

**A COMPARATIVE STUDY OF THE PHONOTACTICS OF ENGLISH AND
ACHOLI: IMPLICATIONS FOR THE PRONUNCIATION OF ENGLISH BY
NATIVE SPEAKERS OF ACHOLI**

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**A THESIS SUBMITTED TO THE INSTITUTE OF RESEARCH AND GRADUATE
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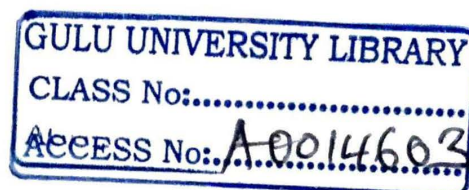
DECLARATION

I, Opiyo Robert, declare that the thesis entitled *A comparative study of the phonotactics of English and Acholi: Implications for the pronunciation of English by native speakers of Acholi* is indeed my own original work that has not been submitted for the award of any degree or any examination at any other institution of higher learning, and that all references have been correctly acknowledged to the best of my knowledge.

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Opiyo Robert

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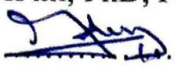


APPROVAL

This thesis entitled *A comparative study of the phonotactics of English and Acholi: Implications for the pronunciation of English by native speakers of Acholi* has been submitted for examination with the approval of the supervisor:

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DEDICATION

I dedicate this work to my wife, Ms. Anyeko Vicky; my son, Munguryek Ethan Franklin, my friend Mr. Kitara Robinson and my parents, Mr. Uhuru K. Severino and Mrs. Ida Uhuru, for their encouragement, care and support throughout the study.

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TABLE OF CONTENTS

DECLARATION	i
APPROVAL	ii
DEDICATION	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
DEFINITION OF TERMS.....	xi
ABSTRACT	xii
CHAPTER ONE	1
GENERAL INTRODUCTION	1
1.0 Introduction.....	1
1.1 Background to the study	1
1.1.1 Conceptual perspective	1
1.1.2 Historical perspective	3
1.1.3 Contextual perspective	6
1.1.4 Theoretical perspective	9
1.2 Statement of the problem	10
1.3 Purpose of the study	10
1.4 Objectives of the study	10
1.5 Research questions	11
1.6. The scope of the study	11
1.6.1 Time scope	11
1.6.2 Geographical scope.....	11
1.6.3 Thematic scope.....	11
1.7 Justification of the study.....	11
1.8. Significance of the study	12
1.9. Theoretical frameworks	13
1.9.1 Introduction	13
1.9.2 Contrastive Linguistics.....	13
1.9.3 Contrastive Analysis Hypothesis (CAH)	14
1.9.4 The Transfer Theory	16
CHAPTER TWO	18
LITERATURE REVIEW	18
2.0 Introduction.....	18

2.1 Similarities between the phonotactics of languages	18
2.2 Differences between the phonotactics of languages	20
2.3.0 Implications of the similarities and differences between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers	26
2.3.1 Implications of the similarities between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers.....	26
2.3.2 Implications of the differences between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers.....	30
2.4 Summary and implications for the current study.....	36
2.5 Conclusion	36
CHAPTER THREE	38
METHODOLOGY	38
3.0. Introduction.....	38
3.1 Research approach	38
3.2 Research design.....	38
3.3 Study area.....	39
3.4 Population	40
3.5 Sample size and sampling technique	40
3.6 Sources of data	42
4. Data collection	42
4.1 Questionnaire guide.....	42
4.2 Reading activities.....	43
4.3 Conversational modules.....	43
4.4 Library search.....	44
5. Quality control	44
5.1 Validity	44
5.2 Reliability	45
6. Data processing and analysis	45
7. Data collection procedure.....	46
8. Ethical considerations	46
9. Conclusion	47
CHAPTER FOUR	48
COMPARISON OF THE PHONOTACTICS OF ENGLISH AND ACHOLI	48
4.0 Introduction.....	48
4.1. Similarities between the phonotactics of English and Acholi	48
4.1.1 Similar syllable structures	48

4.1.2 Similar syllable types.....	53
4.1.3 Similar syllable boundaries.....	54
4.2. Differences between the phonotactics of English and Acholi	55
4.2.1 Different syllable structures	56
4.2.2 Different syllable types.....	64
4.2.3 Different syllable boundaries.....	65
4.3 Conclusion	67
CHAPTER FIVE	68
IMPLICATIONS OF THE SIMILARITIES AND DIFFERENCES BETWEEN THE PHONOTACTICS OF ACHOLI AND ENGLISH FOR THE PRONUNCIATION OF ENGLISH WORDS BY L1 ACHOLI SPEAKERS	68
5.0 Introduction.....	68
5.1 Implications of the similarities between the phonotactics of Acholi and English for the pronunciation of English expressions by L1 Acholi speakers	68
5.2 Implications of the differences between the phonotactics of Acholi and English for the pronunciation of English expressions by L1 Acholi speakers	72
CHAPTER SIX	79
6.0 Introduction.....	79
6.1 Summary	79
6.2 Conclusions.....	80
6.2.1 General Conclusions.....	80
6.2.2 Limitations to the study and outlook	82
6.3 Recommendations	82
6. 4 Areas of further studies.....	83
REFERENCES	84
APPENDICES.....	97
APPENDIX 1.....	97
APPENDIX 2.....	98
APPENDIX 3.....	99

LIST OF TABLES

Table 1: Similar Acholi and English onset configurations	49
Table 2: Similar Acholi and English onset singletons.....	50
Table 3: Similar Acholi and English coda singletons.....	51
Table 4: Similar Acholi and English syllable types	53
Table 5: Similar syllable boundaries	54
Table 6: Different onset configurations.....	56
Table 7: Different Acholi and English coda configurations	59
Table 8: Different Acholi and English onset singletons	61
Table 9: Different Acholi and English coda singletons	62
Table 10: Different syllable boundaries	64
Table 11: Native-like pronunciation of English words by L1 Acholi speakers	68
Table 12: Native-like pronunciations by Acholi speakers gleaned from semi-structured interviews ..	70
Table 14: Deviant pronunciations by Acholi speakers gleaned from semi-structured interviews	76

LIST OF FIGURES

Figure 1: Implications of the differences between Acholi and English phonotactics

ACRONYMS AND ABBREVIATIONS

BrE:	British English
C:	Consonant
C1, C2 and C3:	First, second and third consonant of a cluster
CAH:	Contrastive Analysis Hypothesis
CC:	Two-consonant configurations
CCC:	Three-consonant configurations
CEA:	Colloquial Egyptian Arabic
CVI:	Content Validity Index
ESL/EFL:	English as a Second Language/ English as a Foreign Language
Gen. Pl.:	Genitive Plural
GVoA:	Gulu Variety of Acholi
ICE:	International Corpus of English
ICVI:	Item Content Validity Index
IPA:	International Phonetic Alphabet
L1:	First language
L2:	Second language
MOP:	Maximum Onset Principle
RP:	Received Pronunciation
SCVI:	Scale Content Validity Index
Sg:	Singular
V:	Vowel

DEFINITION OF TERMS

- **Substrate influence-** The influence of the first language (L1) on the second language (L2), e.g. Acholi and English.
- **Exonormative-** based on the way a second language is used in the country it came from originally, rather than the way it is used by local speakers
- **Phonemes-** any of the perpetually distinct units of sounds in a specific language that distinguish one word from another, e.g. /p/ in the English words *pad* and *pat*.
- **Syllables-** a unit of pronunciation having one vowel sound, with or without surrounding consonants, forming the whole or a part of a word.
- **Proto language-** a postulated ancestral language from which a number of attested languages are believed to have descended by evolution, forming a language family.
- **Obstruent-** a speech sound formed as a result of obstruction of the airflow, e.g. /k/, /f/, etc.
- **Sonorants-** sounds produced with the vocal cords positioned in such a way that spontaneous voicing is possible.

ABSTRACT

This study is titled *“A comparative study of the phonotactics of English and Acholi: Implications for the pronunciation of English by native speakers of Acholi.”* The objectives of the study were to establish the relationship between the English and Acholi phonotactics and examine the impact of this relationship as regards the pronunciation of English words by L1 Acholi speakers. The study assessed these phonotactic features based on the syllable structure, syllable types and syllable boundaries involving selected English and Acholi words. The study used 80 respondents, who were selected using stratified and simple random sampling. It was conducted based on the descriptive survey and comparative designs, using both the quantitative and qualitative orientations, couched within the contrastive theoretical analysis and the transfer theory. The study used reading activities and semi-structured interviews (conversational modules), which were audio-recorded, as well as a questionnaire survey and library search methods. The study findings showed that both English and Acholi share the phonotactic elements under consideration, i.e. syllable structures (e.g. /gw/ in *gwok* /gwok/ ‘dog’ and *guava* /gwa:və/), syllable types (e.g. CCVC in *dwön* /dwön/ ‘voice’ and *twin* /twin/) and syllable boundaries (e.g. CV.CV in *lëla* /lɛ.la/ and *baker* /bei.kə/). Essentially, Acholi and English differ in syllable structures (e.g. /pr/ in *prank* /præŋk/), syllable types (e.g. CCCVCC in *sprint* /sprint/) and syllable boundaries (e.g. ambisyllabic ‘tenor’). In addition, the findings showed that as a result of the similarities and differences between the phonotactics of the two languages, the Acholi L2 speakers of English were able to produce native-like pronunciations of English words based on the parameters syllable structure (e.g. *eat* /i:t/), syllable types (e.g. *twin* /twin/) and syllable boundaries as in ‘victim’ /vɪk.tɪm/ (CVC.CVC). By contrast, as far differences are concerned, the Acholi L2 speakers had challenges in the pronunciation of words in relation to syllable structure as in ‘servants’, which was pronounced as /savan/ or /savanz/, and syllable types (e.g. ‘twelfth’ pronounced as /twelf/). The study recommends that the English language teachers should endeavor to be conversant with the phonotactics of both languages, which they should teach learners, using relevant teaching methods and learning aids.

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

This study sought to carry out a comparative analysis of the phonotactics of English and Acholi as well as providing the implications of the similarities and differences between the two languages for the pronunciation of English by L1 Acholi speakers of English as a second language. This chapter focuses on the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, justification of the study and significance of the study.

1.1 Background to the study

This section highlights the nature and context of the study by describing four perspectives that provide the dimensions surrounding it. These dimensions are the conceptual perspective, the historical perspective, the contextual perspective and the theoretical perspective.

1.1.1 Conceptual perspective

Phonotactics is a branch of phonology which looks at the linear combination of sounds in a language (Davidson, 2006). Phonotactics deals with restrictions in a language on the permissible combinations of phonemes. It defines permissible syllable structure, consonant clusters and vowel sequences. This is made manifest through phonotactic constraints, which vary from language to language. Zsiga (2014) says phonotactic constraints are restrictions on the types of sounds that are allowed to occur next to each other or in particular positions in the word. Pearce (2007) asserts that phonotactic constraints determine the syllable structure of a language.

While contemporary English has 24 consonant phonemes, it is certainly not the case that these consonants combine at random up to the maximum permitted limit; thus, some clusters are simply too difficult to pronounce and free combination would place a burden on the language user (Roach, 2005). Whereas Contemporary English allows the cluster /sn/ as in *snow* /snəʊ/, it does not allow the cluster */kn/, e.g. *know* /nəʊ/ (Kreidler, 1989, p. 120).

Syllables have the following internal segmental structure: Onset (optional) and rhyme (obligatory), which comprises the nucleus (obligatory) and coda (optional). Both the onset and coda may be empty, forming a vowel-only syllable, or alternatively (cf. Roach, 2005; Aslam and Kak, 2011), the nucleus can be occupied by a syllabic consonant. Phonotactics is known to affect second language vocabulary acquisition (cf. Brown and Hildum, 1956; Odlin 1989; Vitevitch et al. 1996). The English syllable (and word) *twelfths* /twelfθs/ is divided into the onset /tw/, the nucleus /e/ and the coda /lfθs/; thus, it can be described as CCVCCCC (C = consonant, V = vowel) (cf. Roach, 2005). On this basis, it is possible to form rules for which representations of phoneme classes may fill the cluster. Phonotactics deals with constraints shaping the form of speech. Constraints may either be universal or language-specific; they may be grounded on properties of the articulatory content or on auditory salience.

Dressler et al. (2015) state that Slovak has the non-prototypical case of morphological combinations resulting in vowel deletion like in *pes* ‘dog’, pl. *ps-y*, adj. *ps-í*, which is extremely rare in German, for example in *risiko* ‘risk’, and the adj. *risk-ant* ‘risky’. This makes it difficult for German speakers to pronounce such words like *ps-y* and *ps-í*. The German language has many word-final morphonotactic obstruent clusters which are derived from verb inflections, especially in the 2nd and 3rd person singular or 2nd person plural inflections. In German, the combination *ch* is inflected as *ch-st* (2nd Sg.) and *ch-t* (3rd Sg. and 2nd Pl.), e.g. the verb *machen* ‘make’ is inflected as *mach-st* (2nd person singular) and *mach-t* (3rd singular and 2nd plural). In addition to the above examples, the German *mach-t* phonotactically corresponds to *macht* ‘power’ (Dressler et al., 2015, p. 52). In contrast, Slovak has such morphonotactic word-final obstruent clusters only in Gen.Pl., as for example in Gen.Pl. *jácht* ‘of yachts.’ Thus, word-finally, German is richer in obstruent clusters than Slovak (Dressler et al. 2015). Gen.Pl. is thus limited, hence making it difficult for Slovak speakers to produce German expressions

in the 3rd person singular and 2nd person plural. Avery and Ehrlich (1992) state that native speakers of English are able to recognize foreign accents in ESL/EFL learners' speech, such as Spanish accents, Japanese accents, Chinese accents, etc. This clearly indicates that the sound patterns or structure of the first language has some influence on the speech or production of their second language, i.e. the nature of a foreign accent is determined to a large extent by a learner's native language. Swan and Smith (1987), thus, posit that the pronunciation errors made by second language learners are not just random attempts to produce unfamiliar sounds but rather reflections of the sound inventory, rules of combining sounds, and the stress and intonation patterns of their native languages. Following the above, this study defines phonotactics as a branch of phonology which deals with the rules that govern the joining of permissible phonemes in relation to the syllable structures, consonant clusters and vowel sequences in a given language (cf. Davidson, 2006; Zsiga, 2014).

1.1.2 Historical perspective

Norquist (2018) states that, over time, a language may undergo phonotactic variation and change. Schreier (2005) points out that Old English phonotactics admitted a variety of consonantal sequences that are no longer found in contemporary varieties. Schreier (2005, p. 78) is of the view that there is more to the synchronic and diachronic development of English consonants than has traditionally been assumed. Such an analysis can contribute to the understanding of how English evolved and why it took the particular developmental trajectory it did. Lutz (1991) argues that consonant loss was to a large part a phonotactically-driven process. Schreier (2005, p. 78) states that from a general typological perspective, consonant clusters are rather uncommon structures. The phonotactic system of most languages of the world do not permit consonant clusters, CV being the most common, and indeed universal, syllable type (Greenberg, 1996). The development of English phonotactics indicates that a number of once permissible syllable onset clusters were lost from the phonotactic inventory of English (Schreier, 2005). Luick (1994, p. 938) states that 'in the discourse of the development of the English language, there is a repeating tendency to simplify initial clusters

of consonants.’ Old English had a rich stock of initial clusters than Modern English, as it featured a wide variety of clusters inherited from Proto-Germanic languages (some of which have been maintained in other Germanic languages). Consequently, a number of clusters are lost and modified entirely, and the phonotactic system of English was weakened in a number of ways (Schreier, 2005).

Historical phonotactic change affects the frequency with which clusters occur; as a result, some clusters are less frequent now than before, e.g. the initial /kw/ still appears in the Modern English word *queen*, but used to be widespread as in *cwellan* ‘kill’ (Luick, 1964). Brunner (1963) also posits that the cluster /st/ was lost in *chestnut*, *Christmas* and *listen* (but not in syllable onsets). Quirk and Wrenn (1994, p. 137) posit that the loss of clusters as a result of phonological changes had a direct impact on the phonotactic system especially when phonemes were lost, e.g. the loss of /x/ affected all consonants clusters that had /x/, as in *wealh* ‘wealth’ and *feorh* ‘life’, where the final clusters /lx/ and /rx/ are no longer in the phonotactic inventory of English. Although there was no accompanying phonological change, English has lost a total of nine initial clusters from British English and are not found in (post-) colonial varieties, e.g. /hw/ in Scottish, American and New Zealand varieties of English (Schreier, Gordon, Hay & Maclagan, 2003) and /kn/ as a remnant on the Shetland Islands to the present day (Melchers, 2004). Most studies on the history of English (Jespersen, 1909; Wright, 1923; Brunner, 1963; Pinsker, 1969; Bahr, 1975, among others) agree that initial cluster loss manifested itself in several ways, and there was in fact a considerable diachronic gap between the periods in which individual clusters disappeared. Schreier (2005) posits that clusters with initial /h/ disappeared first (except for /hw/). The loss from the segments /hl/, /hn/ and /hr/ started in late Old English (Jordan, 1943) until about 1300 (Brunner, 1963; Toon, 1992). This was followed by /fn/ and /wl/, which began in the 11th century to 1380 (Pinsker, 1969). The cluster /wl/ is reported to have survived until the mid-19th century in remote areas of Teviotdale/ Scotland (Pinsker, 1969, p. 93), and finally /wr/, /kn/ and /gn/ survived until early Modern English

period (Pinsker, 1969). This explains the fact that <kn> and <gn> are still used to date in the spelling of English words

The term “phonotactics” was coined by Robert Stockwell in 1954 (cf. Hill 1958: 68-88). The interest in the combinatorial possibilities of speech segments, however, is as old as the interest in the syllable, *i.e.* it dates back to the ancient times. Just as any other aspect of language-specific phonology, phonotactic constraints undergo modifications throughout history. Consonantal phonotactics of English since early Old English till Modern English has evolved to become richer, although some clusters also disappeared.

