Phonological Awareness Skills of Emergent Bilingual Rumanyo-English Learners

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A Thesis

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ABSTRACT

This thesis is an account of a cross-sectional study which focused on investigating Phonological Awareness (PA) in emergent Rumanyo/English bilingual learners. PA and its contribution to reading fluency were investigated among 47 third grade learners with an average age of 9. 19, at a Namibian School, for which Rumanyo is the language of instruction and English, the first additional language. This cross-sectional study examines two levels of PA: Syllable awareness and phoneme awareness. Measures included three subtasks: identification, segmenting and deletion. Reading fluency was measured through oral reading fluency and silent reading. The findings suggest that learners' levels of PA are still developing with learners performing better on syllable awareness measures than on phoneme awareness. Reading fluency results evince low levels of proficiency in Rumanyo and in English, an average level of proficiency was recorded. To determine the relationship between PA and reading fluency, a Correlation Matrix was run and followed later with a linear regression. The findings demonstrate that syllable awareness predicted reading fluency in Rumanyo, whilst phoneme awareness did not show any association and as such, the model fit did not show any relationship either. With regards to English, neither syllables nor phonemes were a predictor of reading fluency. The study further examined to what extent the phonology of Rumanyo transferred to English.

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TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

TABLES

FIGURES

LIST OF ABBREVIATIONS

CV	Consonant Vowel
IIEP	International Institute for Education Planning
LM	Language Minority
M	Mean
MA	Morphological Awareness
MBEC	Ministry of Basic Education and Culture
NIED	National Institute for Education Development
ORF	Oral Reading Fluency
PA	Phonological Awareness
PGST	Psychological Grain Size Theory
PSSRs	Preferred Syllable Structure Rules
RAN	Rapid Automatized Naming
SACMEQ	Southern African Consortium for Monitoring Education Quality
SATs	Standard Assessment Tests
SD	Standard Deviation
UNAM	University of Namibia
UNICEF	United Nations Children's Fund
VCV	Vowel Consonant Vowel
WPM	Words Correct Per Minute

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This thesis is an account of a cross-sectional study focused on investigating the phonological awareness skills of emergent Rumanyo/English bilingual learners. This chapter provides introductory information, contextualising the research in the Namibian context. Further, a synoptic discussion of the research questions, significance of the thesis, scope and limitations of the study, methods employed in the study and the outline of the thesis are provided and a synoptic summary of Rumanyo language.

1.2 Research Background

This research falls within the field of the linguistics of literacy. The study sought to explore the relationship between Phonological awareness (PA) and reading fluency in Rumanyo/English bilinguals. This study was encouraged by the observation that there is a paucity of literature in this field of study, especially within the Namibian context. Research on literacy is predominated by the sociological approach, and as a result, there seems to be a paucity of linguistic studies targeting reading on the basis of specific linguistic aspects (De Vos, Van der Merwe, & Van der Mescht, 2014). The research thus takes a different approach by contemplating a linguistic perspective to the subject. The emergent literacy acquisition process is an interesting yet sophisticated one. This is because children are required to have skills adequate enough to enhance the process. In this study, the underlying early literacy skill; PA, has been established as the most contributing aspect to reading acquisition particularly in the early grades for languages using an alphabetic script such as English, Spanish, French, Finnish, Germany, Northern Sotho etc. (Adams, 1990; Anthony & Francis, 2005; Wilsenach, 2019; Yopp, 1988). The study addresses the two PA levels: syllable awareness and phoneme awareness and their relationship to Oral Reading Fluency (ORF) and silent reading. The contribution of PA towards reading skills in Rumanyo has, to my knowledge, not yet been examined.

The performance of Namibian learners on literacy measures is alarmingly low. A reading survey conducted in 2003 by UNICEF reports that 66.5% of Grade 6 Namibian learners could not read with accuracy and fluency, and thus failed to read for meaning (Kirchner, Alexander & Tötemeyer, 2014). This finding was further exemplified in the report on reading by the Southern African Consortium for Monitoring Education Quality (SACMEQ) in 2005 in which Namibian Grade 6 learners were placed twelfth out of the fourteen African countries which

participated in the survey. In 2010, it was also observed that 38.7% of Namibian Grade 6 learners failed to read for meaning in English (International Institute for Educational Planning (IIEP), 2010, p. 12–14) as reported by the SACMEQ. This trend continued into 2013, in which the Namibian National Achievement Tests (SATs) showed that 45% of Grade 5 learners' reading proficiency for English as a Second Language (L2) was below the basic achievement level, which meant that they could not read for meaning. These results dropped by 2% from 18.4 out of 40 marks (46%) in 2011, to 17.6 out of a possible 40 marks (44%) in 2013 (Mupupa, 2014, Table 2; Figure 2). The Namibian national literacy and numeracy investigation in lower primary schools found that learners who were tested in English, but were using Rumanyo as a medium of instruction performed poorly in comparison to those who received instruction in the medium of English, with an average score of 3%, which was far below the national average score of 47% (NIED, 2012).

There are several contributory factors for these low literacy levels. One linguistic factor which plays a role is that Namibia has fourteen national languages – with English used as the official language. Most children in Namibia are taught in their indigenous language as the medium of instruction from Grade 1 until Grade 3 and then a switch is made to English as the medium of instruction from Grade 4 onwards. For the majority of Namibian learners this means that the language of first literacy (e.g. written Rumanyo) coincides with their first language (e.g. spoken Rumanyo), which can have a facilitative effect on learning to read in English, if the first language is taught effectively (Prinsloo, 2007). However, given the low levels of literacy in Namibia, an in-depth investigation of the linguistic factors that affect literacy is necessary. This research, therefore, aims to investigate two sub skills of literacy, namely Phonological Awareness (PA), and reading fluency.

PA refers to the ability to consciously manipulate the inventory of linguistic sounds, for example, at the levels of word, syllable, phoneme, or onset-rime (Anthony & Francis, 2005; Schuele & Boudreau, 2008; Carson, Gillon & Boustead, 2014). PA consists of three subcomponents: syllable awareness, onset-rime, and phoneme awareness. However, this study only focused on syllable awareness and phoneme awareness, as due to the open CV syllable structure of Rumanyo, onset-rime does not feature. Syllable Awareness is the ability to break down and manipulate the sounds of a word at the syllable level. For example, the word *hospital* consists of three syllables, /hos-pi-tal/. Phonemic awareness involves the ability to segment and manipulate words into the smallest unit of sound. For example, the word 'bat' has three phonemes: /b/ /a/ and /t/.

Theoretical perspectives underpinning reading among others is The Linguistic Interdependence Hypothesis (Cummins, 1979) which argues that the linguistic aspects that are required for learning to read in the L1 are positively transferable to L2, this provides a just start for L2 literacy development. The Linguistic Threshold Hypothesis (MacSwan, 2000), suggests that the transfer of L1 literacy skills to the L2 will only occur if the learner has reached a certain threshold level of proficiency in their L2. Sibanda (2017) highlights two challenges with the cross-language transfer: (1) the inadequate development of L1 competencies and (2) whether the literacy proficiency is developed or not, the linguistic competencies can defy the transfer, for example, lexical and syntactic skills are likely not to be accessible for the transfer between L1 and L2.

Ziegler and Goswami (2005) submit that reading acquisition can only be understood when the process of PA is examined with research on African languages demonstrating plausible findings that PA is pertinent to emergent literacy acquisition (Diemer, 2016; Lekgoko & Winskel, 2008; Veii & Everatt, 2005; Wilsenach, 2013). Chen et al., (2010) argue that the linguistic structures among languages have a strong influence on the development of PA which consequently leads to children manifesting much sensitivity of PA levels in one language than in another. PA research in Namibia has not yet explored this area in Rumanyo/English bilingual learners and as such, research in this area is a necessity; findings of the study will have implications for emergent literacy acquisition and pedagogical teaching and learning.

The current study has the potential to inform curriculum development, especially on Rumanyo early reading pedagogy. It also has the potential to impact the practical assessment of language, specifically on the measuring of PA and reading variables. This is of utmost importance in identifying at-risk readers in Rumanyo which could encourage prompt interventions. English literacy pedagogies have been adopted across languages and evidence is needed to consider if these are suitable for African languages, which vary in their linguistic form from those of European languages. The current study has adapted methods used in studies of isiXhosa (Diemer, 2016) to help establish how to measure the variables of both PA and reading tasks in Rumanyo. Rumanyo is linguistically similar to isiXhosa as it is also a Bantu language, and both of these languages have transparent orthographies. As such, the current research explored PA skills in relation to reading fluency in English/Rumanyo bilingual learners. It was guided by the following objectives, stated here and explicated in this chapter.

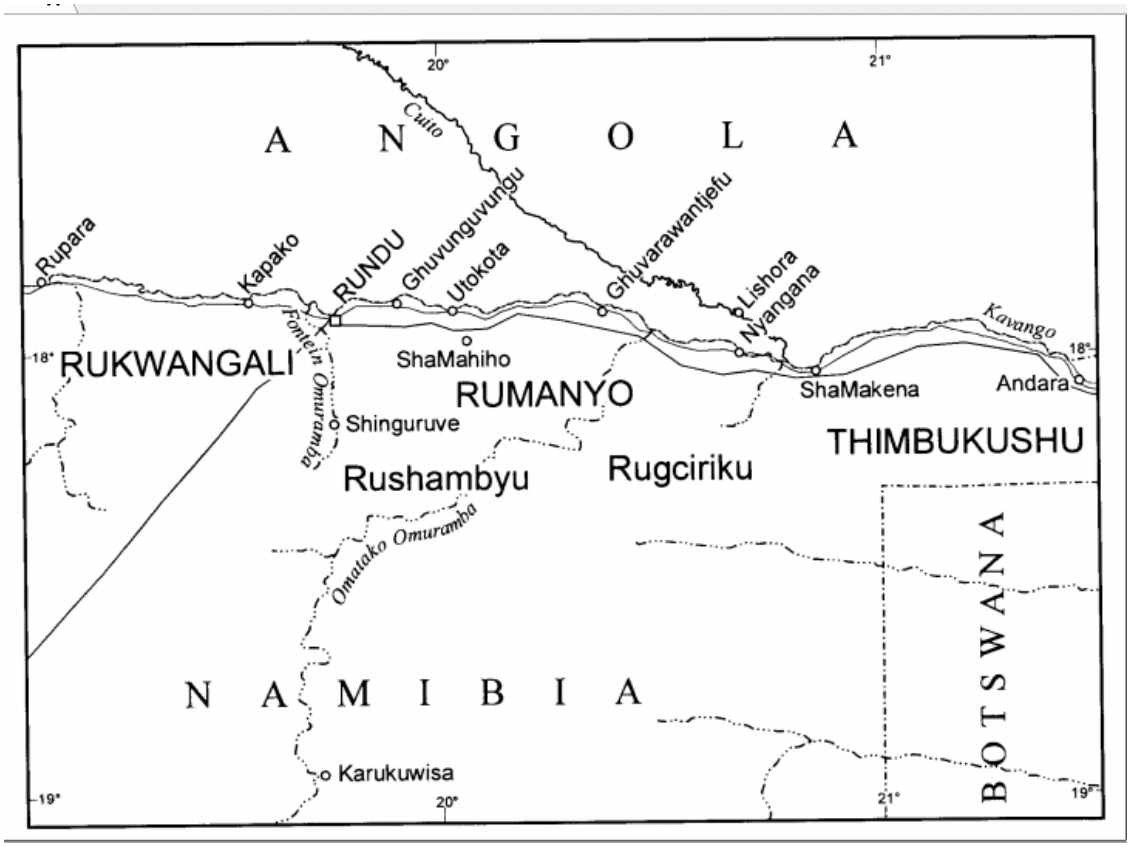
The main objective of the study is to examine the level of PA in both languages (Rumanyo and English) and to determine its relationship to reading fluency – ORF, and silent reading. Below are the questions which informed the study:

1. What is the level of PA in emergent Rumanyo/English grade 3 bilingual learners?
2. a) What is the relationship between PA and reading fluency in Rumanyo?
   b) What is the relationship between PA and reading fluency in English?
3. What aspects of the Rumanyo phonology would transfer to English and what are the implications thereof?

1.3 Rumanyo Language

Rumanyo, classified as (K332)[2] (Bostoen & Sands, 2009), is a combination of two dialects – Rugciriku and Rushambyu – and is one of Namibia's local/indigenous languages (Tötemeyer, 2010). Other languages in the same class (dialect variants) are Rukwangali and Thimbukushu. Together, the ethnic groups speaking these languages belong to the Vakavango people. Approximately 60 000 people speak Rumanyo. However, to attain a realistic estimation, 3000 needs to be added to the total figure in order to cater for the other population of the Vamanyo living on the other side of the Okavango River in Angola (Möhlig, 1997). Although apartheid policies restricted movement for the people of Namibia during the colonial era and restricted them to living in designated areas, resulting in most of the Vamanyo to be clustered in the Kavango East Region found in the eastern side of Rundu town, the group is not confined to that area, as it is also dispersed all over including into Botswana, Western Zambia and the rest of Namibia (Haingura, 2017). This has largely been due to various reasons, among others war, marriage, economic aspects etc.

Figure 1: The Geographical Location of Kavango Main Languages Including Rumanyo



Map 1: *The Geographical location of Kavango main languages* ***Source****: Adapted from Möhlig and Mberema (2005, p. 9)*

For communication purposes, Rumanyo is used by the Namibian Broadcasting Corporation (NBC) on Radio Wato, government offices, traditional offices, community court, churches and the Magistrates Court, at least in Kavango East Region.

Rumanyo is taught in two regions – Kavango East and Kavango West– and is used as a medium of instruction from Pre-Primary to Grade 3, after which it switches into a standalone subject from Grade 4 through to Grade 12. This trend began after Namibia gained its independence in 1990 when the post-independence language policy was revised (Chavez, 2016). The goal of promoting culture and identity, and developing early literacy skills and numeracy is the major reason that contributed to the use of mother tongues in Namibian schools from the first grade to the third at least in public schools (MBEC, 2003). The need to have a second language was crucial and English was adopted in schools as it was the sole official language of Namibia (Chavez, 2016). The English language was adopted as such in order to enhance wider communication and greater participation in the world. A language policy that stipulates that all

assessments throughout the academic endeavour in public schools would be conducted in English alongside the mother tongue as a subject was adopted.

The Rumanyo orthography originated from the European missionaries at Nyangana Roman Catholic Mission in 1910. However, it was by then known as Rugciriku (Haingura, 2017). It is undeniable that Rugciriku has undergone many setbacks even though it was the first language in the Kavango Region to have an orthography developed. It was thwarted by the South African Apartheid, during the time that Namibia was a colony of South Africa. Due to reasons unknown, the regime only developed Rukwangali and Thimbukushu (Rukwangali was however not fully developed), hence, the first orthography for Rukwangali was only standardised in 1988. It uses an alphabetic script developed by the missionaries as they translated catechism, prayers, songs, and parts of the Bible.

The Rugciriku orthography was revised and so the given name needed to be revisited. As Fleisch and Möhlig (2002) observe, politics consequently endowed the notion that the use of Rugciriku orthography seems to exclude Rushambyu as it was deemed to be unacceptable since Shambyu has its own recognised ethnic group, and switching to Rushambyu orthography would yield similar problems. This prompted the renaming of the Rugciriku orthography to Rumanyo. However, Haingura (2017) rejects the statement that claims politics influenced the decision with regards to the switch of the Rugciriku orthography to Rumanyo, and argues that the factors which influenced the renaming have been distorted. Haingura (2017) observes that the name Rumanyo was revived following observations of the linguistic aspects between the two dialects Rugciriku and Rushambyu. This is to say, Rumanyo is a thread tying these ethnic groups into one language. The term has been embraced as it is unifying and speaks to the history of one people – the Vamanyo whose language was Rumanyo. Finally, the orthography was renamed Rumanyo.

The current orthography in use for the language was revised later by the Rumanyo Curriculum Committee (Rumanyo Orthography 2, 2004). The current orthography for Rumanyo has 5 basic vowels /a/, /e/, /i/, /o/, /u/ and many letters of the alphabet with complex letter groups. Rumanyo has a transparent orthography. This practically means that there is high letter-to-sound correspondence. It can be compared to languages such as Turkish, Italian, and Finnish with almost every graphene being represented by only one phoneme. For instance, the letter <u>, in Rumanyo always produces a /u/ sound in words such as /muntu/, /tura/ etc. and a grapheme <p> in /pata/, /pere/ remains a /p/ sound.

1.3.1 Vowels

Rumanyo has five short vowels (a, e, i, o, u) which can be found in words such as /a/ ‘bata’ – ‘hide’; /ɛ/ ‘tera’ – ‘pour’; /i/ ‘yita’ – ‘bring’; /ɔ/ ‘kora’ – ‘be’ strong and /u/ ‘futa’ – ‘pay’. In addition, it also has five long vowels: <aa>, <ee>, <ii>, <oo>, and <uu>, can also be represented in words: /a:/ ‘mbwaamba’ – ‘useless’; /ɛ:/ ‘teete’ – ‘quiet’; /i:/ ‘nhii’ – ‘yes’; /ɔ:/ ‘moomo’ – ‘in there’; and /u:/ ‘muu’ – ‘the sound of a cattle’.

1.3.2 Consonants

Rumanyo has about 58 consonants which include 17 single consonants (For example, b, d, c, f and g); digraphs translated into one sound but has two letters i. e., <mb>, <nt> and <nd>; trigraphs consonants with one sound but has three letters i. e., <mbw>, <ndy>, <ndw> and quadgraphs, consonants consisting of four letters i. e., <ntjw>, <ndjw>. The consonants in this language include letters representing click sounds such as <c>, <ngc>, <nch>, etc. (Rumanyo Ntjangitito 2, 2004). Rumanyo does not have consonant clusters – which can be defined as "a group of consonants pronounced consecutively in the speech stream" (Diemer, 2016, p. 16). Although Rumanyo orthography is considered highly transparent, its complex consonants bring challenges when the writing system tries to fit in its 58 consonant graphemes in the 26 Roman Alphabetic symbols. Similar to isiXhosa, the complex consonants in Rumanyo, may implicate literacy acquisition, where children are faced with lengthy words due to the trigraph and quadgraph consonants and as such, it may take longer to read. Furthermore, children in early grades may require more time to learn these many graphemes.

