

**FIRST TEN WORDS SPOKEN BY CHILDREN ACQUIRING GA
LANGUAGE BETWEEN AGES TWELVE AND EIGHTEEN MONTHS**

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**A RESEARCH DISSERTATION SUBMITTED TO THE SCHOOL OF
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SCIENCE IN SPEECH AND LANGUAGE THERAPY**

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DECLARATION

I **RUBY CONSTANCE COMMODORE** do hereby declare that this dissertation which is being submitted in fulfillment of the requirements for the Master of Science degree in Speech and Language Therapy is the result of my own research performed under supervision, and that except where otherwise other sources are acknowledged and duly referenced, this work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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DEDICATION

The work is dedicated to Almighty God who has been my help in ages past.

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ABSTRACT

Background: Learning to speak and understand language is exceptional and forms an important accomplishment of early childhood. As part of the general growth of children, language development plays a vital role in their cognitive and social development. Language development of children across the world is believed to follow the same pattern. There is much debate on the first words of children as well as the content of these first words. Few studies have addressed these questions (what are the first words of children and the content of the first words) for children at the very earliest stage of language development.

Aim: The study was aimed at determining the first ten words of children acquiring Ga language between ages 12 and 18 months within the Ablekuma South Constituency.

Method: This research used a quantitative cross-sectional design to investigate the first ten words of children acquiring Ga language between ages 12 and 18 months. A checklist was generated by the researcher and was used for data collection. Parents who consented to the study responded to ‘yes’ or ‘no’ to the words on the checklist to indicate whether their children are saying the words as part of their first words or not. Parents also provided additional words which were not on the checklist but were part of their children’s first words. Data collection was done by the researcher and three trained field workers. Statistical Package for the Social Sciences (SPSS) version 20.0 software was used in analyzing the data collected. Three hundred and sixty-six (366) children participated in the study, 70% males and 30% females. The mean age of the children was 15 months. The study was conducted within the Ablekuma South Constituency, particularly, Mamprobi, Chorkor and Korle Gonno.

Results: The first ten words derived from the study were ‘maa’ (mother), ‘ba’ (come), ‘daa’ (father), ‘aye’ (witch) ‘ayee’ (bye), ‘bebi’ (baby), ‘yaa’ (go), ‘goo’ (ball), ‘nu’ (water) and ‘to’

(take). These words were ranked from 1 to 10 with ‘maa’ (mother) obtaining the 1st position and ‘to’ (take) obtaining the 10th position. The first words of the children include nouns (names of people, objects and animals) and verbs (action words). The number of words of the children increased as they grow.

Conclusion: The first ten words of children acquiring Ga language have been identified to be (maa, amm, ayee, ba, daa, bebi, yaa, goo, nu and to). These words were mainly nouns and verbs. The study also showed that as children grow, their vocabulary increases, for example, children aged 13 months produced 1-4 words whereas, children aged 17 months who produced 13 words.

Keywords: Language development, first words, vocabulary increase

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
JA	Joint Attention
LAD	Language Acquisition Device
MCID	MacArthur-Bates Communicative Development Inventory Form
SES	Socio-economic Status
IDS	Infant-directed speech

DEFINITION OF TERMS

Infant-directed speech: It is a style of speaking used by caregivers in interacting with their children. It includes a more variable intonation pattern, high pitch, shorter and slow utterances that focus on people and objects in the immediate environment

Joint Attention: It is an early developmental social communication skill in which usually two people (an adult and a child) use gaze and gestures to share attention.

Language Acquisition Device: A hypothetical tool in the brain that helps children learn and understand language.

Language Development: It is the process by which children begin to understand and use language to communicate.

MacArthur-Bates Communicative Development Inventory Form: This is a widely used parent-report instrument for assessing communicative skills in infants and toddlers. It consists of a list of words, gestures, and sentences which are derived from child language samples.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

The ability to acquire and use spoken language is one of the most fascinating and unique early childhood accomplishments (Topping, Dekhinet, & Zeedyk, 2013). An infant's first experience of language is reported to start before birth (Gervain, 2015). By the third trimester of pregnancy, an infant's hearing is well developed and the child can discriminate between different speech sounds (Moon, Lagercrantz, & Kuhl, 2013).

At birth, the newborn is only capable of producing crying sounds and has no understanding of meaningful speech (Tager-Flusberg, & Seery, 2013). The infant begins to learn the language he or she is exposed to after birth and by the 4th month, develops the ability to differentiate between his native language and other languages exposed to them (Bosch & Sebastián-Gallés, 2001). By 6 weeks, infants begin to coo, they babble at 6 months and then say their first words by 12 months (Keenan & MacWhinney, 1987; Huttenlocher et al., 1991; Hoff, 2009; Owens, 2016). Developing these prelinguistic skills helps in predicting children's lexical progress at age two. Thus, a child's failure to develop these essential skills during the prelinguistic period predicts delay in expressive language (Owens, 2016). Within 3 years, without overt instruction, children master the complex speech sounds of their language and have acquired a rich and varied vocabulary (Tager-Flusberg, & Seery, 2013). By age 7 years, the development of their phonological register is completed (Owens, 2016; Hoff, 2009).

Most children acquire language quickly, which gives the impression that the entire process is easy and straightforward (O'Grady, & Cho, 2001). Human languages are highly complex, hierarchically organized and encompass an abstract system that is mainly composed of rules that specify how sounds are combined. This system depends on the development of a range of specific and general complex mechanisms that interact and become integrated into an organized network over the first year of life.

1.2 PROBLEM STATEMENT

Language acquisition is very important to the general development of children. Generally, children's language development pattern is assumed to be the same (Lenneberg, 1967; Alcock & Alibhai, 2013; Owens, 2016) and to this regard, children within Sub-Saharan Africa are noted to have a similar language development pattern (Alcock & Alibhai, 2013). On the contrary, only a few of the languages spoken within Sub-Saharan Africa have the first words of children documented (Childers, Vaughan & Burquest, 2007; Prado et al., 2017; Prado et al., 2018).

Currently, there is very little research on languages development of some local dialects in Ghana. These studies, however, do not record and/or document the first words of children acquiring Ga as their native language (Prado et al., 2016; Prado et al., 2017; Prado et al., 2018). This research will add to the evidence base in children's language development by determining the first words of infants acquiring Ga language.

1.3 SIGNIFICANCE OF STUDY

Assessing language development can be very challenging in middle and low-income countries, where multiple languages are spoken (Prado et al., 2018). Standardized assessment tools usually do not exist in local languages and the development of such tools can be time-consuming and

financially draining. The use of standardized tools from high income countries, with different demographics for assessment and intervention usually leads to misdiagnosing of children with language development difficulties as well as culturally inappropriate treatment. There is a need for early language assessment tools to be developed for the various local dialects to improve speech and language therapy services. Also, it will begin to bridge the gap between local services and foreign services.

This study will provide information on the first words spoken by children acquiring the Ga language, between the ages of 12 months and 18 months. Knowledge obtained will be used by Speech and Language Therapists to make assessment and intervention tools for children acquiring Ga who have difficulties in their language development. In addition, it helps public health education by educating Ga parents on what constitutes typical language development of children acquiring Ga language and identifying the red flags in their language development.

1.4 AIM OF THE STUDY

The aim of the study was to determine the first 10 words of children acquiring Ga language between ages 12 and 18 months within the Ablekuma South Constituency.

1.5 SPECIFIC OBJECTIVES

The specific objectives of the study were;

- To identify the first 10 words of children acquiring Ga language.
- To determine the grammatical category (parts of speech) of the first 10 words of children acquiring Ga language.

- To determine the number of words children acquiring Ga language attain at different months.

1.6 RESEARCH QUESTIONS

- What are the first ten common words of children acquiring Ga language?
- What grammatical categories are the first words identified in Ga language?
- How many words do children acquiring Ga attain at different months?