The /h/ in English (cf. Lutz 1988, 1991) disappeared first in the head of an unaccented syllable preceded by an accented open syllable or one closed by a resonant, then in the coda of unaccented monosyllabic words. In late Old English and early Middle English, /h/ was lost in the accented onsets of /hn-/ as in *hnutu* ‘nut’, /hl-/ in *hlūd* ‘loud’, /hr-/ as in *hræfn* ‘raven’ and /hw-/ in *hwæl* ‘whale’ (cf. Schreier, 2005), then in the 12th century it was lost in the onset of unaccented monosyllabic words, while in the 14th and 15th centuries /h/ disappeared in the coda of accented syllables.

Acholi is a tonal Luo language (Oyaro, 2020) belonging to the Nilotic branch of African languages spoken in what is known as Acholi land in northern Uganda and some parts of Sudan (cf. Amarorwot, 2021). The Acholi moved into Uganda from southern Sudan between 1400 and 1800 AD (Heusing, 2004). The Acholi are said to have come to northern Uganda from the area now known as Bahr el Ghazal in southern Sudan. Heusing (2004, p. 36) mentioned the following as the members of this genetic grouping: Acholi, Alur, Adhola, Kumam, Lango, and Luo (Dholuo in Kenya). During the second half of the nineteenth century Arabic speaking traders from the north started to call them *Shooli*, now known as 'Acholi' (National African Language Resource Center (n.d.).

The migrations of Germanic tribes to Britain eventually affected other parts of the world including Uganda. As a result of the Anglo-Saxons interacting with many other nationalities in Britain, e.g. Normans, Scandinavians, Celts, etc., they expanded their empire beyond the British Isles, thus moving with their language (see Amarorwot, 2021, p. 05). In the 19th century, missionaries, preceded by the explorer Henry Morton Stanley, arrived and set up schools in Uganda, as English eventually became one of the major languages (Isingoma & Meierkord 2019). Consequently, the Acholi people, as one of the ethnic groups in Uganda, were exposed to English since the establishment of formal schooling in Uganda and subsequently the colonial government in their area (Amarorwot, 2021, p. 05).

Thus, English is a second language (L2) spoken by only a few Acholi among other languages. As a result of the contact between L1 (Acholi) and L1 English, L2 English production may be affected by L1 Acholi. This affects all aspects of L2 English as spoken by the Acholi. For that matter, this study looks at how the similarities and differences between L1 English and Acholi in terms of their phonotactics affect English as spoken by L1 Acholi speakers.

1.1.3 Contextual perspective

Jenkins (2014) posits that English is the most widely spoken second language in the world and it has acquired the status of a global lingua franca (see also Jenkins, 2009; Zikmundova, 2016, p.1). Chamonikolasova (2014) asserts that English is also widely learned as a second language. He further states that the English language of today is the result of linguistic and sociolinguistic change over several thousand years. Since English is spoken in Uganda, it has a number of functions. Notably, the official language of Uganda since independence has been English and Ugandan institutions of learning use it as a medium of instruction and evaluation (Nakayiza, 2016; Isingoma & Meierkord 2019; Mirembe, 2021). Isingoma and Meierkord (2016) assert that this makes English a prestigious language with a high social status (cf. Amarorwot, 2021). According to Nakayiza

(2016), English could be regarded as the *de facto* national language as there is no lingua franca which is mutually intelligible for communication among different communities in Uganda (cf. Mirembe, 2021, p. 7). Uganda has 65 indigenous ethnic groups and 41 living languages which affect the way English is used in Uganda (see Namyalo et al. 2016; Mirembe, 2021). For example, Isingoma (2014) observes that the English variety spoken in Uganda comes as a result of analogy and influence from local languages.

Amarorwot (2021, p.8) states that native speakers of Acholi speak English as a second language (L2). Quirk et al. (1972) categorize speakers of English as native speakers (ENL), or as second language speakers (ESL) or as foreign language speakers (EFL). Kachru (1985) adapted this model and combined these categories with the taxonomy of Inner Circle (ENL), Outer Circle (ESL) and Expanding Circle (EFL) (Isingoma & Meierkord, 2016). The classification specifies that the Inner Circle (ENL) involves countries where English is used as a native (primary) language by the majority, for example, the United Kingdom, the United States of America, Australia and New Zealand. The Outer Circle category (ESL) is where English is used for administrative and instructional functions due to historical factors, e.g. Uganda, where Acholi native speakers belong (Amarorwot, 2021), Kenya, Nigeria, India, Ghana. The third category is the Expanding Circle (EFL), where English has no historical or official role but is used as a medium of international communication, for example, countries in the European Union (e.g. Germany, Denmark, Norway), Israel and China.

Acholi is a southern Luo language spoken by the people of Acholi in the districts of Gulu, Kitgum, Pader, Agago, Lamwo, Nwoya, Omoro, and Amuru (Acholi-land) in Northern Uganda (cf. Oyaro, 2020). The Acholi language is now taught in primary schools and secondary schools as a subject. The media, as well as other outlets, has also adopted the Acholi language, for example, newspapers, radio stations, videos and also written pieces like dictionaries, grammar books and the Bible. Acholi is a tonal language. Oyaro (2020) states that the Acholi language has three tones. In her study, she

identifies the low tone, which is marked by a grave accent (à), the high tone marked by an acute accent (á) and the fall-rise tone as the third tone in the Acholi language. Examples of the fall-rise tone include: *'tee'* (take), *'tuu'* (break), *kuu* (wait) and *'tii'* (work). Being a tonal language, some Acholi words may be distinguished by tone alone, either low or high, for example, in the word *bèl* (low) 'wrinkled' and *bél* (high) 'corn', *kàl* (low) 'place enclosed by a palisade' vs. *kál* (high) 'millet'. The Acholi language is noted to have vowel harmony, i.e. all vowels in a word have to belong to a single class; for example, in the word *kojo* /kojo/ 'cold' and *kājō* /kɔjɔ/, /ɔ/ 'to separate' or 'leave out', /o/ and /ɔ/ are used, respectively. Some of the Acholi syllables end in vowel, for example, *gwenō* /o/ 'chicken', *nyinga* /a/ 'my name', and *adwogi* /i/ 'outcome', whereas other Acholi syllables are closed: *gwok* 'dog', *pyem* 'competition' and *rwom* 'rank' are identifiable examples, among others.

Although Acholi has a number of existing varieties, e.g. Lamogi, Palabek, Payira, among others, the different varieties of Acholi have not yet been clearly documented (Oyaro, 2020). This is as a result of inadequate research and sociolinguistic surveys conducted on Acholi. Since the Acholi varieties have not been clearly documented, Oyaro (2020) refers to the Acholi variety spoken within Gulu as the 'Gulu Variety of Acholi' (GVoA), which the current study adopted since the respondents were selected from Gulu City (see also Amarorwot, 2021).

Some languages, for example, both English and Acholi, allow consonant clusters (cf. Pearce 2017). Consequently, these similarities and differences in the syllable structure of English and Acholi imply that the two languages may be phonotactically related. However, there exist some differences in the sound system of the languages. These differences qualify Fisher's (2000) and Meierkord's (2016) intuitive understanding of the fact that Ugandans have varied expressions of English words, with regard to the RP (Received Pronunciation). The Acholi, just like any other Ugandans, tend to simplify the phonemic system of English (cf. Isingoma, 2016). With

these observations, we are able to realize that where two languages have similar consonant clusters like English and Acholi in the words *quick* /kwɪk/ and *kwon* /kwon/ (Pearce, 2007), the Acholi speakers are able to pronounce correctly English words with such consonant clusters. Phonotactic differences of languages, on the one hand, cause difficulty in the pronunciation of certain expressions. In line with this, when a language like Acholi does not allow coda clusters of a given configuration, it may be difficult to pronounce English words like *prompt* /prɒmpt/. This study therefore sought to compare the phonotactics of English and Acholi as well as establishing the implications of the similarities and variations between the phonotactics of the two languages for the pronunciation of English words by L1 Acholi speakers.

1.1.4 Theoretical perspective

Languages share commonalities but also portray structural differences (Chomsky, 1965). This study was based on the theory of the contrastive linguistics (Lado, 1957). Contrastive linguistics usually aims at more immediate structure development of the two languages contrasted. The contrastive analysis hypothesis, which is an offshoot of contrastive linguistics, on the one hand, states that the similarities and differences between two languages predict the features that would represent difficulty or ease in learning a second language. This study also relied on the transfer theory. Jenkins (2005) asserts that L2 inter-speaker variation essentially involves the transfer of features of the particular L1 into the production (and, of course, reception) of the target language, thus, the transfer theory. The theory mainly deals with transfer of habits from the native language to the learned one (Corder, 1971 in Byung-gon, 1992). Schwartz and Sprouse (1994, 1996) observe that at the initial stage for L2 acquisition, it is the entire L1 grammar that is transferred (cf. Amarorwot, 2021). In other words, Acholi speakers may have positive transfers in cases of similarities, negative transfers in cases of differences and when there are no relations between features, zero transfer takes place (cf. Stockwell et al., 1965) (see Theoretical Framework in Section 1.9 for more details).

1.2 Statement of the problem

The phonotactics of a language is an essential component in the pronunciation of that language. Thus, any delineation of a language should include this component. While there has been great interest in the study of English phonotactics (e.g. Vitevitch 1997; Al-Saidat, 2010; Bauer, 2015), studies on the Acholi phonotactics are limited, with just a few studies (i.e. Adokorach, 2018; Oyaro, 2020; Adokorach & Isingoma, 2020) making some mention of it, without specifying much on the permissible syllable structures or combinatorial constraints. Moreover, native speakers of Acholi as L2 speakers of English have shown variation from other L2 speakers of English in how they pronounce English words (Adokorach, 2018). The reason for this deviance may be associated with differences in the phonotactics of Acholi and English. At the same time, native speakers of Acholi as L2 speakers of English also pronounce some English sounds in a similar way to how native speakers of English pronounce them. It is against this background that this research seeks to carry out a comparative study between English and Acholi phonotactics and the implications that arise from the similarities and differences between the phonotactic systems of the two languages for the pronunciation of English words by native speakers of Acholi.

1.3 Purpose of the study

The purpose of the study is to establish the relationship between English and Acholi phonotactics and examine the impact of this relationship as regards the pronunciation of English words by native Acholi speakers.

1.4 Objectives of the study

- i) To establish the similarities between the phonotactics of English and Acholi
- ii) To determine the differences between the phonotactics of English and Acholi
- iii) To examine the implications of the similarities and differences for the pronunciation of English by native speakers of Acholi

1.5 Research questions

- i) What are the similarities between the phonotactics of English and Acholi?
- ii) What are the differences between the phonotactics of English and Acholi?
- (iii) What are the implications of the similarities and differences between the phonotactics of English and Acholi for the pronunciation of English words by native speakers of Acholi?

1.6. The scope of the study

1.6.1 Time scope

The study was conducted between March 2021 and June 2023.

1.6.2 Geographical scope

The study was conducted in Gulu City, created in the year 2020. The City is situated in the Northern part of Uganda comprising two divisions of Laroo- Pece (Eastern Division), and Bardege- Layibi (Western Division).

1.6.3 Thematic scope

The study compared the phonotactics of English and Acholi. Particularly, the study considered the Gulu Variety of Acholi (GVoA). As a result, based on the similarities and differences between the phonotactics of English and Acholi, the researcher focused on the implications for the pronunciation of English by native speakers of Acholi. This enabled the researcher to identify variations and parallelism in the pronunciation of English expressions by native speakers of Acholi in comparison with RP (Received Pronunciation).

1.7 Justification of the study

The current study compared the phonotactics of English and Acholi. Although there are a number of scholarly writings conducted on the phonotactics of English, for example Al-Saidat (2010), Bauer(2015), Vitevitch (1997), Zsiga (2014), Roach (2005), etc., no literature is found on the phonotactics of Acholi, except Adokorach (2018) and Oyaro (2020), who focus on other

phonological aspects of Acholi. In addition, no study has compared the phonotactics of Acholi to the phonotactics of any other language, let alone English. Crucially, comparing the phonotactics of English and that of Acholi is necessary to tease out how the similarities and differences between the two languages may impact on the pronunciation of English by L1 speakers of English. However, no study has addressed this yet. Despite the relevance of the literature reviewed in this study, most of the literature focuses on comparing foreign languages, for example English and German (Weber and Cutler, 2006), Zulu and Italian (Cyran, 2008), German and Slovak (Dressler et al. 2015), etc. In addition, the literature also examines language aspects like allophones, morphonotactics, phonemes, segmental features of vowels (e.g. Oyaro, 2020; Ohata, 2004; Yoko, 2019; Takeshita, 2010; Nassenstein, 2016; Davidson, 2006; Zsiga, 2014; Weber and Cutler, 2006; Chang, 2018; Aljasser, 2008; Vitevitch et al., 1996). Consequently, the researcher decided to conduct an in-depth comparison of the phonotactics of English and Acholi and examine the implications of the similarities and differences between the two languages for the pronunciation of English words by L1 Acholi speakers of English and an L2.

1.8. Significance of the study

The study will create awareness to the teachers of English of the implications of the phonotactics of Acholi for the pronunciation of English words by native speakers of Acholi.

The study may provide solutions to course-book designers of English on the similarities and differences between the English and Acholi phonotactics.

The study will also guide the teachers of both English and Acholi on the need to distinguish between the different sounds of English and Acholi while teaching, especially in primary schools where both languages are taught.

Computer software designers can also be guided by the study findings in designing a read-aloud software package which caters for the Acholi pronunciation as well, for example, in Microsoft Office.

It will guide other researchers in the field of phonology by providing factual data on the similarities and the differences between the phonotactics of English and Acholi.

1.9. Theoretical frameworks

1.9.1 Introduction

This section discusses the theories that assess the comparisons between languages and the influence of L1 on L2 production. In this regard, the section makes a brief introduction on contrastive linguistics. Then, it discusses other theories relevant to assess the influence of L1 on L2 expressions as below:

1.9.2 Contrastive Linguistics

Hickey (2017, p. 01) states:

The practice of comparing languages has a long tradition in linguistic scholarship and stretches back into antiquity. It reached its zenith in the development of Indo-European studies in the nineteenth century when languages were compared with a view to determining their exact genetic relationships and to reconstructing the proto-language from which the attested languages of a family are derived. This branch of linguistics is called *comparative philology* or often simply *Indo-European studies* because of the concern with the languages of this major family.

In the twentieth century, with the emphasis of structuralism on the synchronic aspects of language, those linguists interested in comparing languages evolved a new kind of discipline in which the structures of two present-day languages were compared. Here the goals were quite different. It was not the reconstruction of a proto-language, which was the concern, but usually

a more immediate aim like improving instruction in one of the languages examined. This was the birth of the discipline which is now termed *contrastive linguistics*. *Contrastive linguistics* is synchronically oriented, not concerned with genetic similarities between languages, usually involved in the comparison of only two languages, normally bound to a particular linguistic theory and divided into applied and theoretical sections (Hickey, 2017). The latter means Contrastive Linguistics either has such a direct aim or has no immediate practical goal. In relation to the study, this theory is limited as it does not aim at highlighting the implication of similarities and differences between languages for L2 speakers, which is the second component of this study. Applied Contrastive Linguistics deals with second language learning, where attempts are made at predicting difficulties (interference) which speakers of a foreign language may have. The current study is based on the comparison of the phonotactics of Acholi and English as it looks at both the similarities and the differences between the two languages. The study further predicts the difficulties that may be faced by L1 Acholi speakers of English as an L2 due to phonotactic differences between English and Acholi. Contrastive Linguistics also relates to this study as it is supported by others theories as discussed below:

1.9.3 Contrastive Analysis Hypothesis (CAH)

Contrastive research was first started by Charles Fries in the 1940s (Zaki, 2015). Then in 1957, Robert Lado developed the Contrastive Hypothesis. Lado (1957) states that the systematic comparison of languages can help predict the features that would represent difficulty or ease in learning a second language due to realizing the differences and similarities between the first and the second language. Lado assumed that second language learners transfer the forms, meanings and the way they are distributed in their native language to the second language. This perspective relied on structuralism as stated by Bloomfield (1933), which further assumed that the structure of any language is finite and hence can be determined and compared to another language (Byung-gon, 1992). Zaki (2015, p.4) comments that “the second perspective to guide

the Contrastive Analysis Hypothesis was the school of behaviorism due to its assumption that the difficulty or easiness of acquiring a second language is rendered to the already acquired habits of the first language.” This, therefore, led to the emergence of the transfer theory. As already observed with respect to Contrastive Linguistics, the CAH is key to this study as it deals with the systematic comparison of the phonotactics of Acholi and English.

However, Mirembe (2021, p. 16) points that a number of scholars (e.g. Lee, 1968 in Zaki, 2015) recorded shortcomings of using the CAH, as it intends to ‘contrast parts or subsystems of languages and not the two languages in their entirety’. James (1980), as cited in Zaki (2015), claims that languages are complex systems that need to be divided into smaller subsystems for purposes of analysis (cf. Mirembe, 2021, p. 16). According to Stig (2008, p. 09), CAH has been advanced for practical/ pedagogical purposes. The aim has been to provide better description and better teaching materials for language learning. Mathesius (1975) is also of the view that comparing languages in their entirety brings about the characteristics of each language more clearly, and the comparison can contribute to the better description of each individual language (cf. Firbas, 1992). In addition, the Contrastive Analysis Hypotheses (CAH) does not consider the age of the L2 learner (Byunggon, 1992 as cited in Zaki, 2015). Despite all these shortfalls, the theory still proves to be useful to this study as it allows a comparative description of the phonotactics of Acholi and English, which do not have any genetic or typological relationships (cf. Mirembe, 2021, Kuczok n.d). In addition, the theory matches the objectives of the study, since it deals with the description of the elements to be compared, as regards similarities and differences, and allowing for the derivation of conclusions from the compared phonotactic parameters (cf. Mirembe, 2021). In conclusion, through the similarities and differences, the CAH allows for the prediction of the phonotactic features that would enhance the ease or difficulty in the pronunciation of English by Acholi L1 speakers.