1.3.3 Syllables

Rumanyo, like most Bantu languages, has a linguistic structure characterised by simple open syllables similar to Herero, Northern Sotho, isiXhosa, and Kiswahili. The syllables are usually of the CV structure, such as in the following words: ‘kulima’- ‘cultivate’, ‘mpandu’- ‘thanks’, ‘rara’- ‘sleep’, and only a few words begin with a vowel forming VCV words and these are mostly bisyllabic words e.g., ‘ame’ – ‘I’, ‘osho’ – ‘that’, ‘atwe’ – ‘us’, ‘omo’ – ‘in there’. Like any other language, the orthographic system of Rumanyo permits letters such as <m> and <b>'; <n> and <t>; <n> and <g> etc., to be blended and make one sound. However, letters like <m> and <d>; <m> and <t>; <n> and <b> etc., can never be blended as they then become unpronounceable.

1.3.4 Tones and Accent

Rumanyo is a tonal language. Tone is one of the features of the phonological systems that are unevenly distributed among various language families across the world and its definition may thus be interpreted differently, but what is important is a morpheme as the domain of tone. Hyman (2006) provides a suggestion defining a tonal language as one in which an indication of pitch enters into the lexical realisation of at least some morphemes. Möhlig and Mberema (2005) explain that the tonal phenomena perform respective functions similar to vowels and consonants. However, the tonal characters differ slightly from sounds as it appears not only on one syllable, but stretches over two or more adjacent syllables. It is therefore important to note that in this language, the relevance of tone is not on the syllable but rather the intervals between syllable pitches. For instance, words like 'mpo'- ostrich, 'mpo'- peace, the distinction of the two words is through applying *high - low* pitch to the first and *failing - low* to the last word. In this particular language, attempting to apply a pitch excursion seems to be challenging as the language characters are too many.

Accents are hard to recognize in this language as they are not represented in the orthography. In a word such as 'Katiku' – name of a person (female), the 'ṭ' carries an accent but the same grapheme does not produce an accent in a word 'teta' – 'cut'. Accents in Rumanyo words are not represented in the orthography. A failure to symbolise accents may not only contribute to a mismatch between speech and orthography but rather the loss of native sounds in young children.

1.4 Scope and Limitations of the Study

The sample of the study is small to generate a general conclusion on the subject matter as well as for the entire country. This is because it only comprises 47 learners. Therefore, future studies are encouraged to use larger samples to ensure that their sample is sufficient enough to have the findings generalised. The findings also revealed that some learners' levels of PA are extremely low, and some individuals scored zero on reading tasks indicating that they could not even decode a single word at the grade 3 level. These results could imply there are children with reading difficulties and possible dyslexia, which could be a potential reason that is hindering the ability of learners to read. However, it was beyond the scope of the research to do a formal investigation into this.

Phonological working memory was not included in this study; failure to explore this important aspect of PA may have affected the results, as some children might have a deficiency with

regards to working memory which is required for the processing of units during the manipulations of PA tasks. Future researchers should include phonological working memory as an added variable. The study also only focused on learners and believes that interviews targeting teachers on teaching methods of PA and reading instructions as well as recording some lessons could have yielded better results further, examining the learners' environment could have added more depth to the findings. Parents are part of the pillars accountable for the development of literacy in children, and in this study, parents were not involved due to time constraints. Thus, this could have also impacted the findings. Intervention programs are essential to this kind of study which could have made it possible to compare children outside the intervention and those involved in the intervention program. However, programs of such nature require more time and resources and this study had limited time and resources.

1.5 Structure of the Thesis

The thesis is constituted of five chapters. Chapter 1 outlines the foundational background of the thesis, explaining the primary concerns of the research and the envisaged contribution of the study to PA and reading fluency amongst Rumanyo/English third graders. As such, the key underlying focus of the study is understanding the levels of PA and its ultimate contribution to reading amongst Rumanyo/English bilingual learners. Chapter 2 highlights the necessity for linguistically informed research focusing on the emergent literacy acquisition in African languages, particularly in Namibian languages. In doing so, the chapter engages with literature relevant to and of much interest to the study. The chapter also deliberates on what PA is and the processes which underlie reading, specifically focusing on African languages. Furthermore, the chapter discusses the findings in other research on the sub-skills of interest in this study, namely PA: syllable awareness and phoneme awareness and their contributions to reading in various languages where the linguistic structures have been perceived to play a role in the development of PA skills in children.

Chapter 3 presents measures of the variables used in the study to examine the levels of PA and reading fluency in Rumanyo/English learners. Rumanyo does not have standardised tests. Therefore, measures were developed by adapting from other studies conducted on Bantu languages such as isiXhosa and Northern Sotho (Diemer, 2016; Wilsenach, 2013). The chapter also discusses how measures of PA and reading fluency were developed in alignment with Rumanyo's phonological structure. English measures as developed, are also deliberated on, including among others: the duration of the test (at least 20 minutes), procedures on testing, such as discontinuing the task after making four consecutive errors, types of tests: focusing on

syllables and phonemes and the subtasks: identification, segmenting and deletion. These various activities of assessments are attached as appendices. The activities provided for this study, however, should not be used as assessments for dyslexia. Rather, they can assist in identifying children who could be at risk in reading and the ones that could possibly fall behind the learning trajectory as far as reading development is concerned.

Chapter 4 presents the results of the study responding to the research questions. The steps that were taken in analysing the data such as descriptive statistics are used to track the statistical central tendency: mean, SD, minimum and maximum. This helps the researcher to get a clearer picture of the learners' performances. To analyse and explore the association of PA skills and reading fluency, results of a correlation matrix are presented with most PA correlations with reading fluency in the ranges of weak to moderate. A linear regression, also used in the process of analysis, is also explicated in the chapter. The results from the regression are used to assess the relationship between PA and reading fluency. Chapter 5 summarises the major findings from the results of PA and reading variables and conclusions are drawn on the Namibian context in comparison with the existing literature. Suggestions for future research are also provided.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter comprises in-depth discussions and reviews of various literature related to the current study. Literature on PA and reading fluency is of much interest to the current study. Hence, the chapter provides an insight into core debates and recent scholarly works in the field while highlighting the gap the study fills. An overview of the existing literature served as a guide to contextualise the research within the most influential scholarship and the underlying theoretical framework within the discipline. Firstly, section 2.2, highlights the effects of shifting to a different language in the African context. Section 2.3, provides a discussion of PA, focusing on what PA is and its components, its development and its measures. Section 2.4 provides a discussion on PA in the second language. Section 2.5 draws emphasis on PA and reading measures (ORF and silent reading) whilst section 2.6 provides a discussion on reading fluency benchmarks in the Southern Bantu languages, especially on the Nguni language group. Section 2.7 provides a description of the transfer of literacy skills after acquisition whilst section 2.8 provides explanations of the theoretical framework guiding the study. Section 2.9 provides a conclusion and summary of the chapter focusing on the views in literature as well as the arguments.

2.2 Effects of Shifting to a Different Language in the African Context

The ideology of bilingualism in an African context translates to the use of an indigenous language/mother-tongue along with English as an additional language. The Namibian government after the liberation struggle declared English as the official medium of instruction (Simasiku, Kasanda & Smit, 2015). This was necessary to connect the people to the world for wider communication. The government's main objective of uniting the people of Namibia was believed to be achieved through the use of English as an official language rather than through the selection of an indigenous language. The decision seemed to be a considerate one. However, it is criticised for isolating linguistic and political perspectives (Simasiku et. al., 2015).

Ball (2010) submits, learning in mother tongue as a medium of instruction does not only provide a positive effect towards learning but it serves as a prelude to bilingual and multilingual educational settings. The literature confirms, six to eight years of schooling using one language of instruction can guarantee the development of literacy skills necessary to learn the second language. This is so that when children become fluent and literate enough in the first language,

it provides a cognitive and linguistic foundation needed for acquiring an additional language, and the process occurs with ease, however, if children are to transition abruptly with a low level of literacy skills in the first language, the confidence and motivation to learn is attenuated (Ball, 2010). This translates into an ineffective learning of the second language. In the situation, where an African indigenous language is used as the first language, and English as the second, it appears that shifting to the second language is influenced by the linguistic structures of the two languages. For example, an African Bantu language is rooted in phonological words structured around the syllabic format of CV(V), whereas, English has a phoneme-oriented structure De Vos et al., (2014). This illustrates, the orthography of these languages differs and this difference is based on the mapping of graphemes to phonemes, thus, the accuracy in decoding is achieved sooner in Bantu languages than in English which has an opaque orthography (Ardington et al., 2021).

It is also critical to note that "African-language teachers may already implicitly recognise that an alphabetic script may be less optimal for a syllable-oriented language by intuitively teaching automaticity of syllable recognition instead of phoneme recognition" (De Vos et al., 2014, p. 163). It is worth stating thus, that the pedagogical methods reflecting teachings targeting syllable structures have been observed in African language teachers. Children tend to be exposed to syllables rather than phonemes, consequently causing low awareness of PA at the level of the phoneme, hence, learning to decode in English tends to be directly affected by the low level of phoneme awareness transferring from L1.

Probert and De Vos (2016) in the study of word recognition strategy among isiXhosa/English bilingual learners provide examples on effects of the orthography on decoding, isiXhosa learners applied click sounds when presented with English words, for example, macaroni [ma|aroni], and calamari [|alamari]). This occurred because the English grapheme is read as an isiXhosa phoneme that demonstrates the use of isiXhosa conversions and it is quite transparent, learners of the sample have acquired reading skills in the first language, however, the orthographic difference between isiXhosa and English have implicated decoding as learners approached English words using the familiar strategy. With this in mind, the present study aims to explore the acquisition of literacy related to the attainment of early reading skills in emergent Rumanyo/English bilingual learners, such as the relationship between PA and reading fluency in an attempt to understand the literacy acquisition process of this particular sample.

2.3 Phonological Awareness (PA)

Phonological awareness (PA) is defined as the ability to perceive and manipulate the sounds of speech at various levels such as a word, syllable, phoneme and onset-rime. PA has been clarified as a unified-single cognitive ability that manifests itself through the performances based on various skills that include among others: syllables, phonemes, and onset-rime (Anthony & Francis, 2005). PA skills require awareness to manipulate speech sounds that form parts of a word in various ways (Alcock et al., 2010; Diemer, 2016; Schuele & Boudreau, 2008).

There are three levels of PA: The first level is syllable awareness which refers to the blending of syllables to produce a word, identifying the number of syllables in a word or segmenting of words into syllables i.e., the sounds in the word 'flower' /ˈflaʊ/ə(r)/ can be blended and becomes /ˈflaʊə(r)/ and it can be identified as having two syllables ˈflaʊ-ə(r). The second level is onset-rime awareness which refers to the ability to separate initial consonant or consonant clusters from a vowel and consonants i.e., the /k/ sound which is onset is separated from the rime /at/ in the word 'cat'. The final level is phoneme awareness which is defined as the ability to break down words into their smallest unit sounds or identify and blend sounds of a word, i.e., the word cat has three separate phonemes: /k/æ/t/ where it can be observed that the initial phoneme/sound is /k/, middle /æ/ and final sound /t/ and the phonemes can be blended into /k/æ/t/ and become one as in /kæt/) (Wilsenach, 2019). This awareness has been observed to assist children in being able to crack the code of print which implies that the better the awareness, the easier it becomes for an individual to learn to read.

Other studies divided PA into implicit (i. e., unconscious knowledge that does not require intentional manipulation of speech sounds) and explicit (i. e., conscious understanding that requires breaking down and isolating the phonological units (Duncan et al., 2013; Hulme, et al., 2002; Fröhlich, Petermann & Metz, 2013). Anthony and Lonigan (2004) documented, PA should be understood in an isolation of the idea of consciousness and the term sensitivity should be used instead, as this represent a continuum from the shallow sensitivity (large units such as a word, syllable and onset-rime) to the deeper ones (small units such as phonemes). These skills have been established as developing hierarchically (Anthony & Francis, 2005).

2.3.1 PA Development

The review of literature has widely registered on PA as developing in a continuum following a learning trajectory that children first become sensitive to words, then syllables, followed by

onset-rime, and lastly phonemes (Anthony & Francis 2005; Goswami, 2010; Mclachlan & Arrow, 2010; Ouellette & Haley, 2013; Diemer, 2016; Veii & Everatt, 2005). The pattern develops from the largest part of the linguistic constituent; syllable to the smallest part of a word phoneme.

Anthony & Francis (2005) provide reasons why speakers of languages such as Greek, Turkish and Italian develop syllable awareness faster than English and French. They argue that this is largely due to the shallow orthography of Greek, Turkish and Italian characterised by few consonant clusters and well-marked syllable boundaries with shorter vowels. These languages are linguistically characterised by simple Preferred Syllable Structure Rules (PSSRs), specifically that of Consonant-Vowel (CV) or Vowel-Consonant (VC), with very few vowel repertoires. Whereas, in English and French a single phonological unit can be represented by more than one orthographic unit (i. e., /k/ becomes ‘c' in ‘cat’, ‘k’ in ‘kit’ or represented with ‘ck’ in ‘pack’) and similarly, letters or letter clusters can have many different pronunciations (/o/ in ‘do’ and ‘so’ or /ea/ in ‘clean’ and ‘break’ (see Wilsenach, 2019).

PA skills have been observed to develop faster in German kindergarten learners than in English learners as German has a transparent orthography (Fastame et al., 2018). This research reflects the view that linguistic structures in languages vary and these variations contribute to the rate of PA developmental processes.

PA studies conducted in African languages, more especially in Bantu languages, show the proliferation of a high number of syllable linguistic structures, resulting in learners who speak the languages constantly having advanced skills in syllable awareness compared to phonemic awareness for example, Kiswahili (Alcock et al., 2010), isiXhosa (Probert, 2019; Diemer, 2016), Setswana (Probert, 2019; Lekgoko & Winskel, 2008), Northern Sotho (Makaure, 2017; Wilsenach, 2013, 2019). Evidence from these studies unravel the other reason for the higher sensitivity of syllables in learners; that this could be as a result of the reading/teaching strategy that is based on combining letter names (consonants and vowels) for example, *ba, be, bi, bo, bu*.

2.4 Measures of PA

Research investigating PA as a measure has been widely conducted internationally (Arrow & Mclachlan, 2014; Fröhlich, Petermann & Metz, 2013; Goodrich, Lonigan & Farver, 2013) and locally (Diemer, 2016; De Sousa, Greenop & Fry, 2010; Lekgoko & Winskel, 2008; Malda, Nel and Van de Vijver, 2014; Schaefer & Kotzé, 2019; Schaefer, Probert & Rees, 2020;

Probert, 2019; Veii & Everatt, 2005; Wilsenach, 2019). The cross-sectional studies in Southern Bantu languages (Herero, Northern Sotho, isiXhosa, Setswana, and isiZulu) have documented different aspects pertaining to the measure of PA (1) whether the focus is on the phoneme or syllable level, or mainly PA; (2) the type of tasks employed: segmenting, identification, blending, deletion; (3) the targeted grade for the study and (4) whether the targeted groups are monolingual or bilingual.

In the English/Herero study involving the second grade learners, phoneme awareness was the targeted level of PA and the test mainly assessed learners' ability to recognize initial and final sounds in words (Veii & Everatt, 2005). Similarly, Lekgoko and Winskel (2008), tested phoneme awareness on the grade two learners, however the focus was on deletion of beginning and end sounds. It has been identified that both studies used real words when measuring PA. Anthony and Francis (2005) echoes, the measures of PA should assess different levels of PA so as to allow interaction between the cognitive difficulty of the tasks and linguistic difficulty posed by various stimuli. It is for this point of view that the tests employed in the two studies somehow have not involved adequate tasks in terms of PA measures.

Moreover, isiZulu/English bilingual third-grade learners were tested on three PA tasks: onset detection, rime detection and phoneme deletion, De Sousa (2011). Other studies provide measures of PA in learners at both syllable and phoneme level, for example Northern Sotho/English grade three learners, were assessed through phoneme identification and elision, as well as syllable elision. Both isiXhosa and Setswana studies with the target group of grade three learners, employed two levels of PA, syllable and phoneme (Diemer, 2016; Probert, 2019). The former study measured PA through segmenting, identification and deletion whereas the later assessed segmenting, isolating and deletion, moreover, pseudo words were used to provide more accurate measures of PA and not influenced by class word, semantic or frequency of occurrences (Malda et al., 2014). The present study considered measuring PA at two levels: syllable and phoneme, involving three linguistic cognitive tasks similar to that of Diemer (2016).

There is evidence that Southern Bantu languages indicate children's manifestation of PA units that are similar and the ones that have a slight difference for example, Ochieng'Orago (2015), and Diemer (2016) both noted phoneme segmentation was the most difficult to manipulate. However, syllable segmentation proved to be the easiest in isiXhosa. Phoneme deletion task proved to be difficult to manipulate in Setswana (Lekgoko & Winskel, 2008) for example, most

errors the children made were those of deleting a syllable instead of removing a single phoneme from the word such as for 'podi', they deleted /po/ instead of a /p/ sound as a phoneme resulting in a wrong response /di/ rather than /odi/. Unlike these languages, literature does not show any published Rumanyo study which examined children's sensitivity of PA, let alone the various cognitive tasks: identification, segmenting and deletion. It is also unclear how the differences on various tasks can affect the results.

2.5 PA and Reading/Literacy

There is a number of research particularly on early literacy acquisition and PA aimed at how children learn to read in alphabetic scripts (Melby-Lervag, Lyster & Hulme, 2012; Schmitz, 2011; Schaefer & Kotzé, 2019; Soto, Olszewski & Goldstein, 2019; Wilsenach, 2019). A relationship between PA and literacy has been established with PA being identified as one of the prominent precursors of reading in children (Diemer et al, 2015; Goodrich & Lonigan, 2015; Gottardo, Pasquarella, Chen & Ramirez, 2016; Malda et al., 2014; Probert, 2019; Wise, D'Angela & Chen, 2016; Veii & Everatt, 2005). The reviewed literature has shown that PA is strongly related to reading in numerous languages and this indicates learners' ability to learn to read is determined by the sensitivity towards PA.

Findings in a study of Herero/English grade two up to grade five (Veii & Everatt, 2005), indicated that PA predicted word reading in both English and Herero. In the study that focused on constructing profiles of various cognitive skills and reading in languages that have different orthographies, it was found that PA was the largest contributor to word reading in more transparent orthographies: Setswana and Afrikaans (Malda et al., 2014). Probert (2019) compared early reading strategies of isiXhosa and Setswana, and her findings show that syllables were largely used as a grain size among grade 3 readers, and Diemer (2016) investigated PA in isiXhosa, with her results demonstrating that PA was strongly correlated to reading. It is evident that PA is associated with reading in most studied Southern Bantu languages. However, there seems to be a paucity of this kind of research on Rumanyo, more especially with a sample using the Rumanyo (the first language) as the language of instructions and English as the second language.

