl.ac.uk) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

1

Final Report
At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL's Code of Conduct for Research: http://www.ucl.ac.uk/srs/governance-and-committees/resgov/code-of-conduct-research
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

With best wishes for the research.

Yours sincerely

Dr Lynn Ang
Joint Chair, UCL Research Ethics Committee

Cc: Lorraine Wapling

UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel:(254-020) 2726300 Ext 44355

KNH-UON ERC
Email: uonknh_erc@uonbi.ac.ke
Website: http://www.erc.uonbi.ac.ke
Facebook: https://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/247

June 22,   2018

Lorraine Wapling
PhD Candidate
Division of Epidemiology and Public Health
University College of London
lorraine@wapling.14@ucl.ac.uk

Dear Lorraine,

RESEARCH PROPOSAL –   THE STRATEGIES USED BY TEACHERS TO SUPPORT EARLY LANGUAGE DEVELOPMENT
IN DEAF CHILDREN IN KENYA   (P65/02/2018)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and
approved your above research proposal. The approval period is from 22nd   June 2018 – 21st June 2019.

This approval is subject to compliance with the following requirements:

   a)   Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
   b)   All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH-UoN
        ERC before implementation.
   c)   Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events
        whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of
        notification.
   d)   Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study
        participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72
        hours.
   e)   Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period.
        (*Attach a comprehensive progress report to support the renewal*).
   f)   Submission of an *executive summary* report within 90 days upon completion of the study.
        This information will form part of the data base that will be consulted in future when processing related
        research studies so as to minimize chances of study duplication and/ or plagiarism.

Protect to discover

For more details consult the KNH- UoN ERC website **http://www.erc.uonbi.ac.ke**

Yours sincerely,

PROF. M. L. CHINDIA
SECRETARY, KNH-UoN ERC

c.c.   The Principal, College of Health Sciences, UoN
       The Deputy Director, CS, KNH
       The Chairperson, KNH-UON ERC
       The Assistant Director, Health Information, KNH
       Supervisors: Prof. Nora Groce (University College of London), Dr. Maria Kett (University College of London),
                Prof. Joyce Olenja (School of Public Health, UoN)

Protect to discover

APPENDIX 3 Field study schedule

School	Week	Monday	Tues	Wed	Thur	Fri	Sat	Sun
Kwale county								
Kwale SD	1	KII EARC / local govt	am: School intro pm: obs	Obs	Obs	Obs FGD - teachers	FGD - parents	
	2	Tool application	Tool application	Post tool obs	Post tool obs	FGD - teachers	FGD - parents	
Kinango SD	3	KII EARC / local govt	am: School intro pm: obs	Obs	Obs	Obs FGD - teachers	FGD - parents	
	4	Tool application	Tool application	Post tool obs	Post tool obs	FGD - teachers	FGD - parents Travel	
Nairobi	5							
Nandi county								
Nandi - Deaf unit	6	KII EARC / local govt	am: School intro pm: obs	Obs	Obs	Obs FGD - teachers	FGD - parents	
	7	Tool application	Tool application	Post tool obs	Post tool obs	FGD - teachers	FGD - parents Travel	
Nairobi	8							

APPENDIX 4   Classroom observation sheet

A1. School ID	A2. Teacher ID
A3. Class	A4. Observation ID
A5. Date	A6. Researcher initials

A7. Lesson start time
A7_s. Lesson end time
A8. Number of children in the class

A9. Note the purpose / main topic of the lesson

B1. Seated in: Rows ☐ (1)   Circle ☐ (2)   Pairs ☐ (3)   Groups ☐ (4)

B2. Can all the children see the teacher	Yes ☐ (1)	No ☐ (2)
B3. Can all the children see each other	Yes ☐ (1)	No ☐ (2)
B4. Are the light levels in the classroom appropriate?	Yes ☐ (1)	No ☐ (2)
Comments		

B5.Does the classroom have visual materials on display?	Yes ☐ (1)	No ☐ (2)
B6. Are the displays relevant to the class?	Yes ☐ (1)	No ☐ (2)
B7. Does the teacher use or reference the displays?	Yes ☐ (1)	No ☐ (2)
B8. Does the teacher use additional TLMs?	Yes ☐ (1)	No ☐ (2)
B9. Do the children use additional TLMs?	Yes ☐ (1)	No ☐ (2)