1.9.4 The Transfer Theory

Transfer Theory mainly relies on the assumption of transfer of habits from the native language to the learned one (Corder, 1971 in Byung-gon, 1992). The Transfer Theory complements the Contrastive Analysis Hypothesis and serves its applied purpose. It illustrates how certain linguistic features of the second language can be more difficult to acquire than others. Stockwell et al. (1965) claim that when the features of the contrasted languages are similar, positive transfer occurs, while in cases of different features, negative transfer occurs, causing difficulty of acquisition (also see Amarorwot, 2021). And in cases of no relation between features, zero transfer takes place. With regard to the prediction of the difficulty level in second language acquisition, the CAH (Contrastive Analysis Hypothesis) was claimed to imply strong, weak and moderate versions. The strong version is related to the potentiality to predict the difficulties in second language according to systematic analysis of language. The weak version is the need to depend on the best linguistic knowledge available (Wardough, 1970) in order to detect difficulties in the second language. The moderate version, according to Brown (1987), states that confusion may occur more frequently with similar features rather than different or non-existing ones. Relatedly, since the Transfer Theory is linked to the Contrastive Analysis Hypothesis, the current study relied on the Transfer Theory in order to account for possible transfers from L1 Acholi to English. These could be positive transfers in cases of similarities or negative transfers where there were differences.

1.9.6 Conclusion

It is worth mentioning that the above theories are relevant to this specific study. This relevance is in relation to the fact that the theories allow us to compare the two languages, as well as pointing out the relationship between the two languages and its effects on L2 production. They also allow us to account for L1 Acholi speakers transferring their L1 habits to L2 production

against the backdrop that all languages share similar principles while parameters tend to vary from language to language.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter reviews literature on the similarities between the phonotactics of languages, differences between the phonotactics of languages and the implications of the similarities between the phonotactics of languages for the pronunciation of L2 words by nonnative speakers as well as the implications of the differences between the phonotactics of languages for the pronunciation of L2 words by nonnative speakers.

2.1 Similarities between the phonotactics of languages

From Pearce (2007), it is identifiable that both English and Acholi have similar syllable structures, in terms of both languages allowing, for example, the consonant cluster /kw/ as in *quick* /kwɪk/ and *kwon* /kwon/ (*bread*). Adokorach (2018, p. 21) asserts that “Acholi and English have both open and closed syllables.” For example, she identifies the Acholi open syllables: *pii* /pi:/ (water), *ber* /bɛ:/ (good) *boo* /bo:/ (a type of vegetable). English open syllables include *me* /mi:/ *more* /mɔ:/ *no* /nəʊ/. As regards the closed syllables, *pit* /pɪt/ and *dek* /dek/ are English and Acholi closed syllables, respectively. These findings directly give a clue on the fact that both Acholi and English are similar in terms of closed and open syllables, which this study seeks to examine further.

Both the German and Slovak word-finals have no consonantal inflection suffixes (Dressler et al, 2015). However, in genitive plurals without suffixes, morphonotactic obstruents are expressed excluding the main vowel. For example, in the word *rod-isk-o* ‘birth place’, Gen.Pl. *rodísk*, *mzd-a* ‘wage’, Gen.Pl. *miezd*, the obstruent clusters /sk/ and /zd/ replace the vowel /o/ and /a/ respectively in the identified words. On the one hand, Slovak word-final obstruent clusters, which are both morphonotactic and phonotactic, are placed in a similar category. The Slovak word finals, *prac-ov-í-sk* ‘of the working places’, *voj-sk* ‘troupes’ and Nom.Sg. *zisk*

‘yield’ or *blesk* ‘lightning’ are some of the identifiable obstruent clusters. For the feminine gender, /st/ in *hviezd* ‘of stars’ and *zjazd* ‘assembly’, is a possibility in genitive plurals. Although the above findings deal with the similarities between German and Slovak, the study provides a number of words which show that languages can be similar in this domain in terms of similar obstruent clusters. Such similarities may also be found between English and Acholi, which this study seeks to find out.

The Austrian German *náft* ‘petroleum’ and *kšeft* ‘business’ accept the /ft/ as codas in genitive plurals. Some obstruent clusters occur morphonotactically in German verbs. In the comparison between phonotactic and morphonotactic obstruent clusters in Slovak and German, words like *flitz-t* ‘flits’, *herz-t* ‘caresses’, *lach-t* ‘laughs’, and *park-t* ‘parks’ are possible examples (Dressler et al. 2015). Dressler et al. (2015) investigate the prototypical and non-prototypical cases of morphonotactics. The prototypical case analyses the combinations of morphemes, particularly when they differ from the phonotactics of lexical roots and morphemes. These as a result signal morpheme boundary, as in English ‘seemed’ /si:m-d/ (i.e., there is no lexical final /md/ cluster in English). All German cases identified are in the same prototype category (Dressler et al. 2015). While the findings here deal with morphonotactics and morpheme boundary, the current study takes into consideration similarities between Acholi and English in their syllable boundaries.

Fula and Koya lack the hyper-characterized syllables closed with a geminate found in Finnish (Sherer, 1994). Fula and Koya are also languages with appendix consonants and corresponding hyper-characterized syllables closed with a consonant sequence (Sherer, 1994). Cyran (2008) asserts that in contrasting possible consonants in the final coda position, one should mention languages like Zulu and Italian, which do not allow for any consonant word-finally in content words. Cross-linguistically, it appears that the word-final context presents an interesting scale of the potential number of consonantal contrasts, from zero in Italian and Zulu to any particular

number of possible contrasts within the formal scope of one segment. Whether Acholi and English have similar behaviours, as is the case with the above languages, is what this study intends to find out.

Based on the above literature, it can be observed that there are aspects of the phonotactics of languages which are quite similar. This is with regard to the syllable types, consonant clusters, phonotactics of lexical roots and morphemes, among others. There are a number of languages that share similar syllable endings like Acholi and English, as hinted at by Adokorach (2018). It is thus worthwhile to note that there is a paucity of research regarding the similarities between Acholi and English. Hence, despite the above revelations as regards Acholi and English, there are significant aspects of their phonotactics that are not covered. It is clear from the literature that cluster configurations in syllables in the two languages have not yet been compared so as to ascertain to what extent they are similar (or different). This study will therefore consider this aspect so as to bring it to the limelight.

2.2 Differences between the phonotactics of languages

Erickson and Sachse (2010) say some languages are transparent languages. They identify languages such as Finnish and Spanish to have almost one-to-one correspondence between phonemes and graphemes, while in opaque ones like English and French, “the rules of grapheme pronunciation are ambiguous” (Jaskulska & Łockiewicz, 2017, p. 71). Adokorach (2018, p. 21) identifies a difference especially in closed syllables between Acholi and English. She states that “unlike English whose closed syllables can have coda clusters (e.g. ‘unkempt’ /ʌn.kempt/, ‘script’ /skɹɪpt/), Acholi does not have coda clusters”. Slovak has more consonants and consonant clusters (including accented syllabic sonorants) than German (Dressler et al. 2015). In addition, the distribution of these consonants and consonant clusters within a word is different. The difference is that Slovak has more clusters in word-initial position, whereas

German has many more in word-final position. This difference is morphologically strengthened, as Slovak has mono-consonantal prefixes only, and German has mono-consonantal suffixes only (Dressler et al. 2015, p. 45). Therefore, it can be argued that the main word-internal difference is that in word composition; German increases clusters, whereas Slovak decreases them. Slovak has the non-prototypical case of morphological combinations resulting in vowel deletion, which is extremely rare in German, for example, in *Risiko* ‘risk’, and the adj. *risk-ant* ‘risky’. Slovak has many more, e.g. *pes* ‘dog’, pl. *ps-y*, adj. *ps-í*. In those cases, the pattern investigated occurs both in lexical phonotactics and morphonotactically, such as word-final /pst/ in German *Papst* ‘pope’ vs. *du gab-st* ‘you gave’. In this case, it was noted that German and Slovak are different in the number of consonants in onset positions. Therefore, the current study intends to establish the number of consonants in onset positions in Acholi and English, so as to find out to what extent the two languages differ in their configurations of syllable onsets, just like German and Slovak are said to differ in some respects.

The German language has many word-final morphonotactic obstruent clusters which are derived from verb inflections. This is more evidenced in the 2nd and 3rd person singular or 2nd person plural inflections. In the cluster *ch* /x/ with *st* or *t*, only morphonotactic *ch-st* from *machen* ‘make’ whose 2nd person singular is *mach-st*, while *ch-t* in 3rd person singular and 2nd person plural, *mach-t* has a phonotactic correspondence in *macht* ‘power’. In contrast, Slovak has such morphonotactic word-final obstruent clusters only in Gen.Pl., as for example, in Gen.Pl. *jácht* ‘of yachts’. Thus, word-finally, German is richer in obstruent clusters than Slovak (Dressler et al. 2015, p. 52). In the pseudo-word *zgano* as produced by a Slovak speaker, English speakers tend to produce the word with an intentional schwa between the initial consonants, hence /zəgano/ (Davidson, 2006, p. 838). As the findings here show that German has more obstruent clusters than Slovak, it is thus worthwhile to find out what takes place in English and Acholi.

Rochet L.B and Rochet A.P (1999, p. 1443) state that in European French, the opposition between the two vowel phonemes /e/ and /ɛ/, which is actualized in free syllables (CV), is neutralized in checked syllables (CVC), where only /ɛ/ can occur. It was hypothesized that three vowel categories would be perceived as /i/, /e/ or /ɛ/ or in free syllable tokens. In San Francisco, only two categories /i/ and /ɛ/ would be perceived in checked syllables, i.e., that the phonotactic constraint that governs the production of these vowels would also govern their perception. Native-like perception of L2 sounds and sound categories is a prerequisite to an acceptable (i.e., native-like) pronunciation of those sounds. The literature above is relevant to the current study as it compares the variation between vowel phonemes and their positions as regard free and checked syllables. To what extent these realizations manifest themselves differently in Acholi and English will be revealed in the current study.

Languages differ in terms of how much melodic material they allow in word-final position. For example, English generally allows any consonant from its inventory to occupy that position except for the glottal fricative /h/, and the liquid /r/ in non-rhotic varieties. In addition, English has optional weakening phenomena in this context such as the loss of release in stops. On the other hand, Japanese allows for only one type of segment in this context, namely a nasal, e.g. /hon/ ‘book’ (Yoshida, 1996, p. 92). Malayalam (Dravidian) also exhibits only a few contrasts word-finally, though it is slightly less restricted than Japanese. In the formal variety of this language, a few segments may be found in that context, namely /m, n, ŋ, l, ɭ, r/, but all of them must be sonorants (Mohan, 1986, p. 74). Thus, Polish finds itself somewhere between the restricted Japanese and Malayalam cases and the relatively unrestricted English situation. Once a single consonant position is allowed word-finally, languages may differ as to the types of consonants that may occupy this position. English allows for a relatively bigger set of consonants in the final position in comparison with its total number of consonantal contrasts: only /h, r/ are missing in final codas. Polish, on the other hand, excludes /m', v, v', f', b, b', p',

z, Ũ, Z, d, dÉz, dÉŨ, dÉZ, g/, that is, palatalised labials and voiced obstruents (Cyran, 2008, p.4). Thus, the current study will analyze permissible onset and coda clusters as well as singletons in Acholi and English syllables so as to tease out how different these may be just like what we have observed as regards languages such as Polish, Japanese and Malayalam.

Generally speaking, English prefers clusters of two consonants which form a falling sonority slope, e.g. ‘bend’, ‘belt’, ‘camp’. Cyran (2008) presents this pattern symbolically as RT, where R is roughly taken to stand for a sonorant, T for an obstruent. English does not allow for rising sonority clusters word-finally. Therefore, forms like *bottle*, with a syllabic sonorant, cannot be treated as a complex coda with rising sonority (Cyran, 2008, p.6). It is true, however, that flat sonority is also observed in English complex codas, e.g. ‘act’, ‘apt’, ‘kiln’, ‘film’, etc. According to Cyran (2008), RT represents a cluster which takes a specific formal representation similar to coda-onsets like in *winter*, *brandy* and *bulky*. Polish, on the other hand, has both falling and rising sonority in final clusters. But the rising sonority clusters are more restricted melodically than the falling sonority ones. This may be observed in the following fairly exhaustive lists of possible final RTs and TRs in Polish.

1. RT in Polish

wt, lt, rt, nt, wp, lp, rp, mp, np, wk, lk, rk, Nk, lts, Ç, lx, rx, mx, wf, rf, st, St, sp, Sp, Çp, sk, pt, kt

2. TR in Polish

tr, pr, kr, fr, kl, pl, tl, tw, kw, tf, kf, tʃ, kʃ, xʃ, pʃ (Cyran, 2008, p. 07)

Cyran (2008, p. 07) therefore points out:

Final TRs in Polish, /tw, kw/, should probably be excluded as they involve past tense formation, while most of the forms ending in /tf, tʃ, xʃ/ are also cases of some suffixation. Thus, in fact, final TRs are much more restricted than what is actually

presented in (2) above. However, this does not undermine the existence of such clusters in Polish.

While the above literature is limited to Western languages, it is significant in that it specifies the elements of onset and coda clusters (sonorant and obstruent clusters), which this study intends to establish with respect to Acholi and English syllables in terms of the different configurations that may be observed.

Ohata (2004) compares several words from English and Japanese, which point out some of the characteristic differences in the way that each language utilizes syllables for forming a word. Some of the examples that illustrate the English syllable types are:

Word	Transcription	Syllable type
see	/si:/	C(onsonant)V(owel)
sit	/sit/	CVC
spit	/spit/	CCVC
spits	/spits/	CCVCC
sprint	/sprint/	CCCVCC

As is the case in the table above, we can say that English allows a wide variety of syllable types including both open and closed syllables: CV (open syllable), CVC CCVC, CCVCC, CCCVCC (closed syllable). On the other hand, the syllable types that Japanese allows seem to be restricted to open syllables only.

Word	Meaning	Syllable
ke	hair	CV
kare	boyfriend	CVCV
kakureru	hide	CVCVCVCV

Japanese words of more than one syllable always follow the CV-CV-CV syllable sequence, which differs from those of English (Reiney & Anderson-Hsieh, 1993). Japanese does not allow a word to end with a consonant nor does it allow initial and final consonant clusters (i.e., CCVCC syllable). Therefore, Ehrlich (1992) states that English has a wider range of syllable types than Japanese, and, also, it allows the occurrence of consonant clusters both at the word-initial and word-final position. Significantly, since Japanese and English vary in the number of clusters and their positions, the current study will establish whether such variation exists between Acholi and English syllables.

Clearly, all the studies above are not directly related to Acholi except Adokorach (2018), who illustrates a bit on the phonotactic distribution of English and Acholi. However, her study does not specifically analyze the phonotactic differences between Acholi and English. The difference between German and Slovak is relevant to this study, in that it proves the differences between the phonotactics of languages, i.e. consonant clusters, syllable structures and vowel sequence, among others. The difference in word-final positions between English and Japanese will inform this study, as it specifies that some languages have multiple consonants in final-word positions, while others have restricted consonant segment positions or no consonant segments at all in coda positions. Furthermore, the study on English and Japanese is relevant to my study as it provides evidence that some languages have varied syllable types, whereas

some have restricted syllable types. Apart from Adokorach (2018), all the other studies do not directly point out the differences between the phonotactics of English and Acholi. It is therefore relevant to examine the differences between the English and Acholi phonotactics in order to augment the available literature on the topic.

2.3.0 Implications of the similarities and differences between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers

This thematic aspect is divided into two sub-sections, namely a sub-section dealing with the implications of the similarities between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers, while the second sub-section deals with the implications of the differences between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers.

2.3.1 Implications of the similarities between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers

At times learners have a tendency of transferring native habits to the second language system. Odlin (1989, p. 112) states that “there is no little doubt that native language phonetics and phonology are powerful influences on second language pronunciation.” Brown and Hildum (1956) demonstrate “that phonotactic constraints have demonstrable effects on spoken word perception” (as cited in Vitevitch et al., 1996, p. 82). The study identifies that both naive and phonetically sophisticated participants are best at identifying, or transcribing, real English words, “better at identifying phonotactically legal nonsense words than phonotactically illegal nonsense words” (as cited in Vitevitch et al., 1996, p. 82). Brown and Hildum (1956), therefore, suggest that participants' identification of degraded stimuli is influenced by their knowledge of phonotactic constraints on phonetic patterns. Weber and Cutler (2006) illustrate that a boundary common to both English and German is signaled in the word *pumlock*, where the boundary is

realized at the onset of the word *lock*. This is so, because the onset /ml/ is illegal both in English and German. The study also stresses that there is no boundary in the word *fuplock*. This is true since /pl/ is illegal in German and English. The study posits that these words among others were spotted the fastest and most accurately by both listeners. Weber and Cutler (2006) further state that “in addition, both groups spotted words in the English Boundary condition faster and more accurately than those in the No Boundary condition” (as cited in Aljasser, 2008, p. 96). This as a result explains the fact that “advanced L2 learners exploit phonotactic constraints specific to their L2 in lexical segmentation and that L2 listeners also transferred their L1 phonotactic constraints when listening to their L2 even if these phonotactics are not helpful in the L2” (Weber & Cutler, 2006, p. 604) (as cited in Aljasser, 2008, p. 96). It is thus worthwhile to find out whether similarities that may exist between the phonotactics of English and the phonotactics of Acholi facilitate the pronunciation of English by L1 Acholi speakers of English.

Chang (2018, p. 02) observes:

The learning of a target L2 structure (segments, features, phonotactic constraints, prosodic patterns, etc.) is influenced by phonetic and/or phonological similarity to structures in the native language (L1). In particular, L1-L2 similarity exists at multiple levels and does not necessarily benefit L2 outcomes ... The role played by certain factors, such as acoustic phonetic similarity between close L1 and L2 sounds, changes over the course of learning, such that advanced learners may differ from novice learners with respect to the effect of a given variable on observed L2 behavior.

Chang (2018, p. 14) comments that “learners’ production of the L2, and the L1, may be native-like and especially for early bilinguals, close approximation of monolingual norms for both languages is clearly possible.” In accordance with phonemic correspondence, Mandarin /u/ is a closer match to English /u/, as Mandarin /u/ is similar to the English /u/ and not /y/; this is

evidenced, “for example in similar phonotactic patterning in the two languages (e.g., nonoccurrence of onset C/wu/)” (Chang, 2018, p. 16). Although the study here is limited to Mandarin and English, it is relevant as Acholi and English may share certain phonotactic configurations, which may enhance native-like pronunciation by L1 Acholi speakers of English.

Weber and Cutler (2006, p. 598) observe:

The language-specificity of phonotactic sequencing constraints has two consequences for the relevance of such information in second-language listening. First, native (L1) listeners’ greater experience with the language should better enable them to make use of this kind of information than second-language (L2) listeners, who will have enjoyed much less relevant experience.