One of the previous concerns in the field is whether the level of PA in children with no exposure to literacy is equivalent to those that have the knowledge of literacy. The study that investigated whether the levels of pre-school alphabetic tuition affect the development of PA and early literacy, by re-examining existing data of two groups of pre-school and illiterate children with

different knowledge on letter-names reports, two groups did not show significant differences in the PA and literacy (Wood, 2004). Contrast to this is Alcock et al., (2018), examined literacy and PA of children within and out of schooling in Tanzania, and the results of their study indicated that children out of schooling, while managing to decode words, their PA skills remained poor compared to their counterparts who received literacy or were still in school. It was concluded that after 2 years of schooling, PA predicted literacy and vice versa. These findings concur with the other study on illiterate and literate adults, where the literate adults performed better at PA whereas; the illiterate adults' skills were very low, Loureiro et al., (2004). The findings presented highlight that although PA may appear in individuals with no exposure to literacy, the skills tend to be poor making it difficult to contribute to the development of reading skills. Hence, only the ones with a better sensitivity to this skill may benefit from the decoding process. Moreover, although PA benefits decoding, the most frequent question in PA studies is which of its level (syllable, onset-rime and phoneme) is the strongest predictor of reading (Wilsenach, 2019).

2.5.1 Phoneme as the Strongest Predictor of Reading

Research indicates the primary difference between strong and weak readers is their phonemic awareness skills (Edwards et al., 2016). Although a body of research established PA as the predictor of reading (Anthony & Lonigan 2004; Carson, Gillon & Boustead, 2013; Fastame et al., 2018; Wilsenach 2019), the question which has been of much interest in the field of linguistics of literacy, remains that of which of the components (syllable awareness, onset-rime and phoneme awareness) is most strongly related to reading. Anthony and Lonigan (2004) stipulate, discovering phonemes in words through explicit instruction helps children to acquire reading skills. It was evident that for Northern Sotho speaking children, although results revealed dominance on syllable awareness, it was phoneme awareness which predicted reading (Wilsenach, 2019). In the other study that sampled isiIsiZulu and Siswati first graders by Schaefer and Kotzé (2019), phoneme awareness predicted word reading at the end of the first grade, when other pre-literacy skills were controlled for. Wise, D' Angelo and Chen (2016) underscores, many researchers' findings demonstrate the link between PA and reading, especially when phonemic awareness is the focus of the measures.

In connection to this, many authors have observed that PA skills, particularly phonemes, are concurrent, that they are hardly acquired at an early age, as they only come after children have directly received explicit instruction (Goswami, 2010; Wilsenach, 2019; Wise, D'Angelo & Chen, 2016). Literature registered that children who can distinguish individual sounds in words

are able to read and the ones that fail to isolate sounds mostly struggle to read (Diemer et al., 2015). It is substantially clear that when children manipulate words at different units, most specially tapping out smaller phonological structure of words, the sensitivity towards PA grows leading to reading. Findings from a study that investigated the effects of PA on IsiZulu-speaking Grade two IsiZulu/English bilingual and English monolingual children manifested phoneme awareness as an important unit in monolingual English speakers (De Sousa, Greenop & Fry, 2010). A conclusion derived from the study is that PA (rime and phoneme), spelling skills in IsiZulu/English depend on language-specific orthography.

The Psycholinguistic Grain Size Theory (PGST) postulates that different languages in connection with PA development reveals that syllable awareness is much easier compared to phoneme awareness, especially when children are not yet exposed to literacy instructions in languages that have consistency in one-to-one mapping between sound and letters, than in languages with complicated letter-sound matching (Ziegler & Goswami, 2005). PA skills thrive faster in native speakers whose languages have simple syllable structures and this includes among others Italian, Spanish, Finnish, Turkish, Greek, Japanese and Chinese, in comparison to languages, such as English, Danish, Dutch and French in which children acquire syllable awareness at a very low rate as these languages have complex syllable structures with multiple consonant clusters and many vowels e.g., diphthongs and triphthongs (Fastame et al., 2018; Goswami, 2010; Zigler & Goswami, 2005). This is evident in languages such as Finnish, Greek, Spanish and Italian with consistent letter-to-sound correspondences (one letter maps with one phoneme). However, opaque orthography languages such as English, Danish, Dutch and French, can have one letter mapping with different phonemes. The PGST submits that phoneme awareness is acquired faster in more transparent orthographic languages compared to less transparent orthographic languages (Newmans et al., 2010). This is in line with Chen et al., (2010) who postulate that because of the difference of saliency of PA units, different native-speakers demonstrate distinct developmental patterns. Hence, it is of utmost importance to understand the language implication of PA and literacy acquisition.

Although there is an abundance of research in Southern Bantu languages regarding syllable awareness and phoneme awareness (Kiswahili, Alcock et al., 2010; isiIsiZulu, De Sousa, Greenop & Fry, 2010; isiXhosa Diemer, 2016; IsiZulu, Setswana, Malda et al., 2014; isiXhosa and Setswana, Probert, 2019; isiXhosa, Schaefer & Kotzé, 2019; Herero,Veii & Everatt, 2005), it is not yet known on the relationship between PA and reading or whether syllable nor phoneme is the most predictor of reading in Rumanyo/English bilingual learners. With this in mind, it is

important to investigate the level of PA crucial to reading in the current sample and find out the implications of the linguistic features on the results. Furthermore, what is not clear is how this relationship prevails in Rumanyo/English learners at Grade 3 level. The relevance of PA to children at this level needs to be examined whether findings will produce similar results with the literature indicating the role of PA to reading and children's levels of PA (Schaefer, Probert & Rees, 2020).

2.5.2 ORF and Silent Reading

Reading fluency has been referred to as the "ability to read aloud with accuracy and speed and with meaningful oral expression, with the reader's voice reflecting the prosody and intonation of spoken language" (Pretorius & Spaull, 2016, p.1452). This implies that fluent readers do not only show automaticity in reading words but also constantly connect to the meanings as well as the rate which contributes to the comprehension of what is being read. Reading fluency is one of the important sub-skills of literacy which has been observed to be strongly related to text comprehension (Abadzi, 2011). In line with this Pretorius and Spaull (2016), maintain that fluency is prominent in reading as it acts as a bridge to achieving reading comprehension. It has been contended that it is of utmost importance that children are equipped with this reading skill earlier in the first grade as it has a strong influence on academic achievements. Children who show a deficiency in reading fluency tend to read at a very slow pace, with the hesitation of sounding out words because they experience decoding processing problems of "chunking written texts into appropriate syntactic phrases" (Pretorius & Spaull, 2016, p.1452). It has been observed that it is difficult to measure prosody hence, assessments of ORF are based on speed and accuracy (Pretorius & Spaull, 2016).

The existing literature has shown a number of studies that explored PA and reading fluency, mostly targeting the first language (Bar-Kochva, 2013; Diemer, 2016; Elhassan, Crewther & Baxin, 2017; Malda et al., 2014; Schaefer, Probert & Rees, 2021) except for Wilsenach, (2013) who examined the Northern Sotho/English bilingual learners. However, there seems to be a paucity of literature on investigation of PA and reading fluency with the focus on bilingual learners (first language and English as the second language). Pretorius and Spaull (2016) asserts, much of the existing literature documenting reading fluency emphasises reading in the first language. Hence, investigating PA and reading fluency in both first and second language will fill the gap in the literature, particularly in Rumanyo for which there is no existing literature.

The literature registered mixed findings regarding PA and reading fluency where some studies indicate PA contributes to reading fluency (Diemer, 2016; Malda et al., 2014; Probert, 2019;Wilsenach, 2013) and the others reveal that PA only contributes to reading fluency when the sample of the study has low level of reading fluency (Bar-Kochva, 2013; Elhassan, Crewther & Baxin, 2017; Pretorius & Spaull, 2016), whilst others unravel different measures such as RAN and MA as the predictor of reading fluency (Schaefer, Probert & Rees, 2020). For example, Diemer (2016) submits that phonological awareness strongly predicted reading fluency in isiXhosa and this was with the grade three learners. Similarly, in the study of Northern Sotho/English learners, PA in Northern Sotho predicted reading fluency in the same language but it could not predict reading fluency in English. Malda et al., (2014) who examined the profile of reading skills and cognitive skills in three languages: Setswana, Afrikaans and English found PA strongly predicted reading fluency in these languages. However, findings documented the significance of the study implies that children in Setswana and Afrikaans, even though they were in their third grade, had poor reading skills and hence still depended on PA skills for reading.

In another study that investigated the role of PA, RAN and MA to ORF in isiXhosa third graders, only RAN and MA were the significant predictor of ORF (Schaefer, Probert & Rees, 2020). Pretorius and Spaull, (2016) posits, languages with more orthographic transparency reach ceiling levels earlier in PA, and therefore PA ceases to be a predictor of reading fluency, this implies, as much as PA generally influences the acquisition of literacy, its skills weaken as children gain mastery of reading skills. As a result, other skills become a strong influencer on reading.

Elhassan et al., (2017) studied the contribution of PA to literacy variables such as phonological decoding, visual word recognition, reading rate, and reading comprehension amongst 124 fourth to sixth-grade mainstream schools in the North East Metropolitan region of Melbourne, Australia. The study had three groups of learners: the less fluent readers, and moderate and fluent readers. PA largely contributed to reading tasks in the less fluent group. Result reports phoneme deletion was found to be more strongly related to reading fluency than phoneme blending in groups with less and moderate readers and this implies that skilled readers have conceptualised deeper processing of PA units, despite that, no significant result was observed between PA and fluency rate and moreover, PA was not associated with any of the examined reading measures in the fluent group (Elhassan et al., 2017). The findings complemented the research findings, which suggest that once one becomes proficient in reading, less phonological

awareness skills are required (Bar-Kochva, 2013; Pretorius & Spaull, 2016). Bar-Kochva (2013) investigates the underlying skills of reading silently in kindergarten through to the second graders in Hebrew. The study established that first graders' PA skills predicted fluency in silent reading. However, PA was not a predictor of fluency in silent reading in the second graders.

Despite the mixed findings from the literature, it remains crucial that a study is investigated in Rumanyo/English learners for which there is no research in order to explore the contribution of PA to reading fluency.

2.5.3 Reading Benchmarks in Southern Bantu Languages

An abundance of literature exists on fluency in reading in the first language, at least in European languages, thus, the norms that have been used are English language norms emphasising English reading rate as L1 (Ardington et al., 2020; Pretorius & Spaull, 2016). For example, Ardington et al, (2020) underscored, the existing benchmark that is in English that guides the ORF assessment should not be transferred to Nguni languages because these languages differ in their phonological, morphological and orthographic features, henceforth, the development of benchmarks should consider the linguistic characteristics of the languages. It is inappropriate comparing fluency across languages that are distinct in the word lengths (Ardington et al., 2020).

Spaull et al., (2020) investigated the comprehension problem to develop empirical benchmarks for early grade reading in agglutinating African languages: Northern Sotho (from Sotho languages), isiIsiZulu (from Nguni languages) and Xitsonga (from smaller sub-family languages). The study indicates that these languages differ in their linguistic and writing systems (Northern Sotho, written disjunctively, isiIsiZulu conjunctively and Xitsonga uses both disjunctive and conjunctive writing systems), implicating the measure of reading fluency and making it almost impossible to have one common threshold. For example, Spaull et al., (2020) attest that while giving examples of three sentences which may consist of 13 words in Northern Sotho and about eight in Xitsonga, these sentences may be equivalent to only three long words in the isiIsiZulu passage.

Children reading below 50 Words Correct Per Minute (wpm) and 40 wpm in Grade 3 represent at-risk readers in Northern Sotho and Xitsonga, whilst reading below 20 wpm indicates at-risk readers in isiIsiZulu (Spaull et al., 2020). Furthermore, in this study, learners who failed to sound out a minimal 25-30 letters correctly per minute during this test were categorised as non-

readers. Spaull et al., (2020), concludes that even after two years of schooling and as they are about to enter their third grade, children were not yet launched on to a successful reading trajectory. Most importantly, the findings from the study also suggest a minimum threshold for reading fluency in these languages that states that to get 25% or more on the comprehension questions, children in Northern Sotho must acquire 53 wpm, 39 wpm in Xitsonga and 20 wpm in isiIsiZulu. The study calls for more research in different African languages before benchmarks can be confidently established.

In response to this call, Ardington et al., (2021) produced the paper that established benchmarks for emergent ORF among three nguni languages: isiIsiZulu, isiXhosa and siSwati. The study analysed the existing EGRA data as the largest compilation of comparative reading assessments consisting of approximately 14 000 learners. The report indicates three categories of benchmarks: a letter-sounds benchmark at the end of grade 1, a lower fluency threshold at the end of grade 2, and an upper fluency benchmark at the end of grade 3 and illustrates at the end of grade 1, a child should at least sound out about 40 letter-names per minute, whereas at the end of grade 2, a child should be able to read at least 20 correct words per minute from the passage and at the end of grade 3, at least 35 correct words per minute and this benchmarks should apply across the three languages (Ardington et al., 2021). These benchmarks can help avoid the utilisation of the Bantu African language benchmarks that proves to be set so high (40-50 correct words per minute) as a result, approximately 95% of emergent grade learners fail to achieve it (RTI International, 2017). Hence it is necessary to investigate reading fluency in Rumanyo/English bilingual learners and it is much practical to compare the findings of Rumanyo language to the Nguni benchmarks rather than using the English benchmarks that are deemed not suitable for African languages.

2.6 PA in L2 - Transfer

Research on PA, particularly on bilingualism have robustly contributed to an abundance of studies involving the cross-linguistic transfer and numerous of these studies in cross-language studies have established that PA and reading skills transfers from language one (L1) to language two (L2) or vice versa (Wawire & Kim, 2018). For example, when exploring the challenges and the rewards of learning literacy in two languages, literature indicates L1 proficiency lays a foundation to acquire the second language literacy skills (Shin et al., 2015). Although research findings demonstrate the transfer of literacy skills such as PA from L1 to L2, its implications in Rumanyo/English bilingual learners is yet to be understood. In this study, the phonology of Rumanyo language is investigated whether it is transferable to English or not.

Internationally, Goodrich, Lonigan and Farver (2013), in a study that explores emergent literacy skills of preschool Spanish speaking language minority (LM) children which could transfer after receiving intervention instructions aimed at promoting the skills in the second language, dispute that if the two languages of interest have a large degree of overlap of sounds, PA can be a specific-language independent skill and that the cross-language relations that are language-specific, particularly vocabulary knowledge, should be solely associated with the quality and quantity of input received. Major findings from the study highlight that the children's knowledge of print and PA correlated across languages, as it was presumed that PA being language-independent, especially if the two languages of interest share similarities of sounds, the PA skills attained in the first language automatically apply to the second language. Neither receptive vocabulary nor definition vocabulary skills showed a significant correlation in the two languages. However, there were still some transfer effects found although there was a lack of connection between the first language and the second languages' vocabulary knowledge (Goodrich, Lonigan & Farver, 2013). Overall, the study did not concur with the broad role of transfer in emergent literacy acquisition. Nevertheless, vocabulary outcomes revealed that Spanish speaking LM children transferred specific linguistic skills of vocabularies across languages (Goodrich, Lonigan & Farver, 2013). This implies that the features characterising languages are mostly unique, hence, only some features found across the two languages would transfer.

Locally, the existing literature supports the argument for the transfer of the first language literacy skills into the second language reading skills (De Soussa et al., 2010; Lekgoko & Winskel, 2008; Shin et al., 2015; Veii & Everatt, 2005; Wilsenach, 2013). Lekgoko and Winskel (2008), investigate how Grade 2 children learn to read in Setswana and English and examine the transfer of skills between the two languages. Assessment in their study targeted letter-sound knowledge, phoneme awareness and reading of real words and pseudowords. Lekgoko and Winskel (2008) submits, the letter-sound knowledge in Setswana which was acquired in the first grade revealed no association with words in both Setswana and English in grade 2. Interestingly, letter-sound knowledge in English was a strong predictor of English and Setswana word reading. Phoneme awareness was associated with pseudowords and word reading across the two languages. However, phoneme awareness only predicted pseudowords in English, nevertheless, it did not predict word reading. PA skills significantly contributed to the reading of both real words and pseudowords in Setswana. Moreover, the learners' strengths in phoneme awareness in Setswana boosted the reading of pseudowords in English.

Veii and Everatt (2005) explore cognitive and linguistic predictors of literacy amongst Herero/English second graders and present findings that are in alignment with the relevance of PA to literacy acquisition as it predicted word reading in Herero and English. This explains how the children's good performance in phonological processing skills was replicated in single word reading across the two languages. They conclude that despite the distinctive linguistic features of the two unrelated languages, cross-transfer of PA across the languages occurred. This implies that, irrespective of whatever languages, the knowledge pertaining to phonological processing seems to transfer.

In a related study which examined PA skills and reading in English/Northern Sotho third-graders, PA skills were observed to transfer from Northern Sotho to reading across the two languages (Wilsenach, 2013). The children's PA ability accelerated reading performance (Wilsenach, 2013). The findings proportionally maintain the concept that the mother tongue is crucial to early literacy acquisition and its absence can lead to stagnation in the development of PA skills, particularly in the first language. Furthermore, PA skills may pose difficulties to children learning literacy in the second language.

An investigation on the phonemic awareness of English second language learners by Le Roux, Geertsema, Jordaan and Prinsloo (2017) presents evidence that L2 indicates that speakers experienced difficulties in acquiring reading skills in English. The results confirmed the hypothesis that children whose language has a simple phonological structure are prone to struggle to learn a language with a complicated phonological structure. It was also clear that the L2 speakers of English performed very low at discriminating, segmenting and blending phonemes until after an intervention program. There was an increase in scores when children were exposed to a variety of vocabularies coupled with oral skills. The findings suggest that an inadequate print-rich environment may put children at the risk of not realising that words are made up of phonemes.

In the more recent study, which investigates English reading skills associated with reading Grade 1 English second language literacy in rural South Africa, Schaefer and Kotzé (2019) observe that initial phoneme isolation at the beginning of Grade 1 was the most contributing skill to both first language word reading and second language phoneme awareness, including other skills such as letter-sound knowledge, word reading and spelling. However, it is noted that most children start schooling with a distinctive first language experience which can impact their performance, particularly in reading (Schaefer & Kotzé, 2019). The findings of this study

indicate that the transfer of the first language and literacy skills to English second language occurs even though L1 literacy skills are low at the commencement and end of Grade 1.