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

A review of the literature relevant to the study is presented in this chapter. The following areas will be explored in this section:

- Language acquisition
- Children and language development
- Factors affecting language development
- Typical language development pattern
- First words of infants

2.2 LANGUAGE ACQUISITION

The latter part of the 20th century has provided insights into human understanding of language and its acquisition. The process of acquiring a language involves how humans attain the ability to understand and use language to communicate. Learning language is a unique phenomenon for human development (Kosslyn & Osherson, 1995). Owens (2016), defined language as “a socially shared conventional system for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols” p. 4. The symbols of a language are arbitrary but its speakers understand the meanings of these symbols which are organized to convey ideas. Spanish is a language, as is Chinese or English. Each of these languages has its own unique sounds as well as unique rules that govern the combination of these sounds. For example, the sound ‘kp’ and ‘gb’ are unique to some West African languages (Ladefoged, 1968). In the quest of acquiring

language, infants learn the unique sounds of their native languages (Juszyk et al., 1993). They also deal with large size of phonological and lexical elements, as well as the complex relations among these elements that constitute the sentence structure of their native languages. In addition, infants must learn when and how to use the language per their own needs and those of their communities (Ferguson & Farwell, 1975).

Approximately 50% of the languages spoken across the world are tonal languages. Sub-Saharan Africa, Southcentral Mexico and New Guinea, East and Southeast Asia have the greatest contractions of tonal languages (Hyman, 2007). In the process of developing one's native language, an infant is expected to learn and use tone to indicate the lexical and grammatical distinction of the language. Language researchers have taken advantage of this fact to examine a variety of tone acquisition using large data from this area. Tone perception is acquired early in some languages and later in other languages. For instance in Sesotho, a language spoken in Zimbabwe, tone perception of verbs is acquired by children between age 2 and 3 years. In this language, verb roots can have high, low or no tone, though the high tones are frequent. Children between 2 and 3 years are can use a high tone 75% of the time correctly (Demuth, 1995).

Tones play a vital role in Ga language. Children acquiring Ga language first develop the ability to control suprasegmental information which includes lexical tone before they can fully control segmental output. This means they can accurately comprehend tonal changes in utterance before they can produce all consonants and vowels correctly (Kirk, 1973; Alcock & Alibhai, 2013). The language has both grammatical and lexical tones. It also has two phonemic tones; high /h/ and low /l/ tones. Changes in intonation make a word have separate meaning (Campbell, 2017). For instance 'la' and 'la' are minimal pairs that differ in tone; lá = sing là = dream

2.3 CHILDREN AND LANGUAGE DEVELOPMENT

Every typically developing child throughout the world is assumed to acquire language at the same age. This is due to the concept that children are prewired for language acquisition (Lenneberg, 1967). Noam Chomsky, a cognitive scientist in the '60s argued that every child is born with an innate language acquisition device (LAD) that allows children to acquire language (Owens, 2016). According to this theory, children are born with an understanding of the rules of language. Their experience of language in the womb shapes their ability to process and discriminate between speech sounds (Ramírez et al., 2017). The device contains the principles that are universal to all languages and since language is unique to only humans, they have an innate predisposition to learn and use language. The device is reported to automatically activate during language input, thus, children do not learn language by memorizing dialogues (Bachus & Mojica-Díaz, 2005).

Contrary to Noam Chomsky's view on children language development are the views of the behaviorists, such as B. F. Skinner and J. Bruner cited by Owens in his book titled *Language Development; An Introduction*. These scholars argue that children develop language through early interaction with the environment thus, children develop language through learned behavior (Owens, 2016). They assert that the infant language acquisition device (LAD) cannot be effective without the assistance of an adult who ushers the child into an intermediate setup. The social niche for language is clearly established in infants' preference for human voice and faces right at birth, supporting the argument that adults' assist in infants language development (Tager-Flusberg, & Seery, 2013; Owens, 2016).

Mothers begin to interact with their infants in outstanding ways. They use different strategies and framework such as synchronizing their eye gaze, facial expressions, and movements in patterns

that resemble turn-taking in conversation (Owens, 2016). By the 4th month, a remarkable increase in vocal turn-taking occurs between infants and their caregivers. Thus, infants' engagement with other caregivers provides the context that lays the foundation for their motivation to communicate (Tager-Flusberg, & Seery, 2013). Caregivers mostly speak in a special register including a more variable intonation pattern, high pitch, shorter and slow utterances that focus on people and objects in the immediate environment (Kuhl, 2000; Liu, Kuhl & Tsao, 2003). This style of speaking is referred to as 'infant-directed speech' (IDS) and is strongly preferred by infants (Pinker, 1994; Kuhl, 2000). Infant-directed speech (IDS) plays a crucial role in early language development by facilitating early childhood understanding because it makes speech less difficult to understand especially when a string of utterance refers to the same object (Owens, 2016). It also captures infants' attention and smooths analysis of phonological and statistical regularities of their language (Burnham, Kitamura & Vollmer-Conna, 2002; Thiessen, Hill & Saffran, 2005; Tager-Flusberg, & Seery, 2013).

Another key concept in the communication environment of infants has shared attention between mother and child. At an early age, children engage in joint selective attention with their caregivers. Joint attention helps shape the early language of children by emphasizing on the importance of interaction between mother and child in the first year of life (Topping, Dekhinet, & Zeedyk, 2013). According to Mundy & Newell in 2007, initiating joint attention involves "the use of gestures and eye contact to direct others attention to objects, events and themselves". It's therefore, assumed to control goal-directed attention. In attempting to convey information to the child, caregivers intentionally establish joint attention with the child before conveying information by using gestures such as pointing (Clark, 2009). Joint attention behavior also helps infants in early lexical development both in production and comprehension of words (Childers et al., 2007). Thus,

developing this skill shows children understand the way adults use language (Tomasello, 1992). Although parents and caregivers joint attention behaviors may be different across cultures, it does not seem to affect vocabulary development.

2.4 FACTORS AFFECTING LANGUAGE DEVELOPMENT

Language development is one of the most rapid aspects of child development in general. This arguably expresses great variability between children, as well as being sensitive to several negative factors contributing to difficulties in language development. Even though early language development patterns have been proven to be the same, some infants do not produce their first words until their second year of life (Fenson et al., 2007). While some children with slow expressive language development (late talkers) catch up in vocabulary, others continue to show low language growth and achieve a low level of language proficiency (Fernald & Marchman, 2012; Fernald, Marchman & Weisleder, 2013).

Infants' rate of developing vocabulary is affected by both linguistic and socio-cultural factors (Tardif et al., 2009). Different parental factors have strongly been linked with child language development and its outcomes (Fernald, Marchman & Weisleder, 2013). Educational level and socio-economic status of parents have shown a great impact on child language development (Fernald, Marchman & Weisleder, 2013; Hoff, 2013). Parents' educational level appears to influence the amount of interaction between the parent and the child. Mothers with higher education have children with greater and fast developing vocabulary skills during early childhood than mothers with lower-level education (Hart & Risley, 1995; Hoff, 2013; Rowe et al., 2016). Children from lower socioeconomic status (SES) families exhibit poorer language development when compared to children from higher SES families (Ursache & Noble, 2016).

