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Acquisition of L2 English articles among L1 Dagbani speakers: L1 Transfer or Fluctuation?

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Abstract

This study investigates the acquisition of L2 English articles among L1 Dagbani speakers. Both Dagbani and English are article languages. However, Dagbani lacks a morphological marker for indefiniteness. As a result, indefiniteness and genericity are expressed in the language by bare nouns. Second language acquisition research shows that adult L2 learners both from article and article-less languages have much difficulties mastering accurate use of articles in English. Issues of referentiality, countability, uniqueness and how definiteness and specificity are encoded through articles are what make the use of articles in English very difficult for L2 learners, especially those from article-less language backgrounds. The overall assumption is that definiteness and specificity are universal semantic features which every language has a mean of expressing. Nonetheless, whereas some languages encode definiteness or specificity by using articles, other languages do that through discourse pragmatic means, such as word order and information structure. Furthermore, it is assumed that the linguistic structure of the first language is a major force in second language learning.

Definiteness in English is primarily expressed through articles. Accordingly, L2 English learners whose L1s have article are assumed to transfer the article semantics of their language onto the L2 interlanguage grammar, while those without articles fluctuate between definiteness and specificity when using articles in English (Ionin, Ko and Wexler, 2003, 2004). To account for the variable acquisition patterns among second language learners, several linguistics proposals are made, some of which are explored in this study. Thus, the acquisition of L2 English articles among L1 Dagbani speakers is investigated in this study along proposals based on the Fluctuation Hypothesis (Ionin, Ko and Wexler, 2003, 2004), the Feature Reassembly Hypothesis (FRH) (Lardiere, 2008, 2009) and the Full Transfer Full Access (FT/FA) hypothesis (Schwartz and Sprouse, 1994, 1996).

Forty-five Dagbani L2 English learners and eight native English speakers took part in this study. The L2 learners were grouped into high intermediate (27 participants) and low intermediate (18 participants) groups. All participants took three tests: a written forced-choice elicitation test with 24 dialogues, an acceptability judgement test with 50 test items and a proficiency test with 40 test items.

The results of the study showed that L2 English article acquisition among L1 Dagbani speakers is influenced by their L1. Generally, the featural composition of Dagbani articles based on expressions of definiteness and genericity are what constrained their article choice in English. The study finds support for the FRH and the FT/FA proposals, where L1 transfer, L2 input and access to UG features are argued to have impacts in L2 English article acquisition among L1 Dagbani learners. Finally, the study also found that Dagbani L2 English learners rely on explicit learning strategies, which are based on the grammar rules they have learned in the classroom, in the acquisition of English articles.

Key words: Feature reassembly, L1 Dagbani, English articles, Fluctuation hypothesis, Ghana

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Dedication

To my best friend and brother: Mr Baba Mananu

Table of Contents

List of Tables

List of Figures

List of Abbreviations

1, 2, 3sg/Pl	First, Second, Third person singular/plural
ACP	Article Choice Parameter
AJT	Acceptability Judgement Task
CONJ	Conjunctive marker
DEF	Definite marker
DEM	Demonstrative pronoun
DP	Determiner phrase
FCT	Forced-choice Task
FH	Fluctuation Hypothesis
FRH	Feature Reassembly Hypothesis
FOC	Focus marker
FT/FA	Full Transfer Full Access Hypothesis
IMPERF	Imperfective
L1	First language
L2	Second language
L2A/SLA	Second language acquisition
L2er(s)	Second language learner(s)
LOC	Locative
NEG	Negation marker
NP	Noun/Nominal phrase
NUM	Number
PERF	Perfective marker
QUANT	Quantifier
RQ	Research question
SVO	Subject-Verb-Object word order
UG	Universal Grammar

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1. Introduction

This thesis investigates how native Dagbani speakers (L1 Dagbani) acquire articles in English as a second language (L2 English). The study examines the acquisition of L2 English articles among L1 Dagbani speakers from the perspectives of the Fluctuation Hypothesis (FH) (Ionin, Ko, and Wexler, 2003, 2004), the Full Transfer Full Access hypothesis (Schwartz and Sprouse, 1994, 1996) and Lardiere's (2008, 2009) Feature Reassembly Hypothesis. The role L1 transfer plays in the L2 acquisition of English articles is of particular interest in this study.

Studies have shown that how functional morphemes are expressed in languages vary and that these variations present challenges for second language learners (White, 2003c, 2008; Lardiere, 2008, 2009; Slabakova, 2009a,b,c, 2016; among others). This means that how functional morphemes, such as number, tense, aspect, definiteness, case and specificity are expressed across languages differ. And it is these variations which account for the difference in acquisition patterns among second language learners. Furthermore, some second language acquisition researchers argue that the variability in acquisition patterns among L2 learners is not random. Rather these variations are observed to be guided by universal grammar (UG) principles and parameters, L1 influences and the target L2 input (Slabakova, 2009b, 2016).

One area in second language acquisition where variation in acquisition patterns have been found is the acquisition of English articles. In order to account for the variability in the acquisition of English articles among L2 learners from different L1 backgrounds, different linguistic proposals and hypotheses (which are semantic, morphosyntactic, phonological and discourse/pragmatic in nature) have been put forth. One of these semantic proposals is the Fluctuation Hypothesis (Ionin, 2003; Ionin, Ko, and Wexler, 2003, 2004). According to this proposal, both definiteness and specificity are semantic UG features. L2 learners who come from articles-less L1 backgrounds are said to fluctuate in their article choice between definiteness and specificity when learning English. That is, the L2 learners think that English articles encode both definiteness and specificity, hence, at times they will use *the* for definiteness and *a* for indefiniteness and at other times they use *the* for specificity and *a* for non-specific reference. This is expected to go on until the L2 input leads them to the right pattern. Particularly, it is predicted that L2 learners have challenges in contexts where

definiteness and specificity have different values, hence, *the* is often overused in specific indefinite contexts and *a* in non-specific definite contexts. However, L2 learners from article languages are not expected to have this interchangeable use of English articles. They are predicted to transfer the article semantics of their L1 onto the L2 learning process.

Based on the above, the first question this study will investigate is:

- RQ1: Will Dagbani L2 English learners fluctuate between definiteness and specificity in their article use in English? That is, do Dagbani L2 English learners make more errors in contexts where definiteness and specificity have different values (the fluctuation contexts) than in contexts where they have the same value?

Dagbani is an article language which has overt morphemes to express definiteness. However, indefiniteness is expressed by the bare form of the noun. Following the FH, it is predicted that L1 Dagbani L2 English learners should not fluctuate in their article choice, since their L1 is an article language. Dagbani L2 English learners are, therefore, expected to transfer the article semantics of their L1 when acquiring English articles.

Furthermore, studies have shown that in the acquisition of functional morphemes in second language learning, L2 learners face different challenges when the functional morphemes are expressed differently between their L1 and the target L2 (Slabakova, 2009a,b,c, 2016; Cho and Slabakova, 2014). For instance, since functional morphemes do not usually have one-to-one form-meaning mappings in languages, Slabakova (2009a, 2016), Cho and Slabakova (2014), among others, maintain that it would be more challenging to acquire functional morphemes which are overt in the L1 but covert in the L2 or which are directly expression in the L1 and indirect in the L2 and vice versa than when the features have functional morphology in both the L1 and L2. The implication is that if both the L1 and the L2 have morphological marker(s) for a particular functional morpheme, then it is easier to acquire that in L2 learning than when the morpheme have different expression in both languages. To illustrate this, Cho and Slabakova (2014) note that in English, the features [definite] and [past] are overtly expressed by use of articles and *-ed* respectively, whereas in Mandarin Chinese, the feature [past] is covertly expressed by the use of adverbials, such as yesterday and last week. Based on these differences, it is assumed that L1 English L2 Mandarin learner will face a harder task of

acquiring definiteness in Mandarin, since Mandarin has no overt morphemes to mark definiteness.[1]

In addition, many studies have also found that English articles are generally hard to master among L2 learners and that the articles present different levels of challenges to L2 learners, often described as article acquisition difficulty hierarchy (Chung, 2011; Hawkins, 2001). That is, some studies reported that, *a* is more difficult to learn than *the* and the *zero article* while other studies found that the *zero article* is more difficult than *a* and *the* to acquire (Chung, 2011; Hawkins, 2001; Park, 2005; Hawkins et al., 2006; among others). Yet still, other researchers have mainatined that there is a directionality effect in L2 English article acquisition. Studies investigating the directionality effect in L2 article acquisition have observed that L2 learners often supply *the* more accurately in definite contexts than they supply *a* in indefinite contexts (Avery and Radišić, 2007; Mayo, 2009; Zdorenko and Paradis, 2008; to mention a few). This finding presupposes that L2 learners mostly use *the* accurately in definite contexts than they accurately use *a* in indefinite contexts. The reason for this observed pattern is that the definite article is less featurally complex comapred to the indefinite article (Hawkins et al., 2006; Lardiere, 2004, 2005). That is, in using the indefinite article, L2 learners have to take into consideration issues of number (singular/plural) and countability (the count/mass) of the referent. As a result, this makes the indefinite article harder to learn than the definite article.

On the basis of these proposals, this study examines how Dagbani L2 learners' article use patterns reflect these observations through the following questrions:

> **RQ 2**: Do Dagbani L2 English learners display varying accuracy in their article use in definite and indefinite contexts? That is, do Dagbani L2 learners perform better in their article choice in the definite contexts than in the indefinite contexts?

> **RQ 3**: Does article use in the generic/zero-article context present more challenges to Dagbani L2 English learners than article use in other contexts? In other words, do Dagbani L2 English learners make more errors of article use in the zero article contexts than in definite and indefinite article contexts?

Dagbani has two functional words to mark definiteness but has none for indefiniteness. That is, an L1 Dagbani/L2 English matching of articles will mean that there is overt expression of

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[1]Cho and Slabakova (2014) maintain that a feature is expressed directly if its meaning is the primary function of the morpheme expressing it and indirectly if its meaning is not the primary function of the morpheme. Thus, definite and indefinite articles have a primary function of expressing the feature [definiteness] (hence, articles directly express definiteness), however, possessive and demonstrative pronouns can also indirectly express definiteness.

definiteness in both the L1 and L2 but not for indefiniteness, since indefiniteness is expressed by bare nouns in Dagbani. Also, bare nouns in Dagbani have generic interpretation (1), which means that there is a cover/overt relationship when expressing indefiniteness and genericity between L1 Dagbani and L2 English. That is, in English, indefiniteness is expressed by the indefinite article (*a/n*) and genericity can be expressed by all the three articles: *the, a,* and the *zero article* either at the sentence level or at the NP level (Ionin, Grolla, Montrul, and Santos, 2014; Ionin, Montrul, Kim, and Philippov, 2011; Ionin, Montrul, and Crivos, 2013).

(1) Indefiniteness and genericity in Dagbani

    a. **bi-a**   zu   **buku**.
       child-sg   steal-PERF   book
       A child stole a book

    b. bi-a **la**   zu   buku.
       child DEF steal-PERF   book
       The child stole a book.

    c. **bi-hi**   yuri   **binwɔl**-a.
       child-Pl   love/like   fruit-Pl
       Children love/like fruits.

    d. **bi-hi**   nyɛla Naawuni pin-i.
       child-Pl   be   God   gift-sg
       Children are a gift of God.

The bare noun [**bia**] (plural – **bihi)** and **[binwɔla]** have indefinite interpretations in (1a and c). The difference between (1a) and (1b) is the presence of the definite article **la** in (1b). The bare plural noun in (1d) has a generic interpretation and refers to all children. This suggests that L1 transfer of the article semantics of Dagbani onto the L2 learning process can pose some challenges in terms of how articles are used in the L2. To be specific, the L2 learners could accept ungrammatical sentences with bare count singular nouns in the L2, since in their L1, bare nouns express indefiniteness and genericity. They can also leave out articles or substitute one article for another in obligatory contexts where definiteness and genericity are expressed in the L2.

Finding answers to these questions are of great importance to our understanding of L1 transfer effects in L2 English article acquisition and a general contribution to the understanding of linguistic theory in the area of article acquisition research. L1 Dagbani L2 English learners

have not been studied before nor are there language pairs of this nature in the L2 article acquisition literature (the only language which comes close to Dagbani is Arabic, which has only one definiteness marker and no indefinite marker). Although English and Dagbani are both article languages, they have different article morphology and expressions of definiteness, specificity and genericity.

This study is also relevant in the sense that L2 English acquisition in the Ghanaian context is largely classroom based. English is the official language of government business and language of formal education, although nine indigenous Ghanaian languages are approved for use in education and in the media. Prior to 2002, these indigenous languages were used as the medium of instruction for the first three years of primary education while English was used from primary 4 (grade 4) up to the tertiary level (Government of Ghana, 2002; Ministry of Education, 2002; Opoku-Amankwa, 2009). However, from 2002 onwards, English became the language of education from primary 1 (grade 1) upwards with the approved indigenous languages being taught as subjects at variuos levels within the educational system. Although the target of this study is not to investigate classroom teaching practices in relation to English articles, nonetheless, findings of this study can give a hint to teachers on the learning problems regarding English article use among L2 English learners in Ghana.

This study is structured as follows: chapter 2 presents the important concepts and theories in second language learning which are relevant to this study. A review of previous studies on article acquisition is also done in chapter 2. Definiteness and specificity, as they are expressed in both Dagbani and English are covered in chapter 3. In chapter 4, I present the methodology and the specific predictions this study seeks to investigate. The results of the study are presented in Chapter 5, while the analysis and discussion of the results are done in chapter 6. In chapter 7, I then summarize the findings and offer some recommendations for further research.

2. Theoretical Background and Literature Review

This chapter covers a brief discussion of the relevant theories and concepts in second language acquisition that directly relate to this study and a review of previous studies on L2 English article acquisition. In section 2.1, I will discuss the concepts and theories used in second language acquisition of functional morphology in general as well as in article acquisition. Then, section 2.2 will cover a review of previous studies on L2 English article acquisition.

2.1. Second Language Acquisition

Second language acquisition (SLA or L2A), as a subfield in generative linguistics, is broad, complex and usually involves multiple approaches to the study of language acquisition, other than one's first language (L1). Gass (2013:4) argues that the term 'second language' (L2) is often used to refer to all the languages that are learned after the first/native language, regardless of whether that language is the second, third, fourth, or fifth. The term SLA, based on Gass' perspective, implies something broader than just learning a second language. Gass notes that the main goal of SLA research is to determine the linguistic constraints that influence the formation of second language grammars. It also includes to examine why many second language learners do not attain the same level of proficiency among themselves and in comparison with first language learners and to investigate how L2 learners are able to create a new language system with only a minimal exposure to language data, among other concerns (Gass, 2013:1).

Also, at issue among many L2 scholars in Linguistics is whether SLA is sanctioned by Universal Grammar[2] as in first language acquisition. That is, Gass (2013:163) asks the question: what is the nature of the linguistic knowledge with which second language learners begin? In other words, what is the *initial state*[3] of linguistic knowledge in second language

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[2] Universal Grammar is a concept in generative linguistics which refers to the part of our language knowledge that is innate and comes to the language learner for free (Slabakova, 2016:425). The theory of UG also assumes that language consists of a set of abstract principles that characterize the core grammar of all natural languages and parameters which define the range of variation across grammars (Gass, 2013:161; Meisel, 2011:263). The basis of UG in language acquisition stems from the observation that children acquiring their L1s possess so much knowledge of their languages than the input provides (Poverty of the Stimulus), which implies that humans have a biological endowment for language. In other words, the knowledge of language is seen as being internal to the human mind/brain.

[3] The term initial state in language acquisition is defined as the beginning point of language learning or linguistics development, which is generally assumed to be characterized by UG in L1 acquisition (Meisel, 2011; Gass, 2013) and both L1 and UG in L2 acquisition, among generative linguistic scholar (Schwartz and Sprouse, 1994, 1996, 2000; Schwartz, 1998, among others).

acquisition? It is important to note that the concept of the initial state in SLA has been a widely debated issue among SLA scholars. Some scholars argue that only the L1 grammar is the starting point for L2 knowledge (Bley-Vroman, 1989, 2009) while others maintain that only UG principles constitute the initial state (Epstein, Flynn and Martohardjono, 1996, 1998). For example, Flynn (1996) proposes that the L2, like L1 acquisition, is UG sanctioned and that there is a disconnection between the first and the second languages during the development of the L2 interlanguage grammar. Even though I agree that UG is involved in L2A, it is however difficult, in my opinion, to accept the claim that the L1 and the L2 are disconnected in L2A, since cognitive and psycholinguistic research shows that all languages are active in a bilingual mind during language production and control (Kroll, Gullifer and Rossi, 2013, among others). Furthermore, many other researchers have reasoned that both L1 and UG are invloved in second language acquiusition (White et al., 2012; White, 2008; Slabakova, 2016, among others). For instance, Slabakova (2009, 2016), Gass (2013), Goad and White (2004) among others, argue that some parts of L2 linguistic knowledge may be innate whereas other parts are sensitive to the L2 input frequencies and regularities and L1 influences. This perspective on the initial state of L2 learning suggests that L2A is instantiated by UG principles and parameters as well as linguistic knowledge from the first language.

Therefore, the term second language acquisition, as used in this study, means the acquisition of a second language after the first language has been acquired. I do not extend it to include a third or fourth language, since the main focus of this study is to examine L1 Dagbani speakers' knowledge of L2 English article and the role the L1 plays in the L2 learning process. Also, I hold the view that the initial state for L2A is sactioned by both L1 and UG in support of the view expressed by Slabakova (2016:45) that "one cannot realistically teased these sources apart" in the L2 acquisition process.

2.1.1 Transfer in L2A

The concept of transfer has been an important phenomenon in second language acquisition. Meisel (2011) defines transfer as the influence of one language on another in bilinguals. Meisel's conception of transfer is very broad and implies that both languages can affect each other bidirectionally. A more precise conception of transfer is that of Slabakova (2016:422) who proposes that L1 transfer in second language acquisition relates to the "grammatical knowledge that can be reasonably traced back to the influence of the native language." By this,

Slabakova means that transfer in L2 learning refers to the influence of the the first language on the L2 acquisition process. Furthermore, Slabakova indicates that in the acquisition process, linguistic principles can be accessed from both UG and the L1 while parameter values are often transferred from the native language, at the initial stage of L2 learning. Slabakova's definition of transfer is very relevant in this study, since one objective of the study is to examine how Dagbani article system may influence in the acquisition of L2 English articles among L1 Dagbani speakers.

White (2000, 2003a, 2003b) also proposes that in L2A, it is the underlying mental representation, rather than the surface structures which are transferred from the L1 onto the L2 learning process. Like Slabakova, White argues that transfer in L2 learning involves the underlying linguistic principles and constraints from the L1, which could be relied upon to facilitate (or which can interfere) in the L2 learning process. This means that transfer can still be effected even if the two languages differ in their surface representation.

Furthermore, it has been observed that in L2A, L1 transfer can be positive (facilitatory) or negative (interference). Odlin (2003:437) explains that language transfer in second language learning affects all linguistic subsystems such as the syntax, semantics and pragmatics. He observes that positive transfer ensues when some similarities exist between the L1 and L2 while negative transfer may occur when difference exist in the two languages. For example, there will be a positive L1 transfer in the acquisition of the SVO word order among Dagbani L2 English learners due to the word order similarity in main clauses between English and Dagbani (2). On the other hand, the V2 rule in Norwegian will have interference effect when learning adverb placement in English among Norwegian L2 English learners, as in (3).

(2) Similar word order in Dagbani and English main declarative clauses
   a. Amina da-Ø   ʃɛrga.   **Dagbani**
      Amina buy-PERF   needle
      Amina bought   a needle.

   b. Amina bought a needle.   **English**

(3) Effect of V2 among Norwegian L2 English learners (Westergaard, 2003:78)
   a. Peter spiller alltid piano.   **Norwegian**
      Peter plays   always piano
      Peter always plays the piano.

   b. Peter always plays the piano.   **English**

Based on the similar word order in Dagbani and in English declarative main clauses, as in (2), transfer of the SVO word order from L1 Dagbani when learning English will be a positive transfer, whereas due to the V2 rule in Norwegian, adverb placement in English is usually affected among Norwegian L2 English learners as in (3) due to a difference in syntactic movement rules. Westergaard (2003) observes that the effect of the V2 rule remains even among some advanced Norwegian L2 English learners.

2.1.2 The Full Transfer/Full Access Hypothesis (FT/FA Hypothesis)

The FT/FA hypothesis has been gaining recognition lately not only in L2 English article acquisition studies but also in studies on the acquisition of various functional morphemes across different second languages. The FT/FA was proposed by Schwartz and Sprouse (1994, 1996) and developed further in Schwartz (1998) and Schwartz and Sprouse (2000) to account for the influence of the first language in second language learning. Schwartz and Sprouse argue that the FT/FA model takes the entirety of the L1 grammar as the L2 initial state (hence the term 'Full Transfer'). By this, they mean that "all the principles and parameter values as instantiated in the L1 grammar immediately carry over as the initial state of a new grammatical system on first exposure to input from the target language" (1996:41). Furthermore, Schwartz and Sprouse maintain that the initial state of the L2 interlanguage grammar will change in respect to the L2 input that cannot be supported by the L1 grammar. Accordingly, the failure of the L1 grammar to assign a representation to the L2 input data will force some sort of restructuring of the interlanguage system (grammar) of the L2 learner. As a result, this restructuring draws from the options of UG (hence, the term 'Full Access'), thus making universal features and constraints accessible to the L2 learner. Schwartz and Sprouse (1994, 1996) noted that in some cases, the restructuring process may occur quite rapidly while in others, it maybe be slowly. The FT/FA, therefore assumes that the starting point of L2 learning is the L1 grammar but the L2 learner also have full access to UG in the acquisition process. Thus, the L2 learner is predicted to use the L1 grammar as a basis but to have full access to UG in cases where the L1 is insufficient for the learning task at hand (Gass, 2013: 168). The FT/FA proposals have been supported by several studies involving both child L2 and adult L2 learners (Avery and Radišić, 2007; Snape, 2008; Sarko, 2009; Zdorenko and Paradis, 2008; Ionin, Zubizarreta and Maldonado, 2008). A review of some of these studies in relation to L2 English article acquisition will be offerred in section 2.2.

2.1.3 The Feature Reassembly Hypothesis

The Feature Reassembly Hypothesis (FRH) (Lardiere 2008, 2009) was proposed to account for variability in acquisition among second language learners. The FRH argues that successful L2 acquisition involves acquiring the set of formal features of the target language. The proposal is that languages differ based on what features they encode in their functional morphology. Accordingly, Lardiere (2008, 2009) observes that assembling and reassembling the particular lexical items of an L2 demands that the L2 learner reconfigures features from the way they are represented in the L1 into new forms in the L2. Furthermore, based on the FRH it is assumed that variation in the acquisition of functional morphology is linked to how featural specification are expressed on lexical items across different languages. Hence, for second language learners to successful acquire the functional morphemes in the L2, they have to identify the featural composition of lexical items in both the L1 and L2. As Slabakova (2009a:280) explains, the proposal of the FRH is that learning an L2 involves figuring out how to reconfigure the formal featurs of the native language and those available from UG into new or different configuration in the L2. Therefore, Slabakova notes that the central issue in L2 acquisition according to the FRH is the assembly and reassembly of formal linguistic features. The first task (known as the mapping) involves taking note of the similarities of the functional morphemes in the L1 and L2 and mapping the L1 features to the L2 lexical items (Slabakova, 2009; Lardiere, 2008, 2009). This initial mapping could involve one-to-one mapping of features, one-to-many, many-to-one or even many-to-many. After the initial mapping comes feature reassembly, which means that old features will have to be reorganized and possibly new ones can be added in the developing interlanguage L2 grammar. The assumption also is that some features of the L1 can be deleted or reconfigured to the L2 target forms based on the influence of the L2 input cues. It is therefore taken that the process of reassembly can occur slowly or failed if there is no enough evidence in the L2 input to guide the learning process (Slabakova, 2009; Lardiere, 2009). The proposal of the FRH in a way provides explanation to how L1 transfer can either promote feature reassembly or obstruct it based on the featural composition of the L1 functional morphemes and the target L2 forms.

Many studies have provided eveidence in support of the FRH in L2 acquisition relating to different functional morphemes, including L2 article acquisition (Cho and Slabakova, 2014; Shimanskaya, 2015; Azaz, 2016; Shimanskaya and Slabakova, 2014; Hawkins et al., 2006; among others). For instance, Shimanskaya and Slabakova (2014) studied the acquisition of L2 French clitic object pronouns among L1 English speakers. Shimanskaya and Slabakova

11

observe that both English and French third person pronouns encode number and person features but differ in how they express gender. That is, object pronouns in English lexically encode [± human] feature and natural gender of their reference (as in *him/her* vs. *it*), whereas French object clitic pronouns encode grammatical gender (*le/la* masculine-feminine distinctions) but not the [[± human] feature. The use of *le/la* for gender marking in French entails that both animate and inanimate referents can either be masculine or feminine. It is also required that nouns, adjectives and determines have morphological gender markers to signal the masculine-feminine distinctions. Shimanskaya and Slabakova argue that these cross-linguistic differences in how the feature bundles are lexically encoded can be problematic for L2 pronoun resolution among English L2 French learners.

Shimanskaya and Slabakova, therefore, investigated the role of L1 transfer in the acquisition of L2 French clitic object pronouns among 87 L1 English speakers using a picture selection task and a self-paced reading task. Their aim was to determine how the information encoded in the L2 forms affects French object clitic pronoun interpretation among L1 English speakers. That is, how gender was interpreted in the use of *le* and *la* in contexts where the referent was either [+human] or [-human]. The results of their study showed that there was an L1 influence in the initial mapping of L1-L2 gender interpretation in the use of *le* and *la*, as the beginner L2 learners' initial use of these object pronouns were influenced by the natural gender system in their L1. That is, Shimanskaya and Slabakova found that the L1 English L2 French learners interpreted *le/la* accurately when these clitic pronouns refer to people than when they refer to inanimate objects. On the other hand, the advanced learners, accurately interpreteted *le/la* in both [+human] and [-human] conditions. Based on this, Shimanskaya and Slabakova mainatined that there was a successful reassembly of morphosyntactic features. Their study provided support for feature reassembly in L2 acquisition as Shimanskaya and Slabakova (2014: 523) argued that gender had become part of the feature specifications of the L2 clitic pronouns in the grammar of the L1 English L2 French learners, even though the feature [gender] is not lexically encoded in the participants' L1 pronoun system.

2. 2 Previous Studies in L2 English Article Acquisition

In this section, I present the Article Choice Parameter (ACP) and the Fluctuation Hypothesis (FH) and then review a few previous studies on L2 English article acquisition in relation to these proposals on L2 article acquisition. Studies on both languages with and without articles are presented to highlight what the differences are and what the main problems of L2 article acquisition are.

2.2.1 The Artcile Choice Parameter and the Fluctuation Hypothesis

Ionin (2003) and Ionin, Ko and Wexler (2003, 2004), using insights from previous studies on definiteness and specificity in semantic interpretations (Fodor and Sag, 1982; Heim, 1982; Russel, 1905; Lyons, 1999), examine L2 English article errors among L1 speakers whose languages lack articles. It is argued that article semantics and interpretation in English is influenced by definiteness while in Samoan, it is influenced by specificity (Ionin, 2003; Ionin and Wexler, 2003; Ionin et al. 2003). Ionin, Ko, Wexler (2004) observe that the semantic feature [+specific] is responsible for article misuse among L2 learners, where speakers of article-less languages overuse *the* in specific indefinite contexts (4a) and *a* in definite non-specific contexts (4b). Both examples are taken from Ionin, Zubizarreta and Philippov (2009:338).

(4) Article misuse contexts

    a. [+definite, -specific] context: target word is *the*.
       I want to talk to **the winner of this race** – whoever that happens to be.

    b. [-definite, +specific] context: target word is *a*
       Professor Robertson is meeting with **a student from her class** – my best friend Alice.

The observation is that in (4a), the target word is *the* but L2 learners often incorrectly supply *a* in that context, resulting in *a* overuse, whereas *the* is often overused in (4b), where the target word is *a*. Based on the article semantics in English and in Samoan, Ionin, Ko, and Wexler (2004) propose the Article Choice Parameter (ACP) (5) as a UG semantic parameter.

(5) The Article Choice Parameter (for two article languages)
       A language that has two articles distinguishes them as follows:
- The Definiteness Setting: Articles are distinguished on the basis of definiteness.
- The Specificity Setting: Articles are distinguished on the basis of specificity.