Shin et al., (2015) examined the contribution of L1 literacy skills (reading and writing) in learning the second language, a case study of Chichewa/English bilingual grade two and three learners in Malawi and findings provide empirical evidence that L1 reading strongly predicted L2 reading and writing in both grades, moreover, the result also suggests L1 writing is an independent supporter of L2 reading, especially when students' literacy proficiency is more pronounced.

Despite the reliable findings from the literature on the linguistic-cross transfer of PA that confirms the transfer, few challenges affecting the transfer have been documented, for example, bilingual children experience challenges relating to the acquisition of literacy especially when two languages of interest differ in their linguistic form (Probert & de Vos, 2016; Veii & Everatt, 2005). English second language learners find it difficult to perceive the correct vowels of English which is a detriment to the manipulation of PA, and this may directly affect the acquisition of literacy skills (Geertsema & Le Roux, 2014). It is also not clear on the transfer if researchers can determine how and when the early literacy transfer from one language to the other occurs (Goodrich, Lonigan & Farver, 2013). Le Roux et al., (2017) assets, the success of the transfer is determined on the level of PA but it is also dependent on the linguistic features of the two languages of focus. For instance, although the transfer of emergent literacy skills from L1 to L2 appears to be automatic, it is crucial that children become more proficient in their first language for the skills to provide a foundation to the second language.

Although the literature shows an increase in the number of research on cross-linguistic transfer in Southern Bantu languages, and that understanding the cross-linguistic transfer of PA between L1 and L2 is a necessity, what is not clear is PA in Rumanyo/English bilingual learners, and it is also not yet known what the implications of PA for reading in these two languages is.

2.7 Theoretical Framework

Research in bilingualism has consistently recognised the use of a first language as a medium of instruction in early grades as it complements bilingual and multilingual education settings (Ball, 2010; de Galbert, 2020; Sibanda, 2017). De Galbert (2020) indicated that most countries around the globe endorse policies promoting a home language or a familiar language in early schooling before children transition to the use of an official language and research on cross-

linguistic transfer motivates these policies. The present study draws from the work of two theoretical frameworks on bilingualism: The Linguistic Interdependence Theory (Cummins, 1979) and The Linguistic Threshold Hypothesis (Cummins, 2000).

The Linguistic Interdependence Theory argues that the linguistic aspects that are required for learning to read in L1, automatically transfer to L2, which means it is not necessary to relearn them and it also implies, when one acquires literacy skills in any language, regardless if it is the first language or second language, it helps the development of literacy in the other language (Kim & Piper, 2019).

In the study of the French immersion children who were assessed based on the grade 1 English measures, involving two groups: the experimental group and controlled condition group. Findings indicate a phonologically-based intervention in English can effectively assist to address the deficits of PA and develop reading acquisition in French children who seemed to be at-risk for future reading (Wise, D'Angelo & Chen, 2015). This result is in harmony with The Linguistic Interdependence Theory, that children's PA in L2 (English) facilitated reading in L1 (French). Whereas, in the other study that investigated the cross-language transfer on Pre-school children learning to acquire emergent literacy skills in Spanish and English, reports, vocabulary interaction renders support to the notion of transfer characterised by specific information on both languages, but somewhat, the elision interaction based in English-only intervention group provides support to language-independent transfer (Goodrich, Lonigan & Farver, 2013).

Concerning the question of when and how the cross-language transfer occurs, The Linguistics Threshold Hypothesis proposes, for the transfer to automatically occur, L1 competence must reach a threshold level of literacy competence, before it becomes supportive of the acquisition of literacy in L2 (Shin et al., 2015). Sibanda (2017), in the study that interrogated the complexity of language use involving Grade three to four transition in a South African context, provided an analysis of The Linguistic Interdependence Theory that if learners receive an adequate and solid foundation in first language, difficulties experienced when learning to read in the second language would merely be a problem of a language. However, inadequate instructions in the first language can trigger both reading and language problems in biliterate learners, during the acquisition of literacy in the second language. Sibanda (2017), emphasises that the first language or home language should be well established rather than primarily acting as a language of teaching. Lack of literacy competencies in the first language can cause a

stagnant development of the second language. Sibanda (2017) questions the extent to which the first language is effectively employed as a language of instruction considering the development of the language and the effectiveness of mediating learning.

The Linguistic Threshold Hypothesis provides an assumption that decoding in the second language is associated with the proficiency of the first language including reading in the first language, for example, learners' ability to hear syllables and single sounds in words in the second language can influence the transfer of PA from the first language to the second language (Sibanda 2017). This assumption suggests lack of sound awareness in the second language can obstruct the transfer of PA from the first language to the second language. Sufficient literacy knowledge to equip learners on the learning trajectory enhances the necessary skills needed for the transfer to occur.

In some countries, for example, Uganda, the implementation of the language policy informs educators on the number of years a familiar language should be used as a language of teaching, however, the contextualization of important evidence of cross-linguistic transfer is cumbersome (de Galbert, 2020). Hence, it is empirical to understand that it is not only the number of years of schooling that matters before the transition but rather, understanding the key elements essential for cross-linguistic transfer is equally important.

Most research findings on PA and literacy in African languages positively support the claims of the Linguistic Interdependence Theory that the learners' PA knowledge of early literacy skills can transfer from L1 to L2, especially, when the L2 is English (Cummins, 1979) and Cummins (2000) Linguistic Threshold Hypothesis stipulates that, concerning literacy acquisition, bilingual children need to reach a certain threshold level of proficiency in the L1 for those skills to effortlessly transfer to the next language – especially when the additional language becomes the language of teaching. On the other hand, children are required to exhibit some knowledge of sound in the second language and lack of it can obstruct the transfer of L1 to L2 (De Sousa et al., 2010; Kim & Piper, 2018; Lekgoko & Winskel, 2008; Schaefer & Kotzé, 2018; Veii & Everatt, 2005; Wilsenach, 2013). The Herero/English second graders' observation in Namibia indicates Herero PA skills contributed to word recognition in the two languages (Veii & Everatt, 2005) and findings in the study of Setswana/English Grade 2 learners show the phoneme knowledge in Setswana were associated with reading both words and pseudowords in Setswana, however, this knowledge only facilitated the decoding of pseudowords in English and not real words (Lekgoko & Winskel, 2008).

Wilsenach (2013), submits that the children's PA predicted Northern Sotho and English word decoding. The study had two groups – Group 1 used English as a medium of instruction and Group 2, Northern Sotho. Findings from the study indicate that children using Northern Sotho as a medium of instruction performed better at syllable awareness than children in the English group. The general suggestion from the study was that poor performance in Group 1 is that when children have not acquired sufficient literacy instructions in the first language, phonological processing in the second language becomes limited or weak (Wilsenach, 2013). This study's finding supports the explications of the Linguistic Threshold Hypothesis which suggests that only when children attain sufficient literacy skills required for reading in the first language, and only then, is the first language able to influence the acquisition of literacy skills in the second language (Cummins, 2000).

A longitudinal study that examined emergent literacy skills of Grade 1 English L2 literacy in a rural area, Mpumalanga, South Africa, on children of isiIsiZulu and Siswati, confirms that PA and letter-sound knowledge of the first language is vital for later word-reading success and this knowledge is also of utmost importance for spelling in the second language (Schaefer & Kotzé, 2018). Similarly, English oral proficiency in early grades is crucial, especially for children in rural areas with little exposure to English. Henceforth, this result is complementing The Linguistic Interdependence Theory (Cummins, 1979).

Kim and Piper (2018) focus on the cross-language transfer of reading skills by examining directionality and the contribution of instructional conditions among Grade 1 and 2 Kiswahili/English learners. The study observes that although the findings speak to the directionality of relations, language function and literacy instruction conditions influenced the relations differently, such that the relation was found only from English to Kiswahili in learners on the intervention condition. However, the relation between Kiswahili to English was only found among children in the explicit instruction in Kiswahili reading. The study provides evidence that for L1 skills to transfer to L2, they need to be pronounced, and this finding concurs with The Linguistic Threshold Hypothesis.

de Galbert (2020) worked on expanding understanding of cross-linguistic transfer to new languages involving Luganda, Runyankole-Rukiga and English, findings show common constructs on decoding skills in both two languages, for example, first and second language reading comprehension demonstrates a positive and statistically significant relationship with

each other. It was concluded that some cross-linguistic transfer occurred in reading comprehension in the second grade.

Probert and de Vos (2016) investigate reading strategies and the transfer of the strategies in isiXhosa/English Grade three bilingual learners and demonstrate that although skills can transfer across skills, an infelicitous transfer can also occur. Sibanda (2017) submits emergent literacy has been impacted by English, complicating schooling in bilingual children. In the current study, data interpretation was informed by the two theories discussed namely, The Linguistic Interdependence Theory and The Linguistic Threshold Hypothesis. It is presumed that Rumanyo/English children with low PA skills in L1 (Rumanyo) may struggle to read in L2 (English) as they may not have acquired sufficient literacy skills to aid the transfer and have not reached a threshold that could assist in the positive transfer of the PA and reading skills. This will help to interpret the question of the transfer of PA skills from Rumanyo to English. The current study utilised the theoretical explanations of these theories in analysing Rumanyo/English Grade three emergent bilingual learners.

2.8 Conclusion

Chapter two presented a discussion of literature related to this study, specifically providing discussions on various topics on PA and reading. These include measures of PA pertinent to the study (syllable awareness and phoneme awareness while explaining sub-tasks undertaken in the present study), identification, segmenting and deletion. Several controversies underlying PA were also presented, for example, other studies registered PA levels are divided into two: implicit and explicit (Duncan et al., 2013; Hulme, et al., 2002; Fröhlich, Petermann & Metz, 2013). Whereas others dismiss this claim and stated, there is no such thing as implicit or explicit and that it is the sensitivity towards PA levels that matters while highlighting that this sensitivity occurs in a continuum from larger units to smaller ones (Anthony and Lonigan (2004). This is of utmost importance to the present study that children are assessed to measure the levels of PA which include both larger units (syllables) and smaller units (phonemes) of words.

The development of PA skills seemingly received much attention and many findings suggest somewhat of a continuum development of various skills from the largest to the smallest units (syllables, onset-rime and phonemes) and that it is similar across languages (Adams, 1990). Nonetheless, concerning these skills, some argue that such development is determined by the linguistic structures of a language (Diemer et. al., 2015). On the other hand, measures of PA

among studies on Bantu languages mainly employed two levels of PA: syllable awareness and phoneme awareness (Diemer, 2016; Malda et al., 2014; Veii & Everatt, 2005) and similar measures were applied to the present study for a better examination.

One of the controversial topics of research highlighted in this chapter is that the PA skill is ultimate in reading. Numerous studies are in harmony and argue that despite the other skills being also regarded as important to the development of literacy, phoneme awareness stands out as the strongest predictor of reading (Wise, D'Angelo & Chen, 2016). ORF and silent reading are also discussed, specifically outlining reading benchmarks in African languages where the emphasis was on the fact how words correct per minute could aid in identifying learners at risk with regards to reading development. It is also worth noting that reading measures in African Bantu languages are somehow inappropriate as it does not reflect the consideration of linguistic structures and let alone the different writing system of these languages, hence, the South African study based on Nguni languages have set some basic standards for early grades (Ardington et al., 2021). Findings of the study are crucial to the current study as learners' reading measures of the sample was assessed based on the guidelines.

The cross-transfer of literacy skills is of interest to the present study. As such, the chapter also presented two theories of literacy underlying cross-transfer: The Linguistic Interdependence Theory and The Linguistic Threshold Hypothesis (Cummins, 1979; Cummins, 2000). This was done chiefly to demonstrate and explain the literacy skills which could transfer from the first language to the second language. This is in an attempt to understand how the language of instruction facilitates literacy acquisition in an additional language or vice versa. There is clear evidence that a paucity of knowledge exists in Rumanyo with regards to the levels of PA in Grade 3 English/Rumanyo bilingual learners and it is also not known how children acquire literacy skills in the two languages. The current study sought to explore these aspects in detail and the major focus of the analysis was mostly on the relationship between PA and reading fluency.

CHAPTER THREE: METHOD

3.1 Introduction

The study explored PA levels in Rumanyo/English emergent bilingual learners. The relationship between PA and reading fluency in both languages is central to this study. Furthermore, the transfer of PA in these languages was examined. Data were collected using two measures of assessment that were specifically designed for this study, namely; PA and reading. The reading measures targeted Oral Reading Fluency (ORF) and silent reading. The results contribute to a better understanding of reading in Rumanyo/English emergent bilinguals and seeks to inform best practices concerning the pedagogical teaching and learning of PA and reading.

3.2 Participants

Data were collected from 47 Grade 3 learners at one school in Namibia. All participants had Rumanyo as L1 and English as L2. Grade 3 was chosen because research indicates that phonemic awareness only becomes a predictor of reading after the child has developed some basic knowledge of print such as the letter-to-sound correspondence of the alphabet (Pretorius, & Spaull, 2016; Wilsenach, 2019). The size of the sample is consistent with similar work in the field (Diemer, 2016; Probert, 2019).

The school chosen has Rumanyo as a medium of instruction. However, it is a school in an urban area and there is quite a large language diversity among the learners. Rundu town is mostly occupied by the Kavango ethnic group who speak different languages such as Rukwangali, Rumanyo, Thimbukushu, and others. Consequently, learners are widely exposed to those languages in comparison to English. Learners mostly only speak English during school hours. It is for this reason that a number of the participants had little exposure to English.

The economic status and parents' level of education was not formally established. However, the majority of the children share similar lifestyles and socioeconomic status. Further, children who exceed the average age of 11 years were excluded from the analysis (i.e. those who have repeated multiple times or are below the appropriate grade age of at least 8 years old). It is important to point out however, that variables such as age, socioeconomic status, gender, etc., are not an emphasis of the study as the main focus of the study was to investigate the role of PA skills in emergent Rumanyo/English bilingual learners and to examine the correlation between PA and reading.

3.4 Ethical Considerations

Permission to conduct the study was approved by the Rhodes University Ethics Committee (Ethics number: 0981). Permission was also sought from the offices of Kavango East Regional Education office as well as the Principal's office (of the identified Senior Primary School) before conducting the study. The parents of the Grade 3 learners were also alerted and asked to sign informed consent forms. Only learners whose parents returned the forms, and gave permission to participate, participated in the study. The informed consent form sent to the parents had details of the procedure explaining how the research would be conducted. It also provided reassurances such as that their children's participation in the study was voluntary and that their rights and identities would be protected throughout the study. Parents were informed that the children were allowed to discontinue the tasks at any point during the assessment. Verbal assent was sought from the learners prior to the start of the activities as well as during the process of the assessment.

To find an assistant researcher to help during data collection, letters were sent out to various schools within Rundu town. Interested candidates were called for an interview to ensure that they understood the nature of the research before signing a confidentiality agreement. Further, the successful candidate received a week of training before the week of data collection. This was done to minimise the chances of making errors during the test administration, as well as ensure that the assistant can respond ethically to any situation which might have arisen during the testing.

3.5 Measures of PA and Reading Assessments

PA and reading assessment are integral measures for this study. Therefore, it was essential to assess each participant on these targeted measures. PA measures focused on assessing the participants' awareness of syllables and phonemes, and the reading measure targeted both ORF and silent reading.

3.5.1 PA Measures

PA was assessed at two levels: syllabic and phonemic. Each level was assessed using three sub-tasks namely, segmenting, identification and deletion. The number of the sub-tasks used in the study was a deliberate anticipation to ensure that the validity and reliability of PA is considered. Yopp (1988) postulates that tasks assessing linguistic awareness should vary from easier tasks to more complex ones that can provide outcomes of a distinct degree such that the cognitive needs are accounted for. Thus, the three sub-tasks in the present study consolidate

the assessment of a single cognitive construct. Tasks such as segmenting and blending are somehow equivalent to each other in terms of the cognitive demand henceforth, it is not necessary to include both of them in the study (Yopp, 1988). Anthony and Francis (2005) maintain that PA tests should include multiple and complex tasks that can provide different levels of linguistic awareness. This is essential in determining the degree of sensitivity of PA in children.

Segmenting involves the partitioning of sounds in a word (e. g. the word the "kitten" can be segmented into two syllables, /ki-ten/); identification refers to the ability to recognise various sounds in a word (e. g. the initial sound of "fat" is /f/) and deletion involves removing some sounds from a word to form a new word, (e. g. when a learner is asked to say the word "rat", and then say it again without /r/, the correct response will be /at/). The words used differed in complexity from two to three syllables in Rumanyo and two to four syllable words in English. However, the length of the words for the phoneme tasks ended at three syllables to avoid too many constraints during the processing of manipulating sounds (Diemer, 2016). The words in Rumanyo varied in their grapheme representation - some had single-letter consonants, whereas others consisted of digraphs, trigraphs, and quadgraphs to match with the structure of the real words which were used in the texts for the reading fluency tasks. The pseudowords in both Rumanyo and English were developed according to the phonological and orthographic structures of the respective languages. In this study, pseudowords were used to mitigate the influence of real word semantics, word-class, and frequency (Diemer, 2016; Malda et al., 2014; Veii & Everatt, 2005).

3.5.1.1 Linguistic and Cognitive Complexity

Rumanyo has a linguistic structure with words made-up of a simple-syllabic structure. As such, the PA levels of syllables and phonemes are profound to this study. The phoneme is chosen based on the research establishment that it is the strongest predictor of reading (Wise, D'Angelo & Chen, 2016). In support of this, for example, Wilsenach (2019) asserts that, although children performed better at syllable awareness, phoneme awareness remained the better predictor of reading in Northern Sotho third graders. Onset-rime awareness is not part of the study, as Rumanyo just like isiXhosa, has many open but few closed syllables. PA units will be assessed from the easiest tasks to the most sophisticated tasks: identification, segmenting, and deletion (Adams, 1990). Lekgoko and Winskel (2008) demonstrate that the deletion sub-task was the most difficult for the learners to manipulate, as it accounted for most of the errors in Grade 2

Setswana/English learners. However, segmenting phonemes was found to be very difficult in isiXhosa (Diemer et al., 2015).