Words can begin with the singleton consonant /l/, and its pronunciation in syllable onset position is analogous in both English and German (Weber & Cutler, 2006). This close parallel cannot be achieved with /w/, since this labiovelar approximant does not occur in German, which has the voiced fricative /v/ instead. This is evidenced in the cognate words, e.g. English: *winter*, *wool*, *warm*; German: *Winter*, *Wolle*, *Warm*, respectively. The Germans, in this case substitute /v/ for /w/ to mark a German accent in English, thus, suggesting that the English sound is assimilated to the German category. Weber and Cutler (2006) comment that these two onset phonemes regarding the application of phonotactic constraints can be directly mapped to L1 constraints and prior assimilation of the L2 sound to an L1 category. Weber and Cutler (2006) identify that these boundary conditions are phonotactically clear in both English and German, as /nl, ml, nw, mw, lw/ are impossible onsets in English, and impossible either directly or in analogue in German, and phonotactically clear in neither language: /pl, kl, fl, kw/ are all possible onsets in English and, directly or analogously, in German. Weber and Cutler (2006) agree that first-language phonotactic constraints influence second-language listening. German

listeners to English are able to spot English words embedded in a nonsense word like *moycelecture* easily (where the word-initial phoneme does not combine with the preceding phoneme to form a German syllable-initial cluster) than when the preceding phoneme and word-initial phoneme make an English and German syllable-initial cluster like in the word *gorklecture*. This facilitatory effect appeared for words beginning both with /l/ and with /w/. Thus, Weber and Cutler (2006, p. 604) state:

Words aligned with a boundary signaled by a constraint common to both English and German (e.g., *moinlecture*) were easiest to detect, for both L1 and German listeners. Words aligned with a highly likely boundary in English only (e.g., *thrarshlecture*) were likewise easy for both L1 and German listeners to detect. These results replicate for American English the effects of phonotactic constraints on word segmentation....

Where similarities between languages aid speakers in the pronunciation of an L2 as can be observed between German and English, one can hypothesize that if such phonotactic similarities are observed between Acholi and English, this may play a facilitatory role for L1 Acholi speakers of English. The current study intends to find this out.

In conclusion, one could state that, although the above literature does not examine the implications of the similarities between the phonotactics of Acholi and English, it provides a strong standpoint that L1 phonotactics may have a great influence on L2 production. Thus, the current study will determine what takes place among L1 Acholi speakers of English where there are similarities between the phonotactics of Acholi and the phonotactics of English.

2.3.2 Implications of the differences between the phonotactics of languages for the pronunciation of an L2 by nonnative speakers

Rakibul (2016) posits that substitution is one distinctive feature in L1 influence of L2 pronunciation. He states that, in his study, learners tend to struggle with the actual use of RP sounds, both vowels and consonants. This, however, makes the learners substitute these sounds with sounds that exist in their mother tongue. Al-Saidat (2010, p. 17) observes:

When there is a sound in the target language, which is absent from the learners' native sound inventory, or vice versa, learners may not be able to produce or even perceive the sound(s). Second, when the rules of combining sounds into words (i.e., phonotactic constraints/rules) are different in the learners' mother tongue from those of the target language, they cause problems for learners because these rules are language-specific as they vary from one language to another. As a result, since the rhythm and melody of a language determine its patterns of stress and intonation, learners may transfer these patterns into the target language.

This literature is relevant as speakers tend to use L1 knowledge when speaking an L2. This study will thus find out whether this is the case as regards the phonotactics of Acholi vis-à-vis the pronunciation of English by L1 Acholi speakers.

To initiate the perceptual correlates of a vowel contrast neutralization (European French /e/ and /ɛ/) evidenced in production, in a psychoacoustic experiment, Rochet B. L. and Rochet A.P. (1999, p. 1443) illustrate that subjects categorized the same synthetic vowel continuum into 3 categories (/i/, /e/, and /ɛ/) for CV tokens, and into 2 categories (/i/ and /ɛ/) for CVC tokens. This explains the fact that French speaking people or French native speakers normally replace the last vowel of the English word *happy* with /e/, and the last vowel of English *presented* with

/i/. This is an incident that is difficult to explain as regards the comparison of the physical attributes between these English vowels and those French vowels that replace them. In other words, it can be stated that phonotactic constraints possibly play a significant role in the perception of second-language speech sounds. In such vowels, when expressed by a native French speaker, its perception and assumed pronunciation are as /e/ and /i/ in free syllables and checked syllables, respectively, as evidenced in the last syllable of the English words *happy* and *presented*. For example, French nonnative speakers of English with a French accent often pronounce these two words as *happy* /ape/ and *presented* /prezentɪd/, respectively. This is as a result of French speakers' perception of the last English vowels above. Although the two vowels relate to the same sound, their perception belongs to two different categories as one occurs in free syllables and the other in checked syllables. Although the above revelation is concerned with native speakers of French as L2 speakers of English, the current study is concerned with native speakers of Acholi as L2 speakers of English. Whether L1 Acholi speakers of English behave like L1 French speakers of English in terms of leaving out some onset segments will be determined in this study.

Anderson (1987) predicts that since longer clusters (CC vs. CCC) are more marked than shorter clusters, both Chinese and Arabic speakers will find difficulty in production although CEA (Colloquial Egyptian Arabic) allows CC final clusters. She hypothesizes that since final clusters are more marked, Chinese speakers who have no clusters at all would find it more difficult. Anderson (1987) notes that there was a conflict in the predictions, as for CEA (Colloquial Egyptian Arabic), because native language transfer gives an advantage to final clusters, but markedness favors better performance on initial clusters. Anderson (1987), as reported by Carlisle (1998), states that the correct performance of both Arabic and Chinese speakers decreases as final clusters increase from two to three consonants. The initial clusters had more advantage to final clusters for both Arabic and Chinese speakers. Despite dealing

with foreign languages, this study is relevant as the more the two languages differ in terms of the consonant clusters, the more the L2 speakers find it difficult to produce L2 words. Thus, there is a need to find out how Acholi L1 speakers would pronounce English words as an L2.

Davidson (2005, 2006) shows that English speakers often repair unattested word-initial sequences (e.g., /zg/, /vz/) by producing the consonants with a less overlapping coordination. Zsiga (2003) observes that speakers of Russian face difficulties as a result of absence of release in English. In a number of experimental studies, it was found that English speakers produce Slavic consonant sequences in word-initial position. These English speakers tend to display two interesting behaviors. For example, the production of the word-initial test sequences by English speakers is not accurately the same. These sequences are unattested in English (e.g., /zg/, /fk/, /vn/, etc.); and on failing to produce these unattested word initials accurately, it is in many cases as a result of failing to employ the appropriate coordination between the consonants. Davidson (2006) indicates that English speakers often produce the unattested consonant sequences with some vowel-like acoustic material present between the first and second consonants on the acoustic record. As a result of the above analysis of these differences, it is relevant to point out that the origin of the transitional vowel is not necessarily a phonemic schwa that has been inserted by the phonological grammar into the consonant cluster. Davidson (2006, p. 838) further expresses that, however, the articulatory patterns of some speakers tested using an ultrasound are not consistent with schwa epenthesis. It is therefore notable that English speakers are not adequately overlapping the articulations of the consonants in the cluster but rather leaving too much time between the release of the constriction of the first consonant and the beginning of the constriction of the second consonant. This study thus observes that this as a result gives rise to a vowel-like sound between the two consonants, such as /zgano/→/zəgano/. The current study will thus attempt to establish the strategies used by L1

Acholi speakers of English when they encounter syllable boundaries which are not permissible in their L1 but are permissible in English.

There are a number of English words or German words in their English form which are pronounced consistently in an incorrect manner by Germans; this has almost become a tradition in some cases (Hickey, 2017). For instance, the name of the city *Berlin* is continuously pronounced by Germans as /berlin/, where it should be /ber/lin/, i.e. the accent is on the same syllable as in German but the vowel is short in English. Although the fricative in the center of the word *design* is voiced, i.e. /z/, it is usually pronounced with a voiceless /s/ in English. In addition, as a result of the pronunciation principle transfer between German and English, another type of generalized wrong pronunciation is derived. For instance, /s/ after a sonorant /n, l, r/ is normally pronounced as a voiceless sound in English *pulse*, *tense*, *curse*. However, there are a few place name exceptions like *Kensington*, *Swansea* and words like *parse*, *version* with some speakers who pronounce the words with the voiced /z/. German, on the one hand, has precisely the opposite rule: /z/ is the normal realization (unless this is devoiced by Auslautverhärtung) (Hickey, 2017). This means that Germans tend to pronounce a word like ‘conversation’ as /ko:nfəʁzatsjo:n/ rather than /kənvəseɪʃn/. Mixed pronunciations occur when Germans adopt the source pronunciation for a word only in part and they affect common and proper nouns. Instances are *Hifi* /haifi/ and *Dublin* /dvbli:n/ which in English are /haɪfaɪ/ and /dʌblɪn/, respectively (Hickey, 2017, p. 04). It is, thus, worthwhile to find out whether there is substitution of consonant sounds in syllables among L1 Acholi speakers of English.

Kivistö-de Souza (2017, p. 191) states that L1 Brazilian Portuguese EFL learners when faced with English consonant clusters that are impossible in L1, the preferred strategy is the insertion of a prosthetic vowel, /i/. This is done to break the cluster, so that the resulting sequence no longer violates the L1 phonotactic constraints. For example, *study* would be pronounced as

/is.tʌ.di/. For L1 Brazilian Portuguese EFL learners to accurately perceive and produce L2 clusters, it requires that they become aware of the differences between L1 and L2 phonotactic constraints, and more importantly, notice that the L2 allows for a larger number of onset clusters. However, it is simply not enough to notice the differences between L1 and L2 phonotactics: the learner must also automatize the interlanguage phonotactic representations in order to be able to apply them in real-time speech perception and production (Ellis, 2002). The current study will also find out whether the strategy of inserting a prosthetic vowel, /i/, or any other vowel insertion, is also employed by L1 Acholi speakers of English where there are consonant clusters in English which are impossible in Acholi. Vowel insertion has been reported among Ugandan Bantu speakers of English (see Nassenstein, 2016).

Fujimoto and Funatsu (2008, as cited in Arai, 2010) comment that Japanese tend to produce epenthetic vowels between consonants whereas the German speakers do not. This vowel epenthesis by Japanese is realized in both production and perception. Consonant clusters are impossible in Japanese phonotactics. This is because Japanese syllables almost always end with a vowel, except for nasals and geminates. Dupoux et al. (1999, as cited in Masuda and Arai, 2010) investigated the differences between Japanese and French listeners' ability to perceive whether an epenthetic vowel is present or absent between consonants. The study states that Japanese listeners perceive imaginary vowels between consonants even when there is no vowel inserted, and that Japanese listeners are not able to discriminate VCCV and VCVCV. The study, therefore, concluded that while the French are able to identify and discriminate epenthetic vowels, Japanese cannot. These abilities are based on the phonotactics of their native language. Differences in syllable configurations can lead to what we have seen above, i.e. employing the strategy of epenthesis, which Japanese speakers of English are said to employ (Arai, 2010). The present study will find out whether epenthesis is also employed by L1 Acholi speakers of English in case the English syllable configurations are different from

those of Acholi, or what other relevant mechanisms are employed in order to address pronunciation difficulties arising from differences in syllable configurations.

Phonological differences between these two languages determine to a great extent how Japanese people pronounce English words - and also how they perceive them. There are often difficulties with certain sounds and consonant clusters. A native-like pronunciation of certain words is often almost impossible to achieve for Japanese speakers (Takeshita, 2010, p. 276). The Japanese vowel inventory is characterized by a typical five-vowel system; therefore, Japanese students often have difficulty producing English words with consonant clusters and closed syllables. Such difficulty is brought about by the fact that Japanese does not allow a word to end with a consonant nor permit both initial and final consonant clusters (e.g., CCVCC types of syllables as found in English words (Avery & Ehrlich, 1992). Thus, a word with initial consonant clusters and a closed syllable such as *street* may be pronounced as *sutoreeto* or */sutōritō/*. This is as result of inserting a vowel between consonants, so as to conform to the Japanese open syllable pattern (CV-CV) (Ohata, 2004, p. 14; Yoko, 2019, p. 210). Just like the Japanese students leaning English, the current study will establish whether there are difficulties in the pronunciation of English words with given consonant clusters by L1 Acholi speakers.

In conclusion, we observe that when the phonotactics of two languages are different, L2 speakers will tend to employ various strategies in their L2 production. Vowel insertions are very common, but also substitutions take place as well. Hence, we need to find out the strategies used by L1 Acholi speakers of English when confronted with different phonotactics in English.

2.4 Summary and implications for the current study

In summary, as regards similar phonotactics of languages, the above literature is significant as it identifies similar phonotactic elements like syllable types, consonant clusters, phonotactics of lexical roots and morphemes, among others. It also briefly hints at similar phonotactics of Acholi and English. Nevertheless, it is worth mentioning that this literature does not describe the phonotactic similarities between Acholi and English as it mainly compares other languages. For example, this literature does not provide cluster configurations in syllables between Acholi and English. On the different phonotactics of languages, this literature is relevant as it provides the differences between the phonotactics of languages as regards consonant clusters, syllable structures, varied syllable types, restricted syllable types, varied cluster patterns and vowel sequence, etc. However, this literature does not specifically analyze the phonotactic differences between Acholi and English. Therefore, it is necessary to conduct the current study.

Significantly, in line with the implications of the similarities between the phonotactics of languages, the above literature is relevant to this study because it examines the relationship between L1 and L2 production in terms of pronunciation. It also points out similar sounds and similar phonotactic patterning between languages, which enhance native-like pronunciation. However, it does not assess the implication of the similarities between the phonotactics of Acholi and English. The literature on the implication of the differences between the phonotactics of languages relates the influence of varied phonotactic rules, among others, on L2 pronunciation. This is relevant, in that it gives a platform for the current study to examine how differences between Acholi and English affect how L1 Acholi speakers pronounce certain English expressions.

2.5 Conclusion

This chapter has reviewed related literature to the study. It has examined this literature in relation to the research questions encompassing similar phonotactics, different phonotactics,

implications for the similarities and differences in the phonotactics for the pronunciation of English by Acholi nonnative English speakers. The next chapter, i.e. chapter three, deals with the methodology of the study.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

In this chapter, the researcher makes a detailed description of the research approach, research design and the methods that were used to collect data, as well as the sources of data. This chapter also provided the population sample size and sampling techniques used in selecting the sample, and the research procedure and ethical considerations.

3.1 Research approach

The researcher used a mixed-method approach, although the qualitative aspect was dominant. This involved an in-depth exploration of data and numerical measurement of data acquired from the field of study. The mixed-method approach assumes that the combination of both qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach used alone. The quantitative approach included numerical data analysis, quantification and representation of data in tables. This involved a numerical/figurative analysis of the findings obtained from the quantitative data collected. The researcher began with questionnaires (for demographic information) and used semi-structured interviews (conversational modules) as the researcher tape-recorded the expressions produced by the respondents. A production test was also used. Qualitatively, out of the data acquired through and semi-structured interviews (conversational modules), the researcher analyzed the data by describing and explaining the statements that could not be quantified.

3.2 Research design

The study used both the descriptive survey and comparative designs. Descriptive survey is used to describe a situation, subject, behavior, or phenomenon. It is used to answer questions of who,

what, when, where, and how associated with a particular problem (Amin, 2005). As such, this design systematically and accurately describes the facts and characteristics of a given population or area of interest. It also seeks to portray the characteristics of persons, situations, groups and the frequency with which a certain phenomenon occurs. Therefore, the descriptive survey design enabled the researcher to provide a statistical/numerical description of the linguistic elements under investigation, in relation to the quantitative approach. The researcher then qualitatively described and explained the variations, differences and the implications of the relationships between the phonotactics of English and Acholi vis-à-vis native Acholi speakers' pronunciation of English words. Then, general conclusions were made. The study also employed the comparative study design to assess the phonotactic similarities and differences between Acholi and English (cf. Pickvance, 2005; Mirembe, 2021). In relation to this design, the researcher looked at similar and different features as regards the syllable structures, syllable types and syllable boundaries of the two languages. This enabled the researcher to identify the phonotactic features which were identifiable in both English and Acholi as well as the features which were distinctively identifiable in each language only. This eventually helped in the assessment of the implications of the phonotactic similarities and differences for the pronunciation of English words by L1 speakers of Acholi.

3.3 Study area

The study was conducted in Gulu City, in the Acholi sub-region in northern Uganda. It covered the two divisions, that is: Bardege-Layibi, Laroo-Pece. The coordinates of Laroo-Pece Division are 118298208.1046, perimeter 61245.2463 and for Bardege-Layibi Division are 107356735.9844, perimeter 55509.7713 (Ojara Ivan, GIS operator, Personal communication, 01/Dec/2020). The distance from Gulu City to Kampala, Uganda's capital and largest city, is approximately 340 kilometers (210 miles) by road. As mentioned above, the study was carried out in the two divisions of the City, namely: Laroo-Pece and Bardege-Layibi. This enabled the

researcher to identify representations of L1 Acholi speakers of English as an L2, stemming from the phonotactic features of the Acholi language and English.

3.4 Population

The target population for the study was the Acholi speakers of the English language. The population involved educated Acholi, comprising students who had attained at least 13 years of English education or a minimum of senior six. The study population was arrived at based on Greenbaum and Nelson (1996), who indicate that 13 years of English education is determined as the minimum qualification for a respondent to qualify as a proficient speaker of English as an L2. This allowed for avoiding features of learner English pronunciation, which will be a study for the future. The selection was done using the stratified sampling method and simple random sampling method to give equal chance for the population in the target area. In addition, the researcher also assessed the period lived in Gulu by respondents (18 years and above) so as to maintain the indigenous respondents with the variety of Acholi spoken in Gulu. Meierkord (2016) states that each Ugandan language exerts its own substrate influence on how its speakers pronounce English words. Therefore, this study made a specific analysis of the implications of the phonotactics of Acholi for the pronunciation of English words by native speakers of Acholi after comparing the phonotactics of the two languages.