Ionin, Ko and Wexler (2004:13) maintain that the ACP predicts two possible patterns of article choice in two-article languages cross-linguistically, where articles are grouped by definiteness, as in (standard) English, and by specificity, as in Samoan, presented in Table 1.

Table 1: Article Grouping Cross-linguistically

a. Article grouping by definiteness   b. Article grouping by specificity

	+ definite	-definite
+specific	the	a
-specific		

	+ definite	-definite
+specific	le	
-specific	se	

Since articles have definiteness interpretation in English and specificity interpretation in Samoan, Ionin Ko and Wexler (2004) further propose the Fluctuation Hypothesis (6) regarding article choice among speakers of article-less languages when acquiring an article language.

(6) The Fluctuation Hypothesis (FH) (Ionin, Ko and Wexler, 2004:17).
   a. L2 learners have full UG access to the two settings of the Artcile Choice Parameter.
   b. L2 learners fluctuate between different parameter settings until the input leads them to set the parameter to the appropriate value.

Ionin, Ko and Wexler claim that under the FH, the state of L2 grammar is UG-constrained, which means that in L2 English article acquisition, L2 learners have access to the UG principles and parameters. They are also of the view that L2 learners' errors are predicted to be nonrandom and reflect possible UG parameter-settings. The FH thus proposes that errors in L2 data stem from L2 learners fluctuating between the definiteness and specificity setting of the ACP. That is, since English articles are set to the feature [±definite] with specificity signalled by the discourse context, L1 speakers of article-less languages, when acquiring English articles, fluctuate in their use of *the* and *a/n* between definiteness and specificity until the input guides them to the right setting.

Several studies, including Ionin and colleagues have tested the FH in L2 article acquisition among L2 learners from different L1 backgrounds. In what follows, I review a few of these studies on L2 learners from both article and article-less language backgrounds.

2.2.2 Ionin, Ko and Wexler (2004) and Ionin, Zubizarreta and Maldonado (2008)

Ionin, Ko and Wexler (2004) made the following predictions in Table 3 for L2 article acquisition. The fluctuation contexts for article misuse are restricted to non-specific definites

([+definite, -specific]) and specific indefinites ([-definite, +specific] contexts, as highlighted in Table 2.[4]

Table 2: Predictions for article choice in L2 English

Context	[+definite] (target: the)	[-definite] (target: a)
[+specific]	correct use of *the*	**overuse of *the***
[-specific]	**overuse of *a***	correct use of *a*

To test these predictions, 30 L1 Russian, 40 L1 Korean speakers and 11 native English speakers were recruited. A forced-choice elicitation task, a written production task and a proficiency test were used to test the L1 Russian and L1 Korean article choice patterns in L2 English. All participants took the three tests except the native English control who took only the forced-choice task. The L2 English learners were categorized into beginners, intermediate and advanced learners based on their proficiency scores. The forced-choice task had 32 dialogues grouped into four contexts. The target sentence in each dialogue had a missing article and participants had to choose between *a, an, the* or (—) based on the context given in the dialogue. Examples (7) to (10) illustrate the four context types in the forced-choice task.

(7) [+definite, +specific] context
Conversation between two police officers
Police Officer Clark: I haven't seen you in a long time. You must be very busy.
Police Officer Smith: Yes. Did you hear about Miss Sarah Andrews, a famous lawyer who was murdered several weeks ago? We are trying to find (a, the, ___) murderer of Miss Andrews – his name is Roger Williams, and he is a well-known criminal.

(8) [+definite, -specific] context
A conversation between a mother and her son.
A: It's already 4 pm. Why isn't your sister home from school?
B: She just called and told me that she got into some trouble in school! She is talking to ____ head teacher of her school! I don't know who that is. I hope she comes home soon.

(9) [–definite, +specific]
In an airport, in a crowd of people who are meeting arriving passengers
Man: Excuse me, do you work here?
Security guard: Yes.

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[4] Based on new data on specificity marking in Samoan which comes from studies by Fuli (2007) and Tryzna (2009), Ionin, Zubizarreta and Philippov (2009) argue that Samoan marks specificity with indefinites only using *se* while definiteness is marked by *le,* whether in specific or nonspecific context. Thus both definites and specific indefinites are marked by the same morpheme *le.* As a result, the fluctuation context is currently proposed to operate only in [-definite, +specific] context. Ionin et al. (2009:342) observe that *the* overuse with specific indefinites is consistent with natural language data in both child and adult acquisition studies but *a* overuse with non-specific definites [+definite, -specific] has no parallels in natural languages.

Man: In that case, perhaps you could help me. I am trying to find (a, the ___)
red-haired girl: I think that she flew in on Flight 2329.

(10) [-definite, -specific] context
       A conversation between a pupil and a librarian in a children's library.
       A: I'd like to get something to read, but I don't know what myself.
       B: Well, what are some of your interests? We have books on any subject.
       A: Well, I like all sorts of things that move – cars, trains … I know! I would like to
       get ___ book about airplanes! I like to read about flying!

Results of the forced-choice task for the intermediate and advanced learners provided support for their predictions, as shown in Table 3 (Ionin, Ko and Wexler (2004:30). The results showed that *the* was overused in specific indefinite contexts whereas *a* was overused in definite non-specific contexts, among both L2 groups.

Table 3: Article choice by L1 Russian and L1 Korean

[+definite] (target: the)			[-definite] (target: a)	
	the	a	the	a
L1 Russian				
[+specific]	79%	8%	**36%**	54%
[-specific]	57%	**33%**	7%	84%
L1 Korean				
[+specific]	88%	4%	**22%**	77%
[-specific]	80%	**14%**	4%	93%

Ionin, Ko and Wexler found that both the L1 Korean and L1 Russian L2 English learners fluctuated between the definiteness and specificity settings of the ACP consistent with the FH predictions. Even though the L1 Koreans performed better in their article choice in all contexts than the L1 Russians, there was overuse of *the* in [-definite, + specific] contexts by both L1 Russians (36%) and L1 Koreans (22%) and overuse of *a* in [+definite, -specific] contexts by both L2 learners (33% for L1 Russians and 14% by L1 Koreans). However, the role of L1 transfer in L2 article acquisition was left open in their study.

Based on the findings of Ionin, Ko and Wexler (2004), another study was conducted by Ionin, Zubizarreta and Bautista Maldonado (2008) to investigate the roles of L1 transfer and L2 input in L2 article acquisition. L1 Spanish learners (an article language, where articles are set for definiteness) and L1 Russian learners were recruited for that study. Now, incorporating the role of L1 transfer into L2 article acquisition, Ionin, Zubizarreta and Bautista Maldonado (2008:560) proposed the following hypotheses and predictions in (11) and (12).

(11) Possibility 1: *Fluctuation overrides transfer*

      All L2 learners should fluctuate between definiteness and specificity in their L2-article choice.

      a. Both L1 Spanish and L1 Russian L2 English learners should exhibit the pattern in Table 2, showing interchangeable use of *the* and *a* on non-specific definites and specific definites.

(12) Possibility 2: *Transfer overrides fluctuation*

      L2 learners whose L1 has articles transfer article semantics from their L1 to their L2. L2 learners whose L1 lacks articles exhibit fluctuation.

      a. L1 Russian L2 English learners should exhibit the pattern in Table 2.

      b. L1 Spanish L2 English learners should exhibit accurate use of *the* in all the definite categories and accurate use of *a* in all indefinite categories, with no effect of specificity.

Six native English speakers, 23 L1 Russians and 24 L1 Spanish speakers took a forced-choice elicitation test on English article use and a cloze test for L2 English proficiency test in that study. They were asked to fill in the gap in each dialogue with any word they deemed appropriate.

Through statistical analysis, the L2 learners' responses were grouped into four conditions: *use of the; use of a; use of dash for no article;* and *other response*. The overall results showed two patterns: the L1 Russian group exhibited similar patterns of article use like the L1 Russian and L1 Korean groups in Ionin, Ko and Wexler (2004), where overuse of *the* with specific indefinites and overuse of *a* with non-specific definites were found. This provided support for fluctuation. However, the L1 Spanish group was accurate in their article use in both definite and indefinite contexts, providing support for the transfer overrides fluctation predictions, as in (12). Overall, Ionin, Zubizarreta and Bautista Maldonado (2008) concluded that the pattern shown in their study was the effect of L1 transfer but not proficiency, since the Russian group was more proficient than the Spanish group.

The results of Ionin, Ko and Wexler (2004) and Ionin, Zubizarreta and Bautista Maldonado (2008) provided support for fluctuation and L1 transfer respectively and consistent with many other studies on the FH and the ACP among both adult and child speakers of article-less languages (Ionin, 2003; Snape, 2008; Ionin, Ko and Wexler, 2003; Ionin and Wexler, 2003; Zdorenko and Paradis, 2008). For instance, Zdorenko and Paradis (2008) conducted a longitudinal corpus-based study of narratives among 17 child L2 English learners whose L1s are article languages (Spanish, Romanian and Arabic) and article-less languages (Chinese,

Korean and Japanese). In that study, three patterns were found: first, all children substituted *the* for *a* in indefinite specific contexts regardless of their L1 background, secondly, all children used *the* in definite contexts more accurately than *a* in indefinite contexts regardless of their L1 backgroud, and lastly, children from articles-less L1 background omitted more articles than those from article languages at the early stages of acquisition (p. 227). Accordingly, Zdorenko and Paradis (2008) concluded that fluctuation is a developmental process which overrides transfer in child L2 English article acquisition.

However, in my view, if fluctuation is a developmental process, it remains unclear at what stage and age of a child's language development will fluctuation ceases to operate. Furthermore, many other studies have provided evidence against the FH (Hawkins et al., 2006; Trenkic, 2007, 2008; Snape, Leung andTing, 2006, among others). For instance, Hawkins et al. (2006:19) studied Japanese and Greek (an article language) L2 English learners' article choice using a forced-choice task. They found that like the Russian and Korean speakers in Ionin, Ko and Wexler's (2004) study, the Japanese speakers fluctuated in their article choice. However, significant individual variation was found among the Japanese speakers. Hence, Hawkins et al. (2006) opine that the ACP is stipulative. Additonally, they observed that individual variations in article choice among article-less language speakers cannot be accounted for by the ACP and the FH. Other studies which investigated both fluctuation and L1 transfer effects in L2 article learning are presented in the following subsections.

2.2.3 Mayo (2009)

Following Ionin, Ko and Wexler (2004), Mayo (2009) investigated the role of L1 in the acquisition of article semantics among Spanish speakers. As Mayo (2009) observes, in Spanish, the semantic contrast between definite articles (*el, la, los, las*) and indefinite articles (*un, una, unos, unas*) is that of definiteness and not specificity, as exemplified in (13) and (14) (Mayo, 2009:23).

(13)   Isabel quiere   entregarle   el premio al   ganador
          Isabel want-3sg present clitic the prize   to the winner
          'Isabel wants to present the prize to the winner
    a. …. pero él no quiere   que ella se   lo entregue.   [+specific]
          but he not want-3sg that she clitic clitic give-3sg
          but he doesn't want her to give it to him.'
    b. … pero tendrá   que esperar a que termine   la carrera [-specific]
          but have-3sg-FUT that wiat   to that finish-sgs the race
          but she will have to wait till the race finishes'

(14)   Carlos quiere   casarse con   una médico
            Carlos want-3sg   marry with a   physician
            'Carlos wants to marry a physician
       a. … aunque siempre está discutiendo con ella en el   hospital [+specific]
            although always is-3sg arguing   with her in   the hospital
          although he is always arguing with her in the hospital.'

       b. … aunque   todavía no conoce   a   ninguna   [-specific]
            although   still   no know-3sg OBJ none
            although he hasn't met one yet.'

Like English, specificity in Spanish is context governed with article semantics purely based on definiteness. The dialogue in (13a) is [+definite, +specific] while in (13b) it is [+definite, -specific]. On the other hand, in (14a) the context is [-definite, +specific] and [-definite, -specific] in (14b).

In order to test the role of L1 in L2 English article acquisition among L1 Spanish speakers, Mayo (2009:23-24) predicted that Spanish learners of English will not fluctuate between the features [± definite] and [±specific] since Spanish, like English, has articles. He reasoned that Spanish learners of English will make accurate use of *the* in all definite categories and accurate use of *a* in all indefinite categories, with no effect of specificity, which will support Ionin et al.'s (2008) second possibility: transfer overrides fluctuation (see example (12)). He also predicted that proficiency will have an effect where advanced learners are expected to be more accurate than low-intermediate learners. Finally, Mayo hypothsized that if directionality is a general property of the L2 acquisition of articles, then the Spanish L2 English learners will be more accurate in using the definite article in definite contexts than the indefinite article in indefinite contexts.

A total of 75 participants, consisting of 60 adult Spanish speakers and 15 native English speakers, were recruited for the study.The Spanish speakers were put into two groups (Low-intermediate -30 and Advanced groups -30) based on their scores in the Oxford Quick Placement Test for English proficiency. Mayo (2009) used the same forced-choice elicitation task which was used in Ionin, Ko and Wexler (2004). An additional test items with 8 contexts (four for previous-mentioned definites and four for first-mentioned indefinites) were also used.

Results of the test showed that the low-intermediate Spanish L2 English learners use *the* with definites, in both specific and non-specific contexts but they also use *the* with indefinite in

[+specific] contexts. Also, *a* was used with indefinites whether specific or non-specific, and never in a definite context. The overall results shown in Tables 4 (Mayo, 2009:28) indicated that the use of *the* in definite contexts was better than the use of *a* in indefinite contexts, thus providing support for the directionality prediction among the intermediate learners but not in the advanced group.

Table 4: Summary of the results of L1 Spanish L2 English learners' groups

	[+definite] (target: the)		[-definite] (target: a)	
	the	a	the	a
Intermed. Group				
[+specific]	100%	0%	6.25%	93.75%
[-specific]	100%	0%	1.25%	98.75%
Advanced group				
[+specific]	99.2%	0%	1.6%	98.4%
[-specific]	97.5%	2.5%	0%	100%

The pattern shown in Table 4 led Mayo (2009) to argue that the directionality effect found among the low-intermediate group disappears with advancement in proficiency. In general, the influence of their L1 in L2 acquisition was supported. The Spanish learners of English had transferred the article semantics of Spanish onto English, which led to their accurate performance. Furthermore, proficiency was found to influence article acquisition, since there was significant difference between the intermediate and advanced L2 learners.

2.2.4 Sarko (2009)

One very interesting study in relation to this current study is that of Sarko (2009). Sarko (2009) investigates the acquisition of English articles among L1 Syrian Arabic and L1 French speakers. According to Sarko, Syrian Arabic has a morpheme to mark definiteness but no phonologically overt exponent for indefiniteness, an article system closer to that of Dagbani whose speakers are the focus of my study. Sarko argues that the definite marker *al-* occurs with all NPs (count/mass and singular/plural nouns) with indefiniteness signalled by bare NPs, as in (15). French on the other hand disallows bare NPs, and requires that all NPs either in singular, plural or mass contexts must have overt articles. Also, Sarko maintains that in French, singular articles do not only encode (in)definiteness but also number and gender, whereas indefinite plural and mass nouns in French also require overt articles. These properities of the DP in French is shown in (16) (Sarko, 2009:47-48).

(15)   išteret   **kita:b** alsbuʕ al-amadi. **al-kitab** hadija la-rfiq   ʕaziz
          bought-I book   week   the-last   the book present to friend dear
           I bought a book last week. The book is a present to a dear friend.

(16)   a. Tu as laissé dans *le livre*   que tu as acheté hier (def.sg.masc.)
            'you left the book which you bought yesterday in the garden.'

        b. *La jungle* est un endroit dangereux   (def.sg.fm.)
           'the jungle is   a dangerous place.'

        c. *Les médecin* pensent que la rougeole réapparaît (def.pl.masc. and fm.)
           'doctor thinks that measles is coming back.'

        d. Je me suis trouvé *une belle maison* en Ecosse (indef.sg.fm.)
           'I have found myself a lovely house in Scotland.'

        e. Voulez-vous voir *un Picasso*? (indef.sg.masc.)
           'Do you want to see a Picasso?

        f. Je lui ai offert *(*des*) *roses* (indef.pl.masc. and fm.)
           'I gave her Ø roses.'

        g. J'ai acheté *(*du*) beurre.
           'I bought Ø butter.'

Given the differences between Syrian Arabic, French and English in relation to their DP systems, Sarko made the predictions in (17) to test L2 English article acquisition among L1 Syrian Arabic and L1 French speakers. I cite only the predictions relevant for my current study.

(17)   Hypotheses and predictions (Sarko 2009:48-49).
       Hypothesis 1. Both L1 Syrian Arabic and L1 French speakers will not fluctaute in their article choice in English, since they both have articles to encode definiteness and indefiniteness. This will be consistent with the Full Transfer Hypothesis.

       Hypothesis 2. Intermediate proficiency Syrian Arabic speakers will fluctuate between using *a* and *the* with [-definite, +specific] NPs, like speakers of article-less L1 speakers do, since Syrian Arabic lacks an indefinite article.

Two tasks were used: a written forced-choice elicitation task and an oral production tast (a story recal task). The forced-choice task was similar to the one used in Ionin, Ko and Wexler (2004). It consisted of 88 short dialogues. The text of the dialogue was in Arabic or French depending on the participant's L1 except the test sentence which was in English. In the story recal task, participants were to listen twice to the audios of five short stories adopted from Snape (2005) and were then given word prompts to assist them retell the story. Also, the Oxford

Quick Placement Test was used to assess L2 learners' proficiency levels. A total of 84 participants, consisting of 57 L1 Syrian Arabic speakers, 18 L1 French speakers and 9 native English speakers took part in his study. The L2 learners were grouped into intermediate and advanced learners based on their proficiency scores.

The results of the study showed that both the L1 Syrian Arabic and L1 French speakers did not fluctuate in their article choice between definiteness and specificity in English consistent with hypotheses 1. This provided support for the Full Transfer/Full Access Hypothesis. With regard to the L1 Syrian Arabic speakers, Sarko (2009) reports that the definite article was overused where an NP was modified by a relative clause (RC). Sarko interpreted this as the result of L1 transfer, since in Syrian Arabic, the presence of an RC modifier with an overt complimentiser, in both spoken and written Arabic, forces the insertion of the definite article *al*. In addition, Sarko reports that in [-definite, -specific] contexts, Ø was selected 22% of the cases among the intermidiate learners and 15% among the advanced learners. Sarko concluded that since the French speakers did not exhibit this pattern, it shows that "under communicative pressure, and where cognate NPs in the L1 are bare, L2 learners are likely to opt for a default Ø form" (p. 63), hence providing evidence for the proposal on missing surface inflectional morphology (White 2003c; Lardiere, 2004, 2005; Sundquist, 2005). Another relevance of Sarko's (2009) study is the role of modifiers in article acquisition. Several other studies have examined the role of modifiers in L2 article acquisition with rather contradictory findings (see Trenkic 2007, 2009; Sundquist, 2005; Park and Song, 2008; Chung, 2009, among others).

2.2.5 Winward (2014)

Winward (2014) studied L2 English article acquisition among Thai learners of English to examine their developmental sequence of acquisition by using a cross sectional analysis of Thai learners' English proficiency scores and a longitudinal study of their article use. Thai is a language which lacks articles, like Koran, Japanse and Chinese. Additionally, Thai lacks any form of inflectional morphology such as tense and aspect on verbs, and number and case on nouns, which according to Winward affect Thai learners' English production (p. 54). Also, unlike English, Thai has no morphemes to mark definiteness. Winward (2014) investigated L1 transfer in L2 article acquisition as well as whether an expossure to large volume of specially-constructed L2 input without explicit teaching will have impacts on Thai L2 article acquisition. To investigate that, the hypotheses in (18) and (19) were used in two experiments (Winward, 2014:52-53).

(18) Hypothesis in Experiment 1
      Thai learners will make significantly fewer errors with DPs where definiteness and specificity have the same values than in DPs where definiteness and specificity have different values, which will reflect that there is interaction between definiteness and specificity. This pattern will mean that Thai L2 learners fluctuate in their article use.

(19) Hypotheses in Experiment 2.
      Hypothesis 1. When participants are exposed to large volumes of specially-constructed L2 input, they will make fewer errors with DPs that are [+definite, -specific] or [-definite, +specific] at the end of the exposure than they did at the beginning of the exposure period.

      Hypothesis 2. At the end of the exposure period, there will be no significant change in error rates with DPs in contexts that have different values for definiteness and specificity, compared to rates at the beginning of the exposure.

The first experiment was post-hoc, cross-sectional study where a written forced-choice elicitation task with 20 test items was used. Participants were asked to read each dialogue and fill in the missing article with either *the* or *a/an*. The option of choosing the null article was not given. A total of 80 L1 Thai speakers and 10 native English speakers took the test. All the Thai learners had been exposed to English at a very early age at school and were also those who had recent scores in IELTS for English proficiency.

Results of the first experiment showed that the native speaker control group performed as expected in all contexts. For the Thai speakers on the other hand, the results, in Table 5, revealed that there was a significant difference between their overall performance in contexts where definiteness and specificity have the same values than in contexts where they have different values as predicted. Note that article overuse was not reported in the results.

Table 5: Accuracy rates by semantic type (Winward, 2014:56).

	[+specific]	[-specific]
[+definite]	86%	60%
[-definite]	56%	82%

Also, Winward (2014) found that difference in proficiency correlated positively with overall accuracy in article use in contexts where both definiteness and specificity have the same values than in contexts where they have different values. This provided support for fluctuation and L1 influence, since Thai lacks articles. Winward also explains that the results suggest that learners can make significant improvement in accuracy of article use through exposure to large amount

of L2 input with both positive and negative feedback, where acquisition is a classroom based approach.

The second experiment was a longitudinal study where the same forced choice elicitation task was taken once every week for 15 weeks but with some modifications in the tokens from test-to-test to help avoid memorization of the tokens. In that experiment, learners were exposed to specially-designed L2 input to determine whether exposure to the L2 input in that fashion will have an impact on learners' article use. A group of 27 adult Thai speakers were used.

Results of the second experiment showed a similar pattern as in the first experiment. Accuracy rates were higher in contexts where both definiteness and specificity have same values than in contexts where they have different values. However, a follow-up study on the same 27 participants after six months of the second experiment reported lower accuracy rates in all context types. Accordingly, Winward (2014:60) concluded that the gains in accuracy which was made over the course of the exposure went through rapid attrition once the exposure ended. This study has a pedagogical implication, since most L2 English learners go through explicit teaching in a classroom context (with little naturalistic learning process). This finding shows that consistency in teaching certain forms through exposure to large L2 input is important in the acquisition of some functional morphemes, where the acquisition process is classroom based.

In summary, the main issues raised in all these previous studies in relation to L2 English article acquisition among L2 learners from different L1 background are as follows. First, based on new data about specificity in Samoan, it is argued that fluctuation may be restricted to specific indefinite [-definite, +specific] contexts. However, little is known about whether fluctuation still characterizes L2 learners from article-less languages or speakers from article languages which lack an overt indefinite article (e.g. like Dagbani) can exhibit fluctuation in their article choice. Second, the ACP and the FH are said to be relevant in predicting errors of article misuse (substitution errors) but may not be able to account for article omission errors (Zdorenko and Paradis, 2008:233). Also, Schönenberger (2014:80) maintains that learners of a two-article system language whose L1 is an article-less language have to discover that there is a functional category D which hosts articles, where in some contexts, D must be filled, and that definite and indefinite articles encode different meanings. Based on this reasoning, article omission/substitution errors may be accounted for by other linguistic theories, such as the feature reassembly proposals, but not the ACP/FH. It has also been argued that modifying

elements and salient referents influence L2 English article acquisition among learners from different L1 backgrounds. Thus, L2 learners are said to omit articles in contexts where the NP is modified or has some other salient features (Trenkic, 2007, 2008, 2009; Trenkic and Pongpairoj, 2013; Park and Song 2008; Chung, 2009), although disagreements abound on this. Furthermore, it is observed that the FH cannot account for individual variation in article use even among speakers of article-less languages, and in other studies, fluctuation has been reported in contexts where it is not predicted to occur (Schönenberger, 2014:93).

Given the above observation, the current study becomes interesting. Dagbani like Syrian Arabic, is an article language which lacks an overt marker for indefiniteness, although it has two definite markers. It is also different from English, since English has articles to mark both definiteness and indefiniteness. However, little is known about how speakers of Dagbani will perform in their acquisition of L2 English articles, since a language like Dagbani has not been studied before. In the following chapter, I present the two languages under study, their article systems as well as how definiteness and speciuficity are expressed in these languages.

3 Articles and Definiteness in English and Dagbani

In this chapter, I will present the concepts of definiteness and specificity and then discussed them in relation to how they are expressed in both English and Dagbani. Since, definiteness is expressed through articles in both languages, the article systems of the languages will be the primary focus of this chapter. Therefore, sections 3.1 will cover definiteness and specificity. Then section 3.2 will cover how these are encoded in English while in 3.3 I will discuss how definiteness and specificity are marked in Dagbani. Finally, in section 3.4, I will compare the two languages to identify the similarities and mismatches and the possible areas of difficulty for the L2 learners.

3.1 The concepts of Definiteness and Specificity

Definiteness and specificity are both universal semantic features which every language has a means of expressing. The concept of definiteness entails notions of familiarity, uniqueness and presupposition of existence and or maximality, as proposed by Heim (1991). It follows from Heim's proposition that a referent is definite in a discourse context if it is known to both the speaker and the hearer based on shared knowledge. Ionin, Ko and Wexler (2003, 2004) also define definiteness, as in (20).

(20) Definiteness defined informally (Ionin, Ko and Wexler, 2004:5)

If a DP of the form [D NP] is [+definite], then the speaker and the hearer presuppose the existence of a unique individual in the set denoted by the NP.

Similarly, Trenkic (2008:4) defines definiteness as the speaker intention to refer to a referent and expects the referent to be uniquely identifiable to the hearer. These definitions of definiteness show that definiteness is both speaker and hearer knowledge of a unique referent within a discourse context.

Specificity, on the other hand, makes reference to only speaker knowledge and his/her intention to refer to it. I adopt the definition of specificity, as in (21), from Ionin, Ko and Wexler (2004).

(21) Specificity defined (Ionin, Ko and Wexler, 2004:5)

If a Determiner Phrase (DP) of the form [D NP] is … [+specific], then the speaker intends to refer to a unique individual in the set denoted by the NP and considers this individual to posses some noteworthy property.

However, Trenkic (2008) claims that specificity is nothing more than "an intent to refer". He maintains that the assertion of notewrothiness is problematic, since the term is vague and may be difficult to argue for. Trenkic (2008:4) further observes that "a speaker may know many noteworthy properties about the individuals or objects concerned, but without an intent to refer, the context remain non-specific." Hence, he conludes that "'having a referent in mind and intending to refer to it' must be distinguished from being familiar with identifying attributes of the entity in question."

Since languages differ in how they express definiteness and specifity, the next subsections will cover how these concepts are encoded in both English and Dagbani.

3.2 Definiteness and Specificity in English

Definiteness in English is expressed through articles whereas specificity is context governed. Based on this, articles are used in English to mark NPs as either definite or indefinite while specificity is signalled by the context of a sentence. Definiteness and specificity are argued to influence article use in English among L2 learners based on how these semantic universals are expressed in their languages. For instance, L2 English article acquisition studies have shown that L2 learners find it hard to master accurate use of the articles, especially if their L1s lack articles (Hawkins et al., 2006; Ionin, Ko and Wexler, 2004; Ionin, Zubizarreta and Philippov, 2009; Mayo, 2009; Schönenberger, 2014; Sarko, 2009, among others). In what follows, I present the articles in English and their functions.

3.2.1 The English articles

Articles are part of English DP syntax, which help in making the meaning of nouns clearer by pointing out the kind of reference nouns have. These articles include *the*, *a/n* and the *zero article* (Ø)[5] form (Berry, 2012; Huddleston, 1984; Swan, 2005).

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[5] Master (2003:3-5) adds another layer of complexity when he argues that there is difference between the zero article and the null article. According to Master (2003), the zero article mostly occurs with indefinite noncount nouns (1a), plural count nouns (1b) and generic or nonspecific nouns (1c).
(1)   Functions of the zero article (Master, 2003:4).
            a. I like milk
            b. The boys ate chicken.
            c. Animals in underground caves are often blind.