Comments

C1. Does the teacher provide a clear introduction to the lesson   Yes ☐ (1)   No ☐ (2)

C2. Does the teacher facilitate an exchange of knowledge as part of the introduction?   Yes ☐ (1)   No ☐ (2)

C3. Do they enable children to talk about what they know or remember from the previous lesson?   Yes ☐ (1)   No ☐ (2)

C4. Number of child originated questions to the teacher

C5. Number of teacher directed questions to the children

C6. Number of child to child directed questions

D. Did the lesson include:	Tick all that apply	
group work	☐	(1)
work in pairs	☐	(2)
individual problem solving tasks	☐	(3)
individual copying from blackboard / text book	☐	(4)
whole class Q+A (teacher – student – teacher)	☐	(5)
whole class listen + learn (teacher to students)	☐	(6)
whole class listen + repeat (teacher – students – teacher)	☐	(7)
other activity – specify	☐	(8)

E. Note how the teacher:
1. gains the attention of the children
2. keeps the attention of the children
3. signals a change of activity

4. Is their style generally successful or are there any aspects they struggle with?

APPENDIX 5   Language observation sheet

School ID	Teacher ID
Class	Observation ID
Date	Researcher initials

Lesson start time
Lesson end time
Number of children in the class

Main language used by the teacher KSL ☐　　　SSE ☐　　　Mix KSL/SSE ☐　Other ☐ Comments

Main language used by the students KSL ☐　　　SSE ☐　　　Mix KSL/SSE ☐　Other ☐ Comments

Main language mode used by the teacher
Manual ☐ | SimCom ☐ | Oral only ☐ | Other ☐

Comments

Main language mode used by the students
Manual ☐ | SimCom ☐ | Oral only ☐ | Other ☐

Comments

Is there a clear separation between use of KSL and use   Yes ☐   No ☐
of English?

Comments

Form

Is the teacher….. encouraging children to form words / sentences / questions / statements in ways that everyone can understand

Content

Is the teacher…..encouraging children to develop the range of words available to them to describe different aspects of their lives including things like actions / time / thoughts / feelings

Use

Is the teacher…. encouraging children to be creative with language. Encouraging them to gain attention/hold a conversation/keep people interested/influence the thoughts or behaviour of others. Encouraging them to ask questions (why does this… why cant I…./ when can we… / what is that….), to describe things they like or dislike/make up stories/use language to solve problems

Cohesion

Is the teacher…. encouraging children to use language in a structured way. Paying close attention to their grammar/flow/placement. Encouraging them to keep the conversation happening; to ask for more information about the topic; to offer ideas or comments; to talk to others about what they have learned

Reference

Is the teacher…. encouraging children to talk about things that have happened or might happen in the future; to talk about things that are not in the room; to talk about how other people might think about things or situations; to be aware that people might have different opinions or beliefs

Is the teacher…. encouraging children to talk about things that have happened or might happen in the future; to talk about things that are not in the room; to talk about how other people might think about things or situations; to be aware that people might have different opinions or beliefs

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ANNEX 6   Focus Group guides

Teacher focus group discussion guide

<u>Training skills</u>

What kind of pre- and in-service training do teachers get as teachers of deaf children? Who provides this training? / what do you need to get onto the course? Is there any kind of ongoing professional development for ToD?

Do ToD meet together / have conferences / discuss latest ideas or challenges at all?

<u>Teaching assumptions</u>

What is perceived as being the main purpose of education for deaf children? What are the priorities in education for deaf children?

What do teachers assume to know about the specific needs of deaf children in education? What aspects of their pedagogy is directly aimed at overcoming the specific needs of deaf children? Or are they employing essentially the same techniques they would for hearing children?

What modes of language are regularly used by TOD – sign, manual coding, speech + speech reading, AVT, TC? Are the teachers aware of the differences? Do they employ different modes with different children?

<u>Teaching methods</u>

How are lessons planned? What factors contribute to the activities designed for each lesson? What happens in practice – how does the plan correspond to what transpires in the classroom?

How do teachers assess the progress of their deaf students? What criteria do they use? How do they implement it? How do the results impact on what and how they teach?

<u>Language development</u>

To what extent are teachers aware of the language needs of deaf children in education?

What are they doing currently to assess the primary language skills of deaf students? What are they doing to help build on the primary language skills of deaf students?

How do teachers conceptualise how deaf children acquire language?

What role do they believe sign language plays in the development of language?

Deaf Youth Focus Group Guide

Aim of this session really is to find out about what young deaf people think about their future; about their role in community; about what kind of barriers they face and the extent to which language might be a factor in their decisions

1. How far did each of you get in education? What subjects did you do well in? Which ones didn't go so well? Can you describe what it was about some subjects that made them difficult for you?

2. Can you tell us what you are doing now in terms of jobs / businesses / more training…? Is this what you want to be doing or do you have ideas about what you would like to do?

3. What is the general attitude towards you as young deaf people from potential employers, or from members of the public, community, training institutions….

4. Have any of you had any negative experiences you are willing to share about interaction with hearing people? Any really positive experiences?

5. How do you communicate with your family; friends; neighbours; employers or colleagues?

6. Do you think there is enough awareness about deaf people's rights, about language like KSL? If not, what would you like to see happen in the future.

Parent Focus Group Guide

The aims of the parents group meetings is primarily to look at what the home environment is like for the children outside of school. The extent to which parents feel able and capable of supporting their child / what they see as being their role in providing language input / how they see their child's language developing. It's also an opportunity to look at what attitudes are like for parents and children / the extent to which their children play with their peers and how they use language in the home environment.

Initial diagnosis

1. Can you explain to us when you first became aware that your child was (or could be) deaf? How old was your child? What prompted you to think the child may have a hearing impairment? Who provided you with the final diagnosis?

2. How did you react to the diagnosis? How did your family react? Have you had any kind of support (local or through government etc) - if anyone has can you explain to us what support you have had?

3. What is the attitude of the community generally towards deaf children?

Communication

5.   What do you believe or feel the main challenges to be for your child?

6.   To what extent does your child play and interact with his/or siblings, neighbours? A lot; some; not at all? Explain what your child does when they are home.

7. Do you feel you are able to communicate with your child? That you understand what he/she is needing/wanting or asking? How do you communicate with your child?

8. What do you see as being your role in helping language to develop in your child?

9. Have you seen their communications skills develop? If you have, what do you think has contributed to this development.

10. What do you hope your child will achieve in the future?

ANNEX 7 Key Informant guides

EARC coordinators

Background

1. How do you become an EARC officer? What are the qualifications etc

2. What are your main job responsibilities? How has this/ will this change as a result of becoming curriculum support officers?

Role

3. How are deaf children identified and processed for admission by the EARC? Do you have a database?

4. What audiological assessment takes place and are children assessed for hearing aids? Do any of the children have them?

5. Do you provide any kind training to teachers and/or parents on the correct fitting, use and maintenance of hearing aids?

6. What kind of contact do EARC staff have with parents (quantity / quality)?

7. To what extent are parents involved in the education of their deaf children?

Head Teachers

Background

1. How many children are there in the school (boys & girls)?

2. How many qualified teachers do you employ? How many assistants and/or volunteers do you have?

3. What is the average class size?

4. Can you show me the exam results for the past four years?

General information

5. What do you consider are the main challenges faced by educators of deaf children?

6. What is your school's teaching approach? Which communication method do you promote?

7. How are school placements funded? Is there a separation between per pupil and capital costs?

8. Where do you see the future of deaf education in Kenya over the next 5-10 years?

1. Can you provide us with a basic outline of the course you provide for teachers who want to train to teach deaf children at lower primary level

2. Do teachers get any further opportunities for professional development once they have qualified as special needs teachers?

3. Do mainstream teachers get any professional development on teaching deaf children in mainstream classes?

4. Can you now explain what aspects of pedagogy are covered specifically in relation to teaching deaf children? What do teachers learn about the way deaf children learn?

5. What role does KSL play in a) teacher training for Teachers of the Deaf, and b) classroom practice?

6. What do special needs teachers learn specifically about the language development needs of deaf learners?

1. Can you provide us with a brief overview of the TUSOME programme and how it came about?

2. Is Tusome a phonics-based literacy programme?

3. What considerations were made when Tusome was developed for learners who a) have not yet acquired a Mother Tongue? b) are not able to utilise aural/oral learning approaches?

4. How were the lesson plans developed and tested?

5. What plans does the programme have for evaluating the effectiveness of the programme for children with disabilities (especially deaf children)?