Sign language research in Ghana: An overview of indigenous and foreign-based sign languages

MARY EDWARD[1] / GEORGE AKANLIG-PARE[2]

[1] University of Brighton
maamedward@gmail.com

[2] University of Ghana, Legon
gakaling-pare@ug.edu.gh

ABSTRACT

The recognition of sign language as a full-fledged human language with linguistics description has led to several research works in both theoretical and applied linguistics considering different aspects. The present study extends this research to the Ghanaian context, with the aim of providing an overview of past and current research on indigenous and foreign-based sign languages in Ghana. We considered published and unpublished works from Ghanaian and foreign researchers and synthesized these to know the areas that have been covered. We specifically explored research on indigenous sign languages in Ghana; the contributions of Dr Andrew Foster in sign language literacy; research on foreign-based sign languages in Ghana; language contact, language vitality, language documentation and other sociological issues. We discussed our findings with respect to the descriptive analysis of sign languages in Ghana: vitality and vulnerability of different sign languages in Ghana. Relevant to our paper is the vulnerability and the possible endangerment of indigenous sign languages in Ghana. We argue that indigenous sign languages in Ghana risk endangerment, whereas foreign-based sign languages have potential for development. We suggest the involvement of local linguists in documentation, research, and the analysis of SLs in Ghana to ensure the survival of indigenous SLs and increased research on SLs in Ghana.

KEY WORDS: sign language, Ghana, indigenous, foreign-based, overview

MARY EDWARD AND GEORGE AKANLIG-PARE
Sign language research in Ghana

1. Introduction[1]

The recognition of sign languages as a full-fledged human language with linguistics description (STOKOE 1960) has led to several research works in both theoretical and applied linguistics considering different aspects. Prior to the 1960's there were varied opinions on the acceptability of sign languages as full-fledged human languages. There were attempts to educate deaf students with speech and the mode of education relied on the oral approach (or oralism). The Milan Conference in 1880 brought on board Deaf educators from different countries. The resolution of the Conference was that oral education was better than manual (sign) education. The President of the Milan Conference, Giulio Tarra quoted that "[g]esture is not the true language of man which suits the dignity of his nature" (LANE 1984: 393, cf. WILCOX 2004: 121). The infamous Milan Conference of 1880 on Deaf education concluded that oralism (speech) was better than manualism (signs) and banned the use of sign languages in schools. The battle for the acceptability of sign languages as the languages of instruction for Deaf education proved futile. In the early 20th century, psychologists, educators, and some linguists maintained that sign language is "harmful for intellectual and educational development" (WILCOX 2015: 667). Other discussions at the Milan Conference made claim such as "[o]ral speech is the sole power that can rekindle the light God breathed into man" (LANE 1984: 393, cf. WILCOX 2004: 121).

The acceptance of sign languages as a medium of education in America and most European nations came in the late 20th century. Meanwhile indigenous Deaf communities in Africa used local sign languages for intra-community communication even when Europe and America still battled with the acceptance of sign languages in schools. The years after Stokoe's monograph, several linguists, anthropologist etc. have conducted other research on the internal structure of sign languages of the world, the sociolinguistics of Deaf cultures and the socio-dynamics of Deaf lives. For example, VALLI et al., (2011), JOHNSON and SCHEMBRI (2007) and SUTTON-SPENCE and WOLL (1999) have done intensive studies on the linguistic structure of American Sign Language (ASL), Australian Sign Language (Auslan), and British Sign Language (BSL). Other works on sociolinguistics of the Deaf community and sign language include, among others, LUCAS (2001a, 2001b), SCHEMBRI and LUCAS (2015), METZGER (2000) on bilingualism and identity, and PADDEN and HUMPHRIES (2009) on Deaf culture. Sign languages share the major linguistics features with spoken languages across

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[1] Some sections of the introduction, section 5 and section 6 were adapted from EDWARD's PhD dissertation (2021b).

the main linguistic levels of analysis. In other words, both signed and spoken languages exhibit similar properties of language structure, i.e. both have phonology, morphology, semantics, syntax etc. (SANDLER and LILLO-MARTIN 2006; PFAU, STEINBACH, and WOLL 2012).

Other research on sign languages have identified typological differences at distinct levels of linguistic analysis including number/counting, kinship terms, colour, negation, iconicity, simultaneous constructions, sign space etc. (ZESHAN 2006; PERNISS, PFAU, and STEINBACH 2007; ZESHAN and PERNISS 2008; DE VOS and PFAU 2015). For example, urban and rural dichotomies are based on specific features of the sign languages (see ZESHAN 2006; DE VOS and PFAU 2015). Urban sign languages refer to national sign languages and sign languages of education. Rural sign languages refer to sign languages that are used in communities with high incidences of genetic deafness and are typically used for communication between deaf people and between deaf and hearing people. One major difference between urban and rural sign languages is the size of the signing community; urban sign languages have quite large communities of use compared to rural sign languages. Cross-linguistic studies on rural sign languages have identified some lexical and grammatical variations among rural sign languages and these mirror to a large extent what has been identified in urban sign languages (DE VOS and PFAU 2015).