On the other hand, Master (2003) argues that the null article is the most definite of all the articles in English. He observes that the null article occurs with bounded singular proper nouns (2a) and certain singular count nouns (2b).
(2) Using the null article (Master, 2003).
        a. Italy is a fascinating country

Berry (2012) observes that articles in English mark two types of references: specific vs. generic reference and definite vs. indefinite reference. In relation to the specific vs. generic reference, Berry observes that articles can pick out a specific referent of a noun within a discourse context (22a) or they can apply to all the possible referents of a noun, in which case generic reference is implied, as in (22).

(22) Specific vs generic references of nouns (Berry, 2012: 88-89)
    a. I saw *a man.*
    b. *A rifle* is a dangerous weapon.

In relation to definite vs. indefinite reference, the claims is that *the* and *a/an* differ such that *the* marks definite reference while *a/n* marks indefinite reference. That is in using definite or indefinite articles a speaker has to assume whether the hearer knows what the speaker is talking about or not.

The definite article is used to refer to an NP which both the speaker and the hearer know based on shared knowledge of the world or uniqueness of the referent. Greenbaum and Quirk (1990:77-78) refer to this instance of using the definite article as situational reference, which could be immediate situation reference (23), where the referent of the NP is physically present and visible to both the speaker and the hearer or a larger situation reference, which entails when the identity of the referent depends on some general knowledge and not just the specific experiences of the speaker and the hearer, as in (23).

(23) Using the definite article for situational reference (Greenbaum and Quirk, 1990; Swan (2005:54)
    a. Pass me *the salt*, please.
    b. *The president* of Ghana is going to give a speech.
    c. People used to think *the earth* was flat.
    d. We haven't seen *the sun* for days now.

In (23a), the assumption is that the *salt* is in the immediate environment of both the speaker and the hearer in the discourse context. It is something present and visible and can be uniquely identified. In (23b), a larger situational reference is implied, since there can only be one president for Ghana at a time, hence, the reference of that NP is also uniquely identifiable. These situational uses of the definite article are said to be common in spoken English (Berry,

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    b. I left it at home.
To tease apart these two article forms, Master (2003) proposes that if a bare noun phrase can be paraphrased with an indefinite article, then it has the zero article and if it can be paraphrased with a definite article, then it has the null article (see Master, 2003:4-5 for detailed argument). Despite these differences between the zero and null articles, I do not make a distinction between both forms of articles in this study.

2012). Other unique entities such as the sun, the moon, the earth, the universe are referred to by using the definite article, as in (23c, d).

The definite article can also be used for generic references to plural nouns when talking about nationalities of people (24a) or when used with generic adjectives (24b). It is again used with singular count nouns to refer to musical instruments and dances as in (24d) or when one refers to an entire set of animate/inanimate things, as in (24e).

(24) The definite article in generic reference contexts
 a. *The Welsh* are fond of singing. (Greenbaum and Quirk, 1990:86)
 b. *The poor* always struggle to make ends meet.
 c. The invention of *the wheel* was the best development in transport. (Berry, 2012:92)
 d. Can you dance *the tango*? (Berry, 2012:92)
 e. *The lion* is a dangerous animal. (Berry, 2012:91)

Apart from using the definite article for situational and generic references, Greenbaum and Quirk (1990) and Berry (2012) have noted that *the* can be used anaphorically to refer to a previously mentioned NP in a discourse context (25) or in a cataphoric reference to point forward to a referent that follows (26). Greenbaum and Quirk (1990) refer to this usage of the definite article as grammatical determination.

(25) Using the definite article in anaphoric reference. (Berry, 2012:90)
 a. I ate a cake and a roll; *the roll* made me sick. – direct anaphora
 b. The first time I rode my bike, *the machine* [bike] fell apart. – coreferential anaphora
 c. The first time I rode my bike, *the bell* fell off. – indirect anaphora

(26) Using the definite article in cataphoric reference
 a. *The girls* sitting over there are my cousins. (Berry, 2012:90)
 b. I am trying to find *the book* that I wanted to show you. (Greenbaum and Quirk, 1990:79)

In (25), different instances of referring to a previously mentioned NP have been shown, where in (25a), a previously mentioned noun, a *roll*, is referred to the second time. In (25b) the *bike* is referred to as machine and in (25c) the *bell*, something associated to a previously mentioned noun, *bike*.

Finally, the definite article is also used when there is premodification to an NP. Berry (2012) argues that premodification can be a reason for definiteness, which gives an idea of uniqueness when superlatives and other adjective premodifiers, such as *next*, *same*, *only*, *best*, etc., are used, as in (27).

(27) Using the definite article with premodified NPs
    a. *The best person* for the job is Emmanuel.
    b. It turned out that John had been to *the same school* as Max. (Huddleston, 1984:249)
    c. Daniel is *the only person* we can rely on for now.

In relation to the indefinite article, *a/n,* Berry (2012:89) claims that it is used with singular count nouns when they form the head of an NP and there is no reason to use the definite article, *the*. As a result, *a/n* can be used to establish existential reference (28a), to refer to any member of a set denoted by the NP (28b) or to describe something/someone rather than refer to him/it (28c). In addition, the indefinite article can be used for generic reference (28d), in numbers (28e) as well as in rates (28f).

(28) Situations where *a/n* are used. (Berry, 2012:89)

    a. There was *a new student* in class today.
    b. It's cold – you need *a jacket*.
    c. Will is *a teacher*.
    d. A rifle is *a dangerous weapon*.
    e. We scored *a hundred and five points*.
    f. Kojo runs twenty miles *an hour*.

It has also been proposed that in some contexts, zero/no article should be used. Parrott (2000:47) observes that the zero article is used with plural count and uncountable nouns when reference is made to general things, as in (29), or when the name of meal is referred to (30a). The zero article is used when we express time (30b), for generic reference (30c) or when we refer to names of illnesses with standard medical terms (30d) (Berry, 2012; Parrott, 2000; Greenbaum and Quirk, 1990; Swan, 2005).

(29) Using the zero article with plural and uncountable nouns.
    a. I usually have Ø *sandwiches* for lunch most days.
    b. Ø *Water* is necessary for life.
    c. I like Ø *music*
    d. We are having Ø *terrible weather*.

(30) Other contexts where the zero article is used.
    a. My son came to Ø *lunch* yesterday.
    b. Musah and I are going to London next Ø *week*.
    c. Ø *Lions* run more gracefully than most animals.
    d. Have you had Ø appendicitis?

Another area where all the articles in English can be used is in genericity marking. Generic reference can be expressed by using *a, the* or *zero article*. Ionin, Grolla, Montrul, and Santos (2014:369) state that genericity can be expressed in English either at the sentence level using kind-predicates, as in (31) or at the NP level, as in (32).

(31) Expressing genericity at the sentence level in English (Ionin et al. 2014:369)
  a. The hummingbird is bird [definite singular, √generic]
  b. A hummingbird is a bird [indefinite singular, √generic]
  c. The hummingbirds are birds [definite plural, #generic]
  d. Hummingbirds are birds [bare plural, √generic]

(32) Expressing genericity at the NP level in English (Ionin et al., 2014:371)
  a. The hummingbird is rare in the United States [definite singular]
  b. Hummingbirds are rare in the United States [bare plural]

The observation is that only bare plurals and definite singular can express NP level genericity in English (Ionin, Grolla, Montrul, and Santos, 2014; Ionin, Montrul, Kim, and Philippov, 2011) and or existential meaning (Ionin, Montrul, and Crivos, 2013). That is, in expressing NP level genericity, definite plurals and indefinite singulars will not express kind-reference and bare singulars are outright ungrammatical. This is interesting because, genericity in Dagbani is expressed by both bare singular and plural nouns, as I will demonstrate in 3.3.2.

3.2.2 Specificity in English

As already pointed out in section 3.1, specificity in English is expressed by the context of a sentence. Nevertheless, Ionin, Ko and Wexler (2003) observe that in English, specificity can be morphologically signalled by a referential *this*, since it creates the awareness that the speaker has a particular referent in mind, as in (33).

(33) There is *this book* I have alwated wanted to read.

Furthermore, Trenkic supposes that in English, specificity may be distinguished from what he calls "explicit stated knowledge" (ESK), which a speaker can express or deny in a discourse context. Trenkic (2008:12-13) thus provides some examples to illustrate how specificity, as an inter to refer, may differ from ESK in english, as in (34).

(34) Encoding specificity in English (adopted from Trenkic, 2008:13).
  a. [+definite], [- specific; - ESK] The speaker does not have a specific referent in mind, and she explicitly denies that she knows the identity of the person being talked about.

Bill: I'm looking for Adam. Is he home?

Rick: Yes, but he's on a phone call. It's an important call. He is talking to __**the**__ owner of his company. I don't know who that person is, but the call is very important to Adam.

b. [-definite], [+ specific; - ESK] The speaker has a specific referent in mind, but she explicitly denies that she knows the identity of the person being talked about.

Office Gossip

Gina: …and what about the others?

Mary: Well, Dave is single, Paul is happily married, and Peter … he is engaged to __**a**__ merchant banker, but none of us knows who she is or what she's like.

Even though in both (34a and b) the speaker explicitly denies any familiarity of the identifying attributes of the referents in the discouse, Trenkic argues that (34a) is nonspecific while (34b) is specific. In general, what this means is that unlike definiteness, the discourse of specificity lies only with the speaker and his/her intent to refer. Therefore, the notion of specificity in relation to the articles seem to be contextually influenced. An opinion shared also by Huddleston (1984:255) as he argues; whether an NP is interpreted as specific or not depends on the properties of the sentence containing it but not the form of the NP itself. Hence, both the definite and the indefinite articles can occur in sentences which can have specific or non-specific interpretations.

3.3 The Dagbani Language

Dagbani is a Gur language spoken by Dagomba in Northern Ghana. Dagbani is an SVO language. Grammatical functions are regulated by the position of the noun (in either subject or object position) except in focused structures where syntactic movements occur. Olawsky (1999, 2002, 2004) observes that the language has no overt case marking, no pro-drop phenomenon, but with common serial verb constructions. Morphologically, nouns have class systems based on number marking. Suffixes are mostly inflectional morphemes. Syntactically, tense marking is preverbal while aspect is marked by suffixes. However, there is no subject-verb or other grammatical agreements (Olawsky, 1999; Hyman and Olawsky, 2004). Dagbani has a natural gender classification system, where only animate referents are marked for gender (Pazzack, 2012). However, there has not been any comprehensive study on articles in Dagbani.

3.3.1 Articles in Dagbani

The nominal phrase of Dagbani is a DP with the D-element consisting of articles, demonstratives, and quantifiers, which occur post nominally (Olawsky, 1999; Issah, 2013), as in (35).

(35) The structure of Dagbani nominal phrase (Issah, 2013:204)

  a. HN > adjective > numeral > demonstrative determiner > article > quantifier

  b. paʔ-viɛla   ayi   ŋɔ
      woman-beautiful NUM   DEM
      These two beautiful women

  c. paʔ-viɛla   ayi   ŋɔ maa mali   lahiri   pam
      woman-beautiful-PL NUM DEM DEF   have   money   much
      these two beautiful women have a lot of money

Accordingly, Dagbani is an article system language (Issah, 2013; Olawsky, 1999; Hiraiwa et al., 2017; Inusah, 2017), which has a DP projection. (35a) illustrates the structure of Dagbani DP, whereas both (35b and c) show how adjective [**viɛla**], numeral [**ayi**] demonstrative [**ŋɔ**]and articles [**maa**] post modify the head noun [**paʔa**].

Both Issah (2013) and Olawsky (1999) observe that Dagbani has two dedicated morphemes for the definite article but with no grammatical marker for indefiniteness. It is thus argued that when a noun stands alone, then indefiniteness is implied. The two definite articles identified in the language are **maa** and **la,** as in (36), which is equivalent to the English *the*.

(36)   a. yili   **maa**
              house-sg   DEF
              the house

           b. doo   **la**
              man-sg   DEF
              the man

Even though **maa** and **la** both encode definiteness, it is argued that **maa** establishes a noun as definite if it is previously mentioned or known to the listener based on the context (immediate situational knowledge), whereas **la** establishes definiteness over what is generally known to both speaker and hearer (common ground knowledge) (Issah, 2013; Olawsky, 1999). Following from the functions of **maa/la**, Issah (2013) further proposes that **maa** has an anaphoric use while **la** is not used anaphorically, since it does not introduce NPs previously mentioned in the discourse. He further observes that both **maa** and **la** cannot replace each other and can both be used with DPs in subject or object positions, as in (37).

(37) Distribution of **maa** and **la** and sentences.

a. bu-a **la** kpi-ya
   goat-sg DEF   die-PERF
   the goat has died.

b. bi-hi   ku-Ø   bu-a   **la**
   child-Pl kill-PERF gost-sg   DEF
   children have killed the goat.

c. bu-a   **maa** kpi-ya
   goat-sg DEF die-PERF
   the goat has died

d. bi-hi   ku-Ø   bua **maa**
   child-Pl kill-PERF goat   DEF
   children have killed the goat.

Both (37a and b) illustrate the use of **la** with DPs in both subject and objective positions, whereas (37c and d) show the use of **maa** with DPs in both subject and object positions respectively. However, I wish to state that in this thesis, the semantic/pragmatic discourse difference between **maa** and **la** in relation to how that might influence the interpretation of definiteness and article choice in English will not be investigated. It may be true that the difference in use of **maa** and **la** can have some influences in how definiteness and article choice is learned among L1 Dagbani L2 English learners, but that is beyond the scope of this present study.

In addition, the definite article **maa** can occur with the demonstrative ŋɔ (38a) but **la** cannot occur with ŋɔ, as signalled by the ungrammaticality of (38b).

(38)   Co-occurrence restriction in Dagbani DP

a. bi-a   ŋɔ   maa   turi   ma   mi
   Child-sg DEM   DEF   insult-IMPERF 1sg   FOC
   This child is insulting me

b. *bi-a   ŋɔ   la   turi   ma   mi
   Child   DEM DEF   insult-IMPERF   1sg   FOC
   This child is insulting me.

Example (38) indicates that in Dagbani, a demonstrative pronoun [ŋɔ] can co-occur with the definite article **maa** but not with **la**. Given that the deictic functions of demonstrative pronouns can mark an NP definite, the presence of [ŋɔ] in (38a) can be interpreted to mean that an

emphasise has been laid, since the definiteness of the referent is already satisfied by the definite article **maa**.

Another important observation about Dagbani articles, in relation to generic reference, is that genericity is encoded by the bare form of the noun, either in singular or plural form, as in (39a and b). Both **maa** and **la** when used with either singular or plural noun cannot have a generic interpretation in Dagbani. They will always refer to specific definite referents, as in (39c).

(39) Expressing generic reference in Dagbani
    a. **noŋ-a**   nyɛla binzorigu.
       scorpion-sg be   thing-fearful
       A scorpion is a fearful thing (any kind of scorpion)

    b. **gbʊʔi-ma** lahi   ka   Dagbon.
       lion-Pl   again   NEG Dagbon
       Lions are extinct in Dagbon/Lions are no longer in Dagbon.

    c. Jengbun-a **maa/la** ŋubri   nimdi.
       Tiger-Pl   DEF eat-IMPERF   meat
       The tigers eat/are eating meat.

Based on this, it can be argued that generic reference in Dagbani, like indefiniteness, is also encoded by the bare form of the noun.

3.3.2 Specificity in Dagbani

Olawsky (1999:40) argues that even though there is no article to signal indefiniteness in Dagbani, the quantifiers **so/shɛba** and **shɛli/shɛŋa** (which are indefinite pronouns) were assumed to signal indefiniteness. However, Olawsky suggests that these rather encode specificity, since their meanings when combined with DPs can be translated to mean, '*a certain', 'a', 'some/any'*. He reasons that the occurrence of these indefinite pronouns with a noun may emphasize the indefinite nature of the noun, thus making it [+specific]. Based on this observation, Olawsky concludes that the addition of an indefinite pronoun to an NP can make it [+specific] noun but without it, the noun remains [-specific] (Olawsky, 1999:40), as in (40).

(40)   a. paʔ-so   boon-a.
           woman-QUANT   call-IMPERF 2sg
           A certain woman is calling you.

            b. paʔ-a   da-Ø   chinchini palli.

woman-sg   buy-PERF   cloth-sg   new

A woman bought a new cloth

   c. *paʔ-so   maa/la   boon-a.

      woman-QUANT   DEF   call.IMPERF-2sg

      *The a certain woman is calling you.

In (40a), the occurrence of **so** with the noun marks it as [+specific] but still indefinite. The absence of that in (40b) marks the noun as [-specific] and indefinite as well. Accordingly, I argue that in Dagbani, specificity is with the indefinite article, since a specificity marker cannot co-occur with the definite article as this results in the ungrammaticality of (40c). This means that there is a co-occurrence restriction between the definite articles and a specificity marker on an NP in Dagbani, based on Olawsky's (1999) conception that indefinite pronouns, such as **so, shɛba, shɛli** and **shɛŋa,** mark specificity in Dagbani.

The above determiner and article system of Dagbani makes the language a bit different from English. In what follows, I spell out the specific differences between the article systems of Dagbani and English and the areas that may pose challenges to Dagbani L2 English learners.

3.4 Differences between the English and Dagbani article systems

Apart from the fact that Dagbani has two definite articles, **maa** and **la**, which correspond to the English definite article, *the* (in both its anaphoric and situational usage), there are other basic differences between the two languages.

In Dagbani, the bare nouns (especially singular count or mass nouns) have indefinite interpretation, as in (41b) whereas in English an indefinite article goes with only singular count nouns as in (41a).

  (41)   a. Daniel has *a book* and a pen. – English

        b. Daniel   mali   **buku**   mini   **pɛn**. – Dagbani

        Daniel   have   book   CONJ   pen.

        Daniel has a book and a pen.

What it means is that a sentence like (41b) which is fine and acceptable in Dagbani without the indefinite article will be ungrammatical in English. That is the indefinite article is obligatory in (41a) but not in Dagbani (no article is required in such context).

Another difference is that in English, whereas the definite article cannot be left out when referring to unique DPs, such as the *sun, moon, universe*, etc. (42a-b), in Dagbani these DPs

can be referred to with or without a definite article. That means some bare DP in Dagbani can have definite interpretations when they are unique or based on common ground knowledge (42c-e), otherwise, it is indefinite, as already illustrated in (41b) above.

(42)   a. The sun is very bright.

    b. The earth is round.

    c. **wuntaŋ**   nyee-ya
       sun   bright-PERF
       The sun is bright.

    d. **teeŋku** nyɛla kul'kar-li
       sea   be   waterbody-big-sg
       The sea is a big waterbody.

    e. O   chaŋ   **daa**. (Olawsky, 2002:218)
       3sg go-PERF   market
       He/she went/has gone to the market

In (42c-e), the nouns are interpreted to be definite even though both DPs are bare nouns. The bare DPs in (41b) (**buku** and **pɛn**), however, have indefinite interpretations, which indicates that bare nouns can be definite/indefinite in Dagbani, whereas in English, the definite article is obligatory to make a noun definite.

Finally, genericity can be expressed in English using all the three articles (see section 3.2.1), whereas in Dagbani, genericity is expressed with bare nouns (see section 3.3.1). These differences could have some implications for L2 English learning among L1 Dagbani speakers.

Based on the above differences between Dagbani and English articles, I present Table 6 to reflect the nature of the article systems in both languages and to note the contexts which may be difficult for Dagbani L2 English learners.

Table 6: Article overlap and mismatches between Dagbani and English

Dagbani	Context	English		
		definite	indefinite	zero (Ø)
	definite	the maa/la	a/an maa/la	Ø maa/la
	indefinite (Ø)	the Ø	a/an Ø	Ø Ø

The contexts where there are overlaps and mismatches between Dagbani and English based on Table 6 are stated in (43).

(43) Contexts of article overlap and mismatch between Dagbani and English
   a. definite vs. definite
   b. indefinite vs. definite
   c. indefinite vs. zero article

These contexts may represent areas where there are likely to be errors in article usage among L1 Dagbani L2 English learners. That is, in (43a), since, both languages have overt markers for definiteness, it might not consitute a big problem, even though some challenges may still arise, given that Dagbani has two overt markers for definiteness with different pragmatic-discourse functions. In (43b), there may be a problem. Bare nouns in Dagbani are indefinite, generic and can also be definite in some cases. In English, definite nouns must have the definite article and genericity can also be expressed by the definite article and bare plurals. The last context (43c) will be the most challenging context. English has indefinite and zero articles with bare singular count nouns being ungrammatical, whereas bare nouns in Dagbani encode indefiniteness and genericity. This means that Dagbani L2 learners might find it very difficult to deal with this mismatch if L1 transfer occurs, as I argue in chapter 5.

4 Research Questions and Methodology

This chapter presents the methods and procedures used in this study. In section 4.1, I outline the research questions and predictions, while section 4.2 covers the methods. A description of the various tasks used in the study are offered in section 4.3 and the pilot study in section 4.4. Finally, in section 4.5, I present the main experiment of the study.

4.1 Research questions and predictions

Previous studies have shown that L2 English learners from article languages transfer the article semantics from their L1 onto the L2 interlanguage grammar, hence, they do not fluctuate between definiteness and specificity in their article choice while those from article-less languages do fluctuate (see sections 2.2.1 and studies reviewed in section 2.2). Moreover, revised data on specificity in Samoan shows that fluctuation may be restricted to specific indefinite contexts. RQ1 will therefore investigate that proposal. In addition, given that Dagbani and English have different article systems (cf. in sections 3.2 and 3.3), RQ2 will examine how Dagbani L2 English learners will perform in definite and indefinite contexts regarding the use of *the* and *a/n*. RQ3 will test whether Dagbani L2 English learners make more errors in contexts where the zero article is used than in contexts where an overt article is required in both the grammaticality and forced-choice tasks. This is also based on the differences between the articles of Dagbani and English (see section 3.4 for details).

The following research questions, as stated in chapter 1, are investigated in this study.

> **RQ 1:** Will Dagbani L2 English learners fluctuate between definiteness and specificity in their article use in English? That is, do Dagbani L2 English learners make more errors in contexts where definiteness and specificity have different values (the fluctuation contexts) than in contexts where they have the same value?

> **RQ 2**: Do Dagbani L2 English learners display varying accuracy in their article use in definite and indefinite contexts? In other words, do Dagbani L2 learners perform better in their article use in the definite contexts than in the indefinite contexts?

> **RQ 3**: Does article use in the generic/zero-article context present more challenges to Dagbani L2 English learners than article use in other contexts? Thus, do Dagbani L2 English learners make more errors in contexts where the zero article is required than in other contexts?

The main hypothesis of this study is that Dagbani L2 English learners will not fluctuate between definiteness and specificity in their article use, since Dagbani is an article language.

This means that there will not be any specificity effects in the article choice among Dagbani L2 English learners in the forced-choice task. The alternative hypothesis is that Dagbani L2 English learners will fluctuate in their article use, which implies that the L2 learners will be more accurate in their article choice is contexts where definiteness and specificity have the same values than in contexts where their values differ. Based on this, the following are my predictions for the study.

(44)   Study predictions
   Prediction 1: Dagbani L2 English learners will not fluctuate in their article use between definiteness and specificity, since Dagbani is an article language. However, given Dagbani does not have overt morphological marker for indefiniteness, the L2 English learners in this study will perform differently from L2 learners from other article languages that have both definite and indefinite articles. Prediction 1 will result from L1 transfer.

   Prediction 2: Dagbani L2 English learners will perform better in definite contexts than in indefinite contexts given that Dagbani has an overt grammatical marker for definiteness but not for indefiniteness. Precisely, the L2 learners will perform better in all definite contexts than in all indefinite contexts in the forced-choice task. In the acceptability judgement task, they will perform better in the definite article contexts than in the indefinite article contexts both in the grammatical and ungrammatical sentences. Prediction 2 will also result from L1 transfer effects. However, more proficient L2 learners will perform better than less proficient learners.

   Prediction 3: Dagbani L1 speakers within different proficiency levels acquiring L2 English will perform poorly in the zero article contexts. Since, Dagbani lacks an indefinite article, where the bare form of the noun signals an indefinite interpretation, learners are predicted to make more errors in the zero article context. This means that article use in the definite and indefinite contexts will be better than article use in the generic contexts in the forced-choice task. In the acceptability task, performance in ungrammatical sentences with the definite and indefinite articles will be better than performance in ungrammatical sentences with the zero article.

Prediction 1 is based on the general observation in L2 article acquisition studies (where forced-choice task has been the commonly used test) that L2 English learners from article languages make accurate article choice without any specificity effect (Ionin, Zubizarreta and Philippov, 2009; Ionin, Zubizarreta and Bautista Maldonado, 2008; Sarko, 2009; Mayo, 2009, among others). This is consistent with the FT/FA hypothesis where L2 English learners from article languages transfer the article semantics of their L1 onto the L2 acquisition process, as reported in Zdorenko and Paradis (2008), Winward (2014) and Odlin (2003) as well as in studies on the acquisition of functional morphology in general (Meisel, 2011; Schwartz and Sprouse, 2000;

White, 2008; Snape, 2005; White et al., 2012, among others). However, due to the fact that Dagbani has no overt morpheme for the indefinite article, the prediction makes a little twist in relation to L2 learners from other articles languages such as French, Spanish and Greek, as reported in Hawkins et al. (2006) for Greek, Ionin, Zubizarreta, and Philippov (2009) for Spanish and Sarko (2009) for French.

Predictions 2 and 3 are based on the difference in the article systems between Dagbani and English. Since Dagbani has no overt marker for the indefinite article, L1 transfer effect may lead some of the L2 English learners to make more errors in their article choice in indefinite contexts than in definite contexts. Hence, proficiency is predicted to have an effect in the article choice of the L2 learners as reported in several L2 article acquistion studies (Chung, 2011; Ionin, Zubizarreta and Maldonado, 2008), where advanced learners usually perform at par with native English speakers in their article choice. Therefore, in the forced-choice task, I predict that the L2 learners will perform better in all definite contexts ([+def, +spec] and [+def, -spec]) than in all indefinite contexts ([-def, +spec] and [-def, -spec]). In the acceptability judgement task, the L2 learners will perform better in the definite article context than in the indefinite article context in both grammatical and ungrammatical sentences. In relation to prediction 3, I expect the Dagbani L2 English learners to perform better in both the definite and indefinite article contexts than in the zero article contexts in both tasks. That is, article use in the generic contexts in the forced-choice task and in the zero article context in the acceptabiity task are expected to be poor.

4.2 Methods

This study uses an off-line experimental method to investigate the acquisition of English articles among Dagbani L2 English learners. Two different methods are used to obtain data for the study: a written forced-choice elicitation and an acceptability judgement tasks. These methods of data collection are consistent with the methods used in most previous studies on L2 English article acquisition (White et al., 2012; Butler, 2002; Cho and Slabakova, 2014; Snape, 2008) and offer an opportunity to assess both L2 English learners' competence and performance. It has been observed that different experimental tasks used in L2 acquisition can produce different results (Chung, 2011). For instance, Chung (2011) maintains that a task with narrow scope (a multiple choice task that tests only one thing, for example, article acquisition) and one with a wide scope (e.g. grammaticality judgement task which tests different grammatical constructions) can produce different results. Moreover, using two or more different tasks in a study can offer extensive and detailed results to better understand the

phenomenon under study. Accordingly, the two methods used in this study will help to better explore Dagbani L2 learners' interlanguage knowledge of English articles.

The motivation for using acceptability task in this study is based on the observation that it has a wider scope (Chung, 2011). It has test sentences for different conditions and filler sentences which indirectly test L2 learners' knowledge about other grammatical constructions (such as tense forms, subject-verb agreement, word order and plurality). Additionally, an acceptebility task is found to be very reliable in assesssing L2 learners' interlanguage knowledge and language competence for various phenomena and grammatical constructions in linguistic research (Leow, 1996; Sprouse, Carson and Diogo Almeida, 2012; McDonald, 2008; among others). Precisely, the acceptability task will help to determine the influence of Dagbani article system in the acquisition of English articles. Based on the overlaps and mismatches between the article systems of Dagbani and English (see section 3.4), the acceptability task is relevant in assessing how the absence of an overt indefinite marker in Dagbani influences article choice in English among L1 Dagbani speakers. A weakness of this task could be that no context was given prior to the sentence to be judged unlike in some studies (White et al., 2012). Nonetheless, the motivation for this is that providing contexts for each sentence to be judged could inform the participants that the test is on article use, hence, creating some kind of priming effect to their judgement.