Children in middle and low-income countries bear a greater burden of early life risk factors for poor early child development. Environmental factors such as limited household resources, poor sanitation, maternal and child health or nutritional status contribute to the faltering in early child development directly or through caregiver behavior (Prado et al., 2017; Ahun, Aboud, Aryeetey, Colecraft & Marquis, 2017). Prado and his colleagues conducted a study in three middle and low-income countries (Burkina Faso, Malawi and Ghana) intending to determine “the predictors and pathways of language and motor development of young children” in these countries. Results from the study indicated children from households with high assets, higher parental education and improved water source have high language and motor skills, whereas children from households with poor environmental variables had poor language and motor scores. As part of different factors affecting early language development, other negative factors such as cerebral malaria, meningitis and brain injuries affect early language development of most of the children within the Sub-Saharan African settings (Baker et al., 1996; Bates 2014; Thal et al., 1997; Davis et al., 1997). This affects the global development of children as they are unable meet their full potential in motor, cognitive and socio-emotional abilities. Interventions targeting caregiving practice such as encouraging caregiving activities and provision of good nutritional health for children is likely to have a positive effect on early language development, therefore, need to be promoted (Prado et al., 2017)

2.5 TYPICAL LANGUAGE DEVELOPMENT PATTERN

The developmental progression of children language and speech production is alleged to follow the same process (Hoff, 2009; Prado et al., 2016). Infants recognize their parent’s voice and

respond to adult speech right from birth. They produce voice when they cry and gradually begin to gain voluntary control over respiratory and laryngeal function to produce pre-speech sounds (Goodwyn, Acredolo & Brown, 2000; Blake, 2007; Sharp & Hillenbrand, 2008; McGillion et al., 2017). Between the first and fourth months of development, infants develop begin to produce vowel-like sounds (cooing). This progress to the production of definitive vowel sounds along with other oral production typically between 3 and 8 months. Between 6 months and 10 months, a major milestone in pre-speech vocal development appears (babbling). Babbling or the sequential production of well-formed consonants and vowel (eg; mamama, babababa) occurs between 5 and 10 months of age (Sharp & Hillenbrand, 2008). The speech sounds /b/, /m/, /p/ are often produced early because they are produced anteriorly in the mouth and are therefore easy to imitate (Kuhl & Meltzoff, 1996; Sharp & Hillenbrand, 2008). Before true words emerge, infants string together a long sequence of consonants and vowels and begin to add the inflection of their native language. This pattern of output is called “jargon” (Sharp & Hillenbrand, 2008; Owens, 2006). Infants make use of the same sounds (for babbling) to form their first words. These words contain the same number of sounds and syllables as preceding the babbling sequence (Fagan, 2009; Hoff, 2009).

While infants are learning to gain control over respiratory, vocal and articulatory mechanism, they are also listening to and perceiving the language spoken around them. Infants who have normal hearing threshold respond to human voice and reinforce caregivers by attending to their speech and smiling. Caregivers adopt high pitched voice with greater inflection and prolongation vowel sounds when speaking to infants. Infants also reinforce their pre-speech such as cooing and babbling.

Language comprehension nearly always precedes production (Owens, 2006; Bornstein & Hendricks, 2012; Simonsen et al., 2014). For example, a 9-month-old may turn to look at her mother when asked ‘Where is mummy’ but will not yet be able to say, mummy. Most infants produce at least one true word between 10 and 15 months. A true word is produced when an infant uses the same sound sequence consistently to refer to the same object but this word will only be recognizable by the parent or immediate caregiver; for example, “mama” is mother and “ma” is a doll. After infants begin to say true words, their expressive vocabulary increases steadily. By age 2, children should have an expressive vocabulary of at least 50 words and should start to combine words into two-word-phrases such as “Mommy baby” (Pine, 1995; O’Grady, 2005; Sharp & Hillenbrand, 2008). The typical milestones for the development of language comprehension and expressive language skills have been summarized in the Table 2.

Table 2.1: Typical milestones for development of language comprehension and expressive language skills.

Age	Language Comprehension Skills	Expressive Language Skills
Birth-3months	• Startles to loud sounds • Quiets or smiles to familiar voices • Increase or decrease sucking behaviour in response to sounds	• Frequently cries especially when unhappy or uncomfortable • Makes vocal sounds, eg: cooing
3-6 months	• Shows excitement at sound of approaching voices	• Makes vocal noise to get attention • Make sounds back when talked to • Laughs during play • Babbles to self

6-12 months	• Understands frequently used words such as ‘bye’ • Stops and looks when hears own name • Understands simple instructions when supported by gestures and context	• Uses speech sounds (babbling) to communicate with adult, says sounds like “bababa” • Stops babbling when hears familiar adult voice • Uses gestures like pointing and waving to help communicate • Around 12 months begins to use single words, eg. dada, mama
12-15 months	• Understands single words in context, eg. ball, car, cup • Understands more words than they can say • Understands simple instructions, eg. kiss mummy	• Uses at least 10 words which may not be clear • Reaches or points to something they want whilst making speech sounds
15- 18 months	Understands a wide range of single words Recognises and points to objects and picture in book if asked Can name familiar objects to adults	Still babbles but uses at least 20 single words correctly, although may not be clear Copies gestures and words from adults Uses intonation, pitch and changing volume when talking
18- 2years	Understanding of single words develops rapidly during this stage between 200 and 500 words Understands more simple instructions, eg. Get teddy’s dress	Uses up to 50 words Begins to put two or three words together Uses speech sounds /p/,/b/,/m/,/w/ Frequently ask questions, eg. The names of people and objects (towards 2 years of age)

Table retrieved from the works of Sharp & Hillenbrand, (2008).

2.6 FIRST WORDS OF INFANTS

The development of a children's language with regards to their first words, vocabulary increase and the content of their first words (parts of speech) has been the focus of researchers (Tardif et al., 2008; Shatz & Naigles, 1997; Tardif, 1996; Tardif, Bloom, Tinker & Margulis, 1993; Gentner, 1982). Lots of studies have been conducted on children first words in different languages (Prado et al., 2017; Prado et al., 2016; Garmann, Gram, Hansen, Simonsen & Kristoffersen, 2013; Tardif et al., 2008; Bloom, Tinker & Margulis, 1993). The first words of the children include names of people, objects, foods, greetings and action words. The first 10 words of Norwegian children were *mamma* (mother), *hei* (hi), *brr*, *nam-nam* (yummy), *papa* (father), *nei* (no), *ha det* (bye), *takk* (thank you), *bæ* (baa), *voff voff* (woof woof) (Garmann, 2013). Out of the most frequent 20 words understood across 913 children in the works of Massaro, & Perlman (2017), 12 of the words were produced by the children. These include *ball*, *bye*, *daddy*, *mommy*, *dog*, *bottle*, *hi*, *water*, *uhoh*, *no*, *book* and *nice*. Children acquiring English, Putonghua and Cantonese languages first words included *mommy*, *baabaa*, *bye*, *hi*, *uhoh*, *bottle*, *woof woof*, *daddy* and *yum yum* just to mention a few (Tardif et al. 2008). The first words of these children corresponded with the groups mentioned above within the grammatical categories of nouns and verbs. There existed some significant similarities among the words across languages (Tardif et al., 2008; Garmann, Gram, Hansen, Simonsen & Kristoffersen, 2013; Massaro, & Perlman, 2017).

A few large samples studies have addressed the questions “what grammatical categories of words do children first produce?” and “Do children exhibit noun bias in early language development?”. Gentner, (1983) and Nelson's, (1973) studies report that children's first words are primarily nouns (referring to people, objects and animals) thus, making noun learning superior to verb learning in the early language development (Gillette et al., 1999). Gentner & Boroditsky, (2001) and Gillette

Gleitman, Gleitman & Lederer (1999) explained this noun unfairness as a “hypothetically driven and innate tendency toward learning the names for objects, people, and animals” p.2. They also suggested that this unfairness is generally present at the earliest stages of children’s vocabulary learning. Supporting this traditional assumption is a longitudinal study conducted by Bloom and his colleagues on 14 children from age 9 months to 2 years with an aim of determining the type of words children first learn. They concluded that nouns can be considered as the largest part of speech in children vocabulary if most of the words children learn are other than names of objects (Bloom, Tinker & Margulis, 1993). Other studies conducted also revealed common nouns form almost a large proportion of the first words of children in their years of language development.

A study conducted by Tardif and his colleagues in 2008 disputed the fact that noun predominates the first words of children. Their study aimed at determining the content of the first few words spoken by children from 8 months to 16 months in English, Putonghua and Cantonese languages. Using the MacArthur-Bates Communicative Development Inventories method in gathering the first words of children, parents of selected participants reported 1- 10 words their children are saying as their first words from a checklist provided. Results obtained revealed children do not exhibit noun bias but also say words from other parts of speech categories. Similar to Tardif and colleagues work in 2008, is a cross sectional study for 463 children whose vocabularies range from 1-50 words showed less than 40% of the reported words by mothers were nouns (Bates et al., 1994). Also in the works of Childers, Vaughan & Burquest in 2007 on Nigerian children acquiring Ngas language, mothers of participants of the younger group of children reported their children can comprehend and produce more verbs than nouns. However, the participants in the older group comprehended and produced more nouns than verbs.