In Sub-Saharan Africa, Deaf education has been closely linked to the arrival of Rev. Dr Andrew Foster (KIYAGA and MOORES 2003). Further, African sign languages are grouped into indigenous, foreign-based, and foreign sign languages (NYST 2010). Whereas indigenous African sign languages are native to African communities, foreign-based African sign languages started mostly with Andrew Foster's sign language educational tours in Africa. Most foreign-based sign languages used across Africa are believed to be offshoot of ASL. On the other hand, NYST (2010) mentions that ASL and French Sign Language (LSF) are used in different parts of West Africa. These are categorized as foreign sign languages.

Indigenous Deaf communities in Africa represent a diverse meeting of individuals who come together for many purposes. The priorities of such Deaf communities include Deaf identity, Deaf customs, dissemination of information (politics to religion) and more recently the advocacy for Deaf-centred education in an accessible language (i.e. signed language) and the campaign for the inclusion of signed languages as part of the national languages (EDWARD 2021a). Furthermore, Deaf cultures in Africa are defined by shared beliefs, values, customs, behaviours, and shared institutions of communities that are influenced by deafness and which use sign languages as the main means of communication. Foreign-based and foreign sign languages were gradually introduced into sub-

Saharan Africa communities mainly through evangelization. Although religion has played a major role in the evangelization of Deaf communities and the gradual introduction of foreign-based sign languages in most Sub-Saharan African communities (KIYAGA and MOORES 2003; MILES 2005; EDWARD 2015b;) most "indigenous African sign languages have escaped the infiltration of foreign sign languages and have survived with little or no exposure to foreign sign systems" (EDWARD 2021a: 2). Most of these indigenous sign languages that escaped the infiltration of foreign systems are mostly used in villages or rural communities and/or until recently were unknown to the urban Deaf communities and researchers (e.g. Magajingari Sign Language, MgSL in Kaduna, Nigeria).

Contrastively, the internal battles with urban (foreign-based) African sign languages continue and in Nigeria, the school-based sign is referred to as ASL by most Deaf and hearing users (ASONYE, EMMA-ASONYE, and EDWARD 2018). Furthermore, foreign-based sign languages across Africa seem to influence some indigenous sign languages. For example, EDWARD (2015b) comments on the gradual but forceful baptism of Adamorobe Sign Language (AdaSL) signers into Ghanaian Sign Language (GSL). Amid these internal and external battles between foreign-based sign languages and some indigenous sign languages, there remain few (if not more) indigenous African sign languages that are yet to be "discovered". The recent "discovery" of Magajingari Sign Language (MgSL) in Magajingari community in Kaduna North, Nigeria (ASONYE and EDWARD, forthcoming) shows that there are probably more indigenous sign languages in Africa that are still unknown to linguists. There is the tendency for some sign languages to receive more attention than others. Sign languages used in homes and villages stand the risk of endangerment because of the following reasons: lack of users, gradual decline in their domains of use, lack of documentation, etc. The dearth of linguistic research and language revitalisation programmes in most indigenous African sign languages have caused these languages to be moribund (EDWARD 2021b). The lack of academic research on several indigenous African sign languages has also made it difficult to compare the linguistic structures of these sign languages.

The present study extends this narrative to the Ghanaian context, with the aim of providing an overview of past and current research on indigenous and foreign-based sign languages in Ghana. We considered published and unpublished works from Ghanaian and foreign researchers and synthesized these to know the areas that have been covered. We specifically explored research on indigenous sign languages in Ghana (FRISHBERG 1987; NYST 2007a; KUSTERS 2014a; EDWARD 2015a, 2015b, 2021b); the contributions of Dr Andrew Foster in sign language literacy

in Ghana (KIYAGA and MOORES 2003; RUNNELS 2017; AMOAKO 2019); research on foreign-based sign language in Ghana (EDWARD 2014, 2021b; AKANLIG-PARE 2013, 2014; MACHADJAH 2016); language contact, language documentation and other sociological issues (EDWARD 2015b, 2018a; AKANLIG-PARE 2018; KUSTERS 2019; AKANLIG-PARE and EDWARD 2020).

2. Purpose of the overview

The purpose of this review is to provide an overview on past and current research on indigenous and foreign-based SLs in Ghana focusing on both linguistics and sociolinguistics research. We considered both peer reviewed research works, theses, books, conference presentation and other unpublished documents on linguistic research on sign languages in Ghana, Deaf culture, Deaf community. We systematically provide a review of the works that have shaped the narratives of Deaf communities in Ghana and their languages.

3. Method

We used several methods for including the materials and information used in this research work. Most importantly, all works considered for inclusion in the review were either Ghana centred or makes mention of a Ghanaian sign language, Andrew Foster's contribution to Deaf education and sign languages in Ghana, sociolinguistics of Deaf communities in Ghana, teaching, and interpreting sign languages in Ghana. We excluded works that focused *only*[2] on any of the following: financial problems of deaf people, sexual and reproductive health, eye problems in Deaf people, marriage patterns/problems of Deaf people, Deaf-blind education, and parental experiences of raising deaf children.

The criteria for inclusion include the following:

  I.   Peer reviewed research works on sign language linguistics, sociolinguistics, and socio-cultural and demographic issues of Deaf people and the Deaf communities in Ghana.