The second task: a written forced choice elicitation task is the most widely used method in L2 article acquisition studies (Ionin, 2003; Ionin, Ko and Wexler, 2003, 2004; Mayo, 2009; Sarko, 2009; Trenkic, 2007, 2008; Hawkins et al., 2006; among others). It offers researchers the opportunity to design contexts where both definiteness and specificity can be made explicit to determine their influence in L2 article acquisition among speakers of different L1 backgrounds. Furthermore, given that the Article Choice Parameter (ACP) and Fluctuation Hypothesis (FH) are based on the interaction between definiteness and specificity in article choice (Ionin, Ko and Wexler, 2003, 2004), where forced-choice elicitation tasks are used to test that, it becomes relevant in this study too as a method. It will not only offer me the opportunity to assess the influence of the L1 article system in the acquisition of English articles, but also, it will help me to determine whether specificity has an impact on English article use among L1 Dagbani speakers. Hence, analysis of the performance of the L2 learners can provide evidence in support of or against the ACP and FH among Dagbani L2 English learners. That is, if fluctuation is supported, it means that Dagbani L2 English learners use the English articles to encode both definiteness and specificity. In what follows, I describe the experimental tasks in detail.

4.3 Experimental tasks

4.3.1 The acceptability judgement task

The acceptability judgement task (henceforth, AJT) consisted of 50 sentences, 40 of which are test sentences and the remining 10 are filler sentences. The 40 sentences are equally grouped into 20 grammatical and 20 ungrammatical sentences. These sentences are designed to test article use in four contexts, as in (45). Each context has 5 grammatical sentences (5 * 4 = 20) and 5 ungrammatical sentences (5 * 4 = 20), where each pair of grammatical sentence has a corresponding ungrammatical form.

(45) Contexts of article use in this study
    a. definite vs. indefinite context
    b. definite vs. zero article contexts
    c. indefinite vs. definite context
    d. indefinite vs. zero article context

In the [definite vs. indefinite] contexts, there are five grammatical sentences in which the definite article is used and five ungrammatical sentences in which the indefinite article is used. The [definite vs. zero article] contexts also have five grammatical sentences in which the definite article is used and five ungrammatical sentences in which the zero article is used. This pattern applies to the other two contexts. All sentence pairs have the same words and word order with the only difference being the article type. Examples of the test sentences for each context are shown from (46) to (49). All the test sentences are designed with simple and frequently used words to control for difficulty in understanding. The filler sentences are used as distracters. They are all ungrammatical sentences relating to subject-verb agreement, tense forms, case, plurality and word order, as in (50). Participants had to rate each of these 50 sentences on a Likert scale of 1 – 5 to determine whether each sentence is acceptable or not (see **Appendix 1** for details).

(46) Sample test sentences for [definite vs. indefinite] articles context
    a. Can somebody tell me who **the** winner of this game is?
    b. Can somebody tell me who **a** winner of this game is?
    c. **The** moon is full and bright tonight.
    d. **A** moon is full and bright tonight.

(47) Sample test sentences for [definite vs. zero] articles contexts
    a. **The** professor who teaches our class is very nice.
    b. Professor who teaches our class is very nice.
    c. **The** secret to success is hard work.
    d. Secret to success is hard work.

(48) Sample test sentences for [indefinite vs. definite] articles contexts
  a. My neighbour has **a** son and two beautiful daughters.
  b. My neighbour has **the** son and two beautiful daughters.
  c. I had **a** problem with my car two weeks ago.
  d. I had **the** problem with my car two weeks ago.

(49) Sample test sentences for [indefinite vs. zero] articles contexts
  a. I saw **a** cat eating something in my room yesterday.
  b. I saw cat eating something in my room yesterday.
  c. We would like to buy **a** new car next year.
  d. We would like to buy new car next year.

(50) Sample fillers
  a. Today father my bought me a new toy.
  b. The students having are a class today test.
  c. My sister little was given a pet on her birthday.
  d. The man is angry because Amina insulted he.
  e. My teacher likes reading quotations the Bible from.

4.3.2 The forced-choice elicitation task

The written forced-choice elicitation task (henceforth, FCT) contained sample dialogues used in Ionin, Ko and Wexler's (2004) study. However, some changes were made in some of the dialogues, especially in the names and in some lexical items, to reflect the context of the study background. This task consisted of short dialogues designed to test article use in four contexts, where definiteness and specificity are involved. Each context has four dialogues, as shown from (51) to (54). In each dialogue, a gap is left and participants are asked to fill in the gap with the appropriate article based on the discourse in the dialogue. Participants are given the options *the, a/n* and *0* (for the zero article) to choose from. The full form of the forced-choice task is attached as Appendix 4.

(51) Sample dialogue for [+definite, +specific] contexts
    A conversation between two friends at a store.
    A: Come on! We have been in this shop for several hours now.
    B: I can't make up my mind. Which shirt do you like best?
    A: I prefer _____ shirt with stripes.

(52) Sample dialogue for [+definite, -specific] contexts
    A conversation between a sales girl and a customer at a supermarket.
    A: Can I help you, Sir?
    B: Yes! I'm very angry. I bought some meat from this store, but it is completely spoiled! I want to talk to _____ owner of this store, whoever he may be. I want to see him right now!

(53) Sample dialogue for [-definite, +specific] contexts
A conversation between a waiter and a client in a restaurant.
A: Are you ready to order, sir? Or are you waiting for someone?
B: Can you please come back in about 20 minutes? You see, I'm waiting. I am planning to eat with _____ colleague from work. She will be here soon.

(54) Sample dialogue for [-definite, -specific] contexts
A conversation between a student and a staff secretary.
A: I'm looking for Mr Isaac Mensah.
B: I'm afraid he is busy. He has office hours right now.
A: What is he doing?
B: He is meeting with _____ parent, but I don't know who he is.

Included in this task are also eight additional dialogues to test article use in both generic singular and plural contexts, where the zero article is obligatory, as in (55) and (56). This is motivated by the fact that the acceptability judgement task did not contain grammatical sentences where the zero article is used. Moreover, since in the generic context definiteness and specificity are not so relevant, it became necessary to test article use in such contexts.

(55) Sample dialogue for a generic plural context
A conversation between two friends
A: Something strange happened to me last night.
B: What was it? Were you scared?
A: When I went home after our party, there were _____ cats in my siting room.

(56) Sample dialogue for generic singular context
A conversation between two students in class
A: Geography or Biology is in my mind when I get to high school.
B: Like seriously! What is your motivation?
A: It's because I have always been interested in _____ nature, especially animals and birds.

4.3.3 The Proficiency test

In addition to these main tasks, participants took an English proficiency test. The reason for having participants complete a proficiency test was to enable me put participants into different proficiency groups and to determine if proficiency has an effect in Dagbani L2 English learners' article choice. The participants completed a 40-multiple-choice Standardized Oxford Proficiency test for language knowledge, commonly used in many studies (Snape, Leung and Ting, 2006; Sarko, 2009; Mayo, 2009; Snape, 2008). This test consisted of two parts: the first part (first 20 questions) tests the participants' general knowledge of English grammar, as in (57). The second part is a narrative in a continuous form where participants must fill in the gaps

to ensure a logical flow in the narrative, as in (58). Each question has a sentence with a gap and three options below it from which participants must choose one to complete the sentence which makes it acceptable. A correct answer is awarded 1 mark. The proficiency test is attached as Appendix 3.

Additionally, background data about the participants, in the form of age, gender, other languages spoken and how long they have been learning English, were collected. The background data was to help assess how long participants have been learning English, whether they know other languages apart from their L1 and English and the influence these may have on their proficiency scores. The questions on participants' background data can be found in Appendix 2.

(57) Multiple choice task on English grammar (first part of the proficiency test)
In cold countries people wear thick clothes _____ warm.
☐ for keeping
☐ to keep
☐ for to keep

In some places _____ almost every day.
☐ it rains
☐ there rains
☐ it raining

(58) Multiple choice task on a continuous narrative (story)
The history of _____ is
☐ airplane
☐ the airplane
☐ an airplane

_____ short one. For many centuries men
☐ quite a
☐ a quite
☐ quite

4.4 The Pilot study

The experimental design was piloted with eight L1 Dagbani L2 English learners and two native English speakers. Four Junior high school and four Senior high school students were recruited for the pilot. Their ages ranged from 13 to 18 years with a mean age of 15.9 years. The proficiency scores for the second language learners (L2ers) in the pilot study ranged from 10 to 21. The two native English speakers on the other hand had ages 22 and 41 years, with a mean

age of 31.5 years. They each had a proficiency score of 39 out of 40. The subjects in the pilot study were given 60 minutes to complete the tasks. The purpose of the pilot study was to determine whether the experimental tasks were suitable for the study and appropriate for the participants' level (that is, not too difficult or too easy for the participants to respond to) as well as the time allocated to it.

Results of the pilot study showed that the tasks were appropriate. They were neither too difficult nor too easy even though both the L2 English learners and the L1 English speakers had rejected some grammatical sentences and incorrectly accepted few ungrammatical ones in the acceptability judgement task. However, the forced-choice elicitation task was unproblematic. Since, the participants had problems with some sentences in the acceptability judgement task, the two native speakers were contacted to find out the reasons for their choices. Some of the issues they raised had to do with the choice of words in the test sentences, the semantics involved or unclear instructions, while others were just oversight on their part. Based on their feedback, minor changes were made before the main experiment was conducted. Some of the test sentences were changed and more instructions included. All the participants completed the tasks within the given time frame, so no time adjustment was made in the actual experiment.

4.5 The Main experiment

In this section, I describe how the main experiment was conducted. First, I present the participants and how they were recruited for the study in section 4.6.1 and the procedure used in this study in section 4.6.2, where I provide the details involved in conducting the main experiment.

4.5.1 Participants

Participants for this study were recruited from two schools in Yendi, Northern Ghana: A Junior high school (JHS) and a Senior high school (SHS). A total of 45 L1 Dagbani speakers participated in the study. All participants have studied English as a foreign language for at least eight years, since English is used as an official language for government business and a medium of instruction in all Ghanaian schools. Many of these participants started learning English from grade 1 and have had exposure to English through formal schooling and or the media (both print and electronic). None of the participants had lived outside Ghana or in a country where English is the dominant language.

About 19 of the participants (female, n = 10 and male, n = 9) were from JHS class three (9th graders) with an age range of 12 – 18 years and a mean age of 14.36 years. The remaining 26 participants (female, n = 11 and male, n = 15) were recruited from SHS1 and SHS2 classes (10th grade and 11th grade). They had an age range of 13 – 19 years with an average age of 16.46. Two reasons motivated me to use students from these levels. First, JHS 3 is the upper level for basic education in Ghana, where students who pass the Basic School Certificate Examination (BECE), a national qualifying examination, gain admission into High school. Hence, JHS 3, SHS 1 and SHS 2 form a natural progression from basic education to secondary education within the academic cycle in Ghana. Secondly, most grammatical constructions in English are taught in an incremental basis from JHS to SHS, where the basics of some constructions are taught in JHS and the advanced constructions/forms taught in SHS. As a result, students from these levels in the Ghanaian educational system constitute a natural class and therefore appropriate for a study of this nature.

The recruitment process was in two phases. First, two formal letters were submitted to each school: one asking for permission to use students in the school for the experiment and the other describing the study. Then oral announcements were made to the students for voluntary participation. The students were informed that only L1 Dagbani L2 English learners were needed for the study. In the second phase, those students who met the criteria and agreed to participate in the experiment were then selected through the help of their teachers. Since most of the students were above age 14, I did not send consent letters to their parents. More so, the study did not require sensitive data from the participants.

In addition, eight native English speakers were recruited from the Arctic University of Norway, Tromsø, to serve as a control group. The native speakers were all graduate students from different departments of the University. They were from Canada, the United States (USA) and the United Kingdom (UK). Details information about all the participants can be found in Appendix 5.

4.5.2 Procedure

The main experiment was conducted in a classroom setting at the two schools where the students were recruited. An off-line method (pen and paper approach) was used to administer the experimental tasks. Due to problems with internet connectivity, insufficient computers and the number of tasks involved, an off-line method was judged the most appropriate method. Participants took about 60 minutes to complete all the tasks. I met the native English speakers

individually and waited while they completed the questionnaire. Most of them completed it within 45 minutes. On the other hand, since two schools were involved, in the case of the L2 learners, the experiment was conducted on two different dates, as described below.

The first was conducted at Balogu JHS during school hours with 19 students while the second was conducted at Yendi SHS with 26 participants. For each session, participants were arranged and given serial numbers. In the first part of the experiment, the participants completed the acceptability judgement task. They were instructed both orally and written to read each sentence and rate it on a Likert scale of 1 - 5 (see section 4.3.1 and **Appendix 1** for details). All the items were pseudo-randomized. The purpose of pseudo-randomizing the sentences was to ensure that a sentence pair never appears on the same page or a pair of grammatical/ungrammatical sentences never immediately follow each other. Also, this was to ensure that sentences with different constructions are evenly distributed throughout the task. Since this was an off-line test, the participants were encouraged not to go back to make corrections after they had completed the set of questions on a given page. To ensure that participants did not go back to make corrections, the questions were printed on only one side of each paper. This also helped to prevent a situation where participants could see the other pair of a sentence. All participants received the same questionnaires with the same sequence of questions on each page. Example (59) shows how the sentences were presented on the questionnaire.

(59)   Sample test sentences in the grammatical judgement task

20. My neighbour has a son and two beautiful daughters.
( )1   ( )2   ( )3   ( )4   ( )5

21. The professor who teaches our class is very nice.
( )1   ( )2   ( )3   ( )4   ( )5

22. My sister little was given a pet on her birthday.
( )1   ( )2   ( )3   ( )4   ( )5

23. I saw cat eating something in my room yesterday.
( )1   ( )2   ( )3   ( )4   ( )5

24.Yesterday I made a terrible mistake.
( )1   ( )2   ( )3   ( )4   ( )5

25. A bottled water we bought two days ago has expired.
( )1   ( )2   ( )3   ( )4   ( )5

Part two of the experiment was on the participants' background data as already indicated (See **Appendix 2** for details). Part three of the experiment was the proficiency test. Participants had to complete a 40-multiple-choice questionnaire from the Standardized Oxford Proficiency test. See examples (57) and (58) in section 4.3.3 for samples and **Appendix 3** for details.

Finally, part four of the experiment was the written forced-choice elicitation task. All the 24 dialogues designed to test how definiteness and specificity influence English article choice among L2 learners were also pseudo-randomized. This was done to prevent dialogues that test article use in the same contexts from following each other (see section 3.4.2 for sample dialogues on each context and **Appendix 4** for the full task). In general, the reason for having this pattern (thus, for having the forced-choice task come as the final part) in the experiment was to prevent some priming effect. Since the acceptability judgement task contained sentences on article use as well as filler sentences (on different grammatical constructions), it was relevant to have it at the beginning of the experiment followed by the proficiency test. Both the acceptability and the proficiency tasks are wider scope test instruments, unlike the forced-choice task which assesses only article use. Although the acceptability task is also on article use, note that it contained filler sentences as well. In total, there were 123 questions in the experiment, including questions on participants' background data. They were 50 questions in the acceptability task, 40 questions in the proficiency task, 9 questions on participants' background and 24 questions in the forced-choice task. For each task, test sentences were designed to have fairly equal length, frequently used English words and simple syntax. This was done to neutralize the impact of these factors (sentence length, word frequency and complex syntax) so that they do not influence sentence acceptability or understanding, as argued by Dąbrowska (2010). Generally, participants completed the experiment within the given time and were offered refreshments after the entire experiment in appreciation for their time.

5. Results

Data for this study was analysed using R statistical software. In this chapter, I present the results of the analysis to determine the participants' performances in the different contexts/conditions in both experimental tasks. The confidence level for all the statistical analysis done in this study was set at 95% (0.05) significance level.

In what follows, I present the participants' proficiency scores and discuss how it relate to some of their background data as well as how proficiency plays out in the L2 English learners' performances. Finally, the results for the forced-choice task will be presented in section 5.2 and that for the acceptability judgement task in section 5.3.

5.1 The proficiency test

The participants' proficiency in this study was measured using a subset of the Standardized Oxford Proficiency test, as presented in section 4.3.3. The range of scores in the proficiency test is 1 – 40. L2 learners who score 10 and below (25%) are considered beginners. Those who score between 10 to 32 are considered intermediate learners, and learners who score between 32 – 40 (80% and above) are considered advanced learners.

The proficiency scores for all participants in this study was in the range of 11 – 40. The L2 learners' proficiency scores ranged from 11 to 31, which means that there was no beginner or advanced learner among the L2 English learners in this study. The mean proficiency score for the L2ers was 21. Based on this, they were grouped into Low intermediate group (below 21) and High intermediate group (from 21 to 31). The Low intermediate proficiency group consisted of 18 L2 learners, whereas the High intermediate proficiency group had 27 L2 learners. Figure 1 illustrates the correlation between age and proficiency for the L2 learners. The Native control group (8 of them) had proficiency scores ranging from 37 to 40. Their ages ranged from 23 to 46 years with a mean age of 28.9 years.

Throughout the analysis in this study, proficiency was treated as a continuous variable on the basis that there was no significant difference between the two L2 intermediate groups. Therefore, where reference is made to the high and low intermediate groups in relation to proficiency in this chapter and in later chapters, it is just to point out that their performances were slightly different but not significant.
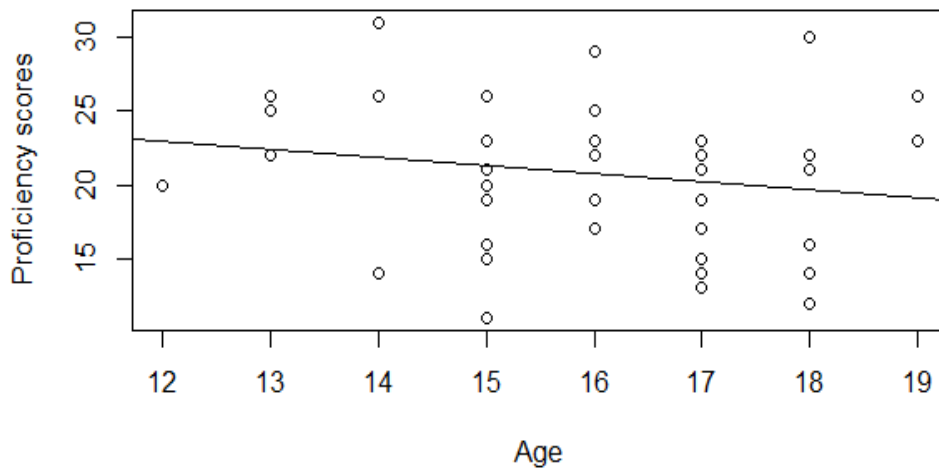
Figure 1: Correlation between the L2 learners' age and proficiency scores

As can be seen from Figure 1, the results showed that there was a very weak correlation between age and proficiency $(F_{(7,37)} = 1.537, p = 0.1855)$ among the L2 learners. The adjusted R-squared value for correlation between age and proficiency among the L2 learners was 0.07865, which indicates that only 7.8% of their proficiency scores can be explained by the L2 learners' age. This may not be surprising because in the Ghanaian context, the amount of exposure to L2 English may not necessarily depend on one's age. Other variable that play a role will include their levels of education, years of learning English and classroom instructional techniques. Hence, there could be a confound of variables that influence the L2 learners' proficiency in this study.

Based on this, the L2 English learners' proficiency was correlated with other variables in their background data, which revealed that there was some relationship between proficiency and other background data. First, a relationship was found between proficiency and level of education, although there was no significant difference in performance between participants in the 9th, 10th, and 11th grades (see Appendix 6). Furthermore, there was a correlation between proficiency and the participants' age of onset to English instruction (the grade at which they were first exposed to formal English learning) as shown in Figure 2.
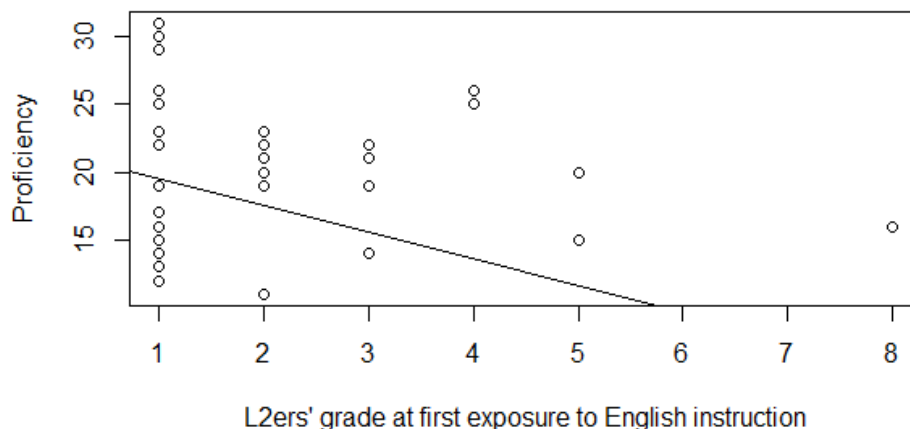
Figure 2: Correlation between proficiency and the L2ers' grade of first
exposure to English instruction

Figure 2 shows that most of the L2 learners had their first exposure to English at the early grades (grade 1 – 4). It also indicates that many of the L2ers who had higher proficiency scores are among those who had early exposure to English instructions. This has two implications: First, this points to a natural relationship between proficiency and age of onset for L2 learning and gives an indication that early exposure to English instruction in the classroom could lead to better performance. Second, it reflects the notion of length of exposure to English, which gives the impression that the earlier a participant is exposed to English the more years the participant would have learnt English at the time of testing, hence, a better proficiency score. As indicated in Chapter 1, teaching English as a foreign language in the Ghanaian educational system starts at grade 1, however, most students are exposed to English even in preschool.

Additionally, there was a relationship between proficiency and friend-language (the use of English with friends). This implies that use of English language with friends could have had some effects on the L2ers' proficiency scores. The link between proficiency scores and using English with friends can also imply that practice improves performance. Lastly, years of learning English (YearsEng) and proficiency was not compared because it appears that the L2 learners had misunderstood the question of how long they had been learning English. As a result, very conflicting answers were produced (see Appendix 5). For example, if an L2 participant started learning English at the third grade (Primary 3) and was currently in grade 9 at the time of testing, it means s/he had been learning English for six years. Nevertheless, some L2 learners stated two or three years in response to the. This made it inappropriate to use that

data, since it is likely to give misleading effects on their proficiency scores. See **Appendix 6** for the correlation results on proficiency and some of the L2 learners' background data.

Having presented the results on proficiency and how it related to some variables in the L2ers' background data, the rest of the chapter will cover the results of both the FCT and the AJT. I turn to the results of FCT in the immediate section.

5.2 The forced-choice task

The forced-choice task was designed to test whether L2 learners will fluctuate between definiteness and specificity in their article choice (see section 4.4.2 for details). Article use was tested in six contexts: definite specific (DefSpec), definite nonspecific (DefNonspec), indefinite specific (IndefSpec), indefinite nonspecific (IndefNonspec), generic singular (GenSingular) and generic plural (GenPlural). The results of article choice in these conditions are grouped into three: the definite contexts, the indefinite contexts and the generic contexts.

A few response errors, involving words other than articles, supplied by the L2 learners (which I coded *other*) were removed from further analysis. Even though some of those words (e.g. *some, this, his, her,*) do mark in/definiteness, they were not included in the analysis, since only three L2 learners used such words, which also did not exceed 3 counts throughout the different contexts, hence, they were insignificant.

Before I present the results for each condition, it is important to state that a diagnostics test for data normality was performed on the FCT. The data normality test showed that the forced-choice data set had a normal distribution as shown in Figure 3. The relevance of a data normality test is to help determine what statistical tests will be appropriate for the data set under analysis (Levshina, 2015:54). Furthermore, Levshina argues that although a Shapiro-Wilk test is a more formal test for data normality, a quantile-quantile (Q-Q) plot is an appropriate data normality test and should be preferred, since it offers a good visual inspection of the data set (2015:56). In addition, a statistical summary of the data set revealed that it was normally distributed, since both the mean and median values (12.50) for the test item were the same.
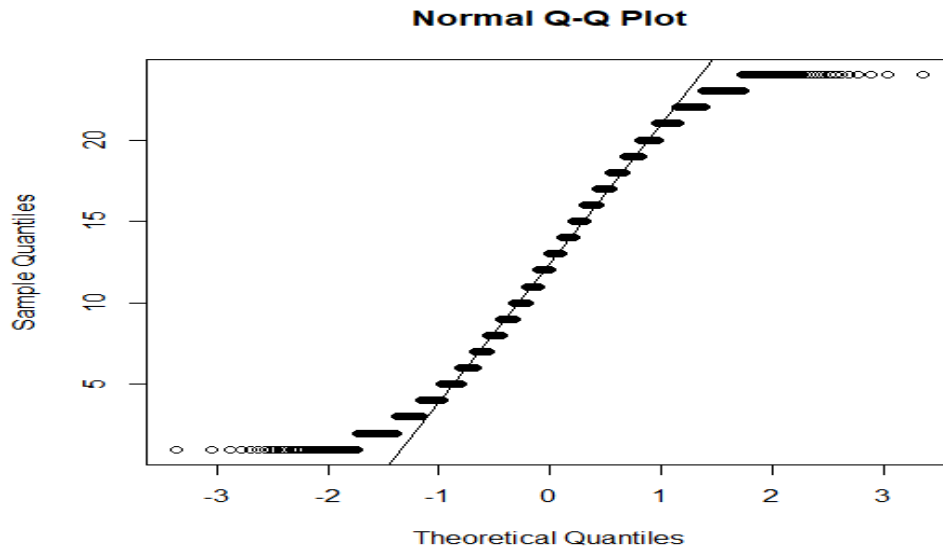
Figure 3: A Q-Q plot of the forced-choice data set

Furthermore, in the forced-choice task, there was a main effect of proficiency (χ^2 = 15.057, df = 1, p<.001) across board and a main effect of condition (χ^2 = 24.318, df = 5, p<.001) in only a few contexts. However, there was no interaction between proficiency and condition/context type (see Appendix 7A-D). What the statistics suggest is that, proficiency was a main factor which influenced the participants' performance in their article choice. The effect of condition type was mainly strong in the generic contexts (p<.001), in the definite specific contexts (p<.01) and in the indefinite non-specific context (p<.05).

5.2.1. Overall results in the forced-choice task

The general performance of both the L2 and the native control group in the forced-choice test is shown in Figure 4.
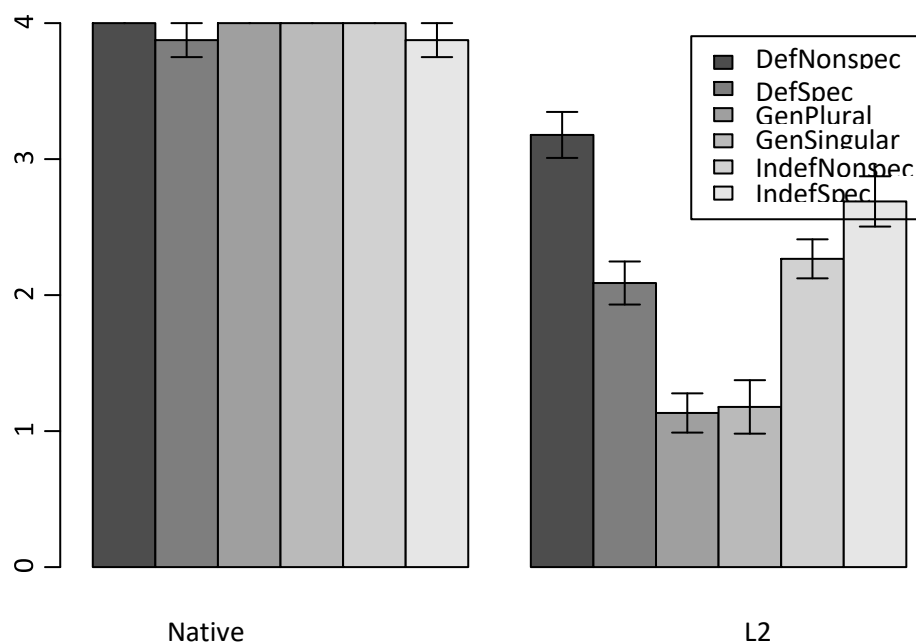
Figure 4: The Native control and the L2 learners mean scores for all conditions.
Note, the y-axis illustrates the mean scores (0-4) for all conditions

From Figure 4, whereas the native control performed at ceiling in their article choice in all conditions/contexts, the L2 intermediate learners showed variable article choice patterns. Among the L2 learners, article use in the fluctuation contexts (definite nonspecific and specific indefinite) was better than article choice in the non-fluctuation contexts (definite specific and indefinite non-specific), suggesting that there is no fluctuation among the L2 learners in the forced-choice task. Furthermore, accurate use of articles in the definite (definite specific and definite non-specific) contexts was slightly better than article use in the indefinite (indefinite specific and indefinite non-specific) contexts. Although the different was not significant, the overall results suggest that use of *the* was better than use of *a/n* in the FCT, hence, it partially provides support for the directionality effect or article acquisition difficulty hierarchy reported in the L2 article acquisition literature (see Park, 2005 and Chung, 2011 for details). Detailed analysis will be provided on this in chapter 6. In addition, article use in generic contexts among the L2 learners, as shown in Figure 4, gives a clear picture of poor performance, indicating that the generic contexts are more problematic than the other contexts, which supports the argument made by Master (2003) and Park (2005) that the zero article is the hardest to acquire among L2 learners.