Moreover, the phoneme deletion task used for Rumanyo differs from the English task as words in this language cannot permit the deletion of sounds other than the initial sound due to its CVCV structure. For example, if the second sound in the word "yita" which means "bring" in Rumanyo is removed, we will be left with /yta/ which is an unpronounceable word. The written system of Rumanyo does not allow such phonemes as /y/ and /t/ to occur simultaneously. Subsequently, only the initial deletion will be assessed in the phoneme tasks. However, the deletion of the initial, middle and final syllables was included for the syllable task in Rumanyo. In addition, identification of sounds was also limited to initial and final sounds only, at least for the phoneme tasks in both languages in order to avoid too many constraints during the cognitive processing of the linguistic features.

3.5.1.2 Administration of the PA Measures

The L2 assessment was administered by the researcher whereas the one for Rumanyo was administered and assessed by a research assistant (Rumanyo, native speaker), who had undergone a week of formal training before the week of the data collection. This was done to minimise the chances of making errors during the course of the test administration, as well as to ensure that the assistant could respond ethically to any situations which might have arisen during the test. The research assistant was also informed on the Covid-19 protocols, such as the wearing of masks, maintaining social distancing and the sanitising of hands.

The PA tasks were administered at two stations, station A (syllable awareness tasks) and B (phoneme awareness tasks). Participants were divided into two groups so that half of the group was assessed on syllables (identification, segmenting, and deletion) and the other half on phonemes (identification, segmenting, and deletion). The order of the activities remained unchanged across the board: identification, segmenting, and deletion. "This decision was made to avoid any carry-over effects of linguistic units in the different tasks" (Diemer 2016, p. 71).

Tasks were administered one-on-one and recorded for further analysis. Participants were informed that they were going to play games with new words. The researcher and the assistant researcher explained to the participants that there are no right or wrong answers and encouraged them to participate in the tasks. Each sub-task consisted of 10 stimuli.

Before the task, the researcher and the assistant provided at least two stimuli for practice before the participants took part in the main tasks. The researcher and the assistant commanded the

participant to pronounce a word until s/he produced the correct pronunciation of a specific word. Participants were not provided with feedback, except to give them some gestures such as nodding, or through verbal rewards such as "congratulations, you are through to the next game". Where there were observed severe difficulties (i.e. five consecutive errors) to the extent that the task could be completed in the time allocated, then the researcher ended the task (Malda et al., 2014).

Each sub-task did not take longer than 10 minutes. Testing therefore did not take longer than a maximum of 20 minutes per child. Nevertheless, a few individuals took longer, about 13 minutes and as a result, the number of days for data collections increased. Hence, the process was conducted within two weeks, during school periods. The tasks were conducted on the school premises to ensure that learners were not exposed to risks outside of their classrooms.

The researcher and the research assistant did not have enough time to take scores while conducting the research and this was only done afterwards. The other reason for this is that the nature of the research requires a lot of time for analysis before deciding whether the answer is completely correct or not as questions do not only require ‘yes’ or ‘no’ answers. Subsequently, recordings were listened to, transcribed, and subjected to a thorough analysis.

3.5.1.3 Coding

The study employed a quantitative design for data analysis. The type of coding used in Diemer (2016) was applied to this study in which two coding systems were used. The first one was for recording accuracy and the second for recording different types of errors. This is of utmost importance as there is no existing study on PA in the Rumanyo language. If the operation of a certain task is correct (performed at the correct linguistic unit), the participant scored 1, but if the operation was performed wrongly, the participant did not earn any score and was recorded as 0 scores.

3.5.1.4 Example of a Coding for PA measures

Responses performed wrongly were coded in the manner described below which is merely an illustration. For instance, some errors may show that the participant did the operation at the wrong unit instead of the specific unit required to be manipulated. For example, say a participant was asked to identify the second syllable in ‘furape’ and gave a response /fu/, the answer was coded as ‘in the wrong position’ (WP). The other error coded as OC1 indicates that a participant deleted one letter from trigraph consonant i.e deleting the initial phoneme in the word ‘nkokoti’ and instead of /nk/, the participant answered /n/, leaving out /k/. If a response

was coded S1 its meant the response that was given when a participant was asked to segment a word, for example, 'kucika' into syllables and s/he, gave /tu-ci-ka/ as an answer in the place of ku-ci-ka (the grapheme /k/ is replaced with /t/). The code S2 represented the substitution of two phonemes in a word such as 'firera' to be segmented into phonemes and the participant gave a wrong response /k/i/r/i/r/a/ instead of /f/i/r/e/r/a/. UR code means the participant gave a totally unrelated response, i.e. when asked to delete the middle syllable in 'limaku' then the response given was /po-te/. Another example from the phoneme deletion task, was when a participant was asked to delete the first phoneme from the word "kondi" and gave /o/nd/e/. This implies that the correct unit was performed, however, a wrong sound was replaced with the correct sound at the end (instead of /i/ there is an /e/). The data was examined in depth to elaborate on some of the aspects which could influence such responses.

Table 1: Coding of PA

PA LEVELS	**PA UNITS**	**WORDS**	**CORRECT ANSWERS**	**SCORES**	**WRONG ANSWER**	**SCORES**	**ERROR TYPE**
IDENTIFICATION	Syllable 2	Furape	'ra'	1	'fu'	0	WP
	Phoneme1	Nkokoti	'nk'	1	'n'	0	OC[1]
SEGMENTING	Syllable (whole word)	Kucika	'ku-ci-ka'	1	tu-ci-ka	0	S[1]
	Phoneme (whole word)	Firera	'/f/i/r/e/r/a/'	1	/k/i/r/i/r/a/	0	S[2]
DELETION	Syllable 3	Limaku	'li-ma'	1	po-te	0	UR
	Phoneme1	Kondi	'/o/nd/i/'	1	'/o/nd/e/'	0	IS

Source: adapted from Diemer, et al. (2015)

KEY

WP= Wrong Position

OC1= Omitted 1 consonant

S1= Substituted 1 sound

S2= Substituted 2 or more sounds

UR= Unrelated response (Response is not syllabic or phonetic – not related to the question)

IS= Incorrect sound (Sound produced in syllabic but wrong syllable)

3.6.1 ORF and Silent Reading Measures

The current study included both ORF and silent reading tasks in Rumanyo and English, which were combined to provide a composite score for reading fluency. The texts used were extracted from the grade 3 learners' books, prescribed by the Namibian Ministry of Education. The texts were cut short to fit the purpose of the study as these texts were mostly stories that are read in a continuation. Fluency and accuracy are both integral to the study. The learners' reading skills were examined to find scores for both fluency and accuracy. All the reading tasks were timed for one minute in order to obtain a correct words read per minute (wpm) score. Data evinces the question of the relationship between PA and reading. The words in the texts deliberately included letters with the same graphemes in Rumanyo/English but have different sounds to explore the influence of Rumanyo phonology on English reading tasks. For example, the grapheme 'c' in Rumanyo represents a click sound whereas in English the same grapheme represents the /k/ sound in 'cat'.

3.6.1.1 ORF Measure

Oral reading fluency allows children to extract more detailed information during the process of decoding (Bar-Kochva, 2013). Learners were asked to read selected age and grade-appropriate passages aloud for one minute in both Rumanyo and English. The study was only to assess fluency reading. As observed from research findings that demonstrate this, it is very difficult to measure prosody hence, assessments of ORF focused on speed and accuracy (Pretorius & Spaull, 2016).

Participants were required to read aloud as loud as they could to allow the recorder to pick up the voices of the readers. Participants were asked to start reading from the title of the story until the end with the goal of examining their words correct per minute (wpm).

The Rumanyo ORF text was derived from the book titled: "Ndjimanene". The story is about a hunter named Mancu. Mancu is a man who likes hunting. He lives with his wife Shigcanta together with their two children deep in the inland called Ncorosha. Their homestead is called

‘ntanda’ (loosely translated as a temporal home) and they sleep on their beds called ‘cegca’. Mancu usually wakes up very early in the morning, picks up his hunting equipment and goes off hunting. The text has 104 orthographic words with 11 sentences.

The English passage for the ORF is titled "Joy’s holiday". The story talks about Joy and his family travelling for a holiday. The family drove from the city to the village where Granny lives and where they eventually spend their holiday. However, the text was edited to fit the study by cutting off some of the paragraphs. The text consists of 110 orthographic words within 20 sentences.

In both of the stories, pictures were avoided to prevent learners from guessing the story. Learners were asked to read individually, one participant at a time. Although the tasks needed learners to read within 1 minute, participants were allowed to finish reading sometimes after the 1 minute had passed for further analysis. The researcher or assistant researcher recorded the last word a learner has read within 1 minute on the score sheet despite being allowed to continue reading until the end.

The recording was later listened to, and the score sheets were double-checked to reduce the chances of human error. Fluency was assessed by words correctly read per minute, by subtracting the incorrect words read from the total number of words read. Reading errors were recorded in this manner: WP for wrong pronunciation; SDA for syllables omitted or added; PDA for phoneme deleted or added and UR for the unrelated words being inserted and read but not on the passage.

3.6.1.2 Silent Reading Measure

Silent reading is regarded as the natural way of reading (Bar-Kochva, 2013). Of course, this definition ordinarily excludes novice readers. This task followed a similar procedure of measure with the ORF tasks for both languages. Participants were asked to read the text silently for one minute (one text in each language). During this task, learners were required to use their fingers to follow the progression of words while reading in order to minimise the risk of inaccuracies as well as to get an indication of the last word they had read within the one-minute time limit for recording on the score sheets. However, as was the case in ORF, participants were permitted to complete reading the text even after the time limit had elapsed.

The English silent reading text was about a boy who was a bully and the Rumanyo passage was based on the story about a lucky necklace made out of the traditional beads. The English story was extracted from the book titled: "English Second Language Reader 3". Similarly, the

Rumanyo story was taken from a book titled: "Rumanyo Rwanavantje: Mbapira yamurongwa". The books are prescribed by the Namibian Ministry of Education. However, the stories were edited to fit the purposes of the research, by condensing the content so that the passages are not too long. The Rumanyo passage consists of 103 orthographic words and 11 sentences. The English passage has 120 orthographic words, with 13 sentences.

3.6.1.3 Analysis of Reading Measures

Participants' performance scores on both ORF and silent reading (number of words read correctly per minute) were combined to produce an average of fluency scores. Spaull et al., (2020) on the study which examined reading involving three Southern Bantu languages: isiIsiZulu, Northern Sotho and Xitsonga, vigorously informed the analysis of reading fluency of the present study. For instance, Xitsonga is written both conjunctively and disjunctively similar to Rumanyo making it possible to compare children's reading performance to that of Xitsonga. The accuracy score was, however, only to be extracted from the ORF reading tasks and these were the scores of words read correctly while reading aloud.

3.7 Conclusion

The chapter provided an in-depth discussion of the methods used in the study that include PA measures: syllable awareness and phoneme awareness targeting sub-tasks such as segmenting of words, identifying sounds (initial, middle and final), and deleting parts of a word while retrieving the remaining sounds of a word. The other measure focused on reading fluency assessments: ORF and silent reading which were used to assess the reading proficiency of the learners in the study. The chapter is a central section of the thesis which explained the process of how data was collected and presented the steps taken for data analysis. The study used a quantitative design in an attempt to answer research questions 1 and 2, which was mainly performing descriptive statistics that generated statistics of central tendency: mean, SD, minimum and maximum and the relationship between PA skills and reading fluency was analysed using a correlation matrix and a linear regression was run for better comprehension of the relationship. Furthermore, a qualitative design was employed in an attempt to answer research question 3. The next chapter presents the results of the present study.

CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

This chapter is an outline of the descriptive statistics of tasks used in this study, it also will present the results for the correlation matrix and regression analysis. The descriptive statistics for the various variables for this study are reported. This includes the statistics of central tendency: mean (M), standard deviation (SD), and minimum and maximum scores of the participants. Performance on the different PA variables for both languages is examined first in response to the propositions of Research Question 1, i.e. "What are the levels of PA in emergent English/Rumanyo bilingual learners?" Performance on the reading variables (both oral and silent reading) are addressed next. A paired sample t-test was performed in assessing the difference in the means between syllable awareness and phoneme awareness in Rumanyo and English. The relationship between the PA and reading results are then analysed through a correlation matrix and further with a linear regression. This is in response to Research Question 2, which focuses on examining the relationship between PA and reading in the respective languages, i.e. a) "What is the relationship between PA and reading fluency in Rumanyo?" and b) What is the relationship between PA and reading fluency in English? It is important to explore this area in the languages of interest, especially in Rumanyo, where this relationship is unknown. Research Question 3 is explored in this chapter however; much details are discussed in chapter 5 as it requires theoretical interpretation. The total number of participants was 47, with 27 boys and 20 girls. The sample was taken from one of the Grade 3 classes using Rumanyo as a medium of instruction and English as a subject. The participants' ages range from 8 to 11 years old.

4.2 Data Analysis Procedures

The researcher performed statistical analyses on the PA data for both Rumanyo and English tasks using Jamovi. This included descriptive statistics that provided the information on the mean, standard deviation, minimum and maximum score of each task: syllable identification, syllable segmenting, syllable deletion, phoneme identification, phoneme segmenting and phoneme deletion. Descriptive statistics were also applied to the reading tasks: ORF and silent reading. For both PA and reading tasks, raw scores were used to carry out the statistical central tendency and other analyses.

Data was visualised to get a clear meaning of participants' performance, for example mean, SD, minimum and maximum. This was necessary for a better understanding of the performance

on various tasks of PA and reading. It also revealed important information including the most difficult task or the easiest tasks in PA i. e syllable identification or phoneme deletion. Hence the general order of the performance especially in PA was established from the data in which the assessment was conducted. This was needed to answer the first research question of PA levels of the emergent bilingual Rumanyo/English learners.

After generating the descriptive statistic, a paired samples t-test was performed in Rumanyo and in English to compare the means of the participants on PA tasks and assess whether the different performances between syllables and phonemes are statistically significant or not. A similar process was applied between ORF and silent reading means across the two languages. Moreover, a correlation matrix was performed to respond to the demands of the second research question on the relationship between PA and reading fluency. This was conducted to ultimately show the PA skills responsible for the development of literacy skills in Rumanyo and English. Although the outcome displayed several correlations between PA and reading variables, a linear regression was run to determine the PA variables that could predict reading fluency.

A qualitative analysis was important in answering research question three concerning the phonological aspects of Rumanyo which could affect English. Therefore, qualitative data in PA and reading fluency was analysed in depth within the explications of the two theories: The Linguistic Interdependence Theory which postulates literacy skills needed in the first language for reading acquisition automatically transfer to the second language or vice versa (Cummins, 1979) and The Linguistic Threshold Hypothesis which underlines that only literacy skills that are proficient enough in the first language may only benefit the development of literacy skills in an additional language (Cummins, 2000).

4.3 Levels of PA in Emergent English/Rumanyo Bilingual Learners

Table 2 presents the descriptive statistics for learners' performance on the Rumanyo and English PA tasks and the reading fluency tasks.

Table 2: Descriptive Results

	N = 47			
Variables	**MEAN**	**SD**	**MIN**	**MAX**
Rumanyo syllable identification (/10)	8.30	1.69	3.00	10.00
Rumanyo syllable segmenting (/10)	8.02	1.82	3.00	10.00
Rumanyo syllable deletion (/10)	4.04	2.53	0.00	10.00
Average for Rumanyo syllable awareness	**6.79**	**1.56**	**3.67**	**9.67**
Rumanyo phoneme identification (/10)	4.23	1.98	0.00	9.00
Rumanyo phoneme segmenting (/10)	4.09	2.64	0.00	9.00
Rumanyo phoneme deletion (/10)	3.83	3.16	0.00	10.00
Average for Rumanyo phoneme awareness	**4.05**	**2.23**	**0.00**	**8.00**
Average for Rumanyo PA	**5.42**	**1.73**	**2.00**	**8.50**
English syllable identification (/10)	8.09	2.53	1.00	10.00
English syllable segmenting (/10)	6.28	2.76	0.00	10.00
English Syllable deletion (/10)	8.09	2.06	0.00	10.00
Average for English syllable awareness	**7.48**	**1.78**	**3.00**	**10.00**
English phoneme identification (/10)	5.85	2.50	1.00	10.00
English phoneme segmenting (/10)	3.49	2.77	0.00	9.00
English phoneme deletion (/10)	5.28	3.05	0.00	10.00
Average for English phoneme awareness	**4.87**	**2.28**	**0.67**	**9.00**
Average for English PA	**6.18**	**1.80**	**1.83**	**9.00**
Rumanyo ORF (wpm)	16.10	10.20	0.00	33.00
Rumanyo silent reading fluency (wpm)	25.70	17.50	0.00	56.00
English ORF (wpm)	54.40	32.90	0.00	110.00
English silent reading fluency (wpm)	59.70	29.00	0.00	120.00

4.3.1 PA for Rumanyo and English

Rumanyo PA tasks are demonstrated in Table 2 above and the actual scores are used, as each task forms part of the main measure which is PA. All tasks targeted syllable awareness and phoneme awareness. Table 2 shows the difference between syllable awareness *(M = 20.40, SD = 4.68)* and phoneme awareness *(M = 32.50, SD =10.40)* performance. The performance on identification *(M =8 .30, SD = 1.69)* and segmenting *(M = 8.02, SD = 1.82)*, for both syllables and phonemes are quite similar. The performance on syllable deletion *(M = 4.04, SD = 2.53)* is relatively low compared to other units and this is quite different from the performance on phoneme awareness *(M = 3.83, SD = 3.16)*.

Performance on the English PA tasks is also presented in Table 2 above. The performance of participants on identification, segmenting, and deletion focusing on syllable and phoneme awareness is reported. In this study, the highest score is observed on syllable identification with *(M = 8.09, SD = 2.53)*, with a minimum of 1 out of 10, with a maximum of 10 out of 10. Syllable segmenting shows the lowest score *(M = 6.28, SD = 2.76)*, with 0 as minimum and as 10 maximum scores. To assess whether this difference in performance was statistically significant, a paired samples t-test was run. The samples indicated that the difference between syllable awareness and phoneme awareness in Rumanyo is statistically significant t = 11.02; df = 46, $p < .001$, 95%, CI = [1.169; 2.0389] and the size effect was 1.608. Similarly, the difference in performance for syllable awareness and phoneme awareness for English is statistically significant t =9.34; df = 46, p <.001, 95%, CI = [0.96; 1.7575] with an effect size of 1.363. The result also provides the statistical difference between ORF wpm and silent reading wpm in Rumanyo, which proved to be statistically significant t = -6; df = 46, p < .001. 95%, CI = [-1.209; -0.5352], with an effect size of -0.876. On the contrary, the English ORF wpm and silent reading wpm is statistically not significant t = -1.87; df = 46, p < .0.068, 95%, CI = [-0.562; 0.0202] with an effect size of -0.272.