3.5 Sample size and sampling technique

The study was conducted in the two divisions of Gulu City, namely: Bardege- Layibi, Laroo- Pece. The study comprised 80 respondents from the two divisions, where each division provided 40 respondents. The respondents who had attained 13 years of English education were selected randomly in order to have a representative sample data. Random sampling was used to control the effect of extraneous variables and to bring out independent expressions so that each member of the target population had an equal and independent chance of being included in the sample.

The sample size was arrived at based on the argument by Buchstaller and Khettab (2013, p. 82-83), who state:

Linguistics studies are based on much smaller samples of informants than in other areas in the social sciences. The reason for this is first and foremost a practical one: The lions' share of quantitative research in fields such as geography, demography, or political science is based on secondary data, which means that the cost of data collection and handling are borne by large agencies like the national census or commercial institutions... even linguistic projects that initially aimed for big numbers have not been able to process all the data gathered... Thus, the great majority of linguistic studies tend to rely on a fraction of the sample size commonly used in other social sciences. Note, however, that the ratio of observations to informant numbers in linguistics is in an inverse relationship to most other social science research. While, for example, a study on voting behavior or religious affiliation tends to collect one or very few observations from many informants, linguistic research typically relies on fewer informants, but collects many observations from every single one of them...it takes about ten hours of word-for-word transcription per recorded hour; 1:100 for close phonetic transcription or even more for children's speech.

In their argument, they also provided evidence of linguistic projects that had initially aimed for big numbers but ended up not processing all the data due to time constraint. An example of the evidence is the Shuy, Wolfram and Riley's study in 1967. Out of 702 subjects from the 254 families randomly sampled and interviewed, only 60 speakers were analyzed due to time exigencies and data handling. However, a comprehensive report was still realized. Therefore, one can point out that this linguistic study could attain relatively a large number of observations by relying on a smaller number of informants of 80.

The study had 43 (54%) male respondents and 37 (46%) female respondents so as to have a fair representation of both the female and male gender. The respondents attained at least 13 years of English education or a minimum of senior six and were aged between 20-40 years.

Note also that simple random sampling was also used in selecting words as examples for analysis, while purposive sampling was used to select words with specific syllable configurations in the reading lists.

3.6 Sources of data

The researcher used secondary and primary sources of data collection. To obtain the secondary data, the researcher read a number of works on the phonotactics of English and Acholi. The researcher obtained primary data through a questionnaire, a production test and semi-structured interviews (conversational modules). The production test was in the form of a simple test, where respondents were asked to read selected Acholi and English words and passages, as the researcher recorded. This permitted the researcher to have both the English (as an L2) and Acholi data. The semi-structured interview (conversational modules) was in the form of leading questions, where the researcher posed open-ended questions and the respondents were required to answer these questions spontaneously, as the researcher took the recordings. This enabled the researcher to get naturally occurring data. Using this set of data and that obtained through the reading tasks above, the researcher established not only the phonotactics of the Acholi language, but also how L1 Acholi speakers of English pronounced English words.

4. Data collection

4.1 Questionnaire guide

The researcher used questionnaires for collecting respondents' demographic information and background information, i.e. age, gender and number of years lived in Gulu City. The questionnaire was chosen because it could be used to collect a large amount of data from a large population within a short period of time. The researcher typed the appropriate questions,

printed and administered them to the respondents to answer at their convenience (Koul, 2009, Kothari, 2010).

4.2 Reading activities

The researcher conducted a reading activity as one of the methods of data collection. The researcher identified a specific text/ passage and specific words (word list) in both Acholi and English to be read by respondents. Respondents were asked to read aloud these selected passages and words, as the researcher recorded the reading using a Sony recorder. This provided data for Acholi and English as an L2. By using a tape recorder, the researcher was able to play the recordings time and again so as, among others, to get rightful pronunciation differences of the English expressions by L1 Acholi speakers of English. It also gave room for future reference and credibility of the data collected, in case of doubts.

4.3 Conversational modules

In order to obtain sufficient naturalistic data as regards the Acholi language and English as an L2 in a bid to supplement the data that was collected by means of the activities described in 4.2 above, the researcher organized conversational modules. The conversational modules had open-ended questions. With a comprehensive discussion between the researcher and the respondents, the open-ended questions enabled the respondents to have a wide spectrum of conversations to use more expressions which provided sufficient data for use as explained above. The conversations involved 4 participants per group, and in order to have all the 80 participants take part in the conversations, 20 groups were formed. Each interview lasted a period of about 15 minutes and 1,000 words were realized from each group. Thus, 20,000 words were realized for all the groups. The researcher used an audio voice recorder to capture the conversation sessions and to record the reading activities. Using an audio voice recorder helped the researcher to play it time and again so as to get the pronunciation of Acholi and English expressions by Acholi nonnative speakers of English. It also gave room for future reference and credibility of the data collected, in case of doubts.

4.4 Library search

Secondary sources of data were necessary for the study. The researcher used a number of studies, the IPA chart and online downloadable documents (literature) regarding the phonotactics of English (as an L1) and Acholi. These documents and repositories enabled the researcher to familiarize himself with the L1 English phonotactic features like the onset and coda clusters, syllable types and syllable boundaries. These phonotactic features were compared to the Acholi phonotactic features identified from the GVoA chart (Oyaro, 2020). He started by grouping the features according to each language and later on made the necessary comparisons.

5. Quality control

5.1 Validity

Validity refers to how well the collected data covers the actual area of investigation (Ghauri & Gronhaug, 2005). Validity basically means “measure what is intended to be measured” (Field, 2005, p. 11). The researcher constructed research questions guided by the study objectives and two linguistic experts validated the instruments before they were used in the field. The professional advice that was given by the linguistic experts was used to improve upon the features of the instruments. In order to acquire accurate information, the instruments were pre-tested before they could be used for actual data collection. In the pre-testing process, the researcher administered the instruments to six non-participants from Gulu District to examine the accuracy of the questions in the instruments and their ability to get the required information from the respondents. The results from the pre-test were computed based on the number of non-participants, number of essential participants and the number of questions in the instruments. This produced the CVI of 1.06 or Average S-CVI of 0.90. Waltz et al. (2005) advise using 0.90 as the standard index of average congruity. Lynn (1986) sets a criterion (I-CVI=1.00) with 3-5 experts and a minimum of 0.78 for 6-10 experts. Thus, this renders the

questions in the tool relevant for data collection as the CVI of this study rated at the recommended S-CVI of 0.90 (Waltz et al., 2005). Thereafter, the researcher made necessary improvements on the instruments to suit the objectives of the study.

5.2 Reliability

Reliability involves the extent to which a measurement of a phenomenon provides stable and consistent results (Carmines & Zeller, 1979). Reliability is also concerned with repeatability, i.e. a scale or test is said to be reliable if it is able to repeat measurements made by it under constant conditions for the same result (Moser & Kalton, 1989). To achieve the aspect of reliability of the instruments, the researcher tested the instruments again with another group of six participants who were not part of the sample of the study. The researcher administered the instruments and tape-recorded the expressions of the respondents. The collected data was analyzed to check the consistency of the results. This as a result enabled the researcher to confirm the suitability of the methods and tools for data collection.

6. Data processing and analysis

The researcher used an auditory analysis of the specific sounds under consideration as produced by the respondents during the reading and semi-structured interviews (conversational modules). This was achieved by listening to the recordings as he noted down relevant and idiosyncratic phonotactic features. While no acoustic analyzer software was used, the sounds produced by the respondents were compared with the sounds on the interactive International Phonetic Alphabet (IPA) chart as well as both the audio and transcribed pronunciations provided in dictionaries, specifically the Oxford Advanced Learner's Dictionary.

The researcher then employed inferential and descriptive analysis techniques for the qualitative dimension of the study. In relation to this, the researcher organized data, listened to and transcribed the relevant words, and established the relevant/overarching ideas/themes, as well

as providing an analysis of the new concepts. Then, he made thorough explanations of the data collected based on the identified themes (O'Connor & Gibson, 2003).

As for the quantitative technique, the researcher calculated the number of responses in percentages for each statement and presented them in figurative illustrations in the form of tables and bar graphs. Data was edited to ensure accuracy and to ensure no mistakes were left unattended to; entry reference was made to specific instruments. Thereafter data was categorized to generate summaries of findings.

7. Data collection procedure

The study began with writing a concept paper, which was later developed into a research proposal on approval by the Department of Languages and Literature of Gulu University. The data collection instruments (i.e. questionnaires, questions for conversational modules, recorder and repositories) were prepared and pretested before the actual collection of data. This was to enhance reliability and validity. I obtained an introductory letter from the Faculty of Education and Humanities, which enable me to access the respondents. Thereafter, I proceeded with the actual data collection by administering the pre-tested tools through the production exercise and reading the literature on the phonotactics of English. Finally, the analysis of data, presentation and discussion of findings were done.

8. Ethical considerations

With the assistance from the Faculty of Education and Humanities of Gulu University, the researcher sought to acquire a letter of introduction. The researcher got the letter from Gulu University so as to introduce him to both the local authorities and the respondents. During data collection, the respondents were assured of confidentiality and anonymity and that the study was for academic purposes only.

9. Conclusion

Chapter three dealt with the methodology, which provided the methods and instruments of data collection and set out the approach and the design in which the study is couched, as well providing information about the population and sampling techniques. The next section of the study deals with the first two research questions, i.e. comparing the phonotactics and Acholi with the phonotactics of English in terms of their similarities and differences.

CHAPTER FOUR

COMPARISON OF THE PHONOTACTICS OF ENGLISH AND ACHOLI

4.0 Introduction

This chapter presents, analyses and provides a discussion of the findings of the study in relation to the first two objectives. It deals with the phonotactic similarities and differences between Acholi and English. The similarities and differences between the phonotactics of the Acholi language and the English language are presented and analyzed based on the syllable structure, syllable type and syllable boundaries of the two languages. These elements were analyzed based on the data collected and the phonetic and phonological information contained in the IPA chart, the GVoA chart and other relevant repositories and materials. Note that the Acholi words are written here without indicating the relevant tone, as this thesis deals only with segments and supra-segmental features are not analyzed, since they do not affect the phonotactic features under consideration.

4.1. Similarities between the phonotactics of English and Acholi

The first objective of this study was to establish the similarities between the phonotactics of English and Acholi. Three parameters were used, namely: syllable structure, syllable types and syllable boundaries, as shown below.

4.1.1 Similar syllable structures

Similar syllable structures in both Acholi and English involve similar onset clusters as well as singletons in both onset and coda positions.

4.1.1.1 *Similar Acholi and English Onset Clusters*

The two languages have some similar onset configurations. The table below presents onset configurations that occur in both Acholi and English.

Table 1: Similar Acholi and English onset configurations

Sn	Acholi word	Similar onset configurations	English word
01	dwong /dwoŋ/ ‘many/much’	/dw/	dwindle /dwindl/
02	twön /twɔn/ ‘bull’	/tw/	twin /twɪn/
03	kwir /kwi/ ‘poison/election’	/kw/	queen /kwi:n/
04	dyere /djere/ ‘middle’	/dj/	due /dju:/
05	myël /mjel/ ‘dance’	/mj/	mute /mju:t/
06	lyëc /ljɛc/ ‘elephant’	/lj/	lure /ljʊə/
07	gwënö /gwɛnɔ/ ‘chicken’	/gw/	guava /gwa:və/
08	mwöl /mwɔl/ ‘humble’	/mw/	mwah /mwa:/
09	bye /bye/ ‘ant hill’	/bj/	beauty /bju:ti/
10	tyër /tjɛ/ ‘offertory’	/tj/	tutor /tju:tə/
11	pyem /pjem/ ‘competition’	/pj/	puke /pju:k/

As regards similar onset configurations, I found out that both the Acholi and the English languages have the CC onset configurations. This is possible as both languages present C1 as an obstruent and C2 as a sonorant. This was however limited to the onsets /dw/, /tw/, /tj/, /dj/ and /kw/, among others, in both languages. In other words, similar onset configurations revolve around the plosives /p, t, k, b, d, g/, among others, and the glide /w, j/. The fact that both languages have the CC onset clusters echoes what Pearce (2007) observes that some languages

share similar consonant configurations. This similarity in the onset cluster between the two languages is a result of the combinability of some obstruents and some sonorants in Acholi and English. Specifically, this similarity is as a result of the fact that the two languages follow the same phonotactic rule of permitting a plosive to be followed by a glide (cf. Davidson, 2006).

4.1.1.2 Similar Acholi and English onset singletons

English and Acholi also share a number of singleton onsets. Table 2 below shows such similar consonant sounds which occur in the two languages.

Table 2: Similar Acholi and English onset singletons

Sn	Similar onset singletons	Acholi word	English word
01	/p/	pii /pi/ ‘water’	pot /pɒt/
02	/t/	tal /tal/ ‘witchcraft’	talk /tɔ:k/
03	/k/	ker /ke/ ‘reign/kingdom’	kit /kɪt/
04	/b/	bədö /bədɔ/ ‘sitting’	bed /bed/
05	/d/	dül /dɔl/ ‘group’	dig /dɪg/
06	/g/	güm /gɔm/ ‘blessings’	gun /gʌn/
07	/m/	mon /mon/ ‘women’	man /mæn/
08	/n/	nənö /nɛnɔ/ ‘vision’	nun /nʌn/
09	/r/	römö /rɔmɔ/ ‘sheep’	run /rʌn/

10	/l/	lit /lit/ ‘painful’	land /lænd/
11	/w/	wot /wot/ ‘walk’	win /win/
12	/j/	yen /jen/ ‘wood’	you /ju:/

From the above results, the table shows a number of similar Acholi and English singletons which are permitted in both languages. These include the plosives /p, t, k, b, d, g/, the nasals /m, n/, the liquids /r, l/ and the glides /w, j/. This finding relates to Chomsky (1965) (Universal Grammar Theory), who states that languages share certain properties. Furthermore, due to language contact, Acholi has adopted the sound /s/ (Oyaro, 2020), as in *kica* /kisa/ and *yecu* /jesu/, although there are Acholi speakers who pronounce these words with the sound /c/. While Odonga (2005) states that no Acholi word begins with /s/, the above revelation indicates that there are syllables that begin with this singleton, even if this could be regarded as a new development (cf. Oyaro, 2020). Thus, *yecu* has the syllables /je/ and /su/, where the second syllable begins with the singleton /s/. This means that this phonotactic feature is shared between Acholi and English, as many English words have the sound /s/ as an onset. However, in Acholi, there are few such cases.

4.1.1.3 Similar Acholi and English coda singletons

Apart from onset singletons identified above, English and Acholi also share coda singletons. In the table below, the researcher presents a number of consonant sounds which are permitted as codas in in both languages.

Table 3: Similar Acholi and English coda singletons

Sn	Similar coda singletons	Acholi word	English word
----	-------------------------	-------------	--------------

01	/p/	töp /tɔp/ ‘rot’	stop /stɔp/
02	/t/	öt /ɔt/ ‘house’	dot /dɔt/
03	/k/	lik /lik/ ‘ugly’	quick /kwɪk/
04	/b/	dab /dab/ ‘gold’	cab /kæb/
05	/d/	lwod /lwod/ ‘poem’	deed /di:d/
06	/g/	dög /dɔg/ ‘mouth’	dog /dɔg/
07	/m/	kom /kom/ ‘body’	name /neɪm/
08	/n/	can /can/ ‘poverty’	fun /fʌn/
09	/l/	myël /mjɛl/ ‘dance’	hell /hel/
10	/ŋ/	dwong /dwoŋ/ ‘many/much’	strong /strɒŋ/

The results revealed that both Acholi and English share single consonants in their coda positions. These single consonants include the plosives /p, t, k, b, d, g/, the nasals /m, n, ŋ/ and the liquid /l/. The situation here is more or less similar to what Dressler, et al. (2015) state as regards similarities between Slovak and German in terms of sharing inflectional properties. This means that two languages can share certain properties as is the case with English and Acholi with respect to coda singletons.

4.1.2 Similar syllable types

In order to provide more instantiations of the similarities between the phonotactics of the two languages, we will look at the second phonotactic element which compares syllable types shared by both Acholi and English. This is as presented below:

Table 4: Similar Acholi and English syllable types

Sn	Acholi word	Syllable type	English word
01	ĩ /ɪ/ ‘in’	V	a /eɪ/
02	öt /ɔt/ ‘house’	VC	eat /i:t/
03	pii /pi/ ‘water’	CV	to /tə/
04	dwe /dwe/ ‘month’	CCV	tree /tri/
05	yen /jen/ ‘wood’	CVC	tong /tɒŋ/
06	dwön /dwɔn/ ‘voice’	CCVC	twin /twɪn/

Table 4 above shows that both Acholi and English have some similar syllable patterns: V, VC, CV, CCV, CVC, CCVC. According to Pearce (2007), languages may have similar syllable structures, while Adokorach (2018) provides concrete evidence that both Acholi and English have open and closed syllables. However, Adokorach (2018) does not provide all the syllable configurations shared between English and Acholi. For example, we have seen that there are instances where both languages have the V configuration, which actually does not involve a coda. Where, there are codas, there are different configurations, as shown in the table. This possibility is determined by the phonotactic constraints of the two languages (cf. Davidson, 2006). These phonotactic constraints are in relation to the permissible coda configurations.

The findings also relate to Sherer (1994) in relation to consonants in closed syllable sequences. This study deals with Fula and Koya languages, which share appendix consonants and corresponding hyper-characterized syllables closed with a consonant sequence. However, hyper-characterized syllables do not occur in both Acholi and English (cf. Cyran, 2008), especially in coda positions. As we already know, Chomsky (1965) observes that properties shared between languages vary.

4.1.3 Similar syllable boundaries

To achieve the overall aspect of the similarities as regards the syllable structure, the researcher compared similar syllable boundaries between Acholi and English in addition to the other aspects namely syllable structure and syllable type. This is as shown in Table 5 below.

Table 5: Similar syllable boundaries

Sn	Acholi word	Syllable boundaries	English word
01	lëla /lɛ.la/ ‘bicycle’	CV.CV	baker /beɪ.kə/
02	kwiri /kwɪ.rɪ/ ‘active/hard working’	CCV.CV	precis /preɪ.sɪ:/
03	ladit /la.dɪt/ ‘elder’	CV.CVC	velum /vi:ləm/
04	Kitgum /kɪt.gum/ (name of a district in Northern Uganda)	CVC.CVC	victim /vɪk.tɪm/

From the above table, I found out that the following boundaries are shared: CV.CV, CCV.CV, CV.CVC and CVC.CVC. However, we should note that for the configuration CCV.CV, Acholi only allows the first syllable configuration if and only if C₂ is a glide, while for English there is a variety of combinations. The CCV canon in Acholi is similar to the CCV canon in Lango

(see Noonan, 1992). Note that syllable division is governed by the MOP (Maximum Onset Principle). The principle states that any consonant between syllables should be attached to the right-hand syllable (i.e. in order to make the onset), as far as possible (Roach, 2005). Thus, in the Acholi and English words *lëla* ‘bicycle’ and *baker*, the syllables are divided as /ɛ.la/ and /beɪ.kə/, not as /lël.a/ and /beɪ.kə/, respectively. Even though /lël/ and /beɪk/ are possible syllables in Acholi and English, respectively, the MOP does not allow us to have the boundaries at those points, as it requires the formation of the onset first before a coda is formed, as far as possible. Crucially, the MOP indicates that this can only be done as far as possible. Thus, in the Acholi and English words *Kitgum* and *victim*, the MOP cannot be applied in totality, as it would lead to unpermitted syllable configurations if the consonants between the two nuclei were to be pushed to form onsets, resulting in /kɪ.tgum/ and /vɪ.ktɪm/, respectively. In both cases, we would have onset clusters which are not possible in the two languages, i.e. /tg/ and /kt/ are impossible clusters.¹ In English a C₁ obstruent and a C₂ obstruent are only possible if and only if C₁ is the sound /s/ (Roach, 2005). Moreover, such a configuration is impossible in Acholi, since /s/ (a new segment in the language) cannot occur in a cluster. Hence, the caveat provided by MOP, i.e. “as far as possible” is invoked so that the first consonant is assigned to the preceding syllable as a coda, leaving a singleton onset for the second syllable.

4.2. Differences between the phonotactics of English and Acholi

The second objective of this study was to establish the differences between the phonotactics of English and Acholi. This was achieved by means of a reading activity in Acholi, where respondents read as the researcher made the recording. Data from recorded semi-structured interviews (conversational modules) was also used. These words were then transcribed. As for English words with similar phonotactic patterns, these were identified from repositories. The

¹ Note also that, in English, /ɪ/ can only be at a syllable boundary if the syllable in which it occurs is not stressed and the following syllable starts with a vowel, e.g. *architect* /ˈɑː.kɪ.tekt/. In /ˈvɪk.tɪm/, stress falls on the first syllable, i.e. /ˈvɪk/, and, hence, /ɪ/ cannot be at the syllable boundary.

researcher then identified and transcribed the relevant words. An analysis of the differences between English and Acholi is presented below.

4.2.1 Different syllable structures

The differences between the phonotactics of Acholi and English are presented based on the following parameters: onset clusters and coda clusters, singletons in onset and coda positions. These vary in the two languages as shown in the tables below.

4.2.1.1 Different Acholi and English onset configurations

Acholi and English present different onset configurations, as shown in Table 6. Some configurations are found in English only, while others are found in Acholi only.

Table 6: Different onset configurations

Sn	Acholi word	Examples of Onset configurations	English word
01	-----	/pr/	prank /præŋk/
02	-----	/fr/	front /frɒnt/
03	-----	/br/	breast /brest/
04	-----	/fl/	flanked /flæŋkt/
05	-----	/sp/	speak /spi:k/
06	-----	/tr/	tricks /triks/
07	-----	/str/	strong /strɒŋ/
08	-----	/skr/	script /script/

09	-----	/spr/	sprint /sprint/
10	pwöc /pwɔc/ ‘appreciation’	/pw/	-----
11	bwöla /bwɔla/ ‘a lie’	/bw/	-----
12	jwīk /jwɪk/ ‘shrink’	/ɟw/	-----
13	cwi /cwi/ ‘rainy season’	/cw/	-----
14	nwöyö /nwɔjɔ/ ‘repetition’	/nw/	-----
15	rwöda /rwɔda/ ‘my lord’	/rw/	-----
16	lwīt /lwɪt/ ‘charm’	/lw/	-----
17	ywēka /jwɛɣa/ ‘pride’	/jw/	-----
18	ngwēc /ŋwɛc/ ‘athletics’	/ŋw/	-----
19	nywal /ŋwal/ ‘birth’	/ŋw/	-----

From the table above, we observe that some configurations occur in English only, while others occur in Acholi only. Those that occur in English only include: /pr/ in *prank* /præŋk/, /fr/ in *front* /frɒnt/, /br/ in *breast* /brest/, /fl/ *flanked* /flæŋkt/, /sp/ in *speak* /spi:k/, /tr/ as in *tricks* /trɪks/. The Acholi language allows a maximum of two-consonant onset combinations (CC configurations). These combinations are limited to clusters involving a glide as C₂ (see also Noonan, 1992 for similar observations about Lango). These clusters include /pw/ as in *pwöc* /pwɔc/ ‘appreciation’, /ɟw/ in *jwīk* /jwɪk/ ‘shrink’, /cw/ in *cwi* /cwi/ ‘rainy season’, /nw/ in *nwöyö* /nwɔjɔ/ ‘repetition’, /jw/ *ywēka* /jwɛɣa/ ‘pride’, /rw/, *rwöda* /rwɔda/ ‘my lord’. Other

cases identified include the onset clusters /lw/ as in *lwīt* /lwīt/ ‘charm’, /ɲw/ in *ngëwc* /ɲwɛc/ ‘athletics’, and /ɲw/ identified in *nywal* /ɲwal/ ‘birth’.

As presented in sub-section 4.1.1.1, Acholi and English share a number of onset clusters (cf. Pearce, 2007), which were limited to two-consonant configurations involving glides as C₂. However, as far as the configurations in Table 6 above are concerned, we see that there is a lot of variation. In the first place, English has clusters made up of three consonants, e.g. /str/, which Acholi does not have (see below). In addition, even though English and Acholi share the two-consonant configurations, for Acholi, this is limited to C₂ being a glide, while English has a variety of segments as C₂. Hence, the two languages do not have one-to-one corresponding onset clusters unlike Finnish and Spanish, which are said to have such corresponding clusters (cf. Jaskulska & Łockiewicz, 2017, p.71). As can be observed, Acholi permits only obstruent + sonorant in the CC onset position, while English permits obstruent + obstruent, /sp/, and obstruent + sonorant as well in the CC onset configuration, in addition to the three-consonant clusters described below.

According to Dressler et al. (2015), the number of consonants in a cluster varies from language to language (cf. Chomsky, 1965), as evidenced between the Acholi and English onset configurations. The English language allows the CCC clusters (cf. Easterday, 2019), whereas these three-consonant clusters are not permissible in the Acholi language. These clusters are characterized by the obstruent /s/ followed by a voiceless plosive (obstruent), i.e. /p, t, k/, and finally a liquid (sonorant) or a glide (sonorant), i.e. /l, j, r, w, ɹ/. Examples of these three-consonant combinations are /str/ in *strong* /strɒŋ/, /stj/ in *stew* /stju:/, /skr/ in *script* /skript/ and /spr/ in *sprint* /sprɪnt/. As can be seen, English and Acholi have many different onset clusters. Hence, in line with the aims of contrastive linguistics (cf. Hickey, 2017), where a comparison between two languages is made, and based on the principle of parametric variation between

languages (cf. White, 2003), this is expected. Moreover, Dressler et al. (2015) also state that Slovak has more consonants in onset clusters than German.

4.2.1.2 Different Acholi and English coda configurations

In addition to differences in onset configurations, there are also differences in coda configurations between the two languages. Table 7 shows different coda configurations between Acholi and English.

Table 7: Different Acholi and English coda configurations

Sn	Acholi word	Examples of coda configurations	English word
01	-----	/fθ/	fifth /fɪfθ/
02	-----	/nd/	turned /tɜːnd/
03	-----	/lt/	salt /sɔːlt/
04	-----	/lθ/	filth /fɪlθ/
05	-----	/lk/	milk /mɪlk/
06	-----	/sk/	mask /mæsk/
07	-----	/gz/	eggs /egz/
08	-----	/nt/	front /frɒnt/
09	-----	/ŋk/	prank /præŋk/
10	-----	/kt/	strict /strikt/

11	-----	/ŋkt/	flanked /flæŋkt/
12	-----	/pts/	scripts /skripts/
13	-----	/lfθ/	twelfth /twelfθ/
14	-----	/sts/	breasts /brests/
15	-----	/mpt/	prompt /prɒmpt/

As presented in the above table, the study found out that the English syllable structure differs from that of Acholi as regards coda configurations. The differences come in the sense that the Acholi language does not allow two or three consonants in coda positions. The English language allows two consonants in the coda positions and these are /fθ/ in *fifth* /fɪfθ/, /nd/ in *turned* /tɜːnd/, /lt/ in *salt* /sɔːlt/, /lθ/ as in *filth* /fɪlθ/, /lk/ in *milk* /mɪlk/, /sk/ as in *mask* /mæsk/, /gz/ in *eggs* /egz/, /nt/ in *front* /frʌnt/, /ŋk/ in *prank* /præŋk/ and /kt/ in *strict* /strikt/.

Furthermore, the table also presents a number of three coda clusters, which are possible only in the English language and not the Acholi language. The CCC coda clusters are /ŋkt/ as in *flanked* /flæŋkt/, /pts/ in *scripts* /skripts/, /lfθ/ in *twelfth* /twelfθ/, /sts/ in *breasts* /brests/ and /mpt/ in *prompt* /prɒmpt/. As already discussed above, Adokorach (2018) states that Acholi does not permit coda configurations. Although both languages have closed syllables (Adokorach, 2018), English has more consonant distribution in the coda position than Acholi, similar to what Dressler et al. (2015) observe in relation to German and Slovak, where the former has more coda clusters than the latter.

4.2.1.3 Different Acholi and English singletons

As there are differences in terms of onset and coda clusters between the two languages, there are also differences in their singleton onsets and codas. In the table below, we look at onset singletons.

Table 8: Different Acholi and English onset singletons

Sn	Acholi word	Onset singleton	English word
01	-----	/ð/	these /ði:z/
02	-----	/θ/	thick /θɪk/
03	-----	/v/	van /væn/
04	-----	/z/	zero /ziərəʊ/
05	-----	/ʃ/	ship /ʃɪp/
06	-----	/h/	health /helθ/
07	-----	/f/	fifth /fɪfθ/
08	-----	/ʒ/	genre /ʒɒnrə/
09	-----	/dʒ/	jail /dʒeɪl/
10	-----	/tʃ/	church /tʃɜ:tʃ/
11	nyal /ɲjal/ ‘rust’	/ɲ/	-----
12	ngöm ɲɔm/ ‘land’	/ɲ/	-----

13	puru /ɸuru/ ‘farming’	/ɸ/	-----
14	būra /βora/ ‘cat’	/β/	-----
15	cöö /cɔ:/ ‘men’	/c/	-----
16	nyakö /ɲjaɔ/ ‘girl’	/ɲ/	-----
17	jök /ʝɔk/ ‘a god’	/ʝ/	-----

Still in line with the difference in the syllable structure between Acholi and English, the table shows single onset consonants that are identifiable in English only and those identifiable in Acholi only. The single onset consonants that are identifiable in the English syllable structure only include /θ/ as in *thick* /θɪk/, /v/ in *van* /væn/, /z/ in the word *zero* /zɪərəʊ/, /ʃ/ in *ship* /ʃɪp/, /h/ in *health* /helθ/, /f/ in *fifth* /fɪfθ/ and /ʒ/ *genre* /ʒɒnrə/. These segments do not exist in Acholi. Likewise, there are Acholi singletons that are not found in English. These singletons are /ɲ/ in *nyal* /ɲal/ ‘rust’, /ɲ/ in *ngöm* /ɲɔm/ ‘land’ /ɲom/, /ɸ/ in *puru* /ɸuru/ ‘farming’, /β/ in *būra* /βora/ ‘cat’, /c/ in *cöö* /cɔ:/ ‘men’, /ɣ/ in *nyako* /ɲjaɔ/ ‘girl’ and /ʝ/ in *jök* /ʝɔk/ ‘a god’. While most of the segments do not exist in English, the segment /ɲ/ exists but does not occur at the beginning of a syllable (cf. Roach, 2005). The findings in the table above relate to what Jaskulska and Łockiewicz (2017) state in relation to the differences between French and English, as we have also seen that English and Acholi do not have the same onset singletons (even though they share some as seen in Section 4.1).

What has been observed above in relation to differences in terms of onset singletons also applies to differences in terms of coda singletons, as the Table 9 shows.

Table 9: Different Acholi and English coda singletons

Sn	Acholi word	Coda singleton	English word
01	-----	/f/	knife /naɪf/
02	-----	/v/	leave /li:v/
03	-----	/s/	sauce /sɔ:s/
04	-----	/z/	boys /bɔɪz/
06	-----	/ʃ/	push /pʊʃ/
07	-----	/ð/	writhe /raɪð/
08	-----	/ʒ/	garage /gæra:ʒ/
09	-----	/θ/	path /pæθ/
10	-----	/dʒ/	cage /keɪdʒ/
11	-----	/tʃ/	match /mætʃ/
12	kany /kaŋ/ ‘persevere’	/ŋ/	-----
13	cöc /cɔc/ ‘writing’	/c/	-----

As seen in the table above, the study findings show different single coda consonants that are permissible in either Acholi or English. The English coda singletons that were identified are /f/ as in *knife* /naɪf/, /v/ in *leave* /li:v/, /s/ in *sauce* /sɔ:s/, /z/ in *boys* /bɔɪz/, /ʃ/ in *push* /pʊʃ/, /ð/ in *writhe* /raɪð/, /ʒ/ in *garage* /gæra:ʒ/ and /θ/ in *path* /pæθ/. These singletons are not permissible in the Acholi language, as they do not exist in the Acholi consonant inventory. Similarly, the

table presents single coda consonants that are permissible in the Acholi syllable structure only. These are /ŋ/ in *kany* ‘persevere’ /kaŋ/ and /c/ in *cōc* /cōc/ ‘writing’. Both segments do not exist in English (see the phonemes of English in Roach, 2005). Mohanan (1986) observes that certain consonants appear in a given position in a given language, while, in another language, they are restricted. In fact, Yoshida (1996) posits that English allows any consonant found in the language in word-final position, except for the glottal fricative /h/ and the liquid /r/ in non-rhotic varieties. To these we can add the two glides /w, j/. We should note that, while Acholi allows most of its consonants to occur as codas, the sounds /β/, /ϕ/, /ɣ/, /w/, /r/, /ʃ/ cannot appear in coda positions.

4.2.2 Different syllable types

Differences in the phonotactics of the two languages can also be seen in terms of having different syllable types, as a result of having different onset and coda configurations observed above. Table 10 below provides a number of different syllable types between Acholi and English.

Table 10: Different syllable boundaries

Sn	Acholi word	Syllable type	English word
01	-----	CVCC	bank /bæŋk/
02	-----	CCCVCC	strong /strɔŋ/
03	-----	CCVCCC	prompt /prɔmpt/
04	-----	CCVCC	front /frʌnt/

05	-----	VCC	eggs /egz/
06	-----	CCCVCCC	scripts /skripts/
07	-----	CCVCCC	twelfth /twelfθ/

From the above table, we see that Acholi and English have varied syllable types. The English syllable types that are not allowed in the Acholi language are CVCC, CCCVC, CCVCCC, VCC, CCCVCCC and CCVCCC. It should be noted that Acholi has words that have more than one V syllable type, as in *ao* /a.o:/ ‘I have arrived’. Although in English this is rendered as a full sentence, in Acholi it is realized as one word, namely the subject pronoun is attached to the verb. What is clear is that English has more syllable types than Acholi, in the same way it has more syllable types than Japanese (cf. Ehrlich, 1992). As already pointed out above, the variation in the syllable types between Acholi and English is as a result of the variation in the onset and coda configurations discussed in sub-sections 4.2.1.1 and 4.2.1.2 above (see also Adokorach, 2018; Dressler et al. 2015). Based on Chomsky’s (1965) Universal Grammar Theory, the syllable types are a universal principle that exists in all the languages of the world, but variation in the syllable types is expected (see also White, 2003).

4.2.3 Different syllable boundaries

In order to find more about the phonotactic differences between Acholi and English, let us look at syllable boundaries which vary.

Roach (2005) states that when a consonant stand between vowels and it is difficult to assign the consonant to one syllable or the other, it is assumed that that the consonant belongs to both

syllables. This is known as ambisyllabicity. This can be seen in, e.g. the English words *butter* and *tenor*, as shown below:

Sn	Word	B1	B2
01	Butter	/bʌ.tə//	/bʌt.ə/
02	Tenor	/te.nə/	/ten.ə/

The difficulty in assigning the consonant in the middle to a given syllable is triggered by the MOP and the second principle of syllable division in English, namely short vowels are not allowed at syllable boundaries unless the short vowel is a /ə/ or /ɪ/ or the hybrid /u, i/, while the vowel /ɪ/ only occurs at the end of a syllable if followed by a syllable which begins with a consonant (Roach, 2005) and the syllable where /ɪ/ is found is not stressed. Thus, the vowels /ʊ, æ, ʌ, e/, ʊ/ cannot be placed at a syllable boundary. As can be seen in the above examples, we have the short vowels /e/ and /ʌ/ at syllable boundary in B1 and this violates the ‘short vowel principle’ but respects the MOP, while, in B2, the MOP is violated and the ‘short vowel principle’ is respected. Thus, either way a principle is violated, thereby allowing for ambisyllabicity occurring. However, this principle cannot be said to obtain in the phonotactics of Acholi, because while the MOP is a universal principle (Gussenhoven & Jacobs, 2005; Katamba, 1989), the ‘short vowel principle’ is language-specific and here only concerns English. Acholi, on the other hand, allows short vowels at syllable boundaries as in expressions such as *kīte* /kɪ.re/ ‘character’ and *diru* /dɪ.ru/ ‘skill’. As can be seen, the second syllables have the sound /e/ at the syllable boundary. Other examples of short vowels at syllable boundaries are *labura* /la.bu.ra/ ‘bully’, *dyërë* /djɛ.re/ ‘sacrifice’, and *döga* /dɔ.ga/ ‘my mouth’, among others. On the other hand, Acholi also permits long vowels in syllable boundaries as in *buru* /buru/ ‘ash’, *rii* /ri:/ ‘giraffe’ *too* /to:/ ‘fox’ and *kwer* /kwe:/ ‘celebrations’. Hence,

ambisyllabicity can be said to be a parameter of variation between English and Acholi, since as Chomsky (1965) and White (2003), among others, state, while languages share principles (here syllable boundaries), they also exhibit differences known as parameters (here differences in assigning vowel to syllable boundaries).

4.3 Conclusion

In this chapter, I have presented, analyzed and discussed the findings on the similarities and differences between the phonotactics of Acholi and English. The chapter looked at these aspects in terms of syllable structure, syllable types and syllable boundaries. The findings showed that Acholi and English share a number of onset and coda clusters, onset and coda singletons, syllable types and syllable boundaries. As regards the second objective, the study also presented findings on different onset and coda clusters, onset and coda singletons, syllable types and syllable boundaries. The next chapter deals with the implications of the above similarities and differences for the pronunciation of English by L1 Acholi speakers of English.

CHAPTER FIVE

IMPLICATIONS OF THE SIMILARITIES AND DIFFERENCES BETWEEN THE PHONOTACTICS OF ACHOLI AND ENGLISH FOR THE PRONUNCIATION OF ENGLISH WORDS BY L1 ACHOLI SPEAKERS

5.0 Introduction

This chapter also presents, analyses and makes a discussion of the findings of the study. It deals with the implications of the similarities and differences between Acholi and English for the pronunciation of English expressions by L1 Acholi speakers of English. The chapter makes an analysis of the native-like pronunciation and the varied pronunciation produced by the respondents, which may be accounted for by the similarities and the differences between the phonotactics of English and the phonotactics of Acholi.

5.1 Implications of the similarities between the phonotactics of Acholi and English for the pronunciation of English expressions by L1 Acholi speakers

The first component of the third objective was to examine the implications of the similarities for the pronunciation of English by native speakers of Acholi. To achieve this, the researcher provided a word list with specific words, which the respondents read as the researcher recorded the activities. Since there are many similarities between the phonotactics of Acholi and that of English, it is natural to find a number of near-native pronunciations produced by the respondents. Examples include those presented in the following table:

Table 11: Native-like pronunciation of English words by L1 Acholi speakers

Sn	Examples of English words	Near-native pronunciation	Deviant pronunciation

01	tong /tɒŋ/	80(100%)	0
02	eat /i:t/	80(100%)	0
03	dwindle /dwaɪndl/	80(100%)	0
04	been /bi:n/	80(100%)	0
05	bring /brɪŋ/	80(100%)	0
06	resort /rɪzɔ:t/	80(100%)	0
07	ream /ri:m/	80(100%)	0
08	leave /li:v/	80(100%)	0
09	you /ju/	80(100%)	0
10	technique /tek.nɪk	80(100%)	0
11	implicate /ɪm.plɪ.keɪt/	80(100%)	0
12	center/sen.tə/	80(100%)	0
13	simplify/sɪm.plɪ.fai/	80(100%)	0
14	locate/ləʊ.keɪt/	80(100%)	0
15	activity/æk.tɪv.ə.ti/	80(100%)	0

From the above table, the researcher observes that due to similar phonotactics between the two languages, the respondents were able to produce near-native pronunciations of the English words. The near-native pronunciations by Acholi L1 speakers of English were as a result of the shared syllable structures, i.e. onset clusters, onset and coda singletons, syllable boundaries and syllable types. Based on the analysis in Table 11, it is to be noted that most of the onsets and codas in those words are singletons, and in cases where there are clusters in the onsets, it is clear that that Acholi permits such clusters. Thus, this facilitates the native-like pronunciations by Acholi L1 speakers of English. However, it was hard to come across native-like pronunciations involving all the respondents, since there are no coda clusters in Acholi, although a few Acholi were able to pronounce the words with coda clusters in a near-native manner (see Section 5.2). Similar observations can be made as regards the pronunciation of words by L1 Acholi speakers of English during the semi-structured interviews (conversational modules), with a few examples shown in Table 12.

Table 12: Native-like pronunciations by Acholi speakers gleaned from semi-structured interviews (conversational modules)

Sn	RP pronunciation	Near-native pronunciation
01	okay /əʊ.keɪ/	/o.ke/
02	along /ə.lɒŋ/	/a.lɒŋ/
03	because /bɪ.kəʊz/	/bɪ.kɔ:s/
04	play /pleɪ/	/pleɪ/

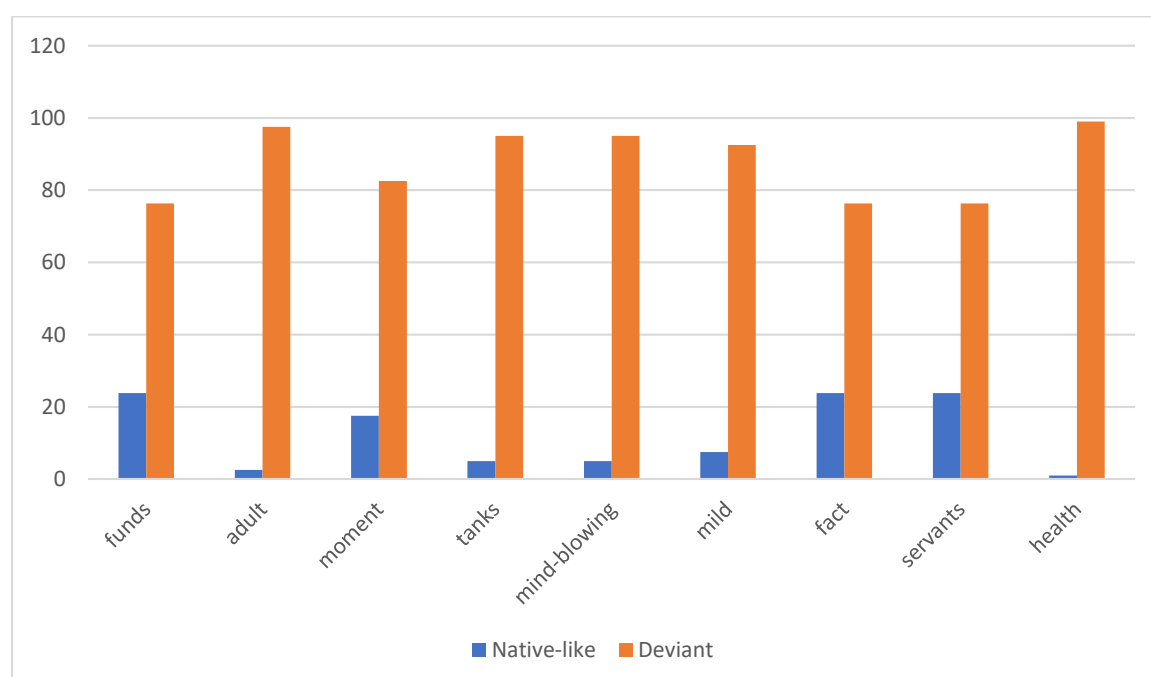
05	education /edʒ.u.keɪ.ʃn/	/edʒ.u.u.ke:.son/
06	message /mes.ɪdʒ/	/mes.edʒ/
07	suffering /sʌf.ə.rɪŋ/	/saf.a.rɪŋ/
08	indeed /ɪn.di:d/	/ɪn.di:d/
09	continue /kən.tɪ.nju:/	/ kon.tɪ.nju: /
10	may /meɪ/	/meɪ/

The near-native pronunciations by L1 Acholi speakers of English relate to what Lado (1957) states that similar features between L1 and L2 ease the acquisition of an L2. These similarities, therefore, support the Contrastive Hypothesis, by which the phonotactic similarities between Acholi and English account for the native-like pronunciation of the English words involved by L1 Acholi speakers of English. This has been echoed by Chang (2018), who comments on the level at which L1s and L2s may be similar and how this state of affairs favors L2 acquisition. In addition, Weber and Cutler (2006) have shown that German and English share a boundary in a word such as *pumlock* (a nonce word), where the boundary is realized at the onset of the word *lock*. This is so, because the onset /ml/ is illicit in both English and German. This, according to Weber and Culter (2006), has positive implications for L1 German speakers of English or L1 English speakers of German. In a similar way, we have seen that L1 Acholi speakers of English have no problem pronouncing, e.g. the word *technique* /tek.nɪk/, i.e. without any epenthesis (vowel insertion) between the first syllable and the second syllable, as opposed to what has been reported among Japanese (Fujimoto & Funatsu, 2008, as cited in Arai, 2010), or Bantu speakers of English in Uganda (cf. Nassenstein, 2016).

5.2 Implications of the differences between the phonotactics of Acholi and English for the pronunciation of English expressions by L1 Acholi speakers

The second component of the third objective of this study was to examine the implications of the differences for the pronunciation of English by native speakers of Acholi. To achieve this, the researcher provided a specific word list, passages in English and semi-structured interview (conversational modules) questions, where respondents were to read and speak spontaneously as the researcher recorded the activities. A number of words were found to be pronounced differently. The figure below shows some of the deviations (see Appendix 3 for the raw frequencies):

Figure 2: Examples of deviations in the pronunciation of English words by L1 Acholi speakers



Source: Primary data, 2023

Based on the second component of objective three, the researcher found out that, potentially, due to the phonotactic differences between English and Acholi, the Acholi speakers of the English language had varying pronunciations of the English words presented in the word list and English passage. Since Acholi does not have coda clusters (cf. Adokorach, 2018) the

respondents dropped a consonant in the coda cluster. For example, *adult* /ædʌlt/ was realized as /adal/ (96%), dropping /t/, while *fact* was realized as /fak/ (76.3%), also dropping /t/. It was also noted that in cases where the English words had CCC in the coda cluster, some respondents would drop two consonants, e.g. *servants* was realized as /savan/ (76.3%), while others realized it as, e.g. /savans/savanz/, dropping /t/ only (while the plural marker gets assimilated from /s/ to /z/ due to the voicing in /n/). Thus, *tanks* was pronounced as /tan/ or /taŋk/ or even sporadically as /tanz/. For those who could have two consonants in the coda cluster, one may think that they were conscious that the words contain clusters but realizing all the three consonants all together was difficult. This was as a result of varying phonotactic rules between Acholi and English, as has also been observed in relation to other languages (see Al-Saidat, 2010, Jenkins, 2005, Dressler et al., 2015).

There are patterns that can be observed as regards which segment(s) is (are) dropped in the words above. In a CC coda cluster, made up of a sonorant and obstruent, it is usually the obstruent that is dropped, e.g. in *adult*, *mild*, *health*, *moment* it is /t/, /d/, /θ/ and /t/, respectively, that are dropped, leaving /l/ and /n/ in the words. On the other hand, where the CC coda cluster is made of obstruents only, it is the less sonorous obstruent that is dropped, e.g. in *suggest*, the plosive /t/ is dropped and the fricative /s/ is left in the word. Where both CCs are plosives, it is the last plosive that is dropped, e.g. in *fact*, /t/ is dropped. However, despite this apparent regularity, it appears that in all the above cases, it is the last C that is dropped. With CCC coda clusters, the sonorant is maintained while between the two obstruents, the plosive is dropped, while the fricative is assimilated by the voicing of the nasal (e.g. /savanz/).

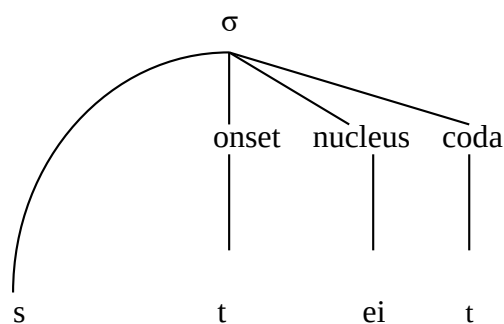
We should also note that the phonemic system of Acholi has a bearing on how L1 Acholi speakers deal with onsets or codas of English words. Since some phonemes are absent in Acholi, I found out that the respondents had difficulties in producing syllables that have the glottal fricative /h/ as an onset. For example, *hell* was pronounced as /el/, since Acholi does not

have the sound /h/. This means that the onset of the syllable was dropped, as no Acholi syllable or word begins with such an onset.

Important to note in this study is that there were no deviations involving onset clusters. We are aware that Acholi has onset clusters, though these are restricted to CC configurations where the second C is a glide. This sequencing respects the universal configuration of onset clusters, i.e. an onset cluster starts with a less sonorous consonant and ends with a more sonorous consonant (Gussenhoven & Jacobs, 2005). The universal sonority scale provides the following sequencing in an ascending order: obstruents, nasals, liquids, glides, with obstruents being the least sonorous and glides the most sonorous (Gussenhoven & Jacobs, 2005). Hence, all Acholi onset clusters respect this condition. The English onset clusters also respect this condition in the word *lure* /ljʊə/; /l/, which is less sonorous than /j/, comes first. Both Acholi and English have the cluster /lj/ (e.g. Acholi *lyec* /ljec/ ‘elephant’). Thus, although English has CC onset clusters that Acholi does not have, e.g., /pr/ in *prank*, /fl/ in *flank*, these CC onset clusters respect the universal sonority profile of having a less sonorous segment coming before the more sonorous segment. Hence, one could say that such a configuration does not pose any problem to L1 Acholi speakers of English, as it follows the phonological principle that also applies to Acholi, even though the segments are different. This state of affairs aligns with the Universal Grammar theory (Chomsky, 1965; White, 2003) as regards universal principles shared among languages and their bearing on L2 acquisition and production.

However, English has CC onset clusters made of two obstruents, as in the word *speak* /spi:k/. Moreover, here, /s/ is more sonorous than /p/, i.e. among obstruents, plosives are the least sonorous, followed by affricates and fricatives are the most sonorous (cf. Gussenhoven & Jacobs, 2005). In addition, English also has a CCC onset cluster, where C₁ must be /s/, followed by a voiceless plosive as C₂ and then a glide or a liquid as C₃, as in the words *stew* /stju:/ and *split* /split/. In both cases, i.e. CC onset cluster as in *speak* and CCC onset cluster as in *split* and

stew, the sonority profile is violated, save for C₃ in the CCC onset cluster, where we have a glide or a liquid, both being more sonorous than the preceding segments. Perhaps, it is wise for us to look at how /s/ behaves in onset cluster initial positions in English. Barlow (2000, p. 292) gives four peculiarities of /s/. First, /s/ violates the sonority sequencing principle where it allows /s/ + stop cluster. Secondly, /s/ violates the phonotactic constraint against homorganic word initial consonant sequences, where clusters like /st/, /sn/ are observed. Thirdly, /s/ is the only consonant that may be followed by a nasal as in /sm/, /sn/. Lastly, it is the only segment that allows three-element consonant sequences that occur in English as in /spl/, /str/, /skw/, /stj/. Because of the above revelations, linguists like Barlow (2000), Pan and Snyder (2004), among others, have argued that /s/ should be analyzed as an element outside the initial syllable, termed as ‘extrasyllabic’, an ‘adjunct’ or an ‘appendix’. Accordingly, a word containing a cluster onset with initial /s/ would look like this:



Thus, given the special status of such configurations, i.e. the fact that /s/ can be treated as extrasyllabic or an appendix, that would mean in the CC onset cluster, the actual onset is a singleton, while for the CCC onset cluster, the actual onset is a CC cluster with a configuration that respects the sonority profile of onsets, i.e. the voiceless plosive is the first segment as it is less sonorous and the second segment, which is either a glide or a liquid, is more sonorous. Hence, it could be said that L1 Acholi speakers of English do not have problems, since in the extrasyllabicity nature of /s/ renders the onsets compliant with the universal sonority profile of onsets.

In addition to the above, out of the 80 respondents, not all used the same words in their open discussion/ semi-structured interview (conversational modules). This resulted in the use of other English expressions which were relevant to the study, although these words were not included in the reading lists. This is because one cannot really control which words a person should use in a semi-structured interview (conversational modules). For that matter, the words in the table below should be looked at mainly from a qualitative perspective.

Table 13: Deviant pronunciations by Acholi speakers gleaned from semi-structured interviews (conversational modules)

Sn	English word	RP	Acholi pronunciation
01	England	/ɪŋɡlənd/	/ɪŋɡlan/
02	most	/məʊst/	/mos/
03	friend	/frend/	/fren/
04	don't	/dəʊnt/	/don/
05	difficult	/dɪfɪkəlt/	/dɪfɪkal/
06	land	/lənd/	/lan/
07	second-hand	/sekənd-hænd/	/sekon-an/
08	next	/nekst/	/neks/
09	student	/stju:dnt/	/studen/
10	absent	/æbsənt/	/absen/

11	present	/preznt/	/prezen/
12	last	/læst/	/las/
13	risk	/rɪsk/	/rɪs/

We notice here more or less similar deviations as those observed in the reading activity. The words where deviations were observed as a result of dropping the plosive /d/ are *England* /ɪŋglənd/, *friend* /frend/, *land* /lənd/, and *second-hand* /sekənd-hænd/. These words were pronounced as /ɪŋglaɪn/, /fren/, /lan/ and /sekon-han/, respectively. There were words whose final /t/ in the coda configurations was dropped, e.g. *most* /məʊst/, *don't* /dəʊnt/, *difficult* /dɪfɪkəlt/, *next* /nekst/, *student* /stju:dnt/, *absent* /æbsənt/, *present* /preznt/ and *last* /læst/. The Acholi respondents pronounced these words as /mos/, /dɪfɪkal/, /neks/, /studen/, /absen and /las/, respectively. In the word *risk* /rɪsk/, the respondents who used the expression dropped the plosive /k/ and produced the word as /rɪs/.

The above observations are similar to what has been reported by Anderson (1987) as regards Chinese and Arabic speakers, whom she predicts to find difficulty in producing coda clusters, given that, in the first place, coda clusters such as CCC are more marked in English (i.e. they are fewer) in addition to the fact that Chinese lacks such clusters, including the CC configuration, as is the case in Acholi. However, we have also seen that some L1 Acholi speakers were able to pronounce the English words in a native-like manner in terms of the words' phonotactics. This means that exonormative standards were upheld. This is explainable by the fact that, in Uganda, the target is usually to attain native-like competence in English; however, L1 substrate influence is so strong that its features have to manifest themselves among many L2 speakers despite those efforts (Isingoma & Meierkord, 2022). In other words,

while some L1 Acholi speakers of English may have overcome L1 substrate influence with respect to the properties under consideration here, others have not overcome it. Sometimes, the native-like pronunciation is achieved in some words and not in others, depending on the syllable structure of such words. However, it should also be observed that native-like pronunciations were heard more in the reading activity than in the semi-structured interviews (conversational modules). This could be because these were different types of activities with the former providing visual priming, while the latter was spontaneous and more naturalistic.

5.3 Conclusion

In this chapter, I have presented and discussed the implications of the similarities and differences between the phonotactics of Acholi and English for the pronunciation of English words by L1 Acholi speakers of English. With reference to objective (3), which had two components, similar and different phonotactic features in Acholi and English can either ease or complicate the pronunciation of English words by L1 Acholi speakers of English in line with what was predicted by Lado (1957). The study revealed that Acholi can be said to have an influence on the pronunciation of English in the region. However, it was also noted that some L1 Acholi speakers of English could produce native-like pronunciations of English words due to exonormative orientation, which is strong in the country. However, this was noticed more in reading activities than in semi-structured interviews (conversational modules).

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This study aimed at investigating similarities and differences between the phonotactics of English and the phonotactics of Acholi, with a view to examining the implications of the similarities and differences for L1 Acholi speakers of English. The two preceding chapters looked at these aspects. This chapter presents the summary of the findings, conclusions, recommendations and areas for further research.

6.1 Summary

The first and second objectives of the study were to establish the similarities and differences between the phonotactics of English and the phonotactics of Acholi phonotactics, respectively. According to the data collected from respondents within Gulu City and the findings thereof, a number of phonotactic elements are shared between Acholi and English, while there are also a number of variations. These phonotactic elements involve the syllable structure, syllable types and syllable boundaries. Furthermore, the syllable structure had a wide spectrum of elements, i.e. onset clusters, coda clusters and singletons in both onset and coda positions. As regards the similarities, in relation to syllable structure, the onset clusters are /tw, mj, lj/, among others; onset singletons are /p, t, k, b, d, g/, among others, while coda singletons are /k, d, l, ŋ/, etc. Similar syllable types shared between the two languages are V, VC, CV, CCV, CVC and CCVC, while similar syllable boundaries found are CV.CV, CCV.CV, CV.CVC and CVC.CVC. On the differences, in relation to the syllable structure, some Acholi and English onset clusters are /pw, bw, ʃw, cw/ and /pr, fr, fl, sp, spl, spr/, respectively. English coda clusters are /nd, lt, gz, ŋk, ŋkt, lfθ, sts, mpt/, among others. Acholi onset singletons include, among others, /ŋ, ɲ, β, ɣ, ʃ/, while English onset singletons are /ð, v, z, ʃ, f/, etc. In addition, Acholi coda singletons include /ŋ, c, ʃ/, whereas English coda singletons are /f, z, ð, ʒ, θ, tʃ/, among others. Still on the differences, English syllable types include CVCC, CCVCCC and VCC,

among others, while English syllable boundaries differ based on ambisyllabicity as in /te.nə/ (CV.CV) and /ten.ə/ (CVC.V).

The third objective of the study examined the implications of the similarities and differences between the phonotactics of English and the phonotactics of Acholi for the pronunciation of English by native speakers of Acholi. Based on the similarities between the phonotactics of Acholi and English, the responses to objective 3 (i) and (ii) had variations in terms of pronunciations of the English words by Acholi L2 speakers of English. L1 Acholi speakers of English found ease in the pronunciation of English words with similar phonotactic features or produced near-native pronunciations of the English words. By contrast, L1 Acholi speakers of English had some difficulty in producing English words with varying phonotactic features.

6.2 Conclusions

6.2.1 General Conclusions

This study compared the phonotactic features of Acholi and English and examined the implications for the pronunciation of English expressions by L1 Acholi speakers of English. The study findings mainly relate to studies in the phonotactics of Acholi and English, that is the findings show that Acholi and English share a number of phonotactic elements but they also vary considerably in these phonotactic features. This is in line with the Universal Grammar Theory (Chomsky, 1965; White, 2003), which states that languages share principles, while differing parametrically in some respects. For instance, similarities were found in the syllable structure (e.g. onset clusters /gw, mw/, onset singletons /r, /w, j/ and coda singletons /p, t, b/, among others), syllable types (e.g. CVC, CCVC, etc.) and syllable boundaries (e.g. CV.CV, CCV.CV, CVC.CVC, etc.). This implies that, universally, all languages have syllables and indeed they share some of the syllable structural properties. Parametrically, differences between the two languages include syllable structures, e.g. English onset clusters /sp, tr, spr/

and Acholi onset clusters /pw, bw, Jw/, English coda clusters /ŋk, st, ŋkt/, English and Acholi onset singletons /f, v, s, ð, θ/ and /ŋ, ɲ, ɸ, c, J/, respectively, English and Acholi coda singletons /v, ʃ, ð, tʃ/ and /ŋ, c, J/, respectively. Instances of differing syllable types were seen in as in English CCCVCC, CCVCCC, VCC, while varying syllable boundaries were seen in, e.g. English *butter* /bʌ.tə/ (CV.CV) or /bʌt.ə/ (CVC.V). These are parametric differences that obtain between English and Acholi, despite the two languages sharing certain properties.

We have also observed that the pronunciation of English words by L1 Acholi speakers of English can be said to be influenced by the similarities and differences between the phonotactics of Acholi. For instance, the words *tong* /tɒŋ/, *bring* /brɪŋ/ and *you* /ju:/ had near-native pronunciations due to similarities that exist between the phonotactic systems of the two languages. Positive transfer could be said to be at work here. On the other hand, *health* /helθ/, *prompt* /prɒmpt/, *front* /frɒnt/, *protect* /prɒtekt/ had deviant pronunciations, due to possible underlying substrate influence brought about by parametric variations. For example, these words were pronounced as /elθ/, /prom/, /frɒn/ and /prɒtek/, respectively. This relates to what is known as negative transfer from L1.

Despite the role of Acholi as an L1 in the deviations observed above, we have also seen that there were many instances of native-like pronunciation of English words. This is due to other factors that influence L2 production. As English is taught to L1 Acholi speakers with the aim of attaining native-like competence, they also strive to attain this level. However, the dictates of their L1 make some of them not reach this level. The study has found out that the main factors behind the observed deviations are the absence of certain consonants in the Acholi language, which constitute syllable singletons in English, and the absence of coda clusters in Acholi. These have been seen to affect the pronunciation of English by L1 Acholi speakers.

6.2.2 Limitations to the study and outlook

Due to the researcher's reliance on auditory perception, it was difficult to establish, for example, whether the L1 Acholi speakers of English produced English syllables with the segments /tʃ/ and /dʒ/, or they replaced them with the Acholi consonants /c/ and /ʃ/. One can, for the current purpose, state that the L1 Acholi speakers produced almost a similar sound of each consonant in the relevant syllables, though we are aware that Acholi does not have /tʃ/ or /dʒ/; instead, it has /c/ and /ʃ/. Note that Acholi /c/ and /ʃ/ are palatal plosives, whereas English /tʃ/ and /dʒ/ are post-alveolar fricatives, and this was difficult to assess auditorily in the production of English words like *church* and *jungle*. This constitutes a limitation to the current study. Thus, there is a need to use an acoustic analyzer in future studies in order to establish whether the Acholi speakers of English produce syllables with /tʃ/ and /dʒ/ or they transfer /c/ and /ʃ/ into the structure of English syllables.

The observation made in Section 5.2 as regards the situation where there was more native-like pronunciation in the reading activities than in semi-structured interviews (conversational modules) points to what could be viewed as a limitation of using reading activities, since there is visual and temporal priming that seems to prompt the readers to include certain segments that they would otherwise leave out when speaking naturally. While this may be indeed regarded as a limitation, it also points to the fact that reading and speaking are different activities with different skills. In addition, the fact that the two methods were used in a complementary manner acted as a triangulation measure so as to have results that depict the actual language behaviour on the ground. However, future studies may need a large corpus of spoken English by L1 Acholi speakers so as to provide results that exclusively take into account only naturalistic data that tests spoken discourse separately.

6.3 Recommendations

Based on the findings in this study, I suggest that:

Teachers of English Language need to be aware of the similarities and differences between Acholi and English, so as to enhance teaching near-native pronunciations of the English language.

Teachers of English should also identify best teaching and learning materials especially for English pronunciations like audio-English dictionaries or online dictionaries so as to enhance language proficiency.

Acholi students of the English language should be motivated positively in learning native-like pronunciation of English words. In addition, school syllabi should emphasize teaching aspects of phonology and in particular the phonotactics of English.

It is also instructive to note that there should be accommodation of those who deviate from native-like pronunciation, as long as there is comprehension of the message communicated. While efforts to encourage and train them to have native-like pronunciation should be promoted, stigmatization should be discouraged.

6. 4 Areas of further studies

A study should be conducted to compare the Acholi and English phonemic system and morphology as these affect L2 production by L1 speakers.

A study should be conducted to examine the relationship between the phonemic system and the morphology of English as regards the pronunciation of English words.

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APPENDICES

APPENDIX 1

The consonant sounds of the GVoA

PLACE OF ARTICULATION						
Manner of articulation	Voicing	Bilabial	Alveolar	Post-alveolar	Palatal	Velar
Plosive	Voiced Voiceless	b p	d t			g k
Fricative	Voiced Voiceless	β φ	s			ɣ
Affricates	Voiced Voiceless			ʃ tʃ		
Nasal	Voiced	m	n		ɲ	ŋ
Liquid	Voiced		l, r r			
Glide	Voiced	w			j	

Source: Oyaro (2020)

APPENDIX 2

The consonant sounds of English

PLACE OF ARTICULATION								
Manner of articulation	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	b p			d t			g k	ʔ
Nasal	m			n			ŋ	
Flap or Tap				ɾ				
Affricate					tʃ dʒ			
Fricative		f v	θ ð	s z	ʃ ʒ			h
Approximant	w			ɹ		j		
Lateral Approximant				l				

Symbols to the right in a cell are voiced, to the left are voiceless.

Adopted from International Phonetic Alphabet Chart (IPA) (revised to 2018)

APPENDIX 3

INSTRUMENTS FOR DATA COLLECTION

Dear Respondent,

I am a student of Gulu University, conducting research on the topic: *The phonotactics of English and Acholi: implications for the pronunciation of English by native speakers of Acholi, in Gulu City*. I am kindly seeking your consent in providing the relevant information on this study. The responses that you will provide will be used for academic purposes and confidentiality will be given to every response. Thank you.

CONSENT AGREEMENT

I hereby give permission that the material contributed may be used for the purpose of linguistic research, teaching and scientific presentations and publication and I agree that a copy of the material contributed may be kept permanently in the Department of Languages and Literature, Gulu University, Uganda.

Date.....Signature.....

.

I. QUESTIONNAIRE

Instructions:

Please kindly fill in or tick the appropriate answer.

Specific information (strictly confidential, i.e. names will not appear in the thesis.)

1. Gender

Male ☐

Female ☐

2. Date of birth.....

3. Level of Education

Non-formal ☐

Secondary ☐

Diploma ☐

4. How long have you lived in Gulu City?

.....

Thank You!

II. READING ACTIVITIES

ACTIVITY ONE (SELECTED ENGLISH WORDS)

01. For the word list below, based on your knowledge, read the words in English as the researcher records.

S/N	WORD	RP PRONUNCIATION	DEVIANT PRONUNCIATION
02	fifth		
04	salt		
05	health		
06	milk		
07	mask		
09	prompt		
10	front		
11	filth		
12	breasts		
14	prank		
16	flanked		
17	silk		
18	strong		
19	protect		
20	tricks		
21	tong		
22	sprint		
23	dwindle		

24	eat		
25	eggs		
26	scripts		
27	strict		
28	turned		
29	technique		
30	implicate		
31	center		
32	simplify		
33	locate		
34	active		

SELECTED ACHOLI WORDS

02. For the word list below, based on your knowledge, read the words in Acholi as the researcher records.

S/N	SELECTED ACHOLI WORD	TRANSCRIPTION
01	öt(house)	
02	lit(painful)	
03	pii(water)	
04	gwënö (chicken)	
05	kwir(poison/election)	
06	nyanya(tomatoe)	
07	cöc(writing)	
08	ajwaka(native/witch doctor)	
09	ngala(joke)	

10	ngwëc(athletics)	
11	myël(dance)	
12	pwöc(thanks/appreciation)	
13	yen(wood)	
14	yweka(pride)	
15	nywal(birth)	
16	dwong(many/much)	
17	pwöny(lesson)	
18	rwöda(my lord)	

ACTIVITY TWO

ENGLISH TEXT/PASSAGE

03. Read the passage below in English as the researcher takes the recording.

As a matter of fact, the media has been on the ream light to bring forth the most important issues of the society. In the national bulletin, it has been reported that a number of tanks have been ushered into the country. The one question that comes into our minds is whether this is what the country needs the most at this moment. I would rather suggest that the concerned authorities appropriate these funds to other sectors like health and education. Controversies may arise as some people might say, this is a mind-blowing situation, whereas others may say, ‘it is mild’. The subsequent outcome of this will be devastating on the national economy. We might resort to building adult learning centers and leave out the luxury of constructing self-contained bungalows for civil servants. August seems a trending month, just because it is blessed with the twelfth annual celebration of reigning peace.

ACHOLI TEXT/PASSAGE

04. Read the passage below in Acholi as the researcher takes the recording.

Kwan ki i Evangeli maleng kit ma Marko ocoyo

I kare maca yesu okwanyo Petero, Yakobo ki Yoana, ocit-to kwedgi malo I wi got mabor kengi,ci kome olokke I nyimgi kenyo. Bongone odoko tar mukato, wa gin mo pe I wi loboni matwero loko jami doko tar kit meno. Mose ki Elia gutuc botgi kenyo,ma gubedo ka boko lok kacel ki

Yesu. Petero dong owaco bot Yesu ni 'Lapwony, bedo kany mit mada pi wan; wek wayub aduc adek, acel pi in, acel pi Mose, acel pi Elia'. Man onongo pien en pe ngeyo gin ango me awaca, pien lworob obangogi woko.

Ento pol obino oumogi woko; ci dwan mo owinye ki I pol meno ni: 'Man aye woda me amara, wuwiny en'. I kare ma gungyiyo ka ngetgi cut, pe guneno ngat mo kwedgi doki, Yesu odong kene. I kare ma gulo ki I wi got, en ocikogi ni pe gutit gin ma guneno ki ngat mo, nio wang ma wod padano obicer ki I too.

A TRANSLATION OF THE PASSAGE IN ACHOLI INTO ENGLISH

A reading from the Gospel according to Mark

After six days Jesus took Peter, James and John with him and led them up a high mountain, where they were all alone. There he was transfigured before them. His clothes became dazzling white, whiter than anyone in the world could bleach them. And there appeared before them Elijah and Moses, who were talking with Jesus.

Peter said to Jesus, 'Rabbi, it is good for us to be here. Let us put up three shelters- one for you, one for Moses and one for Elijah.' (He did not know what to say, they were so frightened.) Then a cloud appeared and covered them, and a voice came from the cloud: 'this is my son, whom I love. Listen to him!'

Suddenly, when they looked around, they no longer saw anyone with them except Jesus. As they were coming down the mountain, Jesus gave them orders not to tell anyone what they had seen until the son of man had risen from the dead.

ACTIVITY THREE

CONVERSATIONAL MODULES GUIDE FOR ENGLISH

In this activity, the researcher has provided certain leading questions as the respondents are given the opportunity to speak spontaneously as the researcher records.

LEADING QUESTIONS (try to give your response in full sentences)

01. What important message do you have for the youths?
02. What do you expect at the end of this month?
03. Can you say something little about the ballot box?

04. What do you say about teachers who do not mark scripts?
05. What do you say about the constant wearing of the face mask?

CONVERSATIONAL MODULES GUIDE FOR ACHOLI

Lakwan omiyo lapeny mogo manok I Acholi. Lagam lapeny tye agonya me lok ki majwi kun nongo lakwan mako lok magi.

LAPENY ME DORO LOK (*Teme me waco ngig lok ma mite i lapeny*)

01. Itamo ni lago nywal obedo gin maber?
02. Pwony tye nining I kare ni?
03. Pingo dano pe maro bwone?
04. Ngo ma omyero wa tim me gwoke I kum two corona?
05. Lee mene ma ki gwoko gang?

A TRANSLATION OF THE CONVERSATIONAL MODULES GUIDE FOR ACHOLI

The researcher has provided some leading questions in Acholi; the respondents are required to speak normally while responding to these questions as the researcher records.

GUIDING QUESTIONS (*try to use the required words in your response*)

01. What do you think about family planning?
02. How is teaching today?
03. Why don't people like humility?
04. What should we do to guard against corona?
05. Which animals are kept at home?

APPENDIX 3

**FREQUENCIES OF DEVIANT ENGLISH PRONUNCIATIONS BY L1 ACHOLI
SPEAKERS**

Sn	English word	Near native pronunciations (%)	Deviant pronunciations (%)
01	funds	23.8%	76.3%
02	adult	2.5%	97.5%
03	moment	17.5%	82.5%
04	tanks	5%	95%
05	mind-blowing	5%	95%
06	mild	7.5%	95.5%
07	fact	23.8%	76.3%
08	servants	23.8%	76.3%
09	health	1%	99%

APPENDIX 4

INTRODUCTORY LETTER

GULU
P.O. BOX 166 GULU



UNIVERSITY
TEL: +256471432922;

**OFFICE OF THE DEAN, FACULTY OF EDUCATION AND
HUMANITIES**

15TH October, 2022

TO : WHOM IT MAY CONCERN

This is to introduce to you Mr. Opiyo Robert (Reg No. 18/U/2817/MED) a student pursuing a programme of study leading to award of Master of Arts in Literature and English Linguistics, Master of Gulu University.

He is undertaking research on the Topic:

***A COMPARATIVE STUDY OF THE PHONATATICS OF ENGLISH AND ACHOLI:
IMPLICATIONS FOR THE PRONUNCIATIONS OF ENGLISH BY NATIVE ACHOLI
SPEAKERS OF ENGLISH***

Which is in partial fulfilment of the requirements for the award.

Any assistance rendered to him in relation to this research work will be highly appreciated.

Yours faithfully,

Dr. Denis Thaddeus Ofoyuru
Dean, Faculty of Education and Humanities