In the following immediate subheading, I present the results of the native control group in the forced-choice task.

5.2.2. Results of native control group in the FCT

The native control group performed as expected. They scored 100% in the non-specific definite [+def, -spec] context and 97% in the specific definite [+def, +spec] context. Only one participant made a mistake in the [+def, +spec] context. Also, in the indefinite contexts, they scored 100% in the indefinite nonspecific [-def, -spec] context and 97% in the indefinite specific [-def, +spec] context. Again, only one participant provided an incorrect response in the specific indefinite context. Table 7 shows the result of article choice among the native control group.

Table 7: Article choice among the native control group in [±def, ±spec] contexts

	[+definite] (target article – *the*)			[-definite] (target article – *a/an*)		
	the	a/an	0	the	**a/an**	0
[+specific]	**97%**	3%	0%	3%	**97%**	0%
[-specific]	**100%**	0	0%	0%	**100%**	0%

Furthermore, in the generic contexts, the native control group again performed at ceiling. They scored 100% in both the generic singular and generic plural contexts, as shown in Table 8.

Table 8: Article choice in the generic contexts among the native control group

	[+generic] (target article – *0*)		
	the	a/an	**0**
Generic singular	0%	0%	**100%**
Generic plural	0%	0%	**100%**

In both the definite and indefinite contexts as well as in the generic contexts, there was no significant difference in article choice among the native group. Given these results, the indication is that the forced-choice task was appropriate as a test instrument in this study. Moreover, the results indicate that article use among the native group was based on definiteness and not specificity, since in both definite and indefinite contexts, *the* was used in definite contexts and *a/n* in indefinite contexts accurately irrespective of the specificity value. Again, in comparing the native group to the Dagbani L2 English learners, the results showed that there were significant differences between the L2 group and the native control group in all conditions. One reason for this clear difference could be that none of the L2 learners was an advanced English speaker based on their proficiency scores. As a result, there was no further

statistical analysis to compare the native group with the L2 learners. In the following subsections, I present the L2 learners' results for each context.

5.2.3. Article choice among the L2 learners in the definite context of the FCT

In the definite context of the forced choice task, all the NPs required an obligatory *the*. The analysis of the L2 learners' performance in these contexts showed that article choice in the non-specific definite ([+def, -spec]) context was better than in the specific definite ([+def, +spec]) context. Even though both contexts required an obligatory definite article, the correct article suppliance rate in the specific definite contexts was 53.4%, whereas that of the non-specific definite contexts was 80.8%. Overuse of the indefinite article *a/n* was found in the definite contexts. For instance, overuse of the indefinite article in specific definite context was 38.1% and 14.7% in the non-specific definite context. A deeper analysis indicated that a lot of article substitution errors (where *a/n* or *0* is supplied in contexts that required an obligatory definite article) in the definite specific context were committed in two dialogues, where the suppliance of the indefinite article exceeded 20 (out of 45), in each dialogue. These were in dialogues 14 and 20 illustrated in (60) and (61) respectively.

(60) dialogue number 14 in the forced-choice task

A conversation between two friends at a store.
A: Come on! We have been in this shop for several hours now.
B: I can't make up my mind. Which shirt do you like best?
A: I prefer _____ shirt with stripes.

(61) dialogue number 20 in the forced-choice task

A: I visited my friend Kelly yesterday. Kelly really likes animals – she has two cats and one dog. Kelly was busy preparing for an exam. So, I helped her out with her animals.
B: What did you do?
A: I took ___ dog for a walk. We really had so much fun.

Even though each of these dialogues involved a second mentioned DP (hence, unambiguously definite and had required an obligatory definite article), the indefinite article was overused in both dialogues. It could be that the L2 learners did not pay much attention to the discourse context in the dialogue, hence their failure to supply the correct article or something else could be responsible for the overuse of *a* in these dialogues. Table 9 shows the L2 learners' article choice in the definite article contexts.

Table 9: L2 learners' article choice in the definite contexts ([+def, ±spec])

	[+definite] (target article – *the*)		
	the	a/an	0
[+specific]	**53.4%**	38.1%	8.5%
[-specific]	**80.8%**	14.7%	4.5%

A pairwise comparison of all conditions, revealed that there was a significant difference (p = 0.0518) in the L2 learners' performance in the specific definite and non-specific definite contexts. This means that the correct responses in [+def, +spec] and the [+def, -spec] conditions differed significantly. That is, the L2 learners performed better in [+def, -spec] context than in [+def, +spec] context, as highlighted in Table 9.

In relation to the proficiency groups, a generalized linear mixed model indicated that there was a main effect of proficiency (χ^2 = 15.057, df = 1, p<.001) and a main effect of condition (χ^2 = 24.318, df = 5, p<.001). This statistics on main effect of proficiency shows that article choice among the different L2 proficiency groups differed. The high intermediate proficiency group performed better than the low intermediate proficiency group, although the difference was not significant, as already pointed out at the end of section 5.2. The main effect of condition type also implies that the different conditions/contexts in the task had some significant influence on the L2 learners' performance. However, there was no interaction between proficiency and condition type (χ^2 = 1.8429, df = 5, p = 0.8704).

5.2.4. Article use among the L2 learners in the indefinite context of the FCT

All target NPs in the indefinite context were [-definite] and had required an obligatory *a/n*. The results of article choice among the L2 learners in this context is shown in Table 10. As Table 10 illustrates, the choice of the target indefinite article was quite close in both the specific indefinite [-def, +spec] and the non-specific indefinite [-def, -spec] contexts.

Table 10: L2 learners' article choice in the indefinite contexts ([-def, ±spec])

	[-definite] (target article – *a/an*)		
	the	**a/an**	0
[+specific]	22.0%	**71.2%**	6.8%
[-specific]	30.5%	**61.0%**	8.5%

The correct suppliance of *a/n* in the specific indefinite context was 70.95% whereas in the non-specific indefinite context it was 61.24%. Also, as can be seen in Table 10, the non-specific indefinite context recorded higher article substitution errors, where the definite article *the* was supplied more than in the specific indefinite context. These errors of *the* overuse were mostly recorded in two dialogues: dialogues 11 and 22 illustrated in (62) and (63) respectively.

(62)   Dialogue number 11 in the forced-choice task

    A conversation between a student and a staff secretary.
    A: I'm looking for Mr Isaac Mensah.
    B: I'm afraid he is busy. He has office hours right now.
    A: What is he doing?
    B: He is meeting with ___ parent, but I don't know who he is.

(63)   Dialogue number 22 in the forced-choice task

    A conversation between a sales boy and a customer in a clothing store.
    A: Can I help you? We have lots of nice things on sale this week.
    B: Yes, please! I've gone through every stall, without any success. I am looking for
    ____ warm hat. It's getting rather cold outside.

The discourse in each of these dialogues was very clear and each DP had required an obligatory indefinite article. Therefore, overuse of *the* in the indefinite contexts in general and particularly in the non-specific indefinite context was unexpected. Although the L2ers could have supplied *the* in dialogue (63) due to the modifying word *warm*, as noun modification has been identified as an issue in L2 English article use (Park and Song, 2008; Sarko, 2009), it is not clear why they supplied *the* in the dialogue in (62).

A pairwise comparison of all conditions in the forced-choice task revealed that there was no significant difference (p = 0.9401) in the L2 learners' correct responses in the specific indefinite and nonspecific indefinite contexts. That is, correct article choice among the L2ers in [-def, +spec] and [-def, -spec] contexts was not significantly different. However, a main effect of condition type was found in the non-specific indefinite context (p<.05) (see Appendix 7A & B for details). This means that the nonspecific indefinite ([-def, -spec]) context had a significant impact on the L2 learners' article choice, which was also unexpected given that this context is not supposed to be a challenging context for L2 English learners whose L1 has articles. Nevertheless, as I indicated in prediction 1 (44) in section 4.1, the L2ers' performance in that context could have been influenced by the fact that L1 Dagbani has no indefinite article.

Additionally, a main effect of proficiency was found across board in the indefinite contexts, as in the definite contexts, which means that the high intermediate proficiency group performed better than the low intermediate proficiency group in both contexts. The statistics reported above means that whereas proficiency influenced the L2ers' article choice across board, the effect of condition type was only found to influence their performance in the non-specific indefinite context.

5.2.5. Article choice among the L2 learners in the generic context of the FCT

Overall article choice in the generic context among the L2 English learners showed a very low performance in both the generic singular and plural contexts. In the generic singular and plural contexts, all the target NPs had required a zero article (no overt article). Yet, correct article suppliance was rather low in these contexts, around 30% correct article suppliance. Table 11 shows the results of article choice among the L2ers in both the generic singular and plural contexts.

Table 11: L2 learners' article choice in the generic contexts

	[+generic] (target article – 0)		
	the	a/an	**0**
Generic singular	36.7%	33.3%	**29.9%**
Generic plural	20.3%	50.8%	**28.8%**

As shown in Table 11, article substitution errors were wide spread between the definite and indefinite articles. In the generic singular context, errors of *the* overuse stood at 36.7% whereas *a/n* overuse was 33.3%. On the other hand, errors of *the* overuse in the generic plural context was 20.3% and that for *a/n* overuse was 50.8%. The fact that *a/n* overuse was higher in the generic plural context is a big surprise. A deeper analysis of *a/n* overuse in the generic plural context pointed to two dialogues in the task. These were in dialogue 12 where the target NP was *elephants,* as in (64) and in dialogue 24 with the target NP being *earrings,* as in (65).

(64) Dialogue number 12 in the forced-choice task

A: I watched this documentary on animals yesterday. It was nice but scary.
B: I've always loved animals. Do you know that some animals can be wonderful?
A: I heard that. People say _____ elephants can swim very well despite their size.

(65)   Dialogue number 24 in the forced-choice task

A: I heard that George went to Italy last year. Do you know what he brought for his sister?
B: I know he would give her something valuable, but I can't guess.
A: Well, he brought his sister _____ earrings, which she loved so much.

In each of these dialogues, the indefinite article *an* was the choice for most of the L2 learners. In the dialogue in (64), the indefinite article *an* was chosen 31 times, whereas in the dialogue in (65), it was chosen 25 times out of 45 participants. The overuse of the indefinite article in these dialogues could be due to an over application of a grammatical rule learnt in class, as it will be discussed in section 6.4.1. Overall, the indefinite article was overused more than the definite article in the generic contexts.

A pairwise comparison of all conditions in the forced-choice task revealed that there was no significant difference (p = 0.9999) in article choice among the L2 learners in the generic singular and generic plural contexts (see Appendix 7A for the detail statistics). Even though there was a general proficiency effect in article choice among the L2 learners, the performance of both the high intermediate and low intermediate proficiency groups in the generic contexts was not significantly different. However, there was a main effect of condition type ($\chi^2 = 24.318$, df = 5, p<.001) in both the generic singular (p<.001) and the generic plural (p<.001) contexts, which suggests that the generic contexts had a significant impact on the L2 learners' article choice in the test.

5.2.6. Comparing the L2 learners' article use in the three contexts of the FCT

A comparison of the L2 learners' article choice in both the definite and indefinite contexts showed that correct article suppliance in the definite contexts was a little higher than that of the indefinite article contexts. On the other hand, *the* overuse in the indefinite context and *a/n* overuse in the definite context were almost the same, as shown in Tables 9 and 10.

Based on the high percentage figures for overuse of both the definite and indefinite articles in the definite and indefinite contexts, there was a need to determine what influences article choice among the L2 learners: definiteness or specificity. As a result, both definiteness and specificity effects were examined separately on the L2ers' article use.

A generalized linear mixed model (see Appendix 7 F, G, H, for details) was run to determine which of these two factors has a main effect on the use of *a/n* and *the*. The results indicated that there was a significant main effect of definiteness ($\chi^2 = 12.11$, df = 1, p<.001) on the L2 learners' article choice in the forced-choice task. No significant main effect was found for specificity ($\chi^2 = 2.0472$, df = 1, p = 0.1525) on the use of the definite and indefinite articles. In addition, there was no interaction between definiteness and specificity ($\chi^2 = 2.5936$, df = 1, p = 0.1073). That is, when specificity was held constant, the result showed that *the* was used more with definite DPs while *a/n* was used more with indefinite DPs. On the other hand, when definiteness was held constant, it was found that *the* was used more with nonspecific DPs while *a/n* was used more with specific DPs. This observed pattern, where *a/n* was used with specific DPs and *the* with nonspecific DPs was surprising. Nevertheless, the results showed that article choice among Dagbani L2 English learners was influenced by definiteness and not specificity.

On the other hand, in comparing both the definite and indefinite article contexts to the generic contexts, the results revealed that the L2 learners' performance in both the definite and indefinite contexts was better than their performance in the generic contexts, as shown in Figure 4 of section 5.2.1 and in Table 12 below. That is, in the forced-choice task, a mean score of 4.00 for a condition means that the correct article was supplied in all the dialogues under that condition/context by all the participants while a mean score of 1.00 means a few correct articles were supplied in the dialogues under the condition. Therefore, the mean scores for each condition/context type, among the L2ers, were higher in the definite and indefinite contexts than in the generic contexts. To present a clearer picture about the overall article choice in all the contexts/conditions, the mean scores for the native control group are compared with the L2 group in Table 12. This is intended to highlight the L2 learners' performance in the generic contexts.

Table 12: The participants' mean scores for all conditions in the forced-choice test

Condition	DefNonspec	DefSpec	GenPlural	GenSingular	IndefNonspec	IndefSpec
mean score (L2 group)	3.2326	2.0930	1.1163	1.1395	2.2791	2.6744
mean scores (native group)	4.000	3.875	4.000	4.000	4.000	3.875

As Table 12 shows, the Dagbani L2 English learners' overall mean scores in all the six conditions indicated that they performed better in both the definite and indefinite contexts compared to the generic contexts.

5.2.7. Summary of results for the FCT

In the forced-choice task, the results showed that there was a main effect of proficiency and a main effect of condition type on article choice among both the L2 learners and the native speaker control group. However, there was no significant interaction between proficiency and condition type on article choice. Among the L2 learners, the high intermediate group was better than the low intermediate group in their article choice in all contexts, even though their difference was not significant. Regarding the L2 learners' performance in the definite, indefinite and generic contexts, there was variation across condition/context types. The L2 learners performed better in both non-specific definite [+def, -spec] and specific indefinite [-def, +spec] contexts (assumed to be the fluctuation contexts among L2 English learners) than in the definite specific [+def, +spec] and indefinite nonspecific [-def, -spec] contexts (assumed to be non-fluctuation contexts). Furthermore, the L2 learners performed slightly better in the definite contexts than in the indefinite contexts, however, the difference was not significant. It is also found that article choice among the L2 learners in this task was influenced by definiteness and not by specificity. Finally, the L2ers performed better in both definite and indefinite contexts than in the generic contexts, which shows that article use in the generic contexts was very challenging.

5.3 The acceptability judgement task

To repeat the essential facts, the acceptability judgement task consisted of 40 sentences and 10 fillers. Out of the 40 sentences, 20 were grammatical and the other 20 ungrammatical. Each grammatical sentence has a corresponding ungrammatical pair based on the article type. Only the participants' performance in the definite, indefinite and zero article contexts are reported in this section. For the grammatical sentences, a sentence is acceptable as grammatical (a correct judgement) if it was rated 3 or 4 on the Likert scale. On the other hand, a sentence is judged as ungrammatical (correct judgement) if it was rated 1 or 2 on the Likert scale. Accordingly, a mean score ranging from 3 to 4 for the grammatical contexts means that the subjects accepted the sentences as grammatical and a mean score between 1 to 2 for the ungrammatical contexts also means that the subjects correctly judged the sentences as

ungrammatical. All responses with a score of 5 (which meant 'I don't know' on the Likert scale) were removed from the analysis, since there were only a few of them.

The L2 learners' acceptability rating of filler sentences was also removed from further analysis. However, it is worth stating that many of the L2 English learners in this study correctly judged most of the filler sentences to be ungrammatical. A mean acceptability rate of 2.0067 for the filler sentences showed that most of the L2 learners judged those sentences to be ungrammatical (since the acceptability rating of 1 – 2 on the Likert scale means between 'very bad' and 'bad', hence, unacceptable). However, some of them might have accepted a few of the fillers as grammatical, since the overall mean score is a little over 2.00. Despite that some of the fillers were judged as grammatical, the performance of the L2ers in the filler sentences gives an indication that their level of knowledge in English was sufficient to understand the test items. On the other hand, the native control group performed as expected. They judged all the filler sentences to be ungrammatical, which led to a mean acceptability score of 1.2500.

Before I report the results of each context in this task, it is interesting to note that a normality test on the acceptability data set showed that the data was not a perfect normally distributed data set as shown in Figure 5. The data set was a bit positively skewed, since the sample mean value (0.4925) was greater than the median value (0.3485). This could have resulted from the unequal number of test items for all conditions under the acceptability judgement test (20 grammatical sentences and 30 ungrammatical sentences including the fillers). Details are provided in each context in the various subsections of this section.
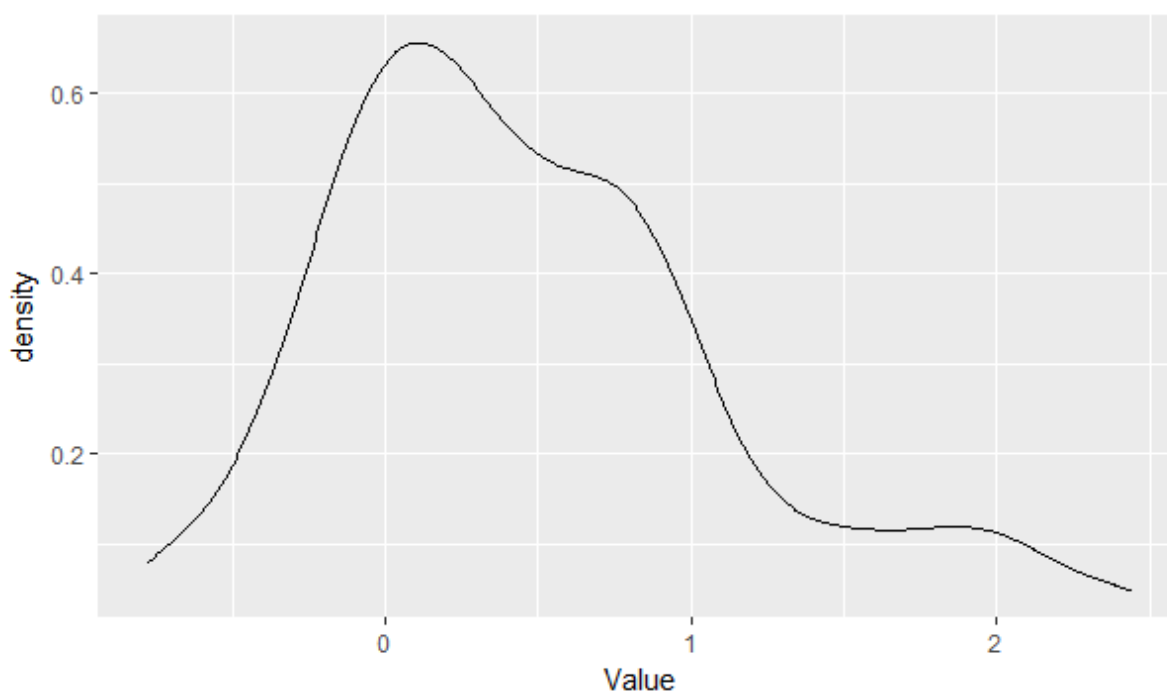
Figure 5: A density plot of individual subjects' mean grammatical value for each sentence as a test for data normality of the AJT

Also, in the analysis, the participants' grammatical preferences were compared with their proficiency scores and condition type to determine which of these two factors has a main effect on their grammatical preference. The results of the analysis showed that there was a main effect of proficiency (χ^2 = 4.0288, df = 1, p <0.05) (see Appendix 8A), which suggests that the participants' acceptability judgement for all the sentences under this test was influenced by their levels of proficiency in English. On the other hand, condition type did not have any effect on grammaticality preference (χ^2 = 1.1155, df = 1, p = 0.2909) (see Appendix 8B) and there was no interaction between proficiency and condition (χ^2 = 0.3554, df = 1, p = 0.5511) (see Appendix 8C) in this test.

In what follows, I present the general results for the acceptability judgement task before I report the results of the native control and the L2 learners.

5.3.1. General results for the acceptability judgement task

The overall results for the acceptability judgement test is presented in Table 13 for both the grammatical and ungrammatical sentences across all conditions.

Table 13: Mean scores of the acceptability judgement for all participants

	L2 group		Native control group	
Conditions	grammatical	ungrammatical	grammatical	ungrammatical
definite	2.850746	2.502242	3.666667	1.725000
indefinite	3.067623	2.588889	3.443182	1.687500
zero	–	2.802041	–	1.943182

Figure 6 further illustrates the performance of the native control and the L2 learners in the definite and indefinite contexts, where both the grammatical and ungrammatical sentences are considered.
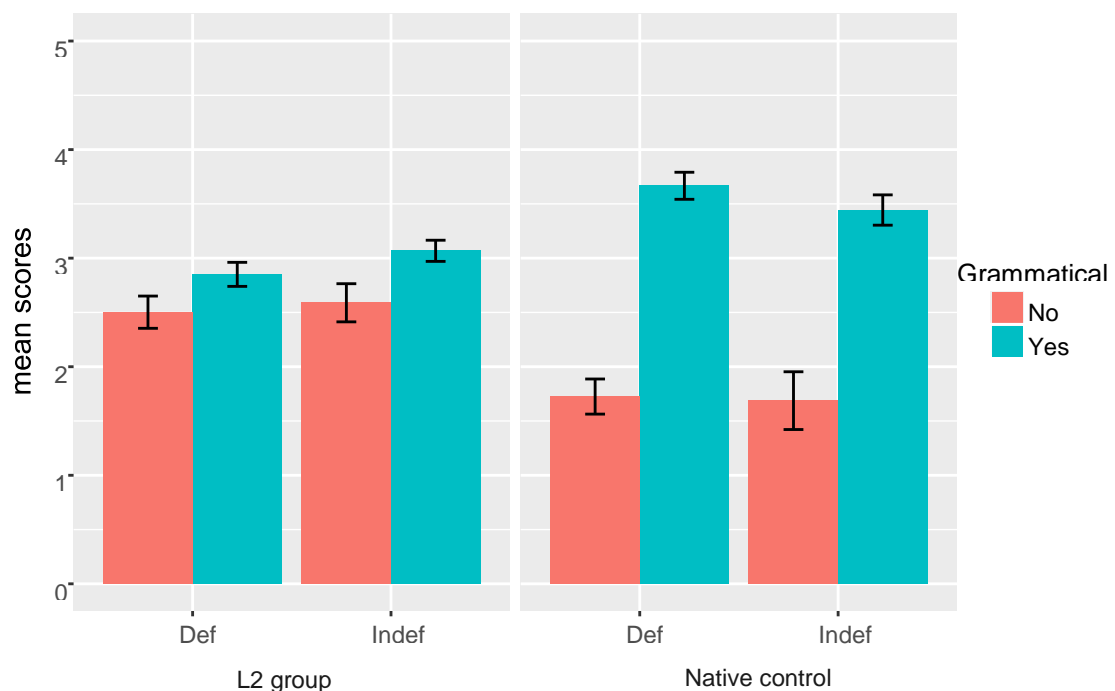
Figure 6: Acceptability mean scores for definite and indefinite contexts for all participants. Note, the y-axis shows the mean scores (0 – 4) for grammatical and ungrammatical sentences.

Both Table 13 and Figure 6 show that the native control group performed as expected. The grammatical sentences were accepted as grammatical, since the mean scores are above 3.00. They also judged the ungrammatical sentences correctly, given the low mean scores in the definite, indefinite and zero article conditions/contexts (all are less than 2.00). The L2 learners on the other hand showed variable performance in their acceptability judgement. In relation to the grammatical sentences, the L2ers performed better in the indefinite context than in the

definite context. This suggests that many grammatical sentences in the definite context were incorrectly judged as ungrammatical than in the indefinite context, which explains why the mean score for the indefinite grammatical is higher (3.0676) than the mean score for definite grammatical (2.8507), as shown in Table 13.

Surprisingly, the L2ers' performance in the definite and indefinite ungrammatical sentences is a reverse of their performance in the grammatical sentences in these two contexts. Overall, many of the L2 learners correctly judged some of the ungrammatical sentences as unacceptable and incorrectly accepted others as grammatical. That explains why the mean scores for the ungrammatical conditions are all above 2.00, as in Figure 6. Nonetheless, they performed better in definite ungrammatical sentences than in indefinite ungrammatical sentences, since the mean score for the indefinite ungrammatical is higher than that of the definite ungrammatical (see Table 13). Furthermore, the L2ers' performance in all ungrammatical sentences showed that they performed slightly better in the definite/indefinite contexts than in the zero-article context, which was expected (see Table 13). In general, these results support the prediction that the zero article is more challenging to the L2 English learners than the definite and indefinite articles, as also found in the FCT.

5.3.2. Results of the native speaker control in the AJT

The native control group performed as expected in the acceptability judgement test. In relation to their performance in the grammatical sentences, their mean scores for the grammatical definite and indefinite contexts stood at 3.6667 and 3.4432 respectively, as in Table 13. The results imply that they accepted these sentences with the definite and indefinite articles to be grammatical, since a rating of 3 – 4 on the Likert scale meant that a sentence was accepted as good or very good, hence a grammatical sentence. Even though the mean score for the definite context is greater than the indefinite context, the difference was not significant. In the ungrammatical sentences, their overall performance was again at ceiling. Their mean scores for all the ungrammatical sentences in each context was below 2.00, which means that they correctly judged these sentences to be ungrammatical.

The L2 learners' performance in the various contexts of the acceptability judgement task are presented in the following subheadings.

5.3.3. The L2 learners' results in the definite article context of the AJT

The definite contexts, had 10 grammatical sentences and 10 ungrammatical sentences (5 of them with indefinite article and remaining 5 with the zero article) The 10 grammatical sentences were paired with the ungrammatical ones.

The result of the analysis showed that the mean acceptability rate (mean score) for all the 10 grammatical sentences was 2.8507, which indicates that many of the L2ers accepted some of these 10 sentences as grammatical and rejected others. Since the overall mean score of 2.8507 is closer to 3.00 than it is to 2.00, it means that many of these sentences were accepted as good sentences, hence, grammatical. A detailed picture about the participants' performance in this context is presented in Table 14, where individual participant's scores were observed for each sentence. Note that these frequencies are counted out of 45 participants.

Table 14: L2 learners' acceptability judgements at the sentence level (def. vs. indef.)

Sentence pairs (grammatical ones in bold form)	Grammatical?	
	Yes	No
The moon is full and bright tonight	**27**	**18**
A moon is full and bright tonight	23	19
I haven't seen the sun for days now.	**19**	**25**
I haven't seen a sun for days now.	21	23
Can somebody tell me who the winner of this game is?	**22**	**17**
Can somebody tell me who a winner of this game is?	23	14
The bottled water we bought four days ago is expired.	**19**	**25**
A bottled water we bought four days ago is expired.	9	36

As Table 14 shows, the acceptability frequency for the grammatical sentences (in bold) varies from sentence to sentence. In some sentence pairs, most of the L2 learners either accepted both sentences in the pair as grammatical or as ungrammatical. The performance of these intermediate L2 learners in the definite context is surprising. The expectation was that they will perform well in this context, since the L1 has articles for definiteness. Nevertheless, acceptability judgement can be influenced by performance factors.