2.7 RESEARCH GAP

A few studies have been conducted on language development of Ghanaian children in some local languages spoken in Ghana (Prado et al., 2016; Prado et al., 2017; Prado et al., 2018). However, there are no published studies on what constitute the first words of children acquiring Ga language. This research will add to the evidence base in children's language development by determining the first ten words of infants acquiring Ga language.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

The Chapter presents the scientific approach to how the study was conducted. It includes the following sections; study sites, study design and sampling technique, inclusion and exclusion criteria and sampling size estimation. The chapter has sections on study participants and data collection procedure, data management and analysis plan and ethical consideration of the study.

3.2 STUDY SITES

The study was conducted within the Ablekuma South Constituency of the Accra Metropolitan Assembly in the Greater Accra Region. Ablekuma South consist of five electoral areas namely, Korle Gonno, Korle Bu, Chorkor, Mamprobi and New Mamprobi. Three of its electoral areas: Korle Gonno, Mamprobi, and Chorkor were selected for this study. It is estimated that Ablekuma South has a population of 213, 914 which consist of 101,392 males and 112,522 females including children according to the 2010 population census (Ghana Statistical Service, 2014). The dominant economic activity within the constituency is fishing and fish mongering activities since majority of its communities are found along the coastline.

3.3 STUDY DESIGN

A cross- sectional study design was adopted for this study. Chernick & Friis, (2003) defined cross-sectional study design as one in which the study is referenced about a single point in time. The use of this study design allows data collection at a point in time (within a month). It considers population dynamics such as age, gender and location during participants' selection. In this study,

data was required to be collected at a point in time (i.e, 1-31 May, 2018). The data was collected at 3 study sites in Accra. Details of the study sites are described in section 3.2. A cross-sectional design was used because data collection was done at specific point in time. The researcher purposively chose the 3 study sites (Korle Gonno, Chorkor and Mamprobi) because they are predominately Ga areas whereas, the other 2 areas (Korle Bu and New Mamprobi) are cosmopolitan areas. Surveys were conducted in the study communities during the month of May, 2018. Study participants were randomly selected as described in the study procedure.

3.4 INCLUSIVE CRITERIA AND EXCLUSIVE CRITERIA

3.4.1 Inclusion criteria

The participants for the study met the following inclusion criteria;

1. Native Ga-speaking parents
2. Infants of native Ga-speaking parents between the ages of 12 and 18 months

3.4.2 Exclusion Criteria

1. Infant acquiring Ga language who have been enrolled in school were excluded,
2. Infants presenting with developmental disabilities were excluded from this study. This is because infants with developmental disorders acquire language at a slow rate (Özçaliskan et al., 2017).
3. Non-consenting native Ga-speaking parents were excluded from the study.

3.5 SAMPLE SIZE

All infants between 12 and 18 months who met the inclusion criteria were included in the study after their parents or caregivers had consented to participate in the study. The sample size was

generated using the Emory University OpenEpi version 3 source sample size calculator for cross-sectional studies:

$$S = \frac{\Delta N p(1-p)}{\left[\left(\frac{d}{Z_{1-\alpha/2}} \right)^2 (N-1) + p(1-p) \right]} \quad 3.1$$

Population size:	67770
Hypothesized % frequency of outcome factor in the population (p):	50%
Confidence limits as % of 100 (d):	5%
Design effect (for cluster surveys- $DEFF$):	1
Confidence level as %	95%
Sampling Size	382

where N = population size, p = hypothesized % frequency of outcome factor in the population (50%), d = absolute precision of the population proportion (5%), Δ = design effect [(for cluster surveys)=1]. These figures when entered into the formula generated a sample size of 382. A population of 67,770 children from 0 to 14 years based on the 2010 Ghana population census from the Ghana Statistical Service was used. The age range of 0-14 years was chosen because it is the only available data that included children between ages 12 to 18 months.

3.6 PROCEDURE FOR DATA COLLECTION

The study adopted words from the MacArthur-Bates Communicative Development Inventory (MBCDI) which were translated into Ga language for the purpose of this study. The translation of

the MBCDI words into Ga language was done using the adapted procedure previously used in Kenya (Alcock et al., 2015). The MBCDI is the most widely used parent-report of early words of children (Prado et al., 2018; Prado et al., 2017; Prado et al., 2016; Alcock et al., 2015; Pine, Lieven & Rowland, 1997). It focuses on the development of infant gestures, vocabulary and grammar up to age 3 years (Fenson et al., 2014; Jackson-Maldonado, 2012).

Data collection was done by the researcher and three trained field workers using study tools developed by the researcher. Two data collection points were used in each of the three sites for the interviews. These were homes of selected participants and Child Welfare Clinics in the three communities. Parents who were interviewed at the child welfare clinics were excluded when the interviewers visited their homes. Visits to the data collection sites were done twice in a week.

Parents of participants were interviewed in a face-face interview using a semi-structured questionnaire to elicit the first ten words their infant(s) are producing by responding yes (child is saying these words) or no (child is not saying these words) to the words on the generated checklist. During the interviews, other words provided by the parents of participants as part of their first ten words which were not part of the words on the checklist were captured under “Other (specify)”.

3.7 DATA MANAGEMENT PLAN

Data collected was kept confidential and only available and assessed to the researcher. Data was stored in a locked cabinet. Names of participating infants were not used. Participating infants or families were given unique identifiers known only to the researcher. Data collected was entered into a Microsoft Excel spreadsheet study database and exported to Statistical Package for the Social Sciences (SPSS) version 23 software. The database is password protected. An electronic

database was backed up weekly on a separate hard drive. Identifying details were not stored with any collected data.

3.8 DATA ANALYSIS

According to McMillan and Schumacher, (1997) a quantitative approach emphasizes objectivity and quantification of a phenomenon. As a result, it maximizes objectivity by using numbers and statistics structure. Creswell, (2005) also views the quantitative approach to studies as a method that provides for decisions on what to study, asking of specific, narrow questions, collection of numeric (numbered) data, statistical analysis of numbers, and conducting inquiries in an unbiased, objective manner.

The data analyses were quantitatively performed. The descriptive statistics from the study included summary measures such as mean and median with their corresponding standard deviation, minimum and maximum values. Bar graphs were also used in reporting some findings from this study.

3.9 ETHICAL CONSIDERATIONS

Ethical clearance was obtained on 30th January 2018 from the Ethics and Protocol Review Committee of the University of Ghana School of Biomedical and Allied Health Sciences (SBAHS), (see appendix E). All ethical guidelines regarding the selection of participants were adhered to. Written informed consent was sought from parents of each infant participant before the collection of data (see appendix B). All parents of participating infants were made aware of the objectives and methods of the study. Parents of participants were assured of strict confidentiality with regards to their bio-data and any data generated by the study. Data collected was kept confidential. Names of participants were not used in data analysis. They were replaced

with identification numbers. These identification numbers were generated and managed only by the researcher.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

This Chapter presents the findings of this study in line with its objectives and it is divided into four sections. These sections include the birth history of infants and their demographic characteristics, the first 10 words, grammatical categories (parts of speech) and the number of words attained at different months of age of children acquiring the Ga language.

4.2 BIRTH HISTORY OF INFANTS AND DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

The birth history of the infants is presented in Table 4.1. Out of 382 births, 16 (4.19%) were identified as either preterm or their mothers were uncertain about the type of pregnancy. The preterm infants as well as those whose mothers were unable to state the type of pregnancy were excluded from the study because their number was too small to be used as a comparator for the full-term children. Majority ($N=366$, 95.8%) of the infants were born in full-term (9 months of pregnancy) of which most ($N=152$, 41.5%) hailed or lived in Korle Gonno. Spontaneous vaginal delivery ($N=333$, 87.2%) was the most prevalent form of birth delivery while birth via cesarean section accounted for 12.8%. The mothers indicated that most of their children in the study population were second-borns ($N=121$, 31.7%) while first-borns were 119 (31.2%).

Table 4.1: Birth history of infants

Birth history	Mamprobi <i>n</i> (%)	Chorkor <i>n</i> (%)	Korle Gonno <i>n</i> (%)	Total <i>n</i> (%)
Type of pregnancy				
Full term	89 (24.3)	125(34.2)	152(41.5)	366 (100.0)
Preterm	2(2.2)	6(4.6)	5(3.2)	13(3.4)
Don't Know	2(2.2)	0(0.0)	0(0.0)	2(0.5)
Missing	0(0.0)	0(0.0)	1(0.6)	1(0.3)
Type of delivery				
Spontaneous	73(78.5)	113(86.3)	147(93.0)	333(87.2)
Caesarean section	20(21.5)	18(13.7)	11(7.0)	49(12.8)
Birth position (Order of birth)				
1	30(32.3)	42(32.1)	47(29.8)	119(31.2)
2	36(38.7)	39(29.8)	46(29.1)	121(31.7)
3	21(22.5)	32(24.4)	46(29.1)	99(25.9)
4	4(4.3)	10(7.6)	12(7.6)	26(6.8)
5	1(1.1)	3(2.3)	3(1.9)	7(1.8)
6	1(1.1)	2(1.5)	4(2.5)	7(1.8)
8	0(0.0)	1(0.8)	0(0.0)	1(0.3)

The age and gender demographics of the participants are presented in Table 4.2. Out of a total of 366 participants, 255 (69.8%) were males whiles 111 (30.2%) were females with a mean age of 15 months and a standard deviation of 2.3. There were more males in each study sites. The mean and standard deviations of age were almost the same across the three study sites.

Table 4.2: Age and gender of children (N=366)

Locations	Gender			Age	
	Male (%)	Female (%)	Total N(%)	M (SD)	Min-Max
Chorkor	90 (35.3)	35 (31.5)	125 (34.2)	15.19 (2.25)	13.0-17.0
Mamprobi	59 (23.1)	30 (27.0)	89 (24.3)	15.09 (2.40)	13.0-17.0
Korle Gonno	106 (41.6)	46 (41.4)	152 (41.5)	15.10 (2.24)	13.0-17.0
Total	255 (100.0)	111 (100.0)	366 (100.0)	15.14 (2.28)	13.0-17.0

4.3 FIRST TEN WORDS IDENTIFIED BY CHILDREN ACQUIRING GA LANGUAGE

The first ten words of infants as reported by their parents shows that the Ga word “*Maa*” was ranked 1st with 353 out the 366 participants producing it. The original word for “*Maa*” is “*Nye Awo’*” which is the equivalent of *mother* as the English equivalent. The word “*Ba*” which is originally spelt as “*Ba’*” and translated into English as *come* was ranked 2nd with 305/366 infants producing this word. The 3rd ranked word has nearly the same number of infants (297/366) as the 2nd ranking. This word is “*Daa*” which is originally known as “*Tse Ataa’*” which has *father* as the English equivalent.

The 4th and 5th ranked words were “*Aye*” translated as *witch* and “*Ayee*” translated as *bye* have almost the same number of infants (i.e. 243/366 and 239/366) respectively. The 10th ranked is “*To*” originally known as “*Ko’*” and translated into English as *Take* as shown in Table 4.3. These ranking also follows a similar pattern for the study sites.

Table 4.3: Ranking order of infants first common ten words and residential location

Variable	English	Actual word	Chorkor	Korle Gonno	Mamprobi	Total	Rank
Maa	Mother	Nyε Awo'	122	144	87	353	1
Ba	Come	Ba'	109	130	66	305	2
Daa	Father	Tse Ataa'	108	117	72	297	3
Ayε	Witch	Ayε'	102	81	60	243	4
Ayee	Bye	Yaa'kwe' jeĩ	93	91	55	239	5
Bebi	Baby	Abifao'	81	97	55	233	6
Yaa	Go	Yaa'	63	69	50	182	7
Goo	Ball	Bɔɔ'lo'	58	63	31	152	8
Nu	Water	Nu'	44	55	39	138	9
To	Take	Kɔ'	44	39	18	101	10

Note: All words were translated into English equivalents where possible.

Table 4.4 shows some additional words that the study determined, but were not commonly used by the infants to be included in the first ten words rankings. The first three words of these ten additional words were almost the same; “*Toto*” (95/366) originally known as “*Ko'ko*” which has porridge as the English equivalent, followed by “*Awo*” (80/366) originally known as “*Wo' mi*” which has *carry me* as the English equivalent and “*Omɔ*” (79/366) originally known as “*Omɔ*” which has *rice* as the English equivalent.

Table 4.4: Additional words produced by the infants other than the first ten words

No.	Words	Actual Word	English	Frequency
1	Toto	Ko`ko`	Porridge	95
2	Awo	Wo` mi`	Carry me	80
3	Omo	Omo`	Rice	79
4	Pipi	Tsone`	Car/lorry	55
5	Ayonte	Alonte`	Cat	45
6	Bodo	Bodobodo	Bread	31
7	Wo wo	Gbi´	Dog	29
8	Wo	Wo`	Sleep	16
9	Dzo	Dzo`	Dance	10
10	Ta	Tafi´	Sit down	5

The least of the additional words that the infants in this study produced are “*Dzo*” (10/366) originally known as “*Dzo*” which has dance as the English equivalent and “*Ta*” (5/366) originally known as “*Tafi*” which has sit down as the English equivalent.

4.4 GRAMMATICAL CATEGORIES DETERMINED FROM THE FIRST TEN WORDS BY CHILDREN ACQUIRING GA LANGUAGE

From the list of first words, nouns constituted 1416 (63.1%) of the commonly used first ten words by the infants involved in this study. The remaining cumulative 827 (36.9%) were verbs. The grammatical categories of the first ten words produced by the infants in this study were just nouns and verbs as showed Figure 4.1 and Table 4.5.

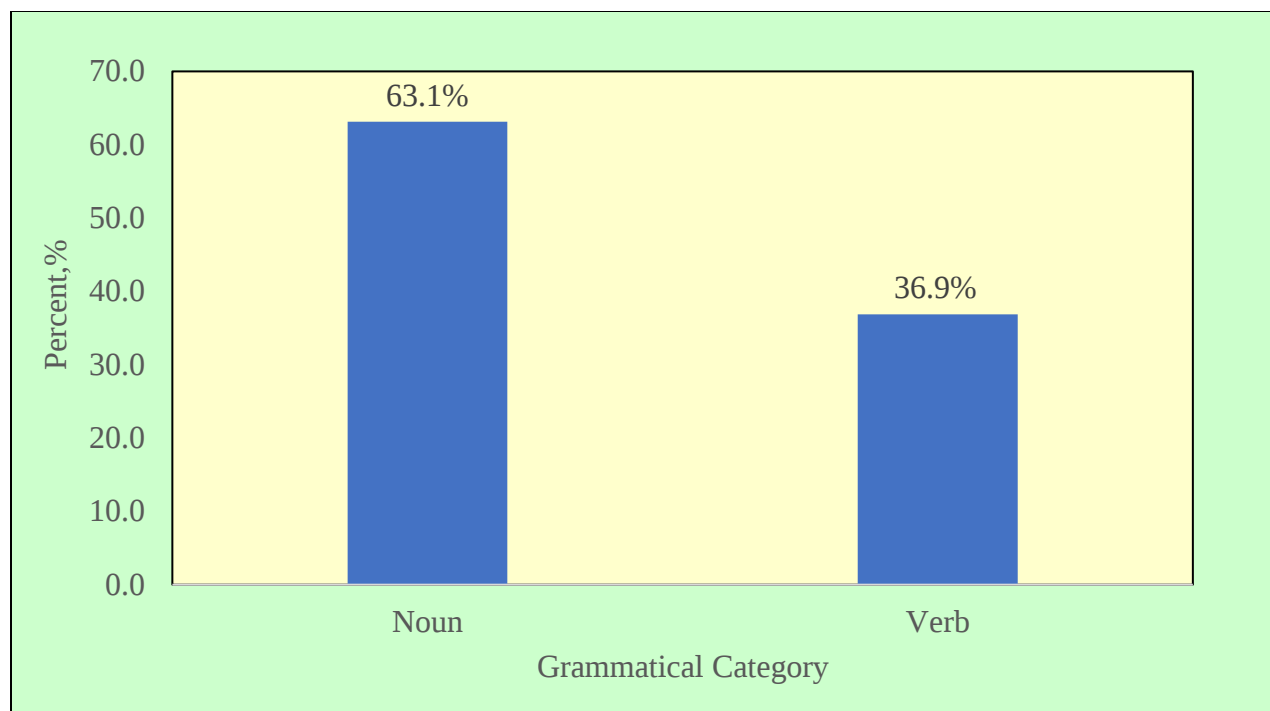


Figure 4.1: Grammatical categories of the first ten words produced by infants

The breakdown of the nouns and verbs are shown in Table 4.5. The highest of the nouns produced by the infants was “*Maa*” 353 (25%) originally known as “*Nye Awo*” with the English equivalent as *mother*. The lowest produced now is “*Nu*” 138 (9.7%) originally known as “*Nu*” with the English equivalent as *water*. Similarly, in terms of the verbs produced as the first ten words by the infants; the highest was “*Ba*” 305 (30%) originally known as “*Ba*” with the English equivalent as *come*. The lowest produced now is “*Tɔ*” 101 (12.2%) originally known as “*Kɔ*” with the English equivalent as *take*.

Table 4.5: Breakdown of the first ten words produced by infants into grammatical categories (parts of speech)

Variable	English	Actual word	Part of grammar	Frequency	Subtotal	Percent, %
Maa	Mother	Nyɛ Awo'	noun	353		24.9
Daa	Father	Tse Ataa'	noun	297		21.0
Ayɛ	Witch	Ayɛ'	noun	243		17.2
Bebi	Baby	Abifao'	noun	233		16.5
Goo	Ball	Bɔɔ'lo'	noun	152		10.7
Nu	Water	Nu'	noun	138		9.7
Subtotal					1416	100.0
Ba	Come	Ba'	verb	305		36.9
Ayee	Bye	Yaa'kwe' jei'	verb	239		28.9
Yaa	Go	Yaa'	verb	182		22.0
Tɔ	Take	Kɔ'	verb	101		12.2
Subtotal					827	100.0
Total					2243	

4.5 THE NUMBER OF WORDS DETERMINED AT DIFFERENT MONTHS BY CHILDREN ACQUIRING GA LANGUAGE

Figure 4.2 shows the distribution of age and number of the first ten words produced by the infants. The bar graph shows that infants aged 13 months mentioned 1 – 4 words as part of their first ten words.

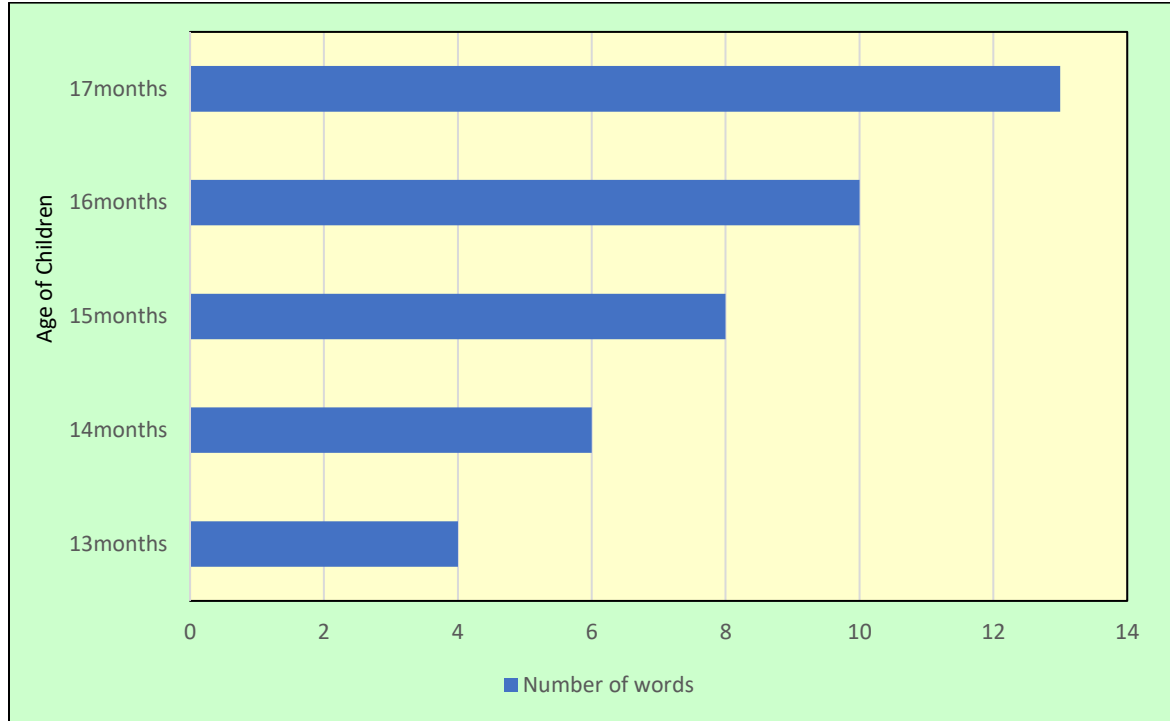


Figure 4.2: Distribution of age and number of words produced by the children

The number of words increased to 6 words as the infants turned 14 months and at age 15 months they are able to produce 8 words. The increase in expressive words continues to 17months with children within this age category producing 13 words and above.

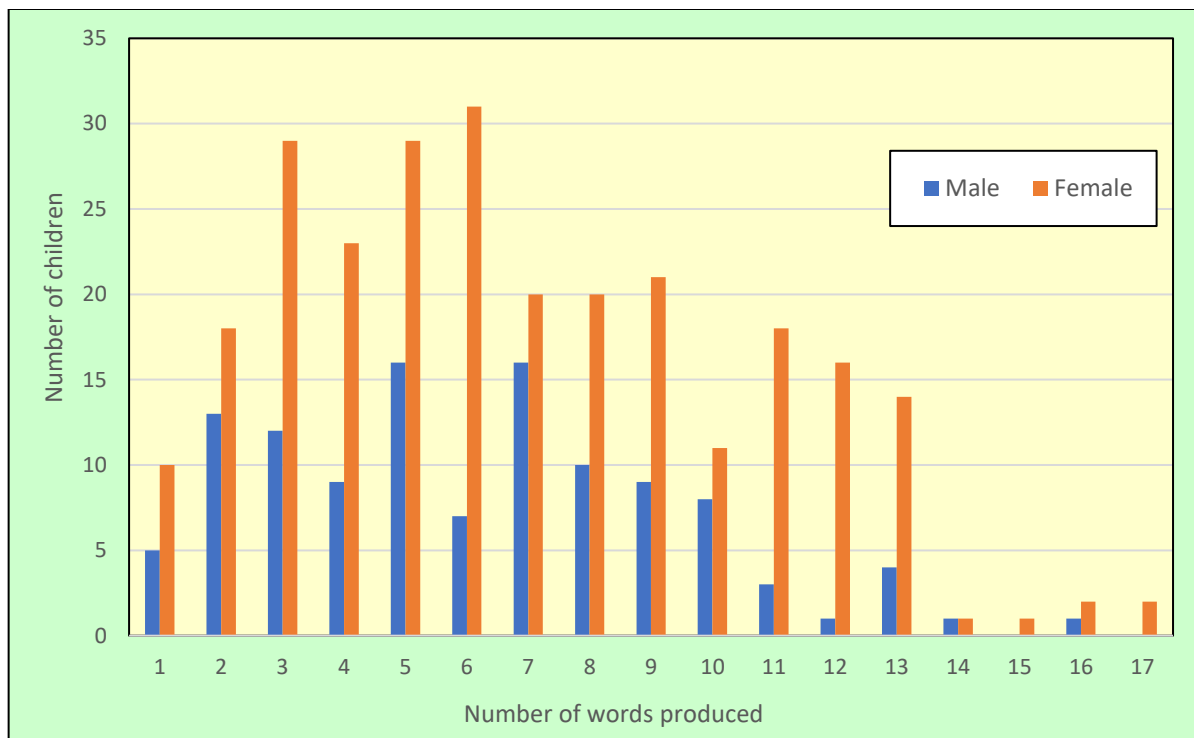


Figure 4.3: Gender Distribution of Number of Words Produced by the Children

Figure 4.3 shows the distribution of gender and words spoken by the infants. It was observed that females produced more words compared to their male counterparts. Out of a total 15 children who were able to produce 1 word, 10 (66.7%) of these children were females while 5 (33.3%) were males. The number of words produced by females increased from 1 to 3 words and reduced when it came to producing 4 words. However, this reduction was still higher (23/32) than the number of words produced by their male counterparts (9/32) as shown in Figure 4.3. This pattern follows for almost every two to three set of words. Also, out of a total of 45 children who were able to say 5 words, 29 (64.4%) of them were females while 16 (35.6%) were males. However, out of a total of 2 children who were able to say 17 words, all 2 (100%) children were females.

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

The purpose of this study was to determine the first ten words spoken by children acquiring Ga language. This chapter includes a discussion of major finding of the study as related to the literature on first words of children, grammatical categories of the words and ages and number of words spoken. This chapter also discusses the findings of this study to help answer the research questions below:

(R1): *What are the first ten words of infants acquiring Ga language?*

(R2): *What grammatical categories are the first ten words identified from infants acquiring Ga language?*

(R3): *How many words do infants acquiring Ga language attain at different months of age?*

Using a descriptive analysis, twenty words were reported to be the early words the participants of this study. Out of the 20 reported words spoken by the children, 10 of the words appeared to be the most common words spoken by all the children across the three communities when ranked (Table 4.3). The words were consistent with studies conducted by Tardif et al., 2008 on children acquiring English, Cantonese and Putonghua who identified the first 20 words of these children.

Most of the studies conducted on children first words happen to have the same age range of participants. The age group of participants for the study appears to be in the same range as other studied on children early language development. In the “Baby’s first 10 words” study conducted

by Tardif et. al, (2008), the participants were selected from the age range of 8- 16 months. Comparing the age rang of the study to that of Tardif et.al., (2018) study, this study had a much older age group participants (13months- 17months) than the participants age group of Tardif et al, (2018) study who were from ages of 8months to 16months. Another study conducted on first words of Norwegian children (Garmann, Gram, Hansen, Simonsen & Kristoffersen, 2013) also had participants within the average age group for children early language development research. The age range of participants in the Norwegian study was from 8 months -36 months, again the age group of this study falls within the same age group as the study of the Norwegian study. However, it is worth noting that the Norwegian study included participants who were much older than the participants in this study.

5.2 First Words of Infants Acquiring Ga Language

Many commonalities existed among the first ten words of children acquiring Ga language in all three communities. Out of the 20 reported words spoken by the children, 10 of the words appeared to be the most common words spoken by all the children across the three communities when ranked (Table 4.3). This study is consistent with works done on first words of children in other language (Tardif et al, 2008; Garmann, Gram, Hansen, Simonsen & Kristoffersen, 2013; Massaro, & Perlman, 2017). Results from the study indicated that majority of the children (353) in all the communities say '*maa*' which mother is the English equivalent as their first word. Hence, it was apparent that '*maa*' or mother was the first most common word spoken by the children. The findings confirm the study conducted by Garmann, Gram, Hansen, Simonsen & Kristoffersen in 2013 among Norwegian children from ages of 8 months and 36 months and a study conducted by Tardif et al., (2018), among Beijing children acquiring Cantonese language from ages 8 to 16 months. This could be attributed to the fact that mothers have high influence on infants' early

language development which starts right from birth (Owens; 2016; Liu, Kuhl & Tsao, 2003; Kuhl, 2000). Also the sound “m” which begins the word “*maa*” or “*mummy*” is acquired early and easy to articulate during early language development as asserted by some scholars (Sharp & Hillenbrand, 2008; Kuhl & Meltzoff, 1996). However, the findings from this study contradict the same study conducted by Tardif et al (2018) on children acquiring English and Putonghua. Children acquiring these languages say ‘daddy’ as their first and most common word. This could be as a result of fathers contributing more in childrens’ early language development now as posited by Lewis and Lamb, (2003).

Half of the first words of participants in this study (*daa*, *ayee*, *bebi*, *goo* and *nu*) with their English equivalent as *daddy*, *bye*, *baby*, *ball* and *water* respectively are similar to the first words of children in different languages. A subsequent observation also revealed that, others words like “*ba*” (*come*) and “*daa*” (*father*) were the next most produced words, while “*nu*” (*water*) was among the least pronounced (27.6%) of words in the first 10 words pronounced by the infants acquiring Ga language.

5.3 Grammatical Categories of First Words of Infants Acquiring Ga

The study revealed more than half (63.1%) of the words said by the infants were nouns while only a 36.9% of them were verbs (Figure 4.1). This finding is in agreement with the study by Gleitman & Newport, (1995) where the first 10 words produced by infants had a higher proportion of them being nouns. These results echoes the results of two independent studies by Bates, Bertherton & Synder (1988), where more than half (56%) of the words mothers reported as their children first words were nouns. In a study by Gopkin (1988), most of the words mothers reported were names of objects. Gentner, (1983), Nelson, (1973) and Levey & Cruz, (2003) also reported

children's first words were primarily nouns (referring to people, objects and animals) as observed in this study. Thus, making noun acquisition superior to verb learning in the early language development (Gillette et al., 1999). Gentner & Boroditsky, (2001) and Gillette et al., (1999) explained this phenomenon of noun unfairness as a "hypothetically driven and innate tendency toward learning the names for objects, people, and animals"p.2 (Gentner & Boroditsky, 200; Gillette et al., 1999).

A low percentage of nouns have been found in early childrens' vocabularies in some studies as well. Only one-third of the words produced by 14 children in a study conducted by Bloom, Tinker & Margulis (1993), were nouns. A large number of studies have similar occurrence, a study by Lieven, Pine & Barnes (1992), also showed 33.2% of the first 50 words of the children studied were nouns. Less than 40% of the reported words of children by mothers were nouns in a study conducted by Bates et al., (1994). Tardif et al., (2008) study which sought to determining the content of the first few words spoken by children in English, Putonghua and Cantonese languages also revealed that children produced names of people and not name of objects and animals across all three languages.

Words other than common nouns also contribute to the total amount of words in children language development. From the results obtained for this study, 36.9% of the reported words of the participants were verbs. These words include "ba", "aye", "yaa" and "to" meaning come, bye, go and take in English respectively. In this study "verbs" are consistent with verbs found among English speaking children (Lieven, Pine & Barnes, 1992; Bloom, Tinker & Margulis, 1993; Bates et al., 1994; Tardif et al., 2008). Similar occurrence of verbs were also found in the early words of children acquiring Putonghua, Cantonese (Tardif et al., 2008).

5.4 Age and Number of Words Said by Infants Acquiring Ga

The majority of words produced by the children (13 words and above) in this study was observed to be produced by the children who were 17 months old whilst the least number of words (1-4 words) produced were children at age 13 months (Figure 4.2). It was also observed that there was a sturdy increase of the vocabulary of the children as their ages increased. This occurrence is in agreement with studies conducted by Hoff, 2003 where he showed that children at age 12 months were able to produce only 5% (12 words) on the inventory form used in collecting the data whereas at age 16 months the children were able to produce 17% (39 words) on the form. O'Grady, 2005 also demonstrated similar findings where children from 15 months are able to produce about 10 words with an increment in their vocabulary as they grow older.

Another study conducted by Hao, Shu, Xing & Li, in 2008 on Chinese children indicated a rapid and substantial growth in their vocabulary development between 17 and 30 months. The children at age 17 months were able to produce 8% of the vocabulary (59 words) whereas, children at age 30 months were able to produce 84% (594 words). Again the increase in vocabulary in this study is consistent with patterns found in English speaking children using the original Mac-Arthur Bates Communication Inventory Form (Bates et al., 1994). This occurrence can be due to the fact that as infants grow, their interaction with the environment also increases (Owens, 2016). This could be the possible explanation for vocabulary increase in the current study.

Increase in vocabulary is said to occur at different stages during children language development. However, lots of research have shown gender difference in early language development (Kramer, Delis & Daniel, 1988; Kramer, Delis, Kaplan, O'donnell & Prifitera, 1997; Sommer, Aleman, Bouma & Kahn, 2004; Pinker, 2007; Wallentin, 2009). These studies have proven females are

fluent and more likely to use of semantic clustering strategies as well as display more effective long-term memory mechanism. In the works of Wallentin (2009) titled “Putative sex differences in verbal abilities and language cortex” showed a consistent female advantage in language development. This results is consistent with the finds of this study in figure 4.3, were female participants of the study were reported to be producing more words than males.

CHAPTER SIX

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

6.1 INTRODUCTION

This study determined the first 10 words spoken by children acquiring Ga between ages 12 months and 18 months. The study was carried out using a generated checklist from the MacArthur- Bates Communicative Inventory Form in a cross-sectional survey.

6.2 CONCLUSION

The first 10 words in Ga reported by parents of children acquiring Ga language has been determined in this study. The study showed that the first 10 words obtained were similar to some of the first words of children acquiring English, Putonghua, Cantonese and Norwegian languages. The study also showed that some of the first ten Ga words found have similar ranking positions with the first words in other languages from literature. Supporting current literature, children acquiring Ga language were reported to say more nouns such as names of people, objects and animals than any other word category (verb). The vocabulary of children also increased as they grow older with females comprehending and producing more words than males as proven by other studies.

6.3 RECOMMENDATIONS FOR PRACTICE

Based on the findings of the study, it is recommendation that:

- Public awareness on early language developmental milestones in terms of the Ga language by infants could be based on first ten words determined in our study.

- Further research should be carried out on acquisition and use of tone in first words of infants acquiring Ga language.

6.4 LIMITATION OF THE STUDY

Opportunities for scenarios to be created to elicit reported words from the participants was not done. This was due to the fact that time scheduled for meeting with parents were often disrupted by other activities of the parents. This however, had no negative impact on the study design and its validity.

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APPENDIX A

PARTICIPANT INFORMATION SHEET

My name is Ruby Constance Commodore, a graduate student from the Department of Audiology and Speech and Language Therapy of the College of Health Sciences, University of Ghana (Korle Bu campus).

I am interested in finding out what the first words of Ga speaking children in Ghana are. You will be asked to answer questions from a questionnaire. All information will be kept anonymous and confidential. You will be given an ID number and no one except me will know about your answers. This research will neither cause any harm to the participant nor involve any payment. Only minutes of your time will be required. Understanding the first words of Ghanaian children will support the work of professionals working in child development and inform the expectations of parents on language development difficulties. By understanding what constitutes “typical” early childhood development, it will be easy to identify children who are struggling to acquire appropriate language milestones, and support early intervention for these children. The study has received ethical approval from the University of Ghana. If you start but do not wish to continue you can withdraw from the study without penalty. This form is for you to keep. If you have any concerns please contact me on this number (0265613085).

APPENDIX B

PARTICIPANT CONSENT FORM

I, give my consent to participate in the research project entitled First ten (10) words spoken in Ga by Ghanaian children between age

twelve (12) months to eighteen (18) months. I, the undersigned, confirm that (please tick box as appropriate):

1.	I have read and understood the information about the project, as provided in the Participant Information Sheet dated _____.	☐
2.	I have been given the opportunity to ask questions about the project and my participation.	☐
3.	I voluntarily agree to participate in the project.	☐
4.	I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher or The University of Ghana.	☐
5.	The procedures regarding confidentiality have been clearly explained to me.	☐
6.	I understand that any research data gathered from the results of the study may be published. However, no information will be used that can identify me.	☐
7.	I understand that other researchers will have access to this data only if they agree to preserve the confidentiality of the data and if they agree to the terms I have specified in this form.	☐
8.	I understand that if I have concerns about the research at any point I am able to contact the researcher to discuss any issues I have: Researcher: Ruby C Commodore	☐
9.	I, along with the Researcher, agree to sign and date this informed consent form.	☐

Participant:

_____	_____	_____
Name of Participant	Signature	Date

Researcher:

_____	_____	_____
Name of Researcher	Signature	Date

APPENDIX C

PARENT QUESTIONNAIRE

Important: YOU DO NOT NEED TO WRITE YOUR CHILD'S NAME ON THE
QUESTIONNAIRE

Child's Identification Number: _____ Study site: _____

Age: _____ Date: ____/____/____

Sex: M ☐ F ☐

PLEASE TICK THE BOX AS APPROPRIATE

1. Was pregnancy full term?

1. Yes ☐ 2. No ☐

2. Child was delivered through;

1. Spontaneous Vaginal Delivery ☐ 2. Cesarean Section ☐

3. What is the birth position of your child? -----

4. Does your child respond to environmental sounds and speech similar to others?

1. Yes ☐ 2. No ☐

5. Does your child understand most of what you say?

1. Yes ☐ 2. No ☐ 3. Sometimes ☐

APPENDIX D

WORD Checklist

No	Generated Words		Parent response		
	Ga	English	1. Yes	2. No	Age at which the word was said
1	Maa	Mother			
2	Daa	Father			
3	Nu	Water			
4	Ammm (niyeini)	Food			
5	Bye-bye	Bye-bye			
6	Bolu	Ball			
7	lɔle (Vroom)	Car			
8	Bebi	Baby			
9	Ba	Come			
10	Hemo	Take			
11	Hami	Give me			
12	Yaa	Go			
12	Wo mi	Carry me			
Other 1					
Other 2					
Other 3					
Other 4					
Other 5					
Other 6					
Other 7					
Other 8					
Other 9					
Other 10					

APPENDIX E



UNIVERSITY OF GHANA
SCHOOL OF BIOMEDICAL AND ALLIED HEALTH SCIENCES

30th January, 2018.

Ref. No.:

Ms. Ruby Constance Commodore
Dept. of Audiology, Speech and Language Therapy
SBAHS,
Korle-Bu.

Dear Ms. Ruby Constance Commodore,

ETHICS CLEARANCE

Ethics Identification Number: SBAHS – ASLT/10312889/SA/2017-2018.

Following a meeting of the Ethics and Protocol Review Committee of the School of Biomedical and Allied Health Sciences held on Tuesday 30th January, 2018. I write on behalf of the Committee to approve your research proposal as follows:

TITLE OF RESEARCH PROPOSAL: FIRST TEN (10) WORDS SPOKEN BY GHANAIAN CHILDREN BETWEEN AGE TWELVE (12) MONTHS AND EIGHTEEN (18) MONTHS.

This approval requires that you submit three-monthly review reports of the protocol to the Committee and a final full review to the Committee on completion of the research. The Committee may observe the procedures and records of the research during and after implementation.

Please note that any significant modification of the research must be submitted to the Committee for review and approval before its implementation.

You are required to report all serious adverse events related to this research to the Committee within seven (7) days verbally and fourteen (14) days in writing.

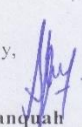
As part of the review process, it is the Committee's duty to review the ethical aspects of any manuscript that may be produced from this research. You will therefore, be required to furnish the Committee with any manuscript for publication.

This reviewed report is valid till 31st. August, 2018.

Please always quote the ethical identification number in all future correspondence in relation to this protocol.

Thank you.

Yours sincerely,


Dr. S. D. Amanquah
(Chairman, Ethics and Protocol Review Committee)

Cc: Dean
Head, Dept. of Audiology, Speech and Language Therapy
School Officer

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