On phoneme awareness, learners scored higher on identification *(M = 5.85, SD = 2.50)* and lower on segmenting *(M = 3.49, SD = 2.77)*. It is also noticeable that the learners' performance on identification and deletion on both syllables and phonemes is quite similar. Segmenting proved to be the most challenging task for both syllables and phoneme awareness.

Table 2 also presents the statistical central tendency of reading fluency for both Rumanyo and English. The performance on both Rumanyo and English silent reading wpm is higher than ORF wpm. In Rumanyo ORF wpm, the learners performed at *(M = 16.10, SD = 10.20)* and *(M = 25.70, SD = 17.50)* on silent reading wpm, whereas in English, the learners' work on ORF wpm shows *(M = 54.40, SD = 32.90)*, while on silent reading wpm, children's scored at an average of *(M = 59.70, SD = 29.00).*

Figure 2: Histograms and box plots of Rumanyo Syllable Average, Phoneme Average and PA Average

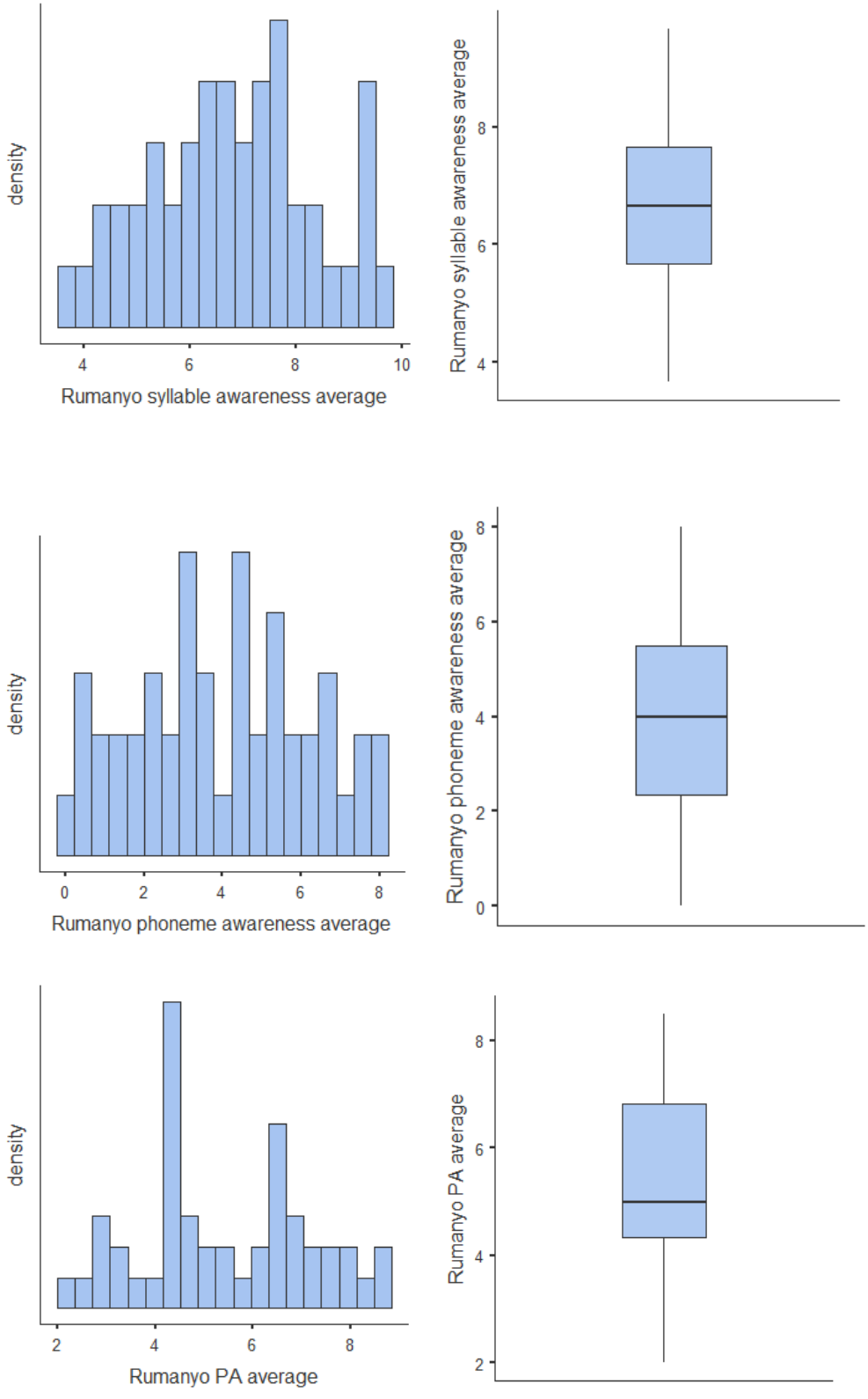


Figure 3: Histograms and box plots of English Syllable Average, Phoneme Average and PA Average

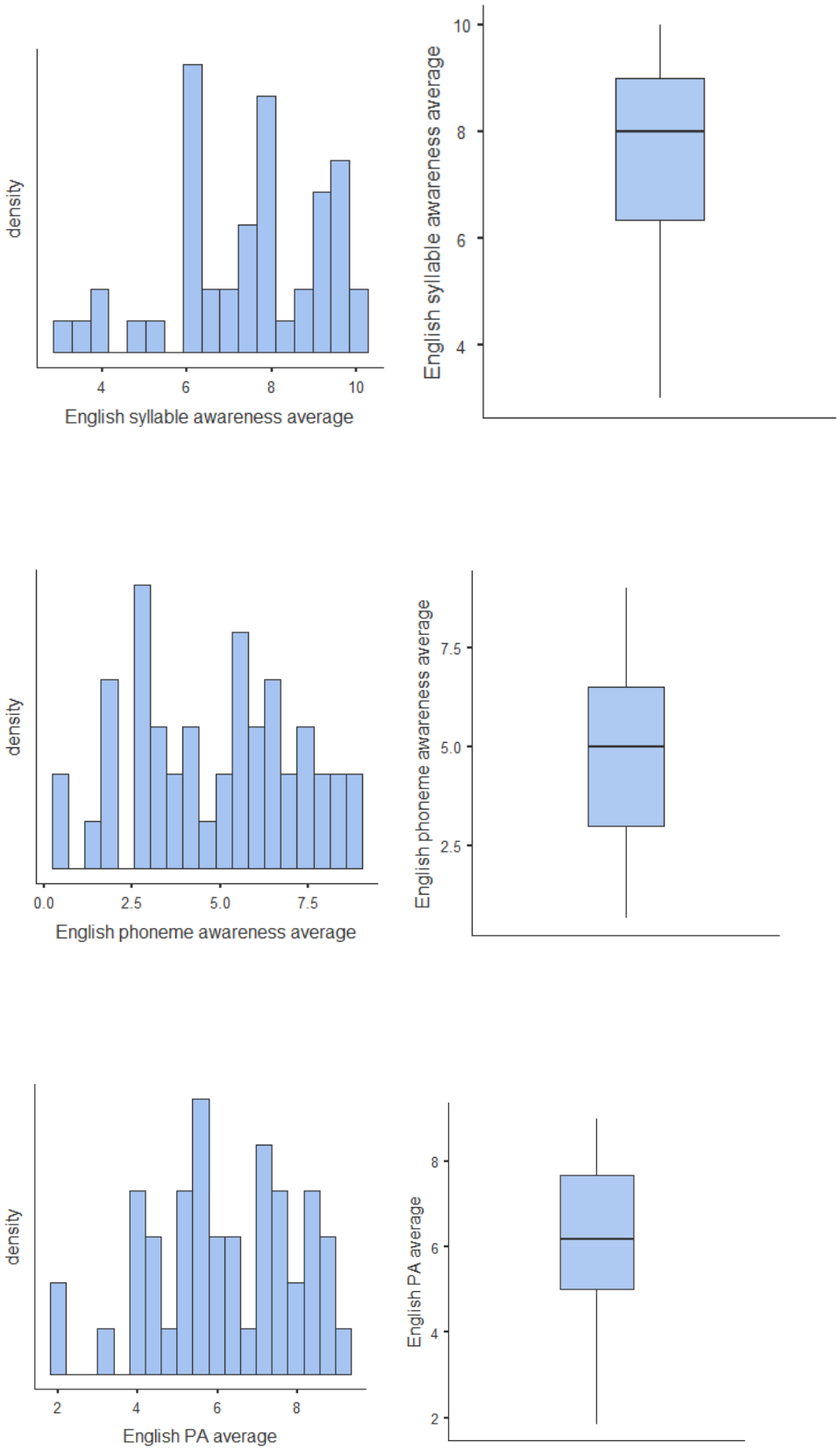


Figure 4: Histograms and box plots of Rumanyo ORF (wpm) and Rumanyo Silent Reading (wpm)

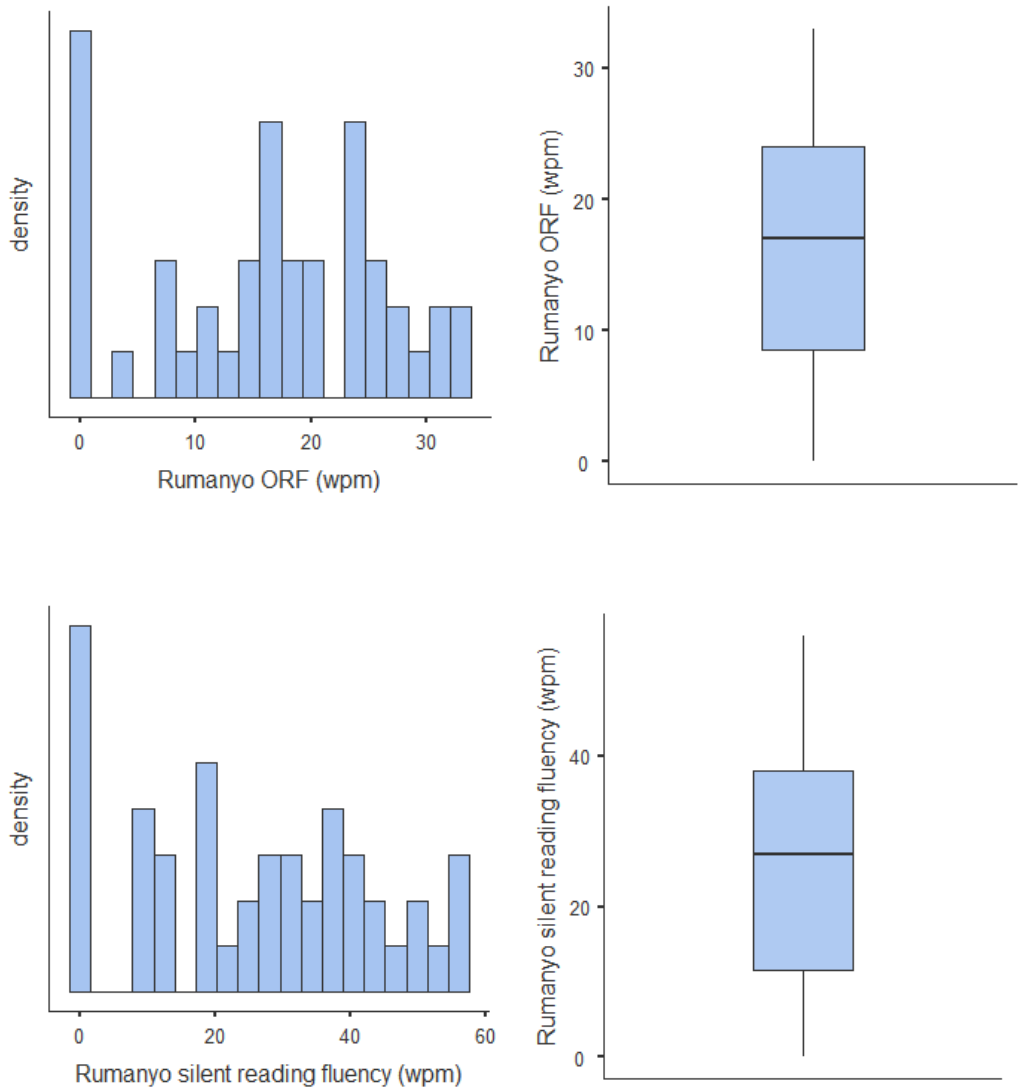
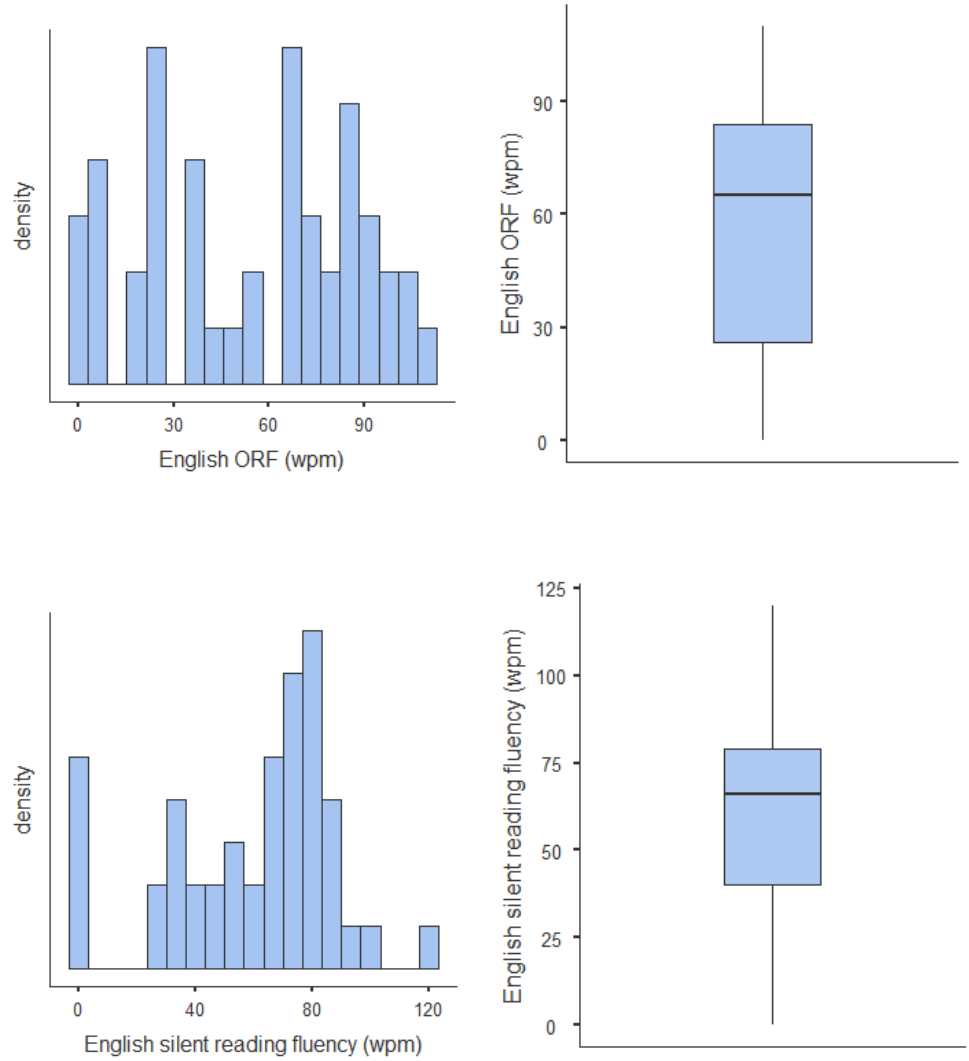


Figure 5: Histograms and box plots of English ORF (wpm) and English Silent Reading (wpm)



4.4 Correlations

Table 3 below displays the Rumanyo correlations with different variables of interest in the study. Most PA variables show a correlation with reading variables and among these variables, syllable segmenting, average of syllable awareness, phoneme segmenting and average of phoneme awareness show a strong positive relationship with both ORF and SR for example, Syllable deletion manifests a strong positive correlation with the average of syllable awareness ($r = .867$; $p < .001$) and the same applies to phoneme deletion, which is highly correlating with the average of phoneme awareness ($r = .906$; $p < .001$). Whilst, syllable identification, syllable deletion and phoneme identification demonstrate, although it correlates with the reading

variables, it is not a strong, positive correlation. For example, syllable identification correlation is ORF wpm ($r = .365$; $p < .05$) and SR wpm ($r = .428$; $p < .01$) and phoneme identification ORF wpm ($r =. 289$; $p < .05$) and SR wpm ($r = .271$). SR wpm correlates with almost all other variables except for phoneme identification, whilst, ORF wpm correlates with all other variables although few show weak correlation.

Table 4 illustrates the English correlations with different variables. The table shows most of the PA variables do not seem to correlate with ORF wpm except for syllable deletion, an average of syllable awareness, phoneme deletion and an average of phoneme awareness but even though this is a weak relationship. For example, syllable deletion ($r = .322$; $p < .05$), and the average of phoneme awareness ($r = .355$; $p < .05$). SR wpm does not correlate with any PA variables, it only correlates with ORF wpm ($r=.807$; $p<.001$). These correlations will further be interpreted in the next chapter for clear analysis.