5.3.4. Results of the L2 learners in the indefinite article context of the AJT

Like the definite context, the indefinite contexts, had 10 grammatical sentences and 10 ungrammatical sentences (5 of them with the definite article and the other 5 with the zero article) The 10 grammatical sentences were paired with the ungrammatical ones.

The results of the analysis revealed that the acceptability mean score for the grammatical sentences with the indefinite article (*a/n)* was 3.0676. This value shows that the Dagbani L2 English learners accepted most of these 10 sentences to be good/very good, hence, grammatical and rejected few others. In this context too, acceptability frequencies were determined for each sentence pair among the 45 L2 English learners, as shown in Table 15.

Table 15: L2 learners' acceptability judgement at the sentence level (indef. vs. def.)

Sentence pairs (grammatical sentences in bold)	**Grammatical?**	
	Yes	No
There was a new student in class today.	**27**	**16**
There was the new student in class today.	18	27
I had a problem with my car two weeks ago.	**22**	**21**
I had the problem with my car two weeks ago.	12	32
Yesterday, I made a terrible mistake.	**29**	**13**
Yesterday, I made the terrible mistake.	15	27
My neighbour has a son and two daughters.	**37**	**7**
My neighbour has the son and two daughters.	19	24

As Table 15 illustrates, the L2 learners' performance in the indefinite context was better compared to the definite context. Many of the L2ers accepted the grammatical sentences as grammatical. Many of them also correctly judged most of the ungrammatical sentences to be ungrammatical. As a result, there is a clear pattern of acceptability judgement in this context, with an overall mean acceptability score of 3.0676. The performance of the L2 learners in this context is very interesting given that there is no overt marker of indefiniteness in the L1. Bare nouns in the L1 are ambiguous between indefiniteness and genericity and in certain cases, they could be definite if the referent is unique in the discourse (see section 2.3.2). If there is a connection between how the L2 learners judge the indefinite grammatical sentences and the ungrammatical sentences with the zero article, then this will show that there is L1 influence. So, I turn to the zero-article context now.

5.3.5. Performance of the L2 learners in the zero-article context of the AJT

From sections 5.3.3 and 5.3.4, it can be noticed that all sentences in the acceptability task containing the zero article were ungrammatical. Thus, there were 10 ungrammatical sentences in all. Five were paired with the definite article and another five paired with the indefinite article. As a result, performance in this context can only indirectly assess the L2 learners' knowledge of the zero article. A direct way of assessing use of the zero article would have been

to have grammatical sentences with the zero-article paired with ungrammatical sentences with both the definite and indefinite articles.

Nevertheless, the results of the statistical analysis showed that the mean score of acceptability judgement for the 10 ungrammatical sentences among the L2ers was 2.8020. Since, the mean score is closer to 3.00 than to 2.00, it suggests that many of these ungrammatical sentences were incorrectly accepted as grammatical given the high acceptability mean score in this context. At the sentence level, the L2 learners' acceptability judgement frequencies for the definite vs. zero article sentence pairs are reported in Table 16.

Table 16: L2 Leaners' acceptability judgement at the sentence level (def vs. zero article)

Sentence pairs (grammatical sentence in bold)	Grammatical?	
	Yes	No
Please, pass me the bucket, I need it for something.	**24**	**19**
Please, pass me bucket, I need it for something.	21	23
The president of Ghana will visit our community tomorrow.	**41**	**4**
President of Ghana will visit our community tomorrow.	37	7
The secret to success is hard work.	**33**	**11**
Secret to success is hard work.	34	9
I know the man who runs this company.	**32**	**11**
I know man who runs this company.	9	34

The frequencies for each sentence pair in Table 16 reveals that most of the L2 learners incorrectly judged the ungrammatical sentences with the zero article to be grammatical, except in the last pair where about thirty-four L2 learners correctly judge the ungrammatical sentence with the zero article to be ungrammatical. The sentence acceptability frequencies indicate that these learners had a difficulty with the zero article. In other words, the zero article presents a challenge to them as far as their acceptability judgement of these sentences are concerned. Interestingly, these sentences when translated into the L1 will require the target NPs to be bare nouns, except the sentence pair in the last row. The fact that when the ungrammatical sentences are translated into the L1, the nouns will be in bare forms gives a hint that the L2 learners could have resorted to translating some of these sentences into the L1 before making judgement on them, which implies that L1 transfer could have influenced their judgement.

Regarding the pair of sentences with the indefinite article and the zero article, the same pattern is observed. The L2 learners accepted the grammatical sentences with the indefinite article as

good. However, they also incorrectly judged the ungrammatical sentences with the zero article to be grammatical, as shown in Table 17.

Table 17: L2 leaners' acceptability judgement at the sentence level (indef. vs. zero article)

Sentence pairs (grammatical sentences in bold)	Grammatical?	
	Yes	No
We would like to buy a new car next year.	**39**	**5**
We would like to buy new car next year.	36	8
Please, can I get a pen from you?	**38**	**5**
Please, can I get pen from you?	37	6
Mr Abu is a tax inspector in Accra.	**37**	**6**
Mr Abu is tax inspector in Accra.	28	13
Yusuf and I bought a goat four days ago.	**32**	**11**
Yusuf and I bought goat four days ago.	27	14

From the sentence acceptability frequencies shown in Table 17, it can be assumed that almost all the ungrammatical sentences with the zero article, in this context, were generally judged as grammatical among many of the L2 learners. Thus, the ungrammatical sentences with the zero article were accepted alongside the grammatical ones with the indefinite article as grammatical. These acceptability frequencies presuppose that most of L2ers did not make any distinction between the indefinite article and the zero article in these sentences. The performance of the L2 learners in this context reflects a certain connection between the indefinite and the zero articles, a connection which is close enough to be interpreted as the impact of the L1, as will be demonstrated in section 6.4.

5.3.6. Comparing the results of the different article contexts in the AJT

In this subsection, I compare the L2 learners' performance first in the grammatical contexts before I do that for the ungrammatical contexts.

In the grammatical contexts, only the definite and indefinite article contexts are compared, each of which contained 10 sentences in this task. Figure 7 shows a comparison of the L2ers' acceptability judgement in the definite and indefinite grammatical contexts.
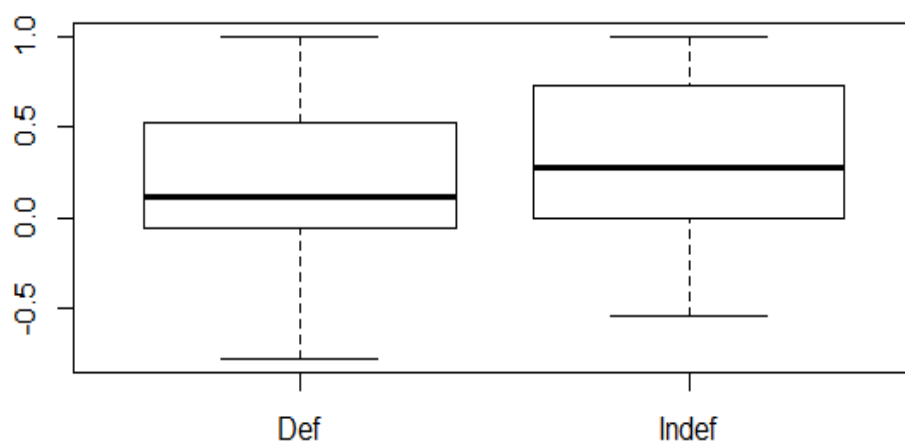
Figure 7: Box plot of L2ers' mean scores in the definite and indefinite grammatical contexts

From Figure 7, it can be argued that the L2 learners performed better in the indefinite grammatical context than in the definite grammatical context, although the difference was not significant.

In comparing the results of the ungrammatical sentences, the L2ers' performance in the definite ungrammatical sentences (with an overall mean score of 2.5022) was better than in the indefinite ungrammatical sentences (with an overall mean score of 2.5888) even though the difference was not significant. Based on the performance in the ungrammatical sentences, I will argue that the L2 learners perform slightly better in the definite context than in the indefinite context. They correctly rejected more ungrammatical sentences with the definite article (66a) than they did for ungrammatical sentences with the indefinite article (66b).

(66) Ungrammatical sentences

    a. *My neighbour has the son and two daughters.

    b. *A moon is full and bright tonight.

Although, we may not know exactly why a sentence is rejected, a good performance in the ungrammatical contexts can tell whether an L2 learner really understands the task at hand or not. As a result, I argue that they performed better in the definite context than in the indefinite context, based on their performance in the ungrammatical sentences.

On the other hand, considering all the ungrammatical sentences, the L2 learners' performance in the definite, indefinite and zero article contexts was quite close. In relation to the zero-article

context as already explained in section 5.3.5, the Dagbani L2 learners' mean score was 2.8020. A mean score which indicate worse performance than both the definite and indefinite contexts. That is in the ungrammatical sentences, if all the sentences were correctly judged, the overall mean score would be between 1.00 and 2.00. Therefore, a mean score of 2.8020 suggests that the ungrammatical sentences with the zero article were more challenging for the L2 learners than the ungrammatical sentences with the definite and indefinite articles. However, the difference in performance between the ungrammatical sentences with the zero article and those with the definite and indefinite articles was not that significant. Table 18 shows the means scores of the ungrammatical sentences for the definite, indefinite and the zero article contexts.

Table 18: L2 learners' mean scores for the ungrammatical sentences in all contexts

Context	Mean score
definite	2.502242
indefinite	2.588889
zero	2.802041

Note: Mean scores for ungrammatical sentences should be between 1.00 – 2.00.

5.3.7 Summary of results for the AJT

In the acceptability judgement task, the statistical analysis revealed that there was a main effect of proficiency on the participants' grammatical preferences. There was no main effect of condition type and no interaction between proficiency and condition in the acceptability judgement task. With respect to the different article contexts, the results showed that the L2ers performed better in the grammatical indefinite context than in the grammatical definite context. However, in the ungrammatical contexts, performance in definite ungrammatical sentences was better than performance in ungrammatical indefinite sentences. Furthermore, performance among the L2 learners in both definite ungrammatical and indefinite ungrammatical sentences was better than that of ungrammatical sentences with the zero article. Finally, the high intermediate group performed better than the low intermediate group in all conditions/contexts, even though the difference was not significant.

6. Analysis and Discussion

In this chapter, I discuss the results of the study in relation to the research questions and predictions presented in section 4.1. Therefore, sections 6.1 to 6.3, will cover a discussion of the three research questions and predictions, while in 6.4, I offer a general account of the article use patterns observed in this study.

6.1 Will Dagbani L2 English learners fluctuate between definiteness and specificity in their article use in English?

As presented in section 4.1, the prediction for this question was that Dagbani L2 English learners will not fluctuate between definiteness and specificity in their article choice in the FCT. That is, since Dagbani is an article language, the L1 Dagbani L2 English learners will perform like L2 English learners from article language backgrounds, such as Spanish (Ionin, Zubizarreta, and Bautista Maldonado, 2008), French (Sarko, 2009) and Greek (Hawkins et al., 2006), by transferring the article semantics from their L1 to the interlanguage grammar of the L2. However, since Dagbani has no overt marker for the indefinite article, the performance of the Dagbani L2 learners will not be at par with L2 English learners from the above mentioned article languages that have overt markers for both the definite and indefinite articles.

The fluctuation contexts are the definite non-specific [+def, -spec] and specific indefinite [-def, +spec] contexts (Ionin, 2003; Ionin, Ko and Wexler, 2003, 2004), where L2 learners are expected to overuse *a/n* in [+def, -spec] and overuse *the* in [-def, +spec] contexts. On the other hand, the non-fluctuation contexts are the definite specific [+def, +spec] and indefinite non-specific [-def, -spec] contexts, where correct article choice is expected to be high and unproblematic for L2 learners.

From the results reported in section 5.2 (particularly in 5.2.2 and 5.2.3), a few unexpected findings were noted. First, by looking at the non-fluctuation contexts, the L2 learners' correct article suppliance rate was 53.4% for specific definites and 61.0% for non-specific indefinites. This does not look like the L2 learners have full control or have mastered article use in these contexts. Article overuse in the non-fluctuation context was rather high (38.1% *a/n* overuse and 30.5% *the* overuse). The high rate of article overuse in both contexts is unexpected. On the other hand, article use in the contexts assumed to be problematic (the fluctuation context) for L2 English learners was more accurate. In the nonspecific definite context, *the* was correctly

supplied (80.8%) while in the specific indefinite context *a/n* was correctly supplied (71.2%), which was also unexpected, given that these contexts are what pose problems to L2 English learners. Nevertheless, overuse of both *a/n* and *the* was still high in these contexts too (14.7% for *a/n* and 22.0% for *the*). Given the high overuse of *the* in specific indefinite and *a/n* in non-specific definite contexts (the fluctuation contexts), it could be argued that the Dagbani L2 learners are fluctuating in their article choice, since similar figures are reported as fluctuation among L1 Korean groups in Ionin, Ko and Wexler (2004) (see Table 3 in section 2.2.2.). However, these figures (14.7% *a/n* overuse and 22.0% *the* overuse) are still lower compared to *the* and *a/n* overuse in the non-fluctuation contexts (38.1% *a/n* overuse in specific definites and 30.5% *the* overuse in non-specific indefinite contexts).

Based on these findings (see section 5.2 for details), I argue that the Fluctuation Hypothesis (FH) of the Article Choice Parameter (ACP) has not be supported in this study. Instead, the results provide support for L1 transfer under the Full Transfer Full Access hypothesis. The Dagbani L2 English learners had transferred the morphosyntactic and semantic definiteness features from their L1 onto the L2 acquisition process in a manner consistent with the Feature Reassembly Hypothesis (FRH). A few reasons in support of this argument are as follows:

First, the results showed that article choice among the Dagbani L2 learners was influenced by definiteness and not specificity (see Appendix 7 F & G). As indicated in section 5.2.6, a generalized mixed effect model showed that article choice among the L2 learners was influenced by definiteness and not specificity. Since Dagbani is an article language with definiteness encoded by these articles, it presupposes that the L2 English learners had transferred the article semantics of Dagbani into the developing interlanguage grammar of their L2. Second, when article choice was examined under specificity, holding definiteness constant, it was found that *the* was used more with nonspecific DPs, while *a/n* was used with specific DPs in the forced choice task. That is, *the* was used for specificity whereas *a/n* was used for non-specificity. This finding contradicts what has been reported in the literature for L2 English article choice when based on specificity interpretation according to the FH (Ionin, Zubizarreta and Bautista Maldonado, 2008:559). That is, Ionin, Zubizarreta and Bautista Maldonado (2008) argue that in the absence of L1 transfer, L2 learners have access to the semantic universals: definiteness and specificity, provided by UG. They noted that without adequate knowledge of the L2, the L2 learners fluctuate between definiteness and specificity; thus, when the specificity setting of the ACP is chosen for article use in English, L2 learners use *the* to mark specificity and *a* to mark non-specificity. Nevertheless, since *the* was not used with

specific DPs and *a/n* with non-specific DPs among the Dagbani L2 learners in this study, I reason that the results do not provide support for the FH. Instead, the L2 learners' article choice patterns lend support for L1 transfer under both the FT/FA and FRH, as I will demonstrate in section 6.4, where a general discussion of article use variability in this study is accounted for.

In addition, the results support findings in previous studies, such as in Sarko (2009), Ionin, Zubizarreta, and Bautista Maldonado (2008), Mayo (2009) and Hawkins et al. (2006). For instance, in Sarko's (2009:55-56) study, even though no specificity effect was found for article choice among both the French and Syrian Arabic groups (see section 2.2.4), the French L2 learners performed at par with the native control group. However, both the intermediate and advanced Syrian Arabic L2 group overuse *the* in [-def, +spec] in both singular and plural DP contexts. Sarko found this to be unexpected given that in Arabic *the* will be obligatory in [+definite] contexts, hence, *the* overuse was attributed to the presence of a modifying relative clause (RC). Moreover, in Ionin, Zubizarreta, and Bautista Maldonado's (2008) study, it was found that although specificity did not affect article choice among the Spanish group (see section 2.2.2), their performance in non-specific definites [+def, -spec] was better than in the definite specific [+def, +spec] contexts, where article errors were high. The intermediate L2 learners' article use patterns in these previous studies, although indicate variable article use, like this current study, they also do not provide support for the FH. Lastly, even on the basis of the new proposal on fluctuation, the results of this study does not provide evidence in support of that, since, correct article use in [-def, +spec] context in this study was 71% (see footnote 4 in section 2.2.2 for details on the new proposal on fluctuation).

6.2 Do Dagbani L2 English learners display varying accuracy in their article use in definite and indefinite contexts?

The performance of the Dagbani L2 learners in both definite and indefinite contexts was an issue this study seeks to investigate. The general prediction was that since Dagbani has an overt marker for definiteness but not for indefiniteness (see section 3.3.1 on Dagbani article system), the L2 learners will perform differently in the definite and indefinite contexts. Specifically, it was predicted that the L2 learners would perform better in definite contexts than in indefinite contexts. More proficient learners were expected to perform better than less proficient learners.

In the L2 article acquisition literature as noted in Chapter 1, studies have shown that L2 learners usually face different difficulties in the acquisition of the English articles. Both Hawkins (2001) and Avery and Radišić (2007:9) assert that *a* is more difficult than *the* to acquire, whereas

Chung (2011) observes tha the indefinite article *a* was easier to acquire comapred to the definite article *the*. Secondly, Mayo (2009), Zdorenko, Tatiana and Paradis (2008) also argue that among L2 learners, *the* is often accurately supplied in definite contexts than *a/n* is supplied in indefinite contexts. That is, in using *the*, it is argued that the count/mass and number distinctions are rarely very important compared with *a*. This makes *the* less featurally complex than *a/n* (Lardiere, 2004, 2005).

In this current study, the results of the forced-choice task showed that the L2 learners' performance in the definite contexts was slightly better than their performance in the indefinite contexts (as presented in sections 5.2.3 and 5.2.4), even though the difference was not significant. Accurate use of *the* was 53.4% and 80.8% in the definite contexts, whereas accurate use of *a/n* was 71.2% and 61.0% in the indefinite contexts among the L2 learners. By adding these percentages up, the results suggest that accurate use of *the* (53.4 + 80.8 = 134.2) was slightly better than accurate use of *a* (61.0 + 71.2 = 132.2). On the other hand, *the* overuse was 22.0% and 30.5% in the indefinite article context, whereas *a/n* overuse was 38:1% and 14.7% in the definite article contexts (see Tables 9 and 10). Again, by adding the percentages for article overuse, the indication is that *a/n* was more slightly overused (38.1 + 14.7 = 52.8%) compared to *the* overuse (22.0 + 30.5 = 52.5%). Therefore, in considering the L2 learners' performance both in accurate article suppliance and article overuse in the definite and indefinite contexts, I will argue that the L2 learners were slightly better in using *the* in definite contexts than in using *a/n* in indefinite contexts. The difference was, however, not significant.

Accordingly, the predicttion that use of *the* was expected to be better in definite contexts than use of *a/n* in indefinite contexts in the forced-choice task is partially supported. In addition, a proficiency effect was found between the low intermediate and high intermediate Dagbani L2 English learners' accuracy rates of article use in both contexts. The high intermediate L2 group was slightly better in their use of *the* in definite contexts than use of *a/n* in indefinite contexts, even though the difference was not significant. The low intermediate group did not show any difference in their article use in both the definite and indefinite contexts. Furthermore, when overall article overuse percentages are considered in the forced choice task, the results of this study does support the observation that *a* is more challenging to learn than *the* (Avery and Radišić, 2007; Hawkins, 2001). The article system of the L1 could be the factor responsible for this pattern, since there is overt forms for definite article in both the L1/L2 but covert/overt forms for indefinite article in the L1/L2 pair. Also, the results of this study partitially support the directionality effect in L2 English article acquisition (Mayo, 2009; Zdorenko, Tatiana and

Paradis, 2008; among others), since accurate use of *the* in definite contexts was slightly better than accurate use of *a/n* in indefinite contexts.

In relation to the acceptability judgement task on the other hand, the results showed that the mean acceptability score for all indefinite grammatical sentences was higher than the mean acceptability score for all definite grammatical sentences, as shown in Figure 4 of section 5.3.5. However, when ungrammatical sentences are considered, the L2 learners' performance in the definite context was slightly better than their performance in the indefinite context (see Table 20). The implication then is that more ungrammatical sentences with the indefinite article were incorrectly accepted compared to the ungrammatical sentences with the definite article. Therefore, taking both the results of the grammatical contexts (definite grammatical and indefinite grammatical) and the ungrammatical contexts (definite ungrammatical and indefinite ungrammatical) into account, I argue that the prediction that the L2 learners will be better using *the* in the definite contexts than using *a/n* in the indefinite contexts again is partially supported. That is, when the L2ers' performance in only the grammatical sentences are considered, the prediction that performance in the definite context would be better than performance in the indefinite context is not supported (see Figure 7). However, when only performance in the ungrammatical sentences are considered, then the prediction is supported, since the L2 English learners had performed better in definite ungrammatical sentences than in indefinite ungrammatical sentences (see Table 18 for details).

In connecting these results and analyses to the theoretical proposals in this study, I argue that L1 transfer effects are borne out and consistent with the FT/FA hypothesis and the feature based theory of Lardiere (2008, 2009). That is, there seems to be both facilitatory and interference effects of the L1 article semantics in the L2 learning process. Since definiteness in the L1 is marked by two overt morphemes, whose functions are similar to the definite marker in the L2, the L2ers are able to use this knowledge in the learning process, which perhaps could have resulted in the slightly higher performance in the definite contexts. An L1 interference effect was also observed. For instance, although **maa** and **la** are the definite articles in the L1, bare nouns can still have definite interpretation if the uniqueness of the referent is clear (see section 3.4 example (42) for sample Dagbani data). This explains why ungrammatical sentences with bare unique NPs were incorrectly accepted alongside the grammatical senteneces with the definite article, as in (67).

(67) Interpreting bare unique nouns as definite in the L2.

a. *President of Ghana will visit our community tomorrow.
b. The President of Ghana will visit our community tomorrow.

The ungrammatical sentence in (67a) was incorrectly accepted as grammatical by 37 L2ers while the grammatical sentence in (67b) was accepted as grammatical by 41 L2ers. Other ungrammatical sentences with bare unique nouns were given definite interpretation by almost half of the L2 learners and were incorrectly accepted as grammatical (see Table 16 in section 5.3.5). This could be explained under L1 influence, since bare unique NPs can have definite interpretation in Dagbani (see section 3.4 for details). Moreover, based on L1 effects, we would expect the L2 learners to incorrectly accept more ungrammatical sentences with the zero article paired with grammatical sentences with the indefinite article in the acceptability judgement task. And consistently, this was what the L2 learners did (as shown in Table 17 of section 5.3.6), which implies that there was L1 transfer effects. In relation to Lardier's (2008, 2009) feature reassembly proposal, the L2 learners' performance suggests that there is a mapping and reassembly problem among the intermediate L2 English learners. The L2ers seem to have a difficulty establishing a connection between the featural composition of Dagbani articles and the English article system. This is evident in the close connection between the L2 learners' choice of *a/n* and the *zero article* in both tasks as well as in the use of *the* across the tasks. Detail account of this is provided in section 6.4.

6.3 Does article use in the zero-article contexts present more challenges to Dagbani L2 English learners than article use in other contexts? That is, do Dagbani L2 English learners make more errors of article use in the zero article contexts than in other contexts?

The main prediction was that Dagbani L2 English learners within different proficiency levels will make substitution errors between *the, Ø* and *a/n* in the generic and zero article contexts. That is, it was predicted that in the generic contexts, learners will supply all the article types and that proficiency will have an effect among the L2 learners. This prediction was motivated by the mismaches in the article systems in Dagbani and English, precisely in relation to indefiniteness and genericity interpretations (see section 3.4). Furthermore, in the AJT, it was predicted that performance in ungrammatical sentences with the zero article context will be poorer than in ungrammatical sentences with definite/indefinite articles.

Second language acquisition research shows that the acquisition of the zero article is the most challenging for L2 English learners from both article and article-less languages (Chung, 2011;

Sarko, 2009; Park, 2005; Master, 2003; White, 2003c) even though other researchers found it to be the least difficult to learn (see Chung, 2011:179; and other cited sources therein). For instance, Master (2003) argues that there is a distinction between the zero and null articles (see section 3.2.1 footnote 5 for details), which is often ignored in article acquisition research but which presents a real challenge to both L2 learners from article and article-less language backgrounds. Also, Park (2005), in a study of L2 English article acquisition among Korean students found that use of the zero article was the most challenging. That is, Park (2005) found that the advanced Korean L2 English learners did not have any explicit knowledge regarding use of the zero article. The difficulty in learning the correct use of the zero article has been argued to stem from the fact that the zero article has no form, hence, invisible (Master, 2003).

Based the behaviour of bare nouns in the L1 and how definiteness and genericity are marked in both languages, the prediction is that if the L2 learners transfer the article semantics of their L1 to the L2, they may not be clear on how to deal with contexts in English that require the zero article, thus leading to article substitution errors.

From the forced-choice task, the results showed that the L2 learners did have problems in correctly supplying the zero article in the generic contexts. In both the generic singular and plural contexts, correct article suppliance rate did not exceed 30%, as shown in Table 13 of section 5.2.5. The low rate of article suppliance in the generic contexts is an indication that the L2 learners had much difficulty dealing with the zero article. Although, a main effect of condition ($p < .001$) was found for both generic singular and plural contexts, there was no significant difference ($p = 0.9999$) in performance among the L2ers between the generic singular and plural contexts. This gives the impression that both contexts were significantly difficult for the L2 learners, hence, the poor performance in their article choice. Generally, the results suggested that use of the zero article was hard for the L2 learners in both generic contexts, which provide support for my prediction that the zero article would be more challenging for the L2 learners than the definite and indefinite articles. Again, the difficulty in the use of the zero article can be attributed to L1 effects as well as use of explicit strategies in the L2 learning process, since in the L1 bare nouns can have definite, indefinite and generic interpretations compared to article use in the L2. It is therefore expected that the L2ers will commit article substitution errors, an expectation supported by the results of article use in the generic contexts.

Regarding the acceptability judgement task, use of the zero article was tested indirectly. All sentences in which the zero article was used were ungrammatical. Therefore, if the Dagbani L2 learners had correctly judged these sentences to be ungrammatical, the overall mean score for the zero-article context would be between 1.00 and 2.00. However, the overall mean score for the zero article contexts, as reported in section 5.3.5 was 2.8020. This figure is very close to 3.00, which entails that most of these ungrammatical sentences with the zero article were incorrectly accepted as grammatical. This reasoning is supported by the acceptability frequencies of individual sentences shown in Tables 16 and 17 (section 5.3.5), where the ungrammatical sentences with the zero article are incorrectly accepted alongside the grammatical sentences with the definite and indefinite articles. The L2 learners did not correctly interpret use of the zero article in those sentences.

Taking the results of both the forced-choice task and the acceptability judgement task together, Prediction 3 of this study is borne out. Article choice in the generic/zero-article context is more challenging to the Dagbani L2 learners than article use in the other contexts of this study. Again, the observed pattern of article use in the generic/zero article contexts hinges on L1 influence and L2 input cues, consistent with the proposal of both the FT/FA of Schwartz and Sprouse (1994, 1996) and the FRH of Lardiere (2008, 2009).

I repeat the essentials about the article semantics in both languages to give a hint on the article substitution errors in the generic/zero article contexts. That is, bare nouns (hence, they have the zero article) in Dagbani can be generic. They can also encode indefinite reference. Yet, the L2 input will hint the L2 learner that indefiniteness is mark in the L2 by *a/n*, which explains the interchangeable use of *a/n* and the *zero article* in the generic context. Finally, some bare unique nouns in the L1 can be definite. Again, the L2 input will tell the L2 learner that genericity can be expressed by all three articles in English (see examples (31) and (32) in section 3.2.1). Therefore, based on L1 influence and L2 input data, the L2ers used all the three article types in the generic and zero article contexts in both tasks.

Finally, in the following section of this chapter, I demonstrate how the patterns of article use among the Dagbani L2 English learners in this study are due to a confound of factors which include L1 transfer effects, use of explicit learning strategies, L2 input and minimally, task effects.

6.4 Accounting for article use variability among Dagbani L2 intermediate learners

In this section, I account for the variable article use in this study among the intermediate L2 learners. As hinted in the last section several factors might explain the article use patterns found in this study. There is evidence that the L2 learners could have been using explicit learning strategies in the L2 article acquisition process, which I turn to in the immediate subsection. Then in 6.4.2, I will discuss L1 transfer and how difference in the featural composition and their distribution on the articles in Dagbani and English can be a factor in this study while in 6.4.3, I discuss task effect in L2 learning in relation to this study.