 II.   Theses focused on sign language linguistics and sociolinguistics.

III.   Published and unpublished conference presentations and research works presented to both academic and non-academic audiences focusing on sign language linguistics and sociolinguistics issue in the Deaf communities in Ghana.

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[2] If a work combines any of the excluded topics together with language or linguistic implications, it was considered in the review.

IV. Forthcoming papers and chapters on sign language linguistics and the sociolinguistics of Deaf people in Ghana.

4. Andrew Foster

Andrew Forster (1927-1987), a pioneering deaf African American missionary, is believed to have provided the single and the most important contributions to the education of deaf Africans in the colonial and postcolonial periods (KIYAGA and MOORES 2003; RUNNELS 2017). However, this act of Andrew Foster has also led to the assumption that African sign languages which emerged out of Foster's sign language classes are variants of American Sign Language (NYST 2010). According to RUNNELS (2017), Andrew Foster has become a legend in the Deaf African history.

From the detailed research of MILES (2004, 2005) we have come to know that indigenous Africans had a vibrant *Deaf culture* with the use of sign languages for communication. These indigenous *Deaf communities* were not influenced by the Americanization of African sign languages and although most stand at the brink of endangerment (EDWARD 2015b), their unique features that distinguish them from the foreign-based African sign languages cannot be overemphasized (EDWARD 2021b). Andrew Foster established 31 schools for the Deaf across Africa, trained deaf leaders, and introduced Total Communication, which embraced both American and indigenous signs (KIYAGA and MOORES 2003). Many researchers believe that Foster introduced ASL during his missionary work in Africa (KIYAGA and MOORES, 2003; NYST 2007a).

Reviewing the work of Andrew Foster in Africa, RUNNELS writes that "the literature overwhelmingly suggests that Foster was drawn to serve in Africa as a missionary, though some authors insinuate that Pan-Africanism guided Foster to Africa" (2017: 246). The literature heralds Andrew Foster as more interested in the "souls of men" (RUNNELS 2017). Foster is believed to be the pioneer of Deaf education in Ghana as there was no known record of any institutions focused on Deaf education in Ghana before his arrival (KIYAGA and MOORES 2003). OKYERE and ADDO (1999) write that in 1957 Foster found that "unknown numbers of deaf children were illiterate, languageless, and isolated" in Ghana (cf. RUNNELS 2017: 246). Although OKYERE and ADDO (1999) claim that there was no sign language in Ghana before Foster arrived in Ghana (cf. RUNNELS 2017), we know from other researchers (MILES 2005) that AdaSL was in existence before the arrival of Foster in Ghana. Ghanaian Sign Language (GSL) developed from the sign language introduced by Andrew Foster in 1957 and it is representative of Ghanaian society and Ghanaian culture. According to AMOAKO, Foster's contribution to deaf

education in Ghana cannot be overemphasized and suggested "the need to eulogize him to inspire the upcoming future generation of the youth" (2019: 9).

5. Indigenous sign languages in Ghana

Research on indigenous sign language in Ghana started in the 1980s and earnest research begun in the 2000s as both local and foreign linguists got involved in the description of these indigenous sign languages and their linguistic features. FRISHBERG (1987) was the earliest linguistic research on an indigenous Ghanaian sign language. She was the first to coin the term AdaSL for Adamorobe Sign Language. Indigenous sign languages in Ghana have distinct *Deaf Cultures* and *Deaf Communities*.

Deaf Culture is defined as a system of shared beliefs, values, customs, behaviours, and shared institutions of communities that are influenced by deafness and which use sign languages as the main means of communication. Deaf Community represent a diverse meeting of individuals who come together for many purposes but who share some basics of experience, communication and commitment and communicate in signed language with a commitment to support other deaf people and to have a place to meet (see HOLCOMB 2012).

5.1 Adamorobe Sign Language (AdaSL)

AdaSL is an indigenous village sign language used in the Adamorobe community in the Eastern Region of Ghana and believed to have existed as far back as 1733 as a language used by both hearing and deaf people in Adamorobe (OKYERE and ADDO 1994). The community is noted for its unusually high incidence of hereditary deafness. NYST categorize Adamorobe as a shared signing community with "incidence of deafness that is several times higher than 0.1%" (2012: 553). NYST (2007a) identified the incidence of deafness in Adamorobe as 2% of the total population. However, EDWARD (2018a) identified the reduction in the number of Deaf individuals in the community.

The reason for the reduction has been attributed to the law instituted by their former chief that prohibited marriage between two deaf people (NYST 2007a; KUSTERS 2012a) and the migration of different people into the community (EDWARD 2018a). NYST quoted that "former chief Nana Kwaakwa Asiampong II prohibited marriage between two deaf persons" (2007: 28). Currently, AdaSL is used by around 40 deaf people (adults and youngsters) in a community of about 3000 people representing 1.3% of the total population (EDWARD 2021b). AdaSL is independent of GSL and of the surrounding spoken language, the Akuapem Twi

dialect of Akan (an indigenous Ghanaian language), though there is some influence of the Akuapem Twi on AdaSL structure (NYST 2007a).

MILES (2004, 2005) reports that deaf people in Adamorobe were the first substantial historical group of African people known to have used a formal sign language and the record dated as far back as the 18th century. Other researchers have cited different historical accounts on the co-existence of deaf and hearing people in Adamorobe (NYST 2007a; KUSTERS 2012a, 2012b; OKYERE and ADDO 1994). All researchers working on AdaSL have cited the old age of the sign language in comparison with GSL. AdaSL also has a long tradition of usage by both deaf and hearing people. Earlier research done in Adamorobe discovered that almost everybody in the village could communicate in the sign language (FRISHBERG 1987). However, current research on AdaSL indicates a decline in the numbers of hearing signers. (EDWARD 2018a).

The most detailed linguistic research on AdaSL was done by NYST (2007a). Since 2004, Nyst has made an enormous contribution to the linguistic research done on AdaSL, focusing on the general description of AdaSL to specific details like the expression of size and shape, iconicity, simultaneity and possession (NYST 2007a, 2007b, 2008, 2016). Nyst's PhD dissertation describes in detail the phonology, semantics, expression of size and shape, expression of motion, kinship terms etc. Nyst (2007a, 2007b) identified the absence of entity classifiers for motion events in AdaSL, the absence of observer perspective, and the very little simultaneous packaging in AdaSL. For example, on entity classifiers, NYST quoted that "AdaSL does not use a system of entity classifiers to express motion in space" (2007a: 195). Concerning simultaneous constructions (SC), NYST was of the view that AdaSL has less frequent SCs "than in the signed languages studied so far on this topic" (2007b: 142). Her study on AdaSL also identified that "[n]ot only are fewer instances found", but "also the types of simultaneous constructions used in AdaSL appear to be limited" (NYST 2007b: 142). Furthermore, NYST identified that in AdaSL, there is a restriction to real-size signing and the "absence of object or entity classifier predicates expressing motion or location in space" (2007b: 142) as well as the "absence of entity classifier expressing motion in simultaneous constructions" (NYST 2007b: 143). NYST (2008) also identified and described different structures used to express existence and possession in AdaSL.

EDWARD (2015a) investigated iconicity in AdaSL focusing on the expression of time, size and shape, directional verbs, emotive and cognitive signs. Edward concluded that different resemblance mappings exist in AdaSL. Edward's PhD focused on investigating iconicity (form-meaning resemblance mappings) in AdaSL and GSL and compares AdaSL with GSL focusing on the following domains: lexical items, spatial representation, and simultaneous constructions

(EDWARD 2021b). She identified different types of simultaneous constructions (SC) in AdaSL, the presence of entity classifiers in SC and the use of observer perspective in AdaSL (EDWARD and PERNISS 2019; EDWARD 2021b). These new findings do not corroborate with some of the results found by NYST (2007a, 2007b) and Edward attributes these to the possible language contact between AdaSL and GSL.

Other research on AdaSL considered language contact, language vitality, language documentation and other sociolinguistics issues (Kusters 2012b, 2014b, 2019; EDWARD 2015b, 2018a, 2018b;). Annelies Kusters' work on AdaSL presents anthropological and sociolinguistic perspectives. Unlike NYST (2007a) and EDWARD (2015a, 2015b) who perceive AdaSL as an endangered language, KUSTERS (2012a) is of the view that AdaSL is a thriving language because the users have positive views towards their language. KUSTERS (2012a, 2012b, 2014a, 2019) and EDWARD (2015b, 2018a, 2018b) are important to the general understanding of the societal depiction of AdaSL especially from the sociolinguistic perspective.[3]

5.2 Nanabin Sign Language (NanaSL)

Another indigenous sign language in Ghana that has received some attention is Nanabin Sign Language (NanaSL). NanaSL emerged within a family with a high incidence of hereditary deafness in Ekumfi in the Central region of Ghana (NYST 2010). NanaSL is believed to be the first language of about 25-30 users. Nyst also noted that some members of the second-generation users of NanaSL have received formal education in GSL and are bilinguals in NanaSL and GSL. NanaSL and AdaSL are not mutually intelligible but have similar articulatory features and use of sign space (NYST 2010). According to Nyst, the similarities in lexicon result from similarities in the conventional gestures for these concepts in the Akan culture and other iconic motivations. According to Nyst, NanaSL hardly seems to make any use of observer perspective.[4]

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[3] Other research on AdaSL include an undergraduate thesis presented to the University of Ghana's Department of Linguistics in 2012 that compared certain aspects of AdaSL and GSL (written by Yoni Paa Kwesi Howard).

[4] An undergraduate thesis presented to the University of Ghana's Department of Linguistics in 2018 focused on kinship terms in Adamorobe, Nanabin and Ghanaian Sign Languages (written by Daisy Naa Ayorko Tagoe)

5.3 Home sign systems in Ghana

Home sign systems are developed based on gestures in the homes of deaf people and are only used within the family for communication (TORIGOE and TAKEI 2002; COPPOLA and NEWPORT 2005). COPPOLA and NEWPORT define home sign system as the gestural communication that often arises spontaneously when a profoundly deaf child grows up within a hearing family where none of the family members knows a conventional sign language and the deaf person is not in contact with other deaf people who use sign language. Although there have been no detailed studies on home sign systems in Ghana, several encounters with deaf people who grew up in predominantly hearing homes indicates that different gestural communications are used in homes.

6. Foreign-based and foreign sign languages in Ghana

Through the effort of Andrew Foster, Deaf education begun in earnest in some African countries including Ghana. The language of education in Foster's schools is believed to be ASL and indigenous signs (KIYAGA and MOORES 2003). The sign languages that emerged out of these lessons have been identified as foreign (NYST 2010) as compared to the indigenous sign languages in Africa. In this section we shall consider research on Ghanaian Sign Language (GSL) which emerged out of Foster's deaf schools and literacy tours, and ASL which is used subtly in some places in Ghana.

6.1 Ghanaian Sign Language (GSL)

GSL is the sign language of the urban deaf community and the language used in Deaf education in Ghana. Deaf people who have not gained formal education or Deaf students who attend mainstream schools (without sign language interpretation) are only introduced to GSL by other GSL users in the community. The number of people who use GSL as either a first or second language in Ghana is unknown. Linguistically, GSL is distinct from AdaSL, NanaSL and other home sign systems used in Ghana. GSL developed from the sign language introduced by Andrew Foster in 1957 and it is representative of Ghanaian society and Ghanaian culture. Although GSL is yet to receive official status (AKANLIG-PARE 2019), it is currently used in education, mass media and urban religious meetings in Ghana that incorporate sign language interpretation.

GSL has an elaborate grammar just like any developed sign language. It is an urban sign language with an alphabet system. GSL and ASL use the same one-handed alphabet system. GSL also shares similarities with other urban sign languages like Nigerian Sign Language (NSL). Andrew Foster's engagement with

Deaf education in Africa has contributed to some of the similarities shared by GSL, NSL and ASL. The national television in Ghana uses GSL to interpret to deaf people and other users of GSL. Linguistic research on GSL is recent. It is the first and only sign language in Ghana to have a fully developed dictionary (OKYERE and BOISON 2001; OPPONG 2007; MCGUIRE and DEUTSCH 2015). OPPONG (2007) and MCGUIRE and DEUTSCH (2015) include information on description of the signs.

Different researchers have investigated different computer assisted models to aid the learning of GSL (OSEI 2012; AZUTIGA, BAMIE, and DANSIEH 2015; ODARTEY, HUANG, ASANTEWAA, and AGBEDANU 2019). Some institutions have also developed app and web-based repositories for GSL for the easy learning by both Deaf and hearing people (AyeleFoundation, n.d; HANDS!Lab 2020). The HANDS!Lab dictionary and the AyeleFoundation dictionary are available online for free. The phone version of the HAND!LAB's GSL dictionary works both with and without internet and therefore the best GSL "on-the-go" dictionary for Ghanaians without access to internet.[5] In addition to computer assisted projects, collaborations have been made to enrich the interpreter and professional development programs (MARONEY et al. 2018) for GSL interpreters.

In 2010, through funding received from the British government, the first linguistic GSL curriculum was developed for use in the Department of Linguistics at the University of Ghana. A series of video lessons on aspects of the phonology, morphology, and syntax of GSL were developed by a team led by Zeshan Ulrike at the University of Central Lancashire, and George Akanlig-Pare, Francis Boison and Marco Nyarko Stanley of the Department of Linguistics, University of Ghana. Several bachelor and master's theses have been produced through this program to date.

Other research on aspects of the phonology, morphology syntax of GSL have been done by Edward (2014) and Akanlig-Pare (2013, 2014).[6] These works developed a comprehensive document on the phonology, morphology, and syntax of GSL. For example, the phonological description looked at the Articulatory Parameters (Handshape, Orientation, Location and Movement), Nonmanual markers, Minimal pairs and Free variation based on recorded data taken from GSL signers. The morphological aspects that were described were the simultaneous morphology of classifiers and verb agreement, and the sequential morphology of affixation and reduplication. On syntax, different sentence types

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[5] Internet is needed to install the app but not for using the app. The app operates on smartphones.

[6] An undergraduate thesis presented to the Department of Linguistics at the University of Ghana in 2012 considered some aspects of GSL morphophonology (written by Mary Edward).

are determined by the signer's facial, eye, head, and shoulder movements. MACHADJAH (2016) described number marking in GSL and working with students from a nearby School for the Deaf, he collected data from students representing ten regions of Ghana. MacHadjah's research identified several strategies that signers used to mark singular, plural, dual, paucal etc.

An investigation of iconicity in GSL in lexical item, spatial relationships and simultaneous constructions has revealed interesting similarities and differences between GSL and AdaSL (EDWARD 2020, 2021b). Edward identified that GSL's influence on AdaSL through the possible contact of the two languages has caused AdaSL signers to use structures belonging to GSL (EDWARD and PERNISS 2019; EDWARD 2021b).

6.2 American Sign Language

Although not much has been done on the nature of ASL as used by some deaf signers in Ghana, researchers have identified its infiltrating effect. NYST (2010) is of the view that ASL is used in the West African countries of Ghana, Benin, Burkina Faso, Cote d'Ivoire, Liberia, Mauritania, Mali, Nigeria, and Togo. This assertion by Nyst is supported by EDWARD (2015b) who identified that certain religious meetings in Ghana are conducted in ASL as compared to GSL because the interpreters are trained in ASL. More recently, EDWARD (2021b) identified that some GSL signers used lexical signs borrowed from ASL to name household tools and objects in GSL. Furthermore, the availability of ASL materials has made it accessible to many religious groups that teach sign language in their meetings (EDWARD 2015b).

7. Sociolinguistic issues

This section explores the sociolinguistics of sign languages in Ghana. These sign languages include mainly the native sign languages, namely Ghanaian Sign Language (GSL) and Adamorobe Sign Language (AdaSL) as well the American Sign Language (ASL) which undoubtedly is the root of GSL. The sociolinguistic issues discussed in these literature cover socio-cultural and demographic issues, and language contact and its ramifications which may lead to language endangerment. The literature also include language documentation in both print and electronic.

7.1 Socio-cultural and demographic issues

The bulk of the literature on sign language in Ghana is devoted to the socio-cultural reconstruction of deafness, mostly with regard to the deaf in

Adamorobe, a village at the foot of the Akwapem ridge in Eastern Region of Ghana. Adamorobe presents a good scenario for doing this because of its proportionately high numbers of deaf people living side by side with hearing people, who wield more economic and social power over the deaf. Adamorobe is a multilingual community where in addition to the native Adamorobe Sign language, GSL is also used. Some members of the Hearing community in Adamorobe also sign. However, the siblings and the children of the Deaf individuals are more proficient in signing. Other languages, predominantly Akwapem Twi (Akan) and English are also used by the Hearing people in Adamorobe.

A sharp contrast can be seen between the social and economic situations of deaf people and the hearing in Ghana. Even among the deaf, there are differences between the status of those who live in the cities and those in the village. Due to obvious reasons, the Deaf are marginalized in all spheres of life. They are predominantly nonliterate, or barely have education usually not beyond basic education. As a result, they are barely equipped with any employable skills, and consequently are not gainfully employed. The misery borne out of poverty facing them is recounted in EDWARD (2018a). In this article, the author makes a comparison between the status of two hearing impaired couples, one living in Adamorobe, a rural setting, and the other in Accra the capital city of Ghana. Due to communication barriers, and lack of good quality education, both couples are disadvantaged in a predominantly speaking community. But the weight of this marginalization is more on the rural couple who live in abject poverty, where negative societal norms do not allow them to have access to basic amenities such as good housing, health facilities, and education. This situation, the author blames on absence of progressive governmental policies on disability, and on deafness in particular.

KUSTERS (2015) presents an ethnographic study on *Deaf Spaces* in Adamorobe. The study details the history of the origins of deafness in Adamorobe. These were referred to as the six legends about the origin of deafness in Adamorobe. NYST (2012) and KUSTERS (2015) describe Adamorobe as a "shared signing community" where deaf and hearing people live together. KUSTERS (2015) describes vividly the dynamics in the shared signing community and explain that the Deaf do not live in a social paradise as they have to strategize to be able to cope up with the exigencies of life by creating their own physical space, and network among themselves.

The obnoxious law banning deaf-deaf marriages promulgated in 1975, ostensibly to reduce the rate at which deaf children were born to such couples, is discussed by NYST (2007a), KUSTERS (2012a, 2015) and EDWARD (2018a). The downside of

this law is that a hitherto rich deaf culture and a thriving sign language is endangered (KUSTERS 2015; EDWARD 2015b). The integration of deaf people in the shared community of Adamorobe, and their participation in the economic and political lives of the village, have caused the Deaf people to create their own spaces to be able to exist (KUSTERS 2015). Furthermore, due to their lack of education and employable skills (KUSTERS 2015; EDWARD 2018a; EDWARD and AKANLIG-PARE, forthcoming) deaf people in Adamorobe have naturally created their own spaces to be able to exist.

7.2 Language contact

Ghana is a multilingual society and apart from spoken languages being in contact, the sign languages also interact among themselves as well as the over 50 indigenous spoken languages and English, the official language of Ghana. GSL which is the national sign language of Ghana interacts with AdaSL in the Adamorobe setting (NYST 2007a). AdaSL also is in contact with the indigenous spoken language of Adamorobe, which is Akwapem Twi (NYST 2007a; EDWARD 2015a). There are other minority languages in the Adamorobe village whose speakers interact with the deaf signers. These include Ga, Ewe, and Dangme. In such an intense contact situation, code-mixing and lexical borrowing are common (EDWARD 2015b, 2021b). This may involve GSL and AdaSL. Pidgin AdaSL may also evolve where the hearing people may transfer features of their spoken language into the sign language (EDWARD 2015b). NYST (2007a) gives such examples as the presence of causative serial constructions in AdaSL as originating from the native dominant Akwapem Twi language used by the hearing inhabitants of the village.

Considering the unavoidable language contact in multilingual Ghana, different researchers have undertaken explorative studies on the language ideologies of Deaf people. GILLEN et al. (2020: 183) explored deaf people's "existing practices with English literacy" and stated that when participants use English online, the practices of "reading and writing do not usually directly involve sign language use and where in literacy practices deafness may potentially be unmarked." They suggested the exploration of communication technologies as avenues to support the English language and literacy development. Recently, Kusters has explored the language ideological assemblage in Adamorobe focusing on the signers' use of GSL together with AdaSL in Adamorobe (KUSTERS 2014b, 2019). Kusters explained that GSL is used mid-clause by both the adults and the young signers of AdaSL. EDWARD (2015b) also attests to the use of such lexical items in AdaSL discourses. Kusters and Edward list GSL signs such as ANGRY, KNOW, TIRED etc., to be used in AdaSL conversations.

Researchers working on AdaSL have mentioned the infiltrating effect of the contact between AdaSL and GSL (NYST 2007a, 2019; EDWARD 2015b; EDWARD 2021b). Even more alarming is the possible endangerment of AdaSL which is anticipated as a result of this situation (NYST 2007a; EDWARD, 2015b). On the other hand, KUSTERS (2014b) is of the view that AdaSL signers are just using GSL for "practical reasons" and therefore not endangering AdaSL. The obvious result of the contact between GSL and AdaSL is visible as "some deaf people found it pleasant to be able to use another language than AdaSL" (KUSTERS 2014b: 152). The practical use of GSL among AdaSL signers includes gossiping about hearing people (KUSTERS 2014b; EDWARD 2015a) and the desire to be able to use another sign language as noted by KUSTERS (2014b). GSL use in Adamorobe is not limited to the young and educated signers but also to the adults. One interesting comment made by most of the adult signers is the fact that AdaSL signs are hard and difficult to be understood by outsiders (KUSTERS 2014b, 2019). Thus, GSL serves as an alternate language to bridge the linguistic barrier between AdaSL users and the general Deaf community in Ghana (EDWARD 2021b).

7.3 Language endangerment

One of the imminent things that happen when languages are in contact is that dominant ones tend to be used more to the detriment of the lesser ones. Dominant languages are ones that are perceived to be prestigious and preferred to be associated with by people. In the sign language context, the dominant sign language is GSL. It is the language used in education, the media, and other social engagements. It is arguably the national sign language due to its spread and scope of usage. Apart from being the first language of many Ghanaian deaf people, GSL is also the second language of many bilingual educated Ghanaian deaf people. As a result of the pervasive use of GSL, local sign languages like AdaSL are losing their circulation. This is especially true among the young people who are in Deaf schools. EDWARD (2018b) in her paper discusses this in detail. She argues that as deaf children leave home to go to live in the boarding school for the Deaf in Mampong-Akwapem, they lose touch with their parents and their first sign language, AdaSL. Due to protracted non-usage of the AdaSL, the children are bound to lose it if this trend continues. This is compounded by the fact that at school, the children are taught GSL, and some English literacy. NYST (2007a) notes that the children's education could keep them at school for up to a period of 14 years. During these 14 year of their formative age, a complete language, and cultural shift from AdaSL to GSL is a highly likely possibility.

EDWARD (2018b), KUSTERS (2012a) and NYST (2007a) all note that the ban on deaf-deaf marriages also contributed to the possible endangerment of AdaSL, by

virtue of the fact that it ensured that the possibility of procreation of deaf offspring who would continue to use the language as first language, was truncated. They all agree that the influx of strangers into Adamorobe contributes to the endangerment of the sign language. As adult learners of the sign language, the tendency to transfer elements of the spoken language into the sign language is imminent. The deaf may also use a reduced form of the sign language when interacting with such people. The consequences of such contact phenomena are obvious; the native sign language is bound to suffer; however resilient it is due to the fact that it is affected adversely by the spoken language of the hearing people.

7.4 Language documentation

It is not a desirable thing to witness the demise of languages but given the pervasive instances of language contact and the debilitating effect that dominant languages have on minority ones, this is a logical sequel. The consequence of language death is inimical to the maintenance and growth of civilization since the death of the language goes along with the loss of cultures and the knowledge that are embedded in the cultures. For these reasons, languages that are endangered need to be documented so even when they die, the knowledge embedded in them are preserved.

EDWARD (2018b) sheds light on strategies on sign language documentation processes. These include linguists working together with native deaf signers who provide signed data that are videoed as signs in isolation, storytelling sessions, narratives, and video retelling. These data are then annotated and made available via online sign databases and resources to serve as teaching material or be sources for future research into the languages.

All the works on ethnographic works described in the preceding sections also serve a complementary documentation purpose. Not only do they narrate sociocultural and demographic information, but they also open a window into the linguistic awareness of the users of the sign languages.

8. Discussion

Deaf education in Ghana is attributed to the arrival of Andrew Foster in 1957. Some of the literature on Foster's contribution to Deaf education in Ghana and the development of GSL herald Foster as the "originator" of sign language to the "languageless" Deaf community. This claim is totally wrong and undermines the indigenous sign languages used in Ghana before the arrival of Andrew Foster. For example, AdaSL's history is older than that of GSL making it the oldest known indigenous sign language in Africa. In as much as we commend Andrew Foster

for the very important roles he contributed to Deaf education in Ghana, we should not undermine the indigenous sign languages used by the first cohort of Andrew Foster's classes.

Considering the literature on sign languages in Ghana and the sociolinguistic research done, we can identify a heightened interest in the research on linguistic descriptions and sociolinguistic discussions. The discussion on the linguistics of sign languages in Ghana have involved the works of foreign linguists like FRISHBERG (1987) and NYST (2007a). Currently, some Ghanaian linguists have gained interest in GSL and some linguistic research has been done in the phonology and morphology (EDWARD 2014; AKANLIG-PARE 2014), number marking (MACHADJAH 2016), and iconicity (EDWARD 2020, 2021b).

AdaSL research started in the early 1980s and has seen several attempts to describe the language and give sociolinguistics information about the users (FRISHBERG 1987; NYST 2007a, 2010, 2016; KUSTERS 2012a, 2012b; EDWARD 2015a, 2018a). However, as the research base of AdaSL increases, the more researchers identify the vulnerability of the language (NYST 2007a; EDWARD 2015a, 2015b) or the vulnerability of the users of the language (KUSTERS 2012a, 2019; EDWARD 2018a; AKANLIG-PARE and EDWARD 2020). Several comments are made by researchers in relation to AdaSL; (1) AdaSL is difficult to learn (KUSTERS 2011), (2) AdaSL signing is hard (KUSTERS 2019, 2014b), (3) AdaSL signers love their language (KUSTERS 2012a), (4) some AdaSL signers will choose GSL over AdaSL (KUSTERS 2019) and (5) AdaSL is at risk of being endangered (NYST 2007a; EDWARD 2015a).

The relationship between GSL and AdaSL and the possible language contact between the two sign languages (EDWARD 2021b) cannot be overemphasised. The "purity" of AdaSL has gradually been diluted by this language contact and novel structures have been introduced in AdaSL. In other words, documenting AdaSL now has become more challenging as it is more difficult to get the "pure form" of the language. Signers are gradually code-mixing with GSL signs (EDWARD 2021b). As AdaSL struggles under the linguistic domination of GSL through language contact initiated by Deaf education (Deaf Adamorobeans use GSL in education), GSL on the other hand, remains at the "mercies" of ASL. Edward found that some people and religious groups propagate ASL materials in their bid to train people to sign (EDWARD 2015b). In a recent documentation project, Edward identified specific ASL signs (with entirely different signs in GSL) used by adult signers of GSL.

The major contributing factors to the gradual endangerment of AdaSL are the education of young Adamorobe signers in GSL, the death of older users of the

language, and the high rate of immigrants to the community (NYST 2007a; EDWARD 2015a, 2015b; KUSTERS 2012a). These factors are exacerbated by the marriage law which for a long time prevented marriage between two deaf people and which ultimately led to many childless marriages among Deaf couples (NYST 2007a; KUSTERS 2012a; EDWARD 2018a). Although some Deaf people defied the marriage law, they avoided having children after marriage. Again, migration of deaf people into different communities in search of work or for marriage (NYST 2007a; KUSTERS 2012a, 2014a; EDWARD 2015b) and formal education of the young deaf people into GSL have led to a gradual decline in AdaSL use. Finally, religious activities have contributed to the gradual shift to GSL (EDWARD 2015b).

The literature on sign languages in Ghana collectively point to the fact that linguistic and sociolinguistic research have focused mainly on GSL and AdaSL. Whereas the research on the linguistic of GSL has been mainly done by Ghanaians, research on the (socio)linguistics of AdaSL is mostly done by foreign linguists. Home sign systems are yet to receive detailed linguistic investigations. Since the scope of our review was limited to the areas raised in section 3, we did not consider works that did not fall within the scope of our research.

9. Conclusion

The overview of the different research on indigenous and foreign-based sign languages in Ghana and their sociolinguistics interaction has demonstrated the different research works that have been done on sign languages in Ghana. Whereas the overview has demonstrated the different domains of use for the indigenous and the foreign-based sign languages, a language's ability to thrive is largely dependent on the users of the language. That is, the constant use of a language will ensure the language's survival, whereas the gradual decline in the use of a language will also mark the language as a possible candidate for endangerment. In the overview, the research on GSL and its dynamics of use has shown its vitality to survive as a language used by the Deaf community in Ghana. For example, we have identified that it has varied domains of use including education and mass media.

Contrastively, AdaSL is used only in Adamorobe and is unknown to the wider Deaf community outside Adamorobe. Although AdaSL has been researched more than any sign language in Ghana, we also identify its vulnerability considering the comments made by researchers working on AdaSL. Further, ASL is used in certain places in Ghana as an alternative to GSL because of the accessibility of materials.

Although the review has presented diverse research on both indigenous and foreign-based sign languages in Ghana, there is still more areas to be covered. The lack of interest in sign language linguistics by local Ghanaian linguists, the absence of sign language linguistics in the curriculum of many Ghanaian Universities and general stigmatization of Deaf individuals in most parts of Ghana have been major hindrances to an advancement in research in sign language and Deaf studies. We suggest the involvement of local linguists in documentation, research, and the analysis of sign languages in Ghana to ensure the survival of indigenous sign languages and increased research on sign languages and Deaf studies in Ghana.

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