Table 3: Rumanyo Correlations

	1		2		3		4		5		6		7		8		9		10
1. Syllable identification	—																		
2. Syllable segmenting	0.258		—																
3. Syllable deletion	0.475	***	0.401	**	—														
4. Syllable awareness	0.718	***	0.699	***	0.867	***	—												
5. Phoneme identification	0.232		0.545	***	0.418	**	0.518	***	—										
6. Phoneme segmenting	0.169		0.495	***	0.484	***	0.515	***	0.532	***	—								
7. Phoneme deletion	0.229		0.543	***	0.602	***	0.619	***	0.568	***	0.672	***	—						
8. Phoneme awareness	0.243		0.612	***	0.598	***	0.649	***	0.774	***	0.869	***	0.906	***	—				
9. ORF wpm	0.365	*	0.550	***	0.377	**	0.559	***	0.289	*	0.493	***	0.439	**	0.488	***	—		
10. SR wpm	0.428	**	0.467	***	0.459	**	0.585	***	0.271		0.514	***	0.507	***	0.522	***	0.814	***	—

Note. * p < .05, ** p < .01, *** p < .001

Table 4: English Correlations

	1		2		3		4		5		6		7		8		9		10
1. Syllable identification	—																		
2. Syllable segmenting	0.334	*	—																
3. Syllable deletion	0.161		0.336	*	—														
4. Syllable awareness	0.709	***	0.806	***	0.638	***	—												
5. Phoneme identification	0.27		0.239		0.403	**	0.408	**	—										
6. Phoneme segmenting	0.402	**	0.393	**	0.385	**	0.543	***	0.658	***	—								
7. Phoneme deletion	0.403	**	0.281		0.342	*	0.469	***	0.513	***	0.391	**	—						
8. Phoneme awareness	0.441	**	0.372	*	0.456	**	0.578	***	0.861	***	0.820	***	0.792	***	—				
9. ORF wpm	0.099		0.254		0.324	*	0.303	*	0.178		0.231		0.441	**	0.355	*	—		
10. SR wpm	0.056		0.074		0.118		0.111		-0.016		0.039		0.230		0.113		0.807	***	—

Note. * p < .05, ** p < .01, *** p < .001

4.4.1 Linear Regression

The linear regression for both Rumanyo and English are presented below in Table 5 and Table 6 respectively. This was conducted for further analysis after the Correlation Matrix in order to ensure that the contribution of the correlated skills is examined.

Table 5: Rumanyo ORF Regression

				95% Confidence Interval			
Predictor	**Estimate**	**SE**	**B**	**Lower**	**Upper**	**T**	**P**
Intercept	-5.836	5.817				-1	0.321
Syllable awareness	0.876	0.351	0.404	0.0778	0.73	2.5	0.016
Phoneme awareness	0.341	0.245	0.225	-0.1011	0.552	1.39	0.171

The Correlation Matrix, although providing the statistical relationship of the variables, does not show the causal effects of variables. As such, the linear regression was conducted with the goal of exploring the predictive association between PA and reading fluency. Table 5 presents Rumanyo PA and ORF regression. The outcome for syllable awareness with ORF wpm indicates an SE (standard error) = 0.876; β (Stand. Estimate estimates) = 0.404; $p < .016$. Phoneme awareness did not predict reading fluency ($p= 0.171$). Although syllable awareness predicted reading fluency, the overall model fit $p < .334$ was not significant. Thus only Syllable Awareness was statistically significant in predicting ORF. The model coefficient (Standardized Estimate) manifests syllable awareness accounts for about 40 percent of ORF, whereas phonemes, though not significant, contributed about 23 percent.

Table 6: Rumanyo Silent Reading Regression

				95% Confidence Interval			
Predictor	Estimate	SE	B	Lower	Upper	T	P
Intercept	-14.347	9.675				-1.48	0.145
Syllable awareness	1.584	0.584	0.424	0.1091	0.74	2.71	0.009
Phoneme awareness	0.644	0.408	0.247	-0.0685	0.562	1.58	0.122

Table 6 provides illustrations for Rumanyo Silent Reading. The model fit was not significant $p > .377$, the $F = 13.3$. Although the model fit shows it as not significant, syllable awareness was significant with SE (standard error) = .584; β (Stand. Estimate estimates) = .424; $p < .009$. Syllable awareness predicted reading more than phoneme awareness. The model coefficient (Standardised Estimate) indicates that syllable awareness accounts for approximately 42

percent of silent reading fluency, whereas phoneme awareness accounts for about 24 percent of silent reading fluency.

Table 7: English ORF Regression

Predictor	Estimate	SE	B	95% Confidence Interval Lower	Upper	T	P
Intercept	14.997	19.988				0.75	0.457
Syllable awareness	0.908	1.058	0.147	-0.1982	0.492	0.858	0.396
Phoneme awareness	1.302	0.825	0.27	-0.075	0.615	1.578	0.122

Results on Table 7 provide the English ORF linear regression, where the model fit is significant p >.14 and the adjusted R^2 accounts for about 1 percent of the variance. The F = 3.60. Although the model fit was significant, neither syllables nor phonemes predicted ORF wpm as it indicates that syllable awareness SE (standard error) = 1.058; β (Stand. Estimate) = .147; p >.396, and phonemes awareness SE (standard error) =.825; β (Stand. Estimate) = .270; p >.122.

Table 8: English Silent Reading Regression

Predictor	Estimate	SE	B	95% Confidence Interval Lower	Upper	T	P
Intercept	46.818	18.83				2.486	0.017
Syllable awareness	0.374	0.997	0.0688	-0.301	0.438	0.375	0.709
Phoneme awareness	0.309	0.777	0.073	-0.296	0.442	0.398	0.692

The result on Table 8 displays interesting findings. Although the model fit p > .0159, neither syllables awareness nor phoneme predicted ORF wpm as it indicates syllable awareness SE (standard error) = .997; β (Stand. Estimate) = .0688; p >.709, and phonemes awareness SE (standard error) =.309; β (Stand. Estimate) = .0730; p >.692; F = .355. The R^2 explains -0 percent of variance.

4.4.2 Qualitative Data: The Transfer of Rumanyo Phonology to English

The qualitative data on the transfer of Rumanyo phonology to English is outlined below on Table 9 and Table 10. This is an illustration of learners' performance on syllable segmenting and reading.

Results on Table 9 provide evidence from the data which demonstrate how some individual learners transferred Rumanyo phonology when syllable segmenting in English was the target.

Table 9: Syllable Segmenting Transfer

Stimuli for English pseudo words	**Children's answers**	**Correct answers**
1. Yobysag	Yo-by-sa, yo-by-se, yo-by-se-gi	Yoby-sag
2. Cunsenlep	Cun-nse-le, ca-se-le	Cun-sen-lep
3. Shonster	Sho-si-ta	Shon-ster
4. Dapfezzle	Da-fe-zel	Dap-fez-zel
5. Wempingly	We-mpy-ly	Wem-pi-ngly
6. Sabren	Sa-bu-re-ni	Sab-ren
7. Pobbletud	Po-bel-ta-dy	Pob-bel-tud
8. Ungraked	Un-gre	Un-graked

Table 9 shows qualitative data from the reading texts. This display is drawn from a few learners that read English words using Rumanyo phonology and vice versa.

Table 10: Qualitative Data for Reading

English words from the reading texts	English words read with Rumanyo phonology	Rumanyo words from the reading text	Rumanyo words read with English phonology
1. likes /laɪks/	likes/liːkəs/	Ncorosha /n|ɔrəʃa/	Corosha /kəˈrəʃa/
2. fine /faɪn/	fine /fiːnɛ/	Mancu /man|u/	manchu /ˈmæntʃuː/
3. village 4. /ˈvɪlɪdʒ/	village /βiːlagɛ/	mucu /mu|u/	Muku /muːkuː/
5. bring /brɪŋ/	bringi /biriːŋg/	ko /kɔ/	Ku /kəˈ/
6. to /tə/	to /tɔ/	shicu /ʃi|u/	Shinku /ʃiːkuː/
7. she /ʃiː/	she /ʃɛ/	mo /mɔ/	Mu /muː/
8. fast /fɑːst/	fasiti /fasɪtiː/	Shigcanta /ʃig|anta/	Shikwanta /ʃiːˈkwɒntə/
9. lives /laɪvz/	lives /liβɛs/	Nchunu /n|hunu/	Ntjunu /ntʃuːnuː/
10. also /ˈɔːlsəʊ/	also /alsɔ/	Cegca /|ɛg|a/	Cega /kɪgə(r)/
11. are /ə(r)/	are /arɛ/		
12. hurry /ˈhʌri/	hurry /huriː/		

Table 9 is an illustration of the syllable segmenting transfer from Rumanyo to English. This shows the answers few learners provided reflecting some carry over of Rumanyo phonology to English. For example, during the manipulations of PA, specifically syllable segmenting, the English pseudo word ‘yobysag’ became ‘yo-by-sa’; ‘yo-by-se’; or ‘yo-by-se-gi’ instead of ‘yoby-sag’ and when asked to segment the word ‘cunsenlep’, the learners answered ‘ca-se-le’ instead of ‘cun-sen-lep’.

Table 10 displays qualitative data for reading where most of the learners used the English conversion to read Rumanyo text, for instance, the Rumanyo word ‘Mancu’ was read as

/man|u/, replacing the click sound whilst few learners read English words using the phonology of Rumanyo. For example, the English word ‘likes’ /laɪks/ was read as /liːkəs/.

4.5 Conclusion

The major conclusion that can be drawn from the findings is that performance was observed to be better on syllable awareness compared to phoneme awareness for both English and Rumanyo. PA results in this study seem to be developing across the two languages, suggesting that most of the children in the sample have not yet fully acquired the skills. This explains the low performances, especially on phoneme awareness. Reading assessment results demonstrate substantially low scores, and what is more striking is that this low performance is particularly displayed in the first language. It was assumed that the children had adequate proficiency levels at least in the language of instruction, especially considering the years of schooling with the benefit of a transparent orthography of the language. However, performance on English reading fluency demonstrated a better result. Qualitative data is included in the chapter to help answer the question of transfer. The result reveals learners applied English phonology into Rumanyo reading text and vice versa. The next chapter provides discussion on findings of the study.

CHAPTER 5: DISCUSSION

5. 1 Introduction

This chapter discusses the findings presented in the previous chapter of this study which seek to answer the research questions that informed the study as established in Chapter 1. The first section of the chapter is a discussion of the levels of PA for English/Rumanyo Grade 3 learners. This section reveals how sensitive learners are on both syllable awareness and phoneme awareness. This is analysed based on the learners' performance on different tasks of PA. This section is extended on the relationship between PA and reading fluency which is of utmost importance to this research as it provides knowledge adding to the literature in the existing body of research. It concludes with an analysis of the cross-linguistic transfer, most particularly on the possible transfer of PA from the first language to the second language.

5.2 Research Question 1: Levels of PA in Emergent English/Rumanyo Bilingual Learners

The current study is mainly concerned with the levels of PA of emergent English/Rumanyo learners. Learners were assessed in both Rumanyo and English, where syllables and phonemes were the targeted units and the generic result demonstrates learners' sensitivity on syllables awareness is higher compared to phoneme awareness. This finding is registered across the languages. Learners' performances differed depending on the language and the task measured, for example, on syllable awareness, learners had higher awareness on identification across the two languages of interest, however, segmenting and deletion do not show a similar pattern of performance.

5.2.1 Rumanyo Level of PA

The learners in the sample of the current study scored significantly better at syllable awareness tasks in comparison to phoneme awareness in Rumanyo. This is in line with the observation that "… dividing words into syllables, identifying and generating rhymes and matching words with the same beginning sound, are considered simple phonological awareness tasks indicative of shallow-level knowledge" (Schuele & Boudreau, 2008, p.6). The difference between the two linguistic units: Syllable awareness and phoneme awareness is well defined in the literature (Alcock et al., 2010; Diemer et al., 2015; Makaure, 2017; Probert, 2019; Wilsenach, 2013). The findings of the current study confirm a greater sensitivity towards syllables, some other African indigenous languages, especially Bantu languages, have PSSRs – mostly of the CV structure – and this positively implies that the speakers of these languages often have high sensitivity towards syllable awareness (Alcock et al., 2010). Probert (2019), in the study

comparing syllables and morphemes as processing units to aid word recognition in isiXhosa and Setswana third graders, results indicate syllables appered to be the dominant literacy unit during decoding. This explains, the learners of isiXhosa/Setswana had syllables as accessable grain size for reading. Diemer et al., (2015) present similar findings that learners performed better at syllable awareness and it is noted that this is an influence of the language-specific structures of isiXhosa. Findings on Northern Sotho learners concurrently show high scores on syllable awareness (Wilsenach, 2019).

The phoneme awareness performance is respectively low as learners scored lower points in comparison to the syllable awareness variable. The result confirms the findings of established literature i.e. that phoneme knowledge is acquired much later after children have already attained the larger units of speech sounds, such as syllables (Anthony & Francis, 2005; Wilsenach, 2019). This is because manipulating phonemes requires a somewhat high level of linguistic cognition and children need to not only identify, segment or delete chunks of a word but rather manipulate the smallest units of the word. It is for this reason that children are required to be equipped with skills concerning letter-to-sound correspondence knowledge which is known to influence the sensitivity of phoneme awareness (Wilsenach, 2019).

The high performance in syllable awareness is compatible with findings for isiXhosa Grade 3 learners whose examination reveals that syllable tasks had high scores compared to phoneme tasks (Diemer, 2016). The result provides support to the existing predictable sequence underlying the development of PA skills i.e. that larger units are acquired first before the smaller ones and that this sequence is universal despite the rate of proficiency achieved in different languages (Anthony & Francis, 2005).

Despite that, some learners could not differentiate the various linguistic units targeted during the administration of the tasks. Alcock et al., (2010), report of Kiswahili children with no formal education who manifested good syllable awareness skills. In contrast, in the present study, even after receiving formal schooling for at least three years, few individuals still evince a low level of this skill to the extent of failing to produce even a score. The findings of the study point toward a larger unit being more easily accessible and syllable awareness proves to be the most accessible grain size in Rumanyo (Ziegler & Goswami, 2005).

The linguistic tasks involved in the study: identification, segmenting, and deletion show different scores which reflect different levels of the linguistic cognitive complexity of tasks (Yopp, 1988). For example, syllable identification has the overall highest scores, syllable

segmenting displays the middle score and syllable deletion reveals the lowest score. These findings of PA provide insights into the order of the task performance. The high sensitivity of learners towards identification suggests that there is not much manipulation going on, but rather that it is more of identifying sounds which is similar to letter-sound knowledge. Learners also performed better when manipulating words through segmenting. The learners' sensitivity towards segmenting could be due to the exposure to the teaching strategy of combining consonants and vowels. It could also suggest that this is because of the linguistic structure of Rumanyo which is characterised by open syllables which are mainly of the CVCV structure, with well-marked syllable borders (Alcock et al., 2010). This trend is almost similar to that observed for isiXhosa, however, instead of identification, segmenting was found to be the easiest on syllable awareness among grade 3 learners (Diemer, 2016). This could be interpreted to indicate that the developmental abilities of PA performances are not consistent in every language as this tends to be affected by the phonology of the targeted language – hence, the salience of phonological units varies (Chen et al., 2010).

The deletion task appears to be the more complex of the subtasks as learners performed the lowest on this task. It would appear that the learners' performance was affected by the length of the words as well as the time required for the retention of other parts of the words before retrieving and blending it and this could have had an effect on the outcome. Diemer (2016) observes similar difficulty, i.e. that during the administration of syllable deletion, it seems that the length of the words affected the learners' retention memory. In the current study, one of the respondents deleted the second syllable of the word instead of the initial syllable. One practical example was when asked to say the pseudoword 'nkururambo', without 'nku'. The most given answer was 'nkurambo' instead of 'rurambo'. The kind of confusion observed was that whilst it was the first syllable of a word that was supposed to be deleted, the children would delete either the second or the last syllable of the word, which of course was not the targeted unit and thus ended up giving wrong answers. For example, when asked to delete the initial syllable from the word 'mughunyenda', where the actual target answer is 'ghunyenda', the most common response given was 'munyenda'.

Furthermore, the low performance on deletion tasks could be analysed as resulting from the fact that the children in the study sample have not yet acquired this kind of skill, and as much manipulation is required for the skill, this placed many constraints on the children's working memory. The trend demonstrates a similarity with literature that identification is easier to

manipulate, followed by segmenting and deletion as the most sophisticated skill (Adams, 1990).

Furthermore, the order of performance on phoneme awareness from the highest to the lowest was: identification, segmenting and deletion. Such patterns are observed to be similar to those observed in analyses of South African languages (Diemer, 2016). In the current study, identification had the highest scores followed closely by segmenting, with deletion having the lowest score. Diemer (2016) in her study, reports that segmenting phonemes has historically been observed to be the most challenging task. During the administration of the identification task, detecting initial and final phonemes seemed much easier than detecting the middle one. Moreover, the children retrieved the initial phonemes with much accuracy in comparison with the final phonemes. However, recalling the middle phoneme seemed to be challenging to learners and the result aligns with the findings of Northern Sotho third graders (Wilsenach, 2019).

These children have not yet gained the ability to manipulate words at the phoneme level. One common error observed was that of orthographic influence, as learners tended to say out letter names (graphemes), instead of sounding them out (phonemes), during the phoneme segmenting task. When phoneme deletion was the target, children applied syllable deletion instead of deleting a phoneme. For example, when asked to say ‘puri’ without ‘p’, an example of an answer given was ‘ri’. This finding is similar to that observed in Setswana/English Grade 2 bilingual children who exhibited similar problems during phoneme deletion tasks (Lekgoko & Winskel, 2008). The hypothesis that is based on PGST argues that deleting an initial phoneme is easier in languages with a shallow orthography. The result of the study does not confirm the hypothesis, as most children confused phoneme deletion with syllable deletion.

The PA linguistic complexity errors displayed during the phoneme awareness administration across the three units (identification, segmenting and deletion) were almost equally the same errors observed during the manipulations of syllables. The errors made in the three units (identification, segmenting and deletion) have been observed in Northern Sotho learners too, which was described as somehow a working memory constraint (Wilsenach, 2019).

The present findings demonstrate that the sample of the study is yet to be proficient in phoneme awareness. The low performance on phonemes implies that the children have little exposure to the skill. The other reason could be that the children have not fully developed the skills needed for the development of phonemes - and this is not validated by existing literature which

suggests that this skill is acquired at a later stage of literacy acquisition, especially when learners have been exposed to print during the three years of formal schooling (Edwards et. al., 2016). The fact that children in this sample struggled to manipulate phonemes in the first language, demonstrates somewhat a slow pace development of this skill.

With regards to Research Question 1, which is concerned with the levels of PA of emergent English/Rumanyo bilingual learners, learners' level of syllable awareness in Rumanyo is higher than phoneme awareness, and this finding is validated by the evince on learners' performances at an average of less than 50 percent, on the other hand, the syllable awareness illustrates learners' scores at an average of 67 percent which is more than a 50%. This suggests that the readily available grain size in this sample is the syllable. However, higher scores on syllable awareness in Rumanyo can be analysed as being due to the linguistic structure of the language which has simple open syllable characteristics of words following the CVCV or VCV order.