6.4.1. Use of explicit strategies in L2 acquisition

The results of article choice in the forced-choice task provided evidence that the L2 learners are employing explicit learning strategies based on some classroom instruction of grammar rules regarding how these articles are used in English. For instance, in the English textsbook for grade 5 students, the grammar rules for using *a*, *the* and the *zero article* are illustrated in (68) and (69).

(68) Rules regarding how to use simple determiners/articles in English (Sam and Doe, 2012:42-43)

The articles (a/an, the, no article) are used before nouns to show whether the noun refers to particular or general examples.

Rule 1: *a* is used before a word beginning with a consonant sound.

Examples: a banana, a child, a friend, etc.

Rule 2: *an* is used before a word beginning with a vowel sound (a, e, i, o, u)

Examples: an apple, an eagle, an orange, an uncle.

Rule 3: use *a/an* when you are not referring to anybody or anything in particular.

Examples: give me a chair (any chair).

Give me an umbrella (any umbrella).

Rule 4: *the* is used before a word beginning with a consonant or a vowel sound. It is used when referring to a particular person or thing.

Examples:

My father bought me *the* book I asked for (a particular book).

She ate *the* egg I had kept for her sister (a particular egg).

(69) Other uses of the articles where the rules in (68) do not apply

Rule 5: *a* is used before a word beginning with a vowel that sounds like a consonant

Examples: a university, a one o'clock bus

She is attending *a* university.

Sarah travelled with *a* one o'clock bus.

Rule 6: *an* is used before a word beginning with a consonant that sounds like a vowel.

Examples:

85

He was an hour late.
She is an honourable woman.
Rule 7: We do not use *the* with a plural noun when the noun refers generally to all representatives of the noun it names.
Examples:
Children like pop-corn.
Oranges are sweet.
We enjoy listening to music.

These grammar rules are taught in grade 5. Then from grade 6 through to grade 9, there is a gap in the curriculum where there is no explicit provision in the syllabus for teaching article usage. Employing these grammar rules could explain why most of the L2 learners overuse *a/n* and *the,* especially in the generic contexts of the forced-choice task. Clear evidence of this was shown in the L2 learners' response to dialogues 12 and 24 illustrated in (64) and (65) respectively in section 5.2.5. In these dialogues, the target DPs were *elephnats* and *earrings*, where over half of the participants supplied *an* in those dialogues, consistent with Rule 2 in the grammar rules regarding use of *a/n,* as in (68). Eventhough subsequent rules debar the use of both *a/an* and *the* with plural DPs, it appears that the first two rules, which required that they use *a* if the noun begins with a consonant sound and *an* if it begins with a vowel sound, were applied.

My personal correspondence with some of the English teachers in the schools where the experiments were conducted revealed that articles and their specific functions are not taught in the high schools as grammar topics in separate lessons. They are rather taught as function words under emphatic vs. contrastive stress alongside pronouns, prepositions and auxiliary verbs in SHS 2 and 3 under the general topic Sentence Stress. In the JHS level, articles are taught under determiners in noun phrases. This approach of teaching articles under other grammatical contructions implies that the different articles and their uses are not explicitly explained/taught. Hence, without consistent instructions on this aspect of the English grammar and barely little or no exposure to native input, the L2 learners made use of the grammar rules that readily came to their mind during the experiment. That is, even though these DPs have an initial vowel sound, the number feature on them was not considered or was overlooked by most of the L2 learners. As a result, the intermeidate L2 learners did not unlearn the rule regarding use of *a/n* with words beginning with a vowel sound in these contexts, which led to some of the article substitution errors found in section 5.2.5.

In addition, regarding the error of *a/n* overuse in the generic plural context (see section 5.2.5), it could be argued that the L2 learners have a problem with noun countability, an issue identified to be a major cause of article overuse and/or omission among L2 English learners (Butler, 2002). However, I partially rule out the noun countability option in this context because, there were other generic plural contexts, as in (70), where use of *an* was non-existent and use of *a* was also very minimal.

(70) Other plural generic contexts where *an* was not the choice

    a. A: I learnt that one needs to include hobbies in your CV.
         B: Yeah, I heard that too. So, what is your hobby?
         A: I like to read _____ books on philosophy. I guess that is my hobby

    b. A: Something strange happened to me last night.
         B: What was it? Were you scared?
         A: When I went home after our party, there were _____ cats in my siting room.

In dialogue (70a), 21 L2ers chose *the,* 14 L2ers chose the *zero article,* while nine participants chose *a*. In (70b), over half of the L2ers chose the *zero article,* eight L2ers chose *the,* whereas about 10 of them chose *a*. The overuse of both *the* and *a* in these dialogues can be explained by the grammar rules in (68), This finding therefore provides support for use of explicit knowledge in second language acquisition, especially where L2A is classroom based.

The impact of using explicit strategies and metalinguistic knolwedge in L2 acquisition have been noted in both Butler (2002), Hulstijn and Ellis (2005), and Ionin, Zubizarreta and Philippov (2009). For instance, in Butler's (2002) study which was conducted among college Japanese L2 learners, he found that different metalinguistic knowledge was used by the L2 learners in their article use. These included misapplication of grammar rules and problems of identifying noun referentiality and countability among the L1 Japanese speakers.

6.4.2 Article use variability based on L1 effects and feature reassembly

How L1 transfer effects are responsible for the article choice among the L2 learners in this study are discussed in this section through the feature reassembly proposals. In this discussion, I take insights from Lardiere (2008, 2009) and Hawkins et al.'s (2006) feature reassembly proposals and Slabakova (2006), Cho and Slabakova (2014) and Shimanskaya and Slabakova's (2014) conception of overt/covert and direct/indirect expression of features.

As explained in both sections 2.1.2 and 2.1.3, the FT/FA proposes that second language acquisition relies on the L1 grammar at least at the initial stages of acquisition, where linguistic

principles and parameters are transferred from the L1 and/or access directly from UG in the developing L2 interlanguage grammar until enough L2 input is received (Schwartz and Sprouse, 1994, 1996). Ionin, Grolla, Montrul, and Santos (2014) explain that on the basis of FT/FA hypothesis, L2 learners initially transfer the properties of their L1 grammar to their L2, but they are also able to acquire categories and features of the L2 grammar not instantiated in the L1 through direct access to Universal Grammar (UG). On the other hand, based on the Feature Reassembly Hypothesis (Lardiere, 2008, 2009), it is argued that the problem of variability in the acquisition of functional morphology among second language learners is within the featural composition of the L1 and the target L2. For instance, Slabakova (2009c:57) observes that per the FRH proposals, the ways in which grammatical features are morphologically combined and conditioned present some learning problems in L2 acquisition. Slabakova argues that functional morphological features are often clustered differently in different languages and that knowledge of these form-to-meaning mappings constitutes a kind of morphological competence that must be acquired by learners. Therefore, a successful acquisition of this morphological competence involves figuring out how to reconfigure features into new or different formal configurations or remap native features onto new functional morphology. The FRH thus predicts that the more feature re-assembly the L2 learner must do, the more difficult the learning task, hence, a delay in the acquisition process of functional morphemes.

The common factors between these two proposals is that the L1 is invloved in the acquisition of the L2 and that L2 learners also have full access to the inventory of UG. In accounting for the specific effect of L1 transfer in L2 acquisition, Slabakova (2009a,b), Cho and Slabakova (2014) and Shimanskaya and Slabakova (2014) also noted that functional morphemes can be overtly or covertly and/or directly and indirectly expressed in languages. Accordingly, where a functional morpheme is overtly or directly expressed in the L1 and the L2, transfer of such a feature from the L1 to the L2 is predicted to be less difficult since the input can easily guide in this process. However, where morphosyntactic features are overt in the L1 but covert in the L2 or direct in the L1 and indirect in the L2 and vice versa, then transfer between the L1 and the L2 will involve serious remapping and reassembly processes, hence, posing a challenge to most L2 learners, especially those at the lower levels of proficiency.

The morphosyntactic and semantic features associated with the articles in English, based on Lardiere (2008, 2009) and Hawkins et al.'s (2006) proposals are presented in (71). It is argued

that articles in English are exponents of the category D in the DP, where the terminal nodes for D will produce these bundles of features for native speakers.

(71) Featural composition of English articles (Hawkins et al., 2006:20-23)

[D, +definite, +singular] (= the)

[D, +definite, -singular] (= the)

[D, -definite, -singular] (= a)

[D, -definite, -singular] (= Ø)

Based on these features, Hawkins et al. (2006) observe that the contexts of insertion for the phonological exponents will be as shown in (72). Thus, the expression of these features on the lexical items (the articles) in English represents the phonological spell-out of the feature bundles.

(72) A representation of the phonological exponents of the feature bundles on articles

a ↔ [D, -definite, +singular]

the ↔ [D, +definite]

Ø ↔ [D]

Hawkins et al. (2006:20) further maintain that these feature bundles and their phonological exponents capture the intuition that *a* only occurs with count singular nouns that are indefinite, *the* with definite nouns whether singular or plural and the null article being the elsewhere case, thus where both *a* and *the* cannot occur.

Building on the above feature specifications for the articles in terms of other semantic and pragmatic functions relating to how definiteness is expressed, I reason that the feature bundles in (73) will also be true for native speakers, based on the various means of expressing definiteness.

(73) Expanding the feature [definite] on the articles

[D, +definite, +anaphor, ±singular] (= the)

[D, -definite, -anaphor, +singular] (= a)

[D, -definite, -anaphor, -singular] (= Ø)

The feature [+definite] is expressed through hearer knowledge based on familiarity and uniqueness of the referent. These are pragmatically expressed in discourse through shared knowledge. Syntactically, definiteness can also be expressed anaphorically based on second

mention of a previous referent (see sections 3.1 and 3.2.1 for details), hence the feature [+anaphor].

Furthermore, expression of genericity in English is another important factor to consider (see section 3.2.1). Since all the three articles can express genericity, it means that another layer of complexity has been added to the L2 learner's burden in relation to the feature [+generic] in English, where sentence level and NP level distinctions are needed for accurate interpretation of the articles for generic reference. Based on that, the feature [+generic] as expressed by the articles will be as in (74), where (74a) and (74b) capture the sentence and NP level genericity respectively and (74c) illustrates the phonological exponents of the features on the lexical items.

(74) Expression of genericity on the articles

    a.   [D, +definite, +singular, +generic] (= the): at the sentence level
           [D, -definite, +singular, +generic] (= a): at the sentence level
           [D, -singular, +generic] (= Ø): at the sentence level

    b.   [D, +definite, +singular, +generic] (= the): at the NP level
           [D, -singular, +generic] (= Ø): at the NP level

    c.   a ↔ [D, -definite, +singular, +generic]
           the ↔ [D, +definite, +singular, +generic]
           Ø ↔ [D, -singular, +generic]

The feature specification for *the* at the sentence and NP levels for genericity is the same just as the features for Ø at the sentence and NP levels are.

Now turning to the feature specification for the articles in Dagbani in terms of definiteness, number and genericity, the following observations apply.

Dagbani has two overt morphemes **maa** and **la** for definiteness based on second mention and hearer knowledge, as discussed in section 3.3.1. The feature [+definite] as expressed by the articles in Dagbani will have the following featural distribution in (75).

(75) Featural composition of Dagbani articles

     [D, +definite, +anaphor, ±singular] (= maa)
     [D, +definite, -anaphor, ±singular] (= la)
     [D, ±definite, ±singular] (= Ø)

These features will have the phonological exponents on the articles as in (76).

(76) The Phonological exponents of the feature bundles

maa ↔ [D, +definite, +anaphoric, ±singular]
la ↔ [D, +definite, -anaphoric, ±singular]
Ø ↔ [D, ±definite, ±singular]

Even though the representations in (75) and (76) may be a little oversimplified, since there has not been any comprehensive study on Dagbani articles, the important thing is that **maa** and **la** are used differently. Other ways of expressing definiteness pragmatically in discourse in Dagbani could be done by using demonstrative pronouns. For example, to express an immediate situation reference, where the referent is visible and physically present in the discourse context, the demonstrative **ŋɔ** 'this' may be used, as in (77).

(77) Expressing an immediate situation definiteness in Dagbani

a. Abu tim   ma   yɛlim **ŋɔ.**
   Abu give 3sg-NONEMPH   salt   DEM
   Abu, give me this salt (the salt is visible and closer within the physical space)

b. Abu tim ma   yɛlim   **ŋɔ**   **ha.**
   Abu give 3sg-NONEMPH   salt   DEM   distal marker
   Abu, give me that salt (the salt is visible and a bit far within the physical space)

Furthermore, in relation to genericity, only bare nouns (both singular and plural) express generic reference in Dagbani (see section 3.4), hence, genericity is only with the zero article in Dagbani. Therefore, the feature composition for genericity on the articles will be as in (78), where (78a) shows the feature expression of genericity and (78b) illustrates the phonological exponent for insertion.

(78) The featural composition of the feature [generic] in Dagbani

a. [D, ±singular, +generic] (= Ø)
b. Ø ↔ [D, ±singular]

Following the above feature compositions of the articles in Dagbani and in English, I propose that some of the article choice patterns exhibited by the Dagbani L2 learners in this study resulted partly from L1 transfer, consistent with the FT/FA and the FRH.

First, Dagbani has two definite markers, **maa** and **la**, with similar features and functions as the English definite article, *the,* even though the morpho-phonological expression of the feature bundles on the lexical items are not exactly the same between the L1 and the L2. The surface

forms of the definite articles in both languages do not have one-to-one feature mapping configurations. Thus, there is a two-to-one mapping of L1 Dagbani lexical forms to the L2 English form. This remapping of two forms from the L1 to a single form in the L2 for definiteness marking will require reassembly of the feature bundles. Although this looks like mapping of overt forms from the L1 to another overt form in the L2, which I predicted was going to be easier, it appeared to be hard for the intermediate L2 learners as reflected in their use of *the* in the definite contexts in both tasks, especially in the [+definite, +specific] context (see sections 5.2.3 and 5.3.3 for details). Additionally, unique bare nouns in the L1 can also be definite, which means that if this is transferred into the L2 interlanguage grammar bare NPs may be interpreted as definite, although they might not be generic, resulting in article use errors.

Moreover, Dagbani has no overt marker for indefiniteness. Bare nouns are interpreted as indefinite; hence, this also involves mapping a covert feature to an overt form in the L2 (where *a* is the overt indefinite marker in English). The L2ers, therefore, sometimes interpreted indefiniteness as being marked by *a/n* from the L2 input and sometimes by the bare form of the noun (hence, the use of the *zero article*) based on L1 influence. Again, genericity is marked with the bare form of the noun (both singular and plural) in Dagbani while in English all three articles can express genericity (both NP level and sentence level genericity). The zero article in Dagbani thus fuses the features for indefiniteness and genericity. This again involves a mapping of one form (Ø) from the L1 to three forms in the L2 (a, the, Ø). As a result, reassembly of features and or taking more features from UG is required. That is, to learn the accurate expression of indefiniteness and genericity in the L2, there should be restructuring /reassembly of the L1 features on the zero article and UG access for more features in the L2 interlanguage grammar.

Apparently, this remapping and reassembly of L1 features and adding on features from UG in the L2 interlanguage grammar will take time. More input cues will be required to guide the process. Since, these are intermediate learners without much exposure to English, the way out is to resort to L1 transfer of features alongside the L2 input cues. This explains the patterns of article use in the definite, indefinite and zero-article contexts of this study. The assumption is that, they have not been able to remap the two forms in the L1 to the single forms in the L2 for definiteness marking nor have they been able to expand the features of [Ø] morpheme in L1 Dagbani to tease apart its indefiniteness marking (equivalent to *a/n* in English) from generic interpretation. The difficulty in teasing apart the features of [Ø] in the L1 explains why both [a, Ø] are used closely among the L2ers (see section 5.2.5, and Table 17 of section 5.3.5. These

findings on L1 influence is consistent with similar results reported in other studies (Cho and Slabakova, 2014; Slabakova 2009b; McDonald, 2000; among others).

6.4.3 Task effect in article use variation

In addition to L1 transfer effects and use of explicit learning strategies, the variation in article choice in this study among the L2 learners in both the forced-choice and the acceptability judgement tasks could also be due to task effects, especially in relation to the definite and indefinite article contexts. In the forced choice task, it could be that the L2 learners were forced to choose an article form without proper understanding of the dialogue context. A possible reason could be that there was a time constraint, since the L2ers were given only an hour to complete the two tasks in addition to the proficiency test. Other performance factors (such as processing difficulty, memory load, communication pressure, etc.) could have affected the L2 learners' performance differently in the two tasks that are used in this study, implicating the kinds of results found in both tasks. Task effect and performance related challenges have been noted to affect L2 learners' performance in second language acquisition research (McDonald, 2000, 2008; Chung, 2011, among others). For instance, Chung (2011) studied English article acquisition among Korean L2 learners using two tasks and found that the L2 learners' results were different under the different tasks. He concluded that two different tasks on the same research topic may produce different results. In a similar perspective, Butler (2002:475) emphasizes that accessibility of metalinguistic knowledge in language learning might vary depending on the nature of the task, the time available to L2 learners or their proficiency levels. McDonald (2008:264) also reports that certain linguistics or grammatical structures are hard to master among adults and children in an acceptability task because this task is a high demand in itself, where participants not only need to comprehennd sentences, but they also must make a metalinguistic judgement. Given the impact of these factors on L2 learners in second language acquisition, especially among those at lower levels of proficiency, I argue that these factors could have had some infleunces on the L2ers' performance, even though I did not test these variables directly in the study.

7.Conclusion and Recommendations

This thesis examines the Fluctuation Hypothesis and L1 transfer effects in L2 English article acquisition among L1 Dagbani speakers. Previous studies on English articles maintain that L2 learners from article-less languages fluctuate between definiteness and specificity settings of the Article Choice Parameter until the L2 input leads them to the right setting (Ionin, 2003, Ionin, Ko, and Wexler, 2003, 2004; Ionin, Zubizarreta, and Bautista Maldonado, 2008; Ionin, Zubizarreta, and Phillipov, 2009). Accordingly, most L2 learners from article-less languages are said to overuse *the* in specific indefinite [-def, +spec] and *a* in definite non-specific [+def, -spec] contexts. On the other hand, L2 learners from article languages are predicted to be accurate in their article choice in all contexts without specificity effects. Thus, the general observation is that L2 learners from article languages are expected to transfer the article semantics of their L1 onto the L2 interlanguage grammar. As demonstrated in Chapters 5 and 6, this study finds support for L1 transfer consistent with the Full Transfer Full Access (FT/FA) (Schwartz and Sprouse, 1994, 1996) and the Feature Reassembly Hypotheses (FRH) (Lardiere, 2008, 2009). That is, the L1 Dagbani L2 English learners did not fluctuate in their article choice. Rather, the results of this study showed that they transferred the article semantics of their L1 onto the L2 interlanguage grammar in the acquisition of English articles.

English has overt morphemes to mark both definiteness and indefiniteness, whereas Dagbani only has overt markers for definiteness with indefiniteness signalled by the bare form of the noun. Moreover, all the three article forms in English can encode genericity (both at the sentence and NP levels), while genericity is expressed with bare nouns in Dagbani. Based on these mismatches between the article systems in Dagbani and English, three main issues were investigated in this study: will Dagbani L2 English learners fluctuate in their article choice or will they transfer the article semantics of their L1 onto the L2 grammar? Secondly, will the L2 learners use *the* in definite contexts better than they will use *a/n* in the indefinite contexts, which will provide evidence for the directionality effect and/or article acquisition difficulty hierarchy. Finally, the question of whether the acquisition of the zero article would be more challenging than acquisition of the definite and indefinite articles was also investigated.

Two tasks were used to investigate these questions. A forced-choice elicitation task and an acceptability judgement task. The forced-choice task had 24 dialogues grouped into six context types where definiteness and specificity were paired in four of the contexts ([+def, +spec], [+def, -spec], [-def, +spec], [-def, -spec]), and two generic contexts ([generic singular] and

[generic plural]). Each dialogue had a gap and participants were asked to fill in the appropriate article based on the discourse in the dialogue. In the acceptability judgement task, 40 sentences were grouped into four context types ([def. vs. indef.], [def. vs. zero article], [indef. vs. def.], and [indef. vs. zero article]). Each context has five pairs of grammatical and corresponding ungrammatical sentences which differed only in the article type. Participants were asked to rate each sentence on a Likert scale from 1 to 5. In the analysis, only the four points of the Likert scale was used, where ratings 1 and 2 were taken as unacceptable, and 3 and 4 as acceptable.

Forty-five native Dagbani speakers with an age range of 12 – 19 and eight native English speakers with an age range of 23 – 46 participated in the off-line experiment. The native Dagbani speakers had their proficiency scores ranging from 11 to 31 and were grouped into low intermediate (below 21) and high intermediate (above 21) learners. However, proficiency was treated as a continuous variable, hence, there was no strict division between these two intermediate groups, except where there was a need to point out certain differences in their performance.

Analysis of the results showed that the L1 Dagbani L2 English learners performed better in contexts assumed to be problematic for L2 English learners. Thus, their performance in both [+def, -spec] and [-def, +spec] was better than in both [+def, +spec] and [-def, -spec] contexts. Also, article choice among the Dagbani L2 English learners were influenced by definiteness and not specificity. These results showed that the fluctuation hypothesis was not supported. Instead, L1 transfer effect, as advocated for by both the FT/FA and FRH, was supported consistent with findings in many other studies (Mayo, 2009; Sarko, 2009; Ionin, Zubizarreta, and Bautista Maldonado, 2008; Hawkins et al., 2006; among others). The results also showed that among the Dagbani L2 English learners, the zero article was more challenging than both the definite and indefinite articles, consistent with findings in Master (2003), Park (2005), White (2003c), and Sarko (2009). The L2 learners also partially performed better in their use of the definite article than in their use of the indefinite article. These patterns of article use were attributed to L1 transfer under the FT/FA and FRH, use of explicit learning strategies, L2 input cues and task effects. The results of this study support findings in other studies on L2 article acquisition and acquisition of functional morphology in general (McDonald, 2000, 2008; Chung, 201; Cho and Slabakova, 2014; Slabakova 2009b).

However, other interersting issues which could not be explored in this study but remain very important for the understanding of L2 English article acquisition among L1 Dagbani speakers

are as follows: First, it remains unclear whether L1 Dagbani speakers make a distinction between hearer knowledge (shared knowledge between speaker and hearer) and anaphoric reference in their interpretation of English articles based on L1 transfer effects. That is, since Dagbani makes a distinction betwee the use of **maa** and **la** as definite markers, it will be useful to examine how this distinction influences their use of *the* in English. Particularly interesting also is the interpretation of genericity and general use of the zero article among Dagbani speakers. Since this study involved only intermediate L2 learners, it remains an issue whether advancement in proficiency will lead to accurate use of the zero article among L1 Dagbani L2 English learners. Even though this study found proficiency effects in the general use of English articles among the high and low intermediate L2 learners, the difference was not significant enough to determine whether increased proficiency will lead to accurate performance in the use of the zero article. That is, will increase in proficiency result in more remapping and reassembly of the L1 features into the appropriate L2 lexiacl items, hence, a reduction in overuse of overt articles in contexts were the zero article is obligatory? Therefore, a study which has both beginner, intermediate and advanced L1 Dagbani L2 English learners will be desirable. In addition, grammatical sentences with the zero article paired with ungrammatical sentences with the definite and indefinite articles should be added to the acceptability task in future studies of this nature. Finally, it will also be interesting to know how L1 Dagbani L2 English learners will perform in a production test, since this can complement the results found in this study to provide a detailed pattern of Dagbani L2 English article use. All these concerns when properly examined can contribute in many important ways to our understanding of L2 English article use among L1 Dagbani speakers.

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Appendices

Appendix 1: The acceptability judgement task

Read each sentence and determine how good or bad it is on a scale of 1-5, where:

1 = very bad

2 = bad

3 = good

4 = very good

5 = I don't know

Two examples are provided here.

a. The poor people in this community are meeting the Municipal Chief Executive.

( )1   ( )2   ( )3   (✓)4   ( )5

b. Michael and George is traveling to Accra to meet their parents.

(✓)1   ( )2   ( )3   ( )4   ( )5

Test items.

1. The bottled water we bought two days ago has expired.

( )1   ( )2   ( )3   ( )4   ( )5

2. The secret to success is hard work

( )1   ( )2   ( )3   ( )4   ( )5

3. Please, pass me bucket, I need it for something.

( )1   ( )2   ( )3   ( )4   ( )5

4. Can someone tell me who the winner of this game is?

( )1   ( )2   ( )3   ( )4   ( )5

5. The man became angry because Amina insulted he.

( )1   ( )2   ( )3   ( )4   ( )5

6. We rented a boat last summer from Peter.

( )1   ( )2   ( )3   ( )4   ( )5

7. The moon is full and bright tonight.

( )1   ( )2   ( )3   ( )4   ( )5

8. My teacher likes reading quotations the Bible from.

( )1   ( )2   ( )3   ( )4   ( )5

9. We would like to buy a new car next year.

( )1   ( )2   ( )3   ( )4   ( )5

10. I have not seen a sun for days now.

( )1   ( )2   ( )3   ( )4   ( )5

11. There was a new student in class today.

( )1   ( )2   ( )3   ( )4   ( )5

12. President of Ghana will visit our community tomorrow.

( )1   ( )2   ( )3   ( )4   ( )5

13. A moon is full and bright tonight.

( )1   ( )2   ( )3   ( )4   ( )5

14. I had a problem with my car two weeks ago.

( )1   ( )2   ( )3   ( )4   ( )5

15. We rented boat last summer from Peter.

( )1   ( )2   ( )3   ( )4   ( )5

16. Dagbon has an old culture which dates back in history.

( )1   ( )2   ( )3   ( )4   ( )5

17. Yesterday father my bought me a new toy.

( )1   ( )2   ( )3   ( )4   ( )5

18. Please, can I get a pen from you?

( )1   ( )2   ( )3   ( )4   ( )5

19. Yusuf and I bought goat four days ago.

( )1   ( )2   ( )3   ( )4   ( )5

20. My neighbour has a son and two beautiful daughters.

( )1   ( )2   ( )3   ( )4   ( )5

21. Professor who teaches our class is very nice.

    ( )1   ( )2   ( )3   ( )4   ( )5

22. My sister little was given a pet on her birthday.

    ( )1   ( )2   ( )3   ( )4   ( )5

23. I saw cat eating something in my room yesterday.

    ( )1   ( )2   ( )3   ( )4   ( )5

24.Yesterday I made a terrible mistake.

    ( )1   ( )2   ( )3   ( )4   ( )5

25. A bottled water we bought two days ago has expired.

    ( )1   ( )2   ( )3   ( )4   ( )5

26. Dagbon has the old culture which dates back in history.

    ( )1   ( )2   ( )3   ( )4   ( )5

27. Please, pass me the bucket, I need it for something.

    ( )1   ( )2   ( )3   ( )4   ( )5

28. My neighbour has the son and two beautiful daughters.

    ( )1   ( )2   ( )3   ( )4   ( )5

29. There was the new student in class today.

    ( )1   ( )2   ( )3   ( )4   ( )5

30. This year, water level in the lake very fast is reducing.

    ( )1   ( )2   ( )3   ( )4   ( )5

31. Mr Abu is tax inspector in Accra.

  ( )1   ( )2   ( )3   ( )4   ( )5

32. I know the man who runs this company.

  ( )1   ( )2   ( )3   ( )4   ( )5

33. I have not seen the sun for days now.

    ( )1   ( )2   ( )3   ( )4   ( )5

34. I had the problem with my car two weeks ago.

    ( )1   ( )2   ( )3   ( )4   ( )5

35. The students having are a class test today.

   ( )1   ( )2   ( )3   ( )4   ( )5

36. Please, can I get pen from you?

   ( )1   ( )2   ( )3   ( )4   ( )5

37. Mr Iddrisu teaches Social Studies my school in.

   ( )1   ( )2   ( )3   ( )4   ( )5

38. Yesterday I made the terrible mistake.

   ( )1   ( )2   ( )3   ( )4   ( )5

39. We would like to buy new car next year.

   ( )1   ( )2   ( )3   ( )4   ( )5

40. Secret to success is hard work.

   ( )1   ( )2   ( )3   ( )4   ( )5

41. I saw a cat eating something in my room yesterday.

   ( )1   ( )2   ( )3   ( )4   ( )5

42. The professor who teaches our class is very nice.

   ( )1   ( )2   ( )3   ( )4   ( )5

43. Can someone tell me who a winner of this game is?

   ( )1   ( )2   ( )3   ( )4   ( )5

44. The president of Ghana will visit our community tomorrow.

   ( )1   ( )2   ( )3   ( )4   ( )5

45. Last week, we sees a boy walking around this building.

   ( )1   ( )2   ( )3   ( )4   ( )5

46. I know man who runs this company.

  ( )1   ( )2   ( )3   ( )4   ( )5

47. A child was swimming in pool the yesterday.

  ( )1   ( )2   ( )3   ( )4   ( )5

48. Mr Abu is a tax inspector in Accra.

   ( )1   ( )2   ( )3   ( )4   ( )5

49. Yusef and I bought a goat four days ago.

( )1   ( )2   ( )3   ( )4   ( )5

50. The man we met on our way are our teacher.

( )1   ( )2   ( )3   ( )4   ( )5

Appendix 2: Questions on participants background data

Please fill in the following details about yourself.

1. What is your age? _____
2. Which gender are you? _____
3. What is your educational level (form)? _____
4. At what grade did you start learning English? _____
5. How long have you been learning English? _____
6. What language do you use at home? _____
7. What language do you usually speak with your friends? _____
8. What other languages do you know? _____
9. How good are you in the other languages you speak? _____

Appendix 3: The Standardized Oxford Proficiency test

In this test, there are 40 multiple choice items. Please complete each sentence by selecting the best answer from the available options below. You can circle your answers.

Part 1

1) Water _____ at a temperature of 100° C.

☐ is to boil

☐ is boiling

☐ boils

2) In some countries _____ very hot all the time.

☐ there is

☐ is

☐ it is

3) In cold countries people wear thick clothes _____ warm.

☐ for keeping

☐ to keep

☐ for to keep

4) In England people are always talking about _____.

☐ a weather

☐ the weather

☐ weather

5) In some places _____ almost every day.

☐ it rains

☐ there rains

☐ it raining

6) In deserts, there isn't _____ grass.

☐ the

☐ some

☐ any

7) Places near the Equator have _____ weather even in the cold season.

☐ a warm

☐ the warm

☐ warm

8) In England _____ time of year is usually from December to February.

☐ coldest

☐ the coldest

☐ colder

9) _____ people don't know what it's like in other countries.

☐ The most

☐ Most of

☐ Most

10) Very _____ people can travel abroad.

☐ less

☐ little

☐ few

11) Mohammed Ali _____ his first world title fight in 1960.

☐ has won

☐ won

☐ is winning

12) After he _____ an Olympic gold medal, he became a professional boxer.

☐ had won

☐ have won

☐ was winning

13) His religious beliefs _____ change his name when he became a champion.

☐ have made him

☐ made him to

☐ made him

14) If he _____ lost his first fight with Sonny Liston, no one would have been surprised.

☐ has

☐ would have

☐ had

15) He has traveled a lot _____ as a boxer and as a world-famous personality.

☐ both

☐ and

☐ or

16) He is very well known _____ the world.

☐ all in

☐ all over

☐ in all

17) Many people _____ he was the greatest boxer of all time.

☐ is believing

☐ are believing

☐ believe

18) To be the best _____ the world is not easy.

☐ from

☐ in

☐ of

19) Like any top sportsman, Ali _____ train very hard.

☐ had to

☐ must

☐ should

20) Even though he has now lost his title, people _____ always remember him as a champion.

☐ would

☐ will

☐ did

Part 2

Choose the answer which is the correct continuation of the narrative.

21) The history of _____ is

☐ airplane

☐ the airplane

☐ an airplane

22) _____ short one. For many centuries men

☐ quite a

☐ a quite

☐ quite

23) _____ to fly, but with

☐ are trying

☐ try

☐ had tried

24) _____ success. In the 19th century a few people

☐ little

☐ few

☐ a little

25) succeeded _____ **in balloons. But it wasn't until**

☐ to fly

☐ in flying

☐ into flying

26) the beginning of _____ **century that anybody**

☐ last

☐ next

☐ that

27) _____ **able to fly in a machine**

☐ were

☐ is

☐ was

28) _____ **was heavier than air, in other words, in**

☐ who

☐ which

☐ what

29) _____ **we now call a 'plane'. The first people to achieve**

☐ who

☐ which

☐ what

30) 'powered flight' were the Wright brothers. _____ was the machine

☐ His

☐ Their

☐ Theirs

31) which was the forerunner of the Jumbo jets and supersonic airliners that are

_____ common

☐ such

☐ such a

☐ some

32) sight today. They _____ hardly have imagined that in 1969,

☐ could

☐ should

☐ couldn't

33) _____ more than half a century later,

☐ not much

☐ not many

☐ no much

34) a man _____ landed on the moon.

☐ will be

☐ had been

☐ would have

35) Already _____ is taking the first steps towards the stars.

☐ a man

☐ man

☐ the man

36) Although space satellites have existed _____ less

☐ since

☐ during

☐ for

37) than forty years, we are now dependent _____ them for all

☐ from

☐ of

□ on

38) kinds of _____. Not only

□ informations

□ information

□ an information

39) _____ being used for scientific research in

□ are they

□ they are

□ there are

40) space, but also to see what kind of weather _____.

□ is coming

□ comes

□ coming

Appendix 4: The Forced-choice elicitation task

Instructions: in this test, there are short conversations. In each conversation, please fill in the gap (___) by writing *the*, *a/an*. But if no article is needed, fill the gap with **0** (zero) based on the context given. Some examples are provided below.

   a.   A conversation between a father and his daughter.
        A: Where is your mother?
        B: She is meeting __**the**___ principal of my brother's school. He is a very nice man. He is talking to my mum about my brother's grades.

   b.   A: My boss invited me to his house for dinner. What do you think I should bring?
        B: OK, if it were me, I would bring some wine. __**A**___ bottle of wine will be good.

   c.   A: Can you guess what Rose had for supper yesterday evening?
        B: Well, she has this weird attitude towards food, so I can't guess.
        A: She ate __**0**__ potatoes. I wonder if she enjoyed it, because she never likes them.

Now, read the following conversations and fill in the gaps with the appropriate word.

   1.   [+definite, +specific] context
        A conversation between a teacher and a pupil.
        A: Yesterday, you were given some textbook and exercise book to take home. Do you have them with you in class today.
        B: No, I brought only _____ textbook. I shall submit my exercise book tomorrow.

   2.   [Generic singular context]
        A: I think physics can be interesting sometimes.
        B: It's always interesting, just that you never had any interest in physics.
        A: Well, it depends. But I just learn that nothing travels faster than _____ light.

   3.   [+definite, -specific] context
        A conversation between a mother and her son.
        A: it's already 4 pm. Why isn't your sister home from school?
        B: she just called and told me that she got into some trouble in school! She is talking to ____ head teacher of her school! I don't know who that is. I hope she comes home soon.

   4.   [-definite, -specific] context
        A conversation between two friends about Daniel.
        A: Hello. How are you doing? Do you have any idea about Daniel?
        B: I'm good. Yes, I saw him today. I think he is having fun.
        He borrowed ___ video from his local library, but I don't know what it was about.

5. [Generic singular] context

A: I'm so excited today.

B: Yes, I can see that. What happened?

A: I have just received _____ money for my birthday party. We need to go shopping.

6. [-definite, +specific] context

A conversation between old class mates

A: I heard that you just started college. How do you like it?

B: It's great! My classes are very interesting.

A: That's wonderful. And do you have fun outside of class?

B: Yes, in fact, today I'm having dinner with ____ girl from my class – her name is Mia, and she is very nice.

7. [Generic plural] context

A: I learnt that one needs to include hobbies in your CV.

B: Yeah, I heard that too. So, what is your hobby?

A: I like to read ____ books on philosophy. I guess that is my hobby.

8. [+definite, -specific] context

A conversation between a reporter and a guard after a woman's running race.

A: Excuse me! Can you please let me in?

B: What do you want?

A: I am a reporter. I need to talk to ____ winner of this race; I don't know who she is, so can you please help me.

9. [Generic plural] context

A: Something strange happened to me last night.

B: What was it? Were you scared?

A: When I went home after our party, there were ____ cats in my siting room.

10. [+definite, -specific] context

A conversation between a reporter and a police officer.

A: You seem very busy sir. What is happening?

B: Yes, I am very busy right now. Mr George was murdered two days ago, we are trying to find ____ murderer. But we still don't know who it is.

11. [-definite, -specific] context

A conversation between a student and a staff secretary.

A: I'm looking for Mr Isaac Mensah.

B: I'm afraid he is busy. He has office hours right now.

A: What is he doing?

B: He is meeting with ___ parent, but I don't know who he is.

12. [Generic plural] context

    A: I watched this documentary on animals yesterday. It was nice but scary.

    B: I've always loved animals. Do you know that some animals can be wonderful?

    A: I heard that. People say _____ elephants can swim very well despite their size.

13. [-definite, +specific] context

    A conversation between two students on campus

    A: Hi Katie – can you help me? I need to talk to Miss Christ Jones, but I haven't been able to find her. Do you know if she is in school this week?

    B: Well, I know she was here yesterday. She met with ____ student – he is in my Physics class.

14. [+definite, +specific] context

    A conversation between two friends at a store.

    A: Come on! We have been in this shop for several hours now.

    B: I can't make up my mind. Which shirt do you like best?

    A: I prefer _____ shirt with stripes.

15. [-definite, +specific] context

    A conversation between a Clerk and a customer over a lost item.

    A: Can I help you? Are you looking for something you lost?

    B: Yes, I realize you have a lot of things here, maybe, you have what I need. You see, I am looking for _____ green scarf. I think I lost it here last week.

16. [+definite, -specific] context

    A conversation between a sales girl and a customer at a supermarket

    A: Can I help you, Sir?

    B: Yes! I'm very angry. I bought some meat from this store, but it is completely spoiled! I want to talk to _____ owner of this store, whoever he may be. I want to see him right now!

17. [-definite, +specific] context

    A conversation between a waiter and a client in a restaurant.

    A: Are you ready to order, sir? Or are you waiting for someone?

    B: Can you please come back in about 20 minutes? You see, I'm waiting. I am planning to eat with ____ colleague from work. She will be here soon.

18. [Generic singular] context

    A: Geography or Biology is in my mind when I get to high school.

    B: Like seriously! What is your motivation?

    A: It's because I have always been interested in _____ nature, especially animals and birds.

19. [-definite, -specific] context
    A conversation between two friends.
    A: Rose is very happy. I've never seen her look so excited.
    B: Why? What happened to her?
    A: I heard she got ___ car for her birthday. But I don't know what it looks like?

20. [+definite, +specific] context
    A: I visited my friend Kelly yesterday. Kelly really likes animals – she has two cats and one dog. Kelly was busy preparing for an exam. So, I helped her out with her animals.
    B: What did you do?
    A: I took ___ dog for a walk. We really had so much fun.

21. [Generic singular] context
    A: We studied something about childhood killer diseases in class today.
    B: I heard they are very dangerous and can affect children's growth and development.
    A: Of course, my brother Jill had ___ polio when he was a little boy.

22. [-definite, -specific] context
    A conversation between a sales boy and a customer in a clothing store.
    A: Can I help you? We have lots of nice things on sale this week.
    B: Yes, please! I've gone through every stall, without any success. I am looking for ____ warm hat. It's getting rather cold outside.

23. [+definite, +specific] context
    A conversation between two university students.
    A: Do you have time for lunch?
    B: No, I'm very busy. I am meeting with _____ president of the Northern Students' Union, Mr Adoga; it's an important meeting. I can't forgo it.

24. [Generic plural] context
    A: I heard that George went to Italy last year. Do you know what he brought for his sister?
    B: I know he would give her something valuable, but I can't guess.
    A: Well, he brought his sister _____ earrings, which she loved so much.

Appendix 5: The Participants background data

	PROFICIENCY SCORE	AGE	LEVEL OF EDUCATION	GRADE START ENGLISH	YEARS LERNING ENGLISH	HOME LANGUAGE	FRIEND LANGUAGE	OTHER LANGUAGE	PROFICIENCY OTHER LANGUAGE	GENDER
RESPOND 1	14	14	9	1	3	Dagbani	English	English	Good	F
RESPOND 2	21	12	9	3	9	Dagbani	English	None	Good	F
RESPOND 3	31	14	9	1	9	Dagbani	English	Hausa	Very Good	F
RESPOND 4	25	16	9	1	6	Dagbani	English	English	Polite	F
RESPOND 5	23	16	9	2	1	Dagbani	Dagbani	Twi	Very Good	F
RESPOND 6	20	15	9	5	1	Dagbani	English	English	Very Good	F
RESPOND 7	19	15	9	1	3	Dagbani	English	English	Very Good	F
RESPOND 8	22	18	9	2	4	Dagbani	Dagbani	English	Good	M
RESPOND 9	20	12	9	2	6	Dagbani	Dagbani	English	Very Good	F
RESPOND 10	23	16	9	1	2	Dagbani	English	English	Best	M
RESPOND 11	25	16	9	4	6	Dagbani	Dagbani	English	Good	F
RESPOND 12	22	16	9	2	8	Dagbani	Dagbani	English	Very Good	M
RESPOND 13	26	13	9	1	7	Dagbani	Dagbani	English	Perfect	M
RESPOND 14	11	15	9	2	3	Dagbani	Dagbani	English	Good	M
RESPOND 15	16	15	9	8	17	English	English	Dagbani	Good	F
RESPOND 16	15	17	9	5	4	Dagbani	English	Twi	Fine	M
RESPOND 17	19	16	9	2	8	Dagbani	Dagbani	Twi	Fair	M
RESPOND 18	21	17	9	2	7	Dagbani	Dagbani	Twi	Perfect	M
RESPOND 19	29	16	9	1	7	Dagbani	Dagbani	English	Good	M
RESPOND 20	21	15	10	1	10	Dagbani	Dagbani	English	Good	F
RESPOND 21	14	17	10	3	10	Dagbani	Dagbani	English	Good	F

RESPOND 22	17	17	10	1	10	Dagbani	English	English	FINE	F
RESPOND 23	16	18	10	1	17	Dagbani	English	Ga	Good	M
RESPOND 24	26	14	10	1	11	Dagbani	English	Twi	Good	M
RESPOND 25	12	18	10	1	16	Dagbani	Dagbani	Hausa	Interest	M
RESPOND 26	23	19	10	1	15	Dagbani	Dagbani	English	Good	M
RESPOND 27	23	15	10	1	10	Dagbani	Dagbani	English	Good	F
RESPOND 28	30	18	10	1	11	Dagbani	Dagbani	English	Good	F
RESPOND 29	13	17	10	1	9	Dagbani	English	English	Good	F
RESPOND 30	22	16	10	1	10	Dagbani	English	Hausa	Very Good	M
RESPOND 31	21	18	10	3	7	Dagbani	English	EWE	Good	M
RESPOND 32	26	19	10	4	6	Dagbani	English	English	Very Good	M
RESPOND 33	23	17	11	1	11	Dagbani	English	English	Good	M
RESPOND 34	17	16	11	1	10	Dagbani	English	English	Good	M
RESPOND 35	19	17	11	3	11	Dagbani	English	English	Better	M
RESPOND 36	21	17	11	2	10	Dagbani	Dagbani	English	Good	M
RESPOND 37	22	17	11	3	12	Dagbani	English	English	Better	M
RESPOND 38	25	13	11	1	9	Dagbani	Dagbani	English	Good	F
RESPOND 39	22	13	11	KG1	9	Dagbani	English	English	Very Good	M
RESPOND 40	26	15	11	1	7	Dagbani	English	English	Good	M
RESPOND 41	25	16	11	KG1	7	Dagbani	English	Hausa	Very Good	M
RESPOND 42	14	18	11	1	14	Dagbani	English	Twi	Very Good	F
RESPOND 43	16	18	11	1	12	Dagbani	English	English	Very Good	F
RESPOND 44	15	15	11	1	11	Dagbani	English	Twi	Fluent	F
RESPOND 45	26	15	11	1	7	Dagbani	English	English	Better	F
NATIVE 1	37	35	Masters	Native	35	English	English	French	Moderate	M
NATIVE 2	38	23	Masters	Native	23	English	English	Spanish, Chinese, Norwegian	Proficient	M
NATIVE 3	40	26	Masters	Native	26	English	English	Russian,	Fluent,	F

124

								Norwegian	Beginner	
NATIVE 4	39	46	Masters	Native	46	English Irish	English, Norwegian Irish	Irish, French, Norwegian	Intermediate	F
NATIVE 5	36	26	Masters	Native	26	English	English	French	Intermediate	F
NATIVE 6	37	24	Masters	Native	24	English	English	Spanish, Norwegian	Beginner	F
NATIVE 7	37	26	Masters	Native	26	English	English	Mandarin	Intermediate	F
NATIVE 8	38	25	Masters	Native	25	English	English	French	Good	M

Appendix 6: The Correlation Test on Background data

A. Correlation between age and proficiency: Not significant correlation

```
Residuals:
    Min      1Q  Median      3Q     Max
-9.6667 -2.7143  0.3333  2.3333 11.2857

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  20.5000     3.3039   6.205 3.32e-07 ***
Age13         3.8333     4.2653   0.899    0.375
Age14         3.1667     4.2653   0.742    0.463
Age15        -0.8333     3.6526  -0.228    0.821
Age16         2.5000     3.6192   0.691    0.494
Age17        -2.1667     3.6526  -0.593    0.557
Age18        -1.7857     3.7463  -0.477    0.636
Age19         4.0000     4.6724   0.856    0.397
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.672 on 37 degrees of freedom
Multiple R-squared:  0.2252, Adjusted R-squared:  0.07865
F-statistic: 1.537 on 7 and 37 DF, p-value: 0.1855
```

B. Proficiency is related to GradeEng: No big difference between grades 9, 10 and 11.

```
with(subset(fcAllCond, GradeEng != "NATIVE"), tapply(Proficiency, LevelEduca, sd))

      10        11         9 MASTERS
5.543534 4.259228 5.002923      NA
```

C. Proficiency is related to friend language: no big difference.

```
with(subset(fcAllCond, GradeEng != "NATIVE"), tapply(Proficiency, FriendLang, mean))

       DAGBANI    ENG, NORW, IRISH     ENGLISH
      21.50000                  NA    20.37037
```

Appendix 7: Statistical tests on the forced-choice data set

A. Model for Condition and proficiency

```
Generalized linear mixed model fit by maximum likelihood (Laplace
  Approximation) [glmerMod]


     AIC      BIC   logLik deviance df.resid
  1263.4   1332.9   -617.7   1235.4      1047


 Scaled residuals:
    Min      1Q  Median      3Q     Max
-2.9091 -0.7000  0.3266  0.6821  3.0175


 Random effects:
 Groups      Name         Variance Std.Dev.
 Participant (Intercept) 0.1617   0.4021
 Sentence    (Intercept) 0.3652   0.6043
Number of obs: 1061, groups:  Participant, 45; Sentence, 24


 Fixed effects:
                                Estimate Std. Error z value Pr(>|z|)
 (Intercept)                     1.63759    0.37471   4.370 1.24e-05 ***

ProfCent                         0.12871    0.04429   2.906 0.00366 **

ConditionDefSpec                -1.48660    0.50501  -2.944  0.00324 **
ConditionGenPlural              -2.67254    0.51150  -5.225 1.74e-07 ***
ConditionGenSingular            -2.55897    0.50809  -5.036 4.74e-07 ***
ConditionIndefNonspec           -1.25495    0.50710  -2.475  0.01333 *
ConditionIndefSpec              -0.79596    0.50636  -1.572  0.11597
ProfCent:ConditionDefSpec       -0.04239    0.05507  -0.770  0.44143
ProfCent:ConditionGenPlural     -0.06113    0.05685  -1.075  0.28226
ProfCent:ConditionGenSingula    -0.07087    0.05604  -1.264  0.20607
ProfCent:ConditionIndefNonspec  -0.05415    0.05540  -0.977  0.32836
ProfCent:ConditionIndefSpec     -0.04782    0.05511  -0.868  0.38554
 ---
 Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


 Correlation of Fixed Effects:
          (Intr) PrfCnt CndtDS CndtGP CndtGS CndtIN CndtIS PC:CDS PC:CGP
 ProfCent      0.168
 CondtnDfSpc -0.723 -0.123
 CndtnGnPlrl -0.716 -0.124  0.531
 CndtnGnSngl -0.720 -0.124  0.534  0.531
 CndtnIndfNn -0.718 -0.122  0.533  0.527  0.531
 CndtnIndfSp -0.719 -0.122  0.534  0.528  0.531  0.531
 PrfCnt:CnDS -0.131 -0.738  0.099  0.095  0.096  0.097  0.097
 PrfCnt:CnGP -0.129 -0.719  0.095  0.068  0.095  0.095  0.095  0.578
 PrfCnt:CnGS -0.131 -0.729  0.097  0.096  0.075  0.096  0.096  0.585 0.571
 PrfCnt:CnIN -0.131 -0.734  0.097  0.095  0.096  0.106  0.096  0.591 0.574
 PrfCnt:CnIS -0.132 -0.736  0.098  0.097  0.097  0.097  0.124  0.592 0.575
```

```
          PC:CGS PC:CIN
ProfCent
CondtnDfSpc
CndtnGnPlrl
CndtnGnSngl
CndtnIndfNn
CndtnIndfSp
PrfCnt:CnDS
PrfCnt:CnGP
PrfCnt:CnGS
PrfCnt:CnIN  0.582
PrfCnt:CnIS  0.583  0.588
```

Extracting p-values for effect of Prof, condition and the interaction between Prof and condition.

B. The main effect of proficiency: Non-natives

anova(model0, model1)

```
       Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
model0  3 1282.6 1297.5 -638.31   1276.6
model1  4 1269.6 1289.4 -630.78   1261.6 15.057      1  0.0001043 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

C. The main effect of condition: Non-natives

anova(model0, model3)

```
       Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
model0  3 1282.6 1297.5 -638.31   1276.6
model3  8 1268.3 1308.0 -626.15   1252.3 24.318      5  0.0001886 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

D. Interaction between prof and condition: No interaction found

anova(model4, model2)

```
        Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
model4   9 1255.2 1299.9 -618.62   1237.2
model2  14 1263.4 1332.9 -617.70   1235.4 1.8429      5     0.8704
```

COMPARRING ALL THE CONDITIONS PAIRWISE

```
$lsmeans
 Condition         prob          SE df asymp.LCL asymp.UCL
 DefNonspec   0.8168805 0.05810100 NA 0.6757008 0.9052203
 DefSpec      0.5179964 0.09282575 NA 0.3414885 0.6901244
 GenPlural    0.2457451 0.07033729 NA 0.1340990 0.4066868
 GenSingular  0.2663205 0.07338852 NA 0.1481078 0.4311346
```

```
 IndefNonspec 0.5759297 0.09163469 NA 0.3942995 0.7391292
 IndefSpec    0.6817928 0.08102868 NA 0.5074995 0.8166847

Confidence level used: 0.95
Intervals are back-transformed from the logit scale

$contrasts
 contrast                     odds.ratio        SE df z.ratio p.value
 DefNonspec - DefSpec          4.1509490 2.08265462 NA   2.837  0.0518
 DefNonspec - GenPlural       13.6916919 6.96252336 NA   5.146  <.0001
 DefNonspec - GenSingular     12.2892535 6.21028069 NA   4.964  <.0001
 DefNonspec - IndefNonspec     3.2846733 1.65524488 NA   2.360  0.1705
 DefNonspec - IndefSpec        2.0820036 1.04632270 NA   1.459  0.6904
 DefSpec - GenPlural           3.2984486 1.63000571 NA   2.415  0.1509
 DefSpec - GenSingular         2.9605889 1.45403714 NA   2.210  0.2330
 DefSpec - IndefNonspec        0.7913066 0.38868898 NA  -0.477  0.9970
 DefSpec - IndefSpec           0.5015729 0.24580971 NA  -1.408  0.7223
 GenPlural - GenSingular       0.8975701 0.44502203 NA  -0.218  0.9999
 GenPlural - IndefNonspec      0.2399027 0.11934865 NA  -2.869  0.0473
 GenPlural - IndefSpec         0.1520633 0.07547618 NA  -3.795  0.0020
 GenSingular - IndefNonspec    0.2672801 0.13208742 NA  -2.670  0.0813
 GenSingular - IndefSpec       0.1694166 0.08356865 NA  -3.599  0.0043
 IndefNonspec - IndefSpec      0.6338541 0.31225351 NA  -0.926  0.9401

 P value adjustment: tukey method for comparing a family of 6 estimates
 Tests are performed on the log odds ratio scale
```

E. Models for DEF and SPEC, and choice of Det.

```
Generalized linear mixed model fit by maximum likelihood (Laplace
  Approximation) [glmerMod]


     AIC      BIC   logLik deviance df.resid
   676.3    707.6   -331.2    662.3      633

Scaled residuals:
    Min      1Q  Median      3Q     Max
-3.2396 -0.5618  0.1382  0.5462  2.8048


Random effects:
 Groups      Name        Variance  Std.Dev.
 Participant (Intercept) 1.031e+00 1.015e+00
 Proficiency (Intercept) 4.138e-14 2.034e-07
 Sentence    (Intercept) 7.293e-01 8.540e-01
Number of obs: 640, groups:
Participant, 45; Proficiency, 17; Sentence, 16


Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)     2.4739     0.5433   4.554 5.27e-06 ***
```

```
DefInDef            -3.3708       0.7123  -4.732 2.22e-06 ***
SpecSpec            -2.0515       0.6971  -2.943  0.00325 **
DefInDef:SpecSpec    1.5884       0.9656   1.645  0.09998 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


Correlation of Fixed Effects:
           (Intr) DfInDf SpcSpc
DefInDef   -0.716
SpecSpec   -0.715  0.555
DfInDf:SpcS 0.518 -0.726 -0.723
```

F. Main effect of Definiteness

```
anova(model0, model1)

        Df    AIC    BIC  logLik deviance Chisq Chi Df Pr(>Chisq)
model0  4 690.01 707.86 -341.01   682.01
model1  5 679.90 702.21 -334.95   669.90 12.11      1  0.0005014 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

G. Main effect of Specificity

```
anova(model1, model3)

        Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
model0  4 690.01 707.86 -341.01   682.01
model2  5 689.96 712.27 -339.98   679.96 2.0472      1     0.1525
```

H. No significant Interaction between definiteness and specificity

```
anova(model3, model5)

        Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
model3  6 676.94 703.71 -332.47   664.94
model5  7 676.34 707.57 -331.17   662.34 2.5936      1     0.1073
```

Appendix 8. Statistics on the Acceptability Judgements test (Non-natives)

A. Main effect of Proficiency:

```
      Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
mod0   5 2914.5 2938.4 -1452.2   2904.5
mod1   6 2912.5 2941.2 -1450.2   2900.5 4.0288      1    0.04473 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

B. Main effect of Condition:

anova(mod0, mod2)

```
      Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
mod0   5 2914.5 2938.4 -1452.2   2904.5
mod2   6 2915.4 2944.1 -1451.7   2903.4 1.1155      1     0.2909
```

C. Interaction between condition and proficiency:

anova(mod3, mod4)

```
      Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
mod3   7 2913.3 2946.8 -1449.7   2899.3
mod4   8 2915.0 2953.3 -1449.5   2899.0 0.3554      1     0.5511


Linear mixed model fit by maximum likelihood ['lmerMod']


    AIC      BIC   logLik deviance df.resid
 2915.0   2953.3  -1449.5   2899.0      876

Scaled residuals:
    Min      1Q  Median      3Q     Max
-3.4053 -0.4347 -0.1210  0.5701  3.1903

Random effects:
 Groups      Name         Variance  Std.Dev.
 Participant (Intercept) 3.092e-02 1.758e-01
 Sentence    (Intercept) 5.069e-02 2.251e-01
 Comp        (Intercept) 5.107e-15 7.146e-08
 Residual                1.497e+00 1.224e+00
Number of obs: 884, groups:  Participant, 45; Sentence, 20; Comp, 3

Fixed effects:
                        Estimate Std. Error t value
(Intercept)              0.19723    0.10027   1.967
```

```
ProfCent                   0.02647   0.01383   1.914
ConditionIndef             0.15549   0.13068   1.190
ProfCent:ConditionIndef   -0.01025   0.01720  -0.596


Correlation of Fixed Effects:
          (Intr) PrfCnt CndtnI
ProfCent    0.005
ConditnIndf -0.715 -0.004
PrfCnt:CndI -0.004 -0.679 -0.002
```