5.2.2 English Levels of PA

The performance on the English PA tasks reveal a similar trend to that of Rumanyo PA as learners performed higher on syllable awareness to phoneme awareness. These findings are similar to that of the existing literature (Goswami, 2010). The results suggest that learners are more sensitive toward the manipulation of words at the syllable level rather than at a phoneme level. This concurs with the body of knowledge in the field which documented that children learn to break down chunks of sounds first before learning to manipulate smaller sounds (Anthony & Francis, 2005). The fact that the English results are similar to that of the Rumanyo PA could perhaps explain that similar teaching strategies for literacy are being used across the two languages. However, the literature demonstrates that the developmental route with regard to PA acquisition is somehow predictable regardless of the language targeted (Yopp, 1988). Concerning literacy acquisition in bilingual learners, the underlying PA skills in the first language are the same skills that facilitate a similar process in the second language (Shin et al., 2015).

English speakers' hierarchy of PA development is shown from a word, syllables, and onset rimes, to phonemes (Goswami, 2010). Although learners in the current study differ from English monolinguals, the findings of the present study do not show much of a difference from the English speakers' hierarchical manner. Learners of this sample show higher scores in syllable awareness (i.e., more than a 50% average). This explains that learners are sensitive towards manipulating the syllables in English. Findings on phoneme awareness manifest lower

results in comparison to syllable awareness. This is a result of learners exhibiting a low sensitivity towards the manipulations of single sounds of a word. The finding is in consonant with the existing literature that phonemes are the most difficult to manipulate (Anthony & Francis, 2005). The complexity of phoneme awareness has been registered in many PA studies (Duncan et al., 2013; Mclachlan & Arrow, 2010; Wilsenach, 2019). Manipulating phonemes requires learners to have the knowledge print to help in identifying single sounds in words. Numerous European studies with a focus on PA reported low phoneme awareness (Schmitz, 2011). One of the remarkable explanations for the low sensitivity toward phoneme awareness is the fact that speech sounds produced in languages do not reveal typical individual sounds (Schmitz, 2011). The nature of phonemes poses difficulty for children, as they are not easily accessible.

Duncan et al., (2013) in a study that explored the phonological development in six languages using the alphabetic script; Greek, Portuguese, Spanish, French, Icelandic and English, found syllable awareness to be most accurate in Spanish and French. English children, on the other hand, demonstrated the lowest accuracy. This result challenged the previous findings on syllables being accessible in English monolingual children even at early stages such as the pre-primary phase. For learners in the current study, the levels of PA on syllable awareness demonstrate a high level of sensitivity towards the tasks.

The result reveals learners' performance on syllable awareness tasks in this order - (from the easiest to the most difficult): identification, deletion and segmenting. The pre-assumption was; that learners would perform better at syllable segmenting than on deletion. This is because, at deletion, learners are expected to delete one syllable, while retaining the rest of the syllables in the memory before providing the response, whereas during segmenting, the task only requires isolating syllables. This explains the linguistic characteristics of English syllables that do not have well-marked boundaries, hence, learners found it difficult to segment the words. Gottardo et al., (2016) submit, English orthography has complex features of syllable onsets and the syllable boundaries that are unclear. The order of the learners' performance on phoneme awareness appears similar to the syllable awareness. While the low scores on syllable segmenting are linked to the unclear syllable boundaries, it was observed that children's performance was affected by the letter knowledge. For example, instead of saying the phonemes when segmenting, letter names were mentioned.

Learners' performances on PA tasks were influenced by the linguistic unit targeted, the length of a word being administered and the type of task. When syllable awareness was the focus in English, identification was the easiest and segmenting proved to be the most difficult task. The same trend manifested in phoneme awareness. However, this is in contrast with the existing literature that established complexity order (from the easiest to the complex one) i.e identification, segmenting, and deletion (Schuele & Boudreau, 2008). This indicates that the children in the sample have different developmental abilities of PA.

The task complexity demonstrated in the current study indicates that the identification of initial syllables was performed better in comparison to identifying the final syllable. However, the middle syllable proved by far the most difficult task. Despite the final syllable performance being in the second position, a few individuals distorted the manipulation as vowels were inserted at the last sound affecting the last syllable. For example, when asked to identify the last syllable in the pseudo word 'yobysag', some of the respondents' answered 'sagi', instead of 'sag'. This was most likely due to the influence of their L1 which ordinarily is a CV syllable structure rule observing language with no closed syllables.

During phoneme awareness administration, children only performed better when asked to identify the initial sound of the word beginning with a single consonant, while identifying a sound on words with clustered consonants was not easy. The literature registered the initial phonemes as the easiest unit of speech in that it corresponds to the start segment of the onset-rime boundary of a syllable. On the other hand, segmenting a final phoneme is more complicated because it is an integral part of the rime unit of a syllable and needs to be identified by segmenting the syllable into individual phonemes. The finding supports the argument that detecting initial sounds is better than performing the other units, but the result of the current study is not enough to be considered a better performance.

Moreover, at phoneme deletion, children made errors such as when asked to say the last phoneme of the word 'besh', instead of answering 'sh', a number of them answered by repeating the whole word. Evidence from the data reveals that although children seem to do better at syllables, some individuals were affected by mother tongue interference. For instance, when asked to segment a non-word 'yobysag', the answer was 'yo-by-sa/yo-by-se-gi and for the word 'subren', the sometimes given answer was 'su-bu-re-ni'. This means that children were inserting vowels to break consonant clusters which is in line with the PSSRs in Rumanyo language. This was mostly the case with children with little exposure to English, more

specifically the ones who did not attend kindergarten or attend the ones where the medium of instruction is the first language. Furthermore, the children's level of PA in English is similar to that of Rumanyo as the result indicates the PA skills that are not yet mastered. However, the level of syllable awareness is much better compared to phoneme awareness.

Findings of the study on English PA level indicate better manipulations on syllable awareness and a low sensitivity towards phoneme awareness. The uncertainty to this is that even though children of the present study show some similarities in terms of PA acquisition route, the phoneme awareness is substantively low. This explains why these children have difficulties manipulating phonemes.

5.3 Reading Fluency

The second aim of the study is to examine the relationship between PA and reading fluency across the two languages. Therefore, the result on reading variables was necessary to determine the learners' performance on reading before it was later used to find the relationship between PA and reading. Findings present somewhat a low reading fluency in Rumanyo and a better fluency in English.

5.3.1 Rumanyo Reading Fluency

In testing for reading fluency, learners were presented with a text consisting of 104 orthographic words on ORF and 103 on silent reading fluency. ORF was measured using wpm as stipulated in the methods chapter. However, only wpm is considered the fluency score, as it accounts for errors (Diemer et al., 2015; Spaull et al. 2020). This means that scores for wpm are based on the words read within one minute after subtracting words read incorrectly. Learners' performance demonstrates a low reading fluency in both ORF and silent reading fluency as the scores are below the 50 percent average. This finding indicates learners have not yet achieved literacy proficiency in reading and what is more interesting is this happened in L1 which has a transparent orthography. The children scored a minimum of 0 and a maximum of 33 wpm, with a mean of 16. 10 wpm on the ORF task, and a minimum of 0 and a maximum of 56 wpm with a mean of 25. 70 wpm on silent reading.

The result of the study differs from the existing literature on Bantu languages, for example, grade three learners in Setswana read at an average of 37. 43 Malda et al., (2014). It is also empirical that the result is compared to the benchmark set for Nguni languages; isiIsiZulu,

isiXhosa and siSwati that registered at the end of grade three, learners should at least reach a threshold of reading at 35 wpm (Ardington et al., 2021). Learners of the current study are yet to reach this threshold with the fact that they were assessed in November towards the end of the year and this somehow demonstrates learners may be at risk. Nevertheless, this difference could also be explained by the different writing systems of the languages. Diemer (2016) reports, isiXhosa grade three learners performed relatively low on reading fluency with the mean words read aloud of 19. 4 wpm and 27. 3 wpm on silent reading and the results are slightly closer to the Rumanyo learners scores.

Beside the benchmark set on Nguni languages, findings in some of the agglutinating South African languages, sampled particularly from the Nguni languages (isiIsiZulu), Northern Sotho, and smaller sub-family languages (Xitsonga) (Spaull et al., 2020), are also quite important as comparisons with other languages. For example, it is relevant to compare Xitsonga and Rumanyo, as both these languages are written both disjunctively and conjunctively. And, since the children reading at 40 wpm in Xitsonga are considered to be at risk, this gives justification to the claim that the 16.10 wpm average score from children of the current study equally shows that they too are at risk. Although children scored high marks on silent reading compared to ORF, the 25.70 wpm average score does not guarantee any progress in this mode of reading, as this score is still lower than the 33 scores of Xitsonga.

The findings of the Grade three Setswana sample, explains the low reading proficiency of learners, particularly in Setswana, that the reading instructions targeting the phonics approach were inappropriately applied as a result, the processing of decoding is considered to be delayed and the low level of reading proficiency will appear to be across all the children reading and will no longer be a matter of individual differences (Malda et al., 2014). Although Rumanyo has a transparent orthography, the findings of the current study reveal a lack of reading proficiency. This does not render support to the literature that learning to read in a transparent orthography is much easier compared to an opaque orthography (Veii & Everatt, 2005). Therefore, it is speculated that the Rumanyo complex orthography mainly its complex consonants, for example, words with digraphs like ‘mundi’ – ‘home’, and trigraphs, ‘muruvhundja’- ‘early morning’, contributed to the low scores in reading fluency. Most learners did not only find it challenging to read words with a group of letters, translating into one sound, but also because such complicated consonants make many words appear lengthy for example ‘kwaparukanga’ – ‘survive by’, taking longer to decode. The other aspect is the

consonants consisting of click sounds such as ‘mancu’ – ‘the hunter’s name’, ‘cegca’ – ‘a traditional bed’ implicated the reading even more. This speculation is extended to the loss of click sound among the native speakers as there seem to be a lack of vocabulary consisting of click sounds among the learners. Hence forth, these sorts of graphemes require more time to learn.

The diversity of the learners could have also affected the result especially when the language of literacy is unfamiliar. This is because the oral language acquired from home in L1 is sought to aid the acquisition of literacy in school as the learners are expected to present rich vocabularies that can possibly transfer during the literacy development. However, when learners lack oral skills in a certain language, it is difficult for the skills to facilitate learning to read.

5.3.2 English Reading Fluency

The children’s ability to read in English was also determined by wpm on both ORF and silent reading fluency. Learners were presented with a text consisting of 110 orthographic words on ORF and 120 on silent reading fluency. Children read a minimum of 0 and a maximum of 110 words in ORF, whereas on silent reading some learners could not read a single word even though they went through the same teaching strategies as others. Nevertheless, the performance on both ORF and silent reading illustrates learners have achieved some reading proficiency as the average score indicates above 50 per cent, however, the question of interest is whether this score has reached the threshold set for reading fluency or not.

Malda et al., (2014) reports, reading performance of English grade three learners was at the mean of 41. 08 wpm. This result differs from the finding of the current study as learners scored at an average of 54. 40 wpm on ORF and 59. 70 wpm on silent reading. This could be that the former study assessed English L1 learners, whereas, the later study are the L2 English learners. These results from the two studies have somewhat conflicting findings because the assumption is English L1 learners are expected to perform better than the L2 learners. Pretorius and Spaull (2016) submits, the difference in learning to read English between L1 learners and L2 learners is that the L1 have a wider knowledge of the language compared to the L2, hence, the knowledge of English in L2 is developing parallel to L1 reading level, thus, this implies the threshold used to determine reading fluency in L1 English learners should not apply to the English L2 learners.

Internationally, Al Otaiba et al., (2009), investigated the development of emergent reading fluency among 5004 Latino second graders -the population from high poverty schools and the learners were placed in the explicit and systematic reading programme, findings for the Grade three ORF was within a range of 75 wpm. Locally, the literature is not yet clear on the grade three L2 English learners reading fluency threshold. Nevertheless, the ORF score of the present study is lower than the 75 wpm.

Literature provides a few reasons for children's performance, and among others are inadequate time spent on instructions, practice and feedback, and to some extent socioeconomic variables that tend to be difficult to improve at schools (Abadzi, 2011). Not enough attention is given to pertinent tasks geared towards reading fluency or perhaps, the conditions put forth to assist in this regard are not met. This could also include levels of exposure to books. One of the general language recommendations is that children should be given instructions in an understandable language to them as this may enhance fluency and comprehension which could lead to children understanding texts better.

5.4 Research Question 2: PA and Reading fluency

The relationship between PA and reading fluency is of utmost importance to the current study. Therefore, the learners' performances on PA and reading fluency needed to be correlated to determine the contribution of PA to reading development skills across the two languages of interest. In an expectation of syllable awareness, learners' performance on phonemes is relatively low. Thereforth, the correlation was empirical to comprehend the relationship between PA and reading fluency despite the low score on phoneme awareness. To understand this remarkable phenomenon, the discussion below is an extensive perspective on the relationship between the targeted two aspects that could shed light on the emergent Rumanyo/English bilingual third graders' results.

5.4.1 Rumanyo PA and Reading Fluency

The central question addressed in emergent bilingual learners is whether PA skills are relevant to reading or not. There is a lot of research which focused on this, however, this study is unique as it focused on Rumanyo which has not been studied yet. Findings indicate somewhat weak to moderate correlations between PA and reading variables in Rumanyo. Syllable identification reveals the weakest relationship with reading variables. This demonstrates that this unit is not related to reading fluency. As such, learners are likely not to depend on it to facilitate the

attainment of reading skills. On the other hand, syllable segmenting evinces a moderate correlation, while syllable deletion exhibits a weak correlation. Phoneme identification displayed a weak relationship with reading fluency as did syllable identification. In addition, both phoneme segmenting and phoneme deletion project a moderate relationship with reading fluency. This explains, phoneme awareness did not provide a positive contribution to reading fluency.

Result from Linear Regression demonstrates, although phoneme is an important predictor of reading in most languages using alphabetic scripts, only syllable awareness predicted reading fluency. However, although syllable awareness shows an association with both ORF and silent reading fluency, these correlations are not enough evidence of a positive relationship. This suggests the levels of PA in Rumanyo are not sufficient enough to facilitate decoding. It is quite apparent that the PA skills of learners still need to be nurtured for learners to achieve sufficient levels that could automatically benefit learning to read.

Concerning phonemes, findings are not in alignment with the assumption that languages with more orthographic transparency, have a positive significant relationship between PA and reading, most especially on phoneme awareness (Goswami, 2010). This could somehow be explained by the fact that the average score of phoneme awareness is extremely low. On the other hand, findings show Rumanyo syllable awareness predicted reading in Rumanyo ORF and silent reading fluency. This result is in harmony with findings from isiXhosa and Setswana third graders in which syllable awareness predicted reading in the languages (Probert, 2019). In the present study, the relationship is extremely weak as the model fit did not show any predictions between PA and reading fluency. Probert (2019) reports, both isiXhosa and Setswana learners had higher scores on syllable awareness as a phonological unit than phoneme awareness which is influenced by the phonological development of the learners and this also includes the linguistic characteristics of Bantu African languages which tends to prefer the syllables because of the consistent CV structure, less consonant clusters and codas. What is more interesting in this study is the phonological unit predicting reading is dependent on what is used to calculate the ORF and the findings suggest, using syllables could be a productive reading strategy, especially when reading connected-text in these languages (Probert, 2019).

Diemer (2016) reports the PA components that strongly contributed to reading was syllable awareness, more specifically the syllable deletion and it was concluded that the most accessible grain size for isiXhosa readers is syllable awareness and result suggested this is mainly

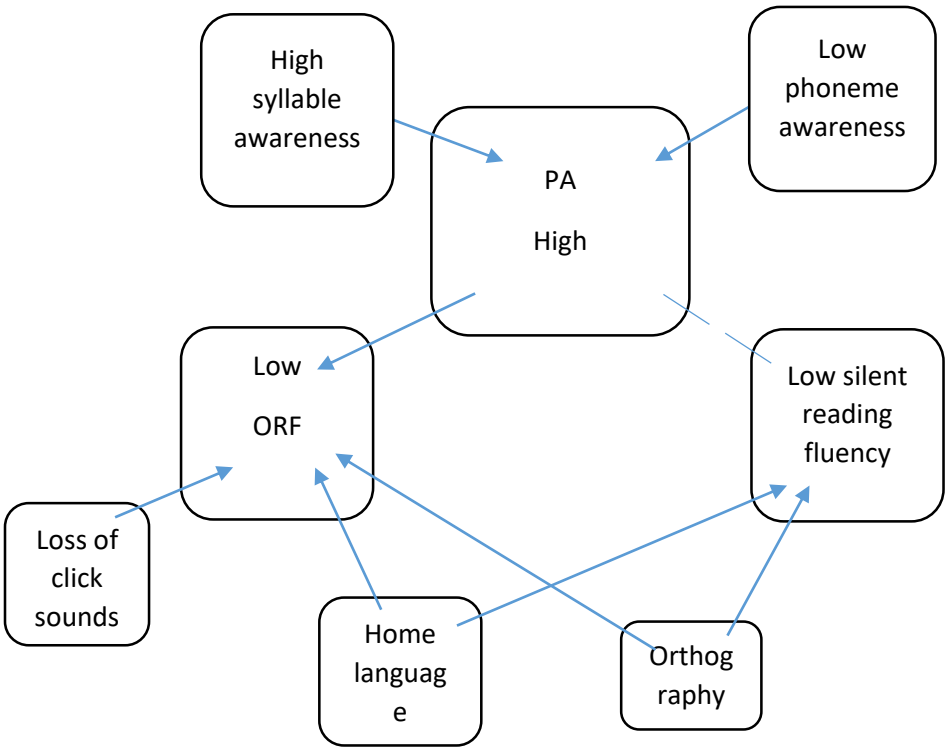
influenced by the teaching instructions of combining consonants and vowels. What is contrary to these findings is the result from the study of the grade three Northern Sotho learners that documented, although the learners' sensitivity towards syllable awareness was the greatest compared to phoneme awareness, it was the latter that predicted reading (Wilsenach, 2019).

Schmit (2011) states that phoneme awareness is key to literacy acquisition as it is the determiner of future reading success. On the contrary, the findings of the current study do not support this established position. The reason that phoneme awareness is not associated with reading suggests the developing level for the sample could have another underlying PA skill accountable for reading development, in this case syllable awareness. Furthermore, another reason could be linked to the development of PA skills which are on a continuum and manifest at varying paces. In this case, phoneme awareness has not been realised as complete growth resulting in its lack of influence on reading fluency. It is also possible that Rumanyo structure is not easily accessible on phonemes compared to syllables. The children in this study show higher awareness at the syllable level than phoneme level. Hence, the relationship between PA and reading fluency seems to be affected by various factors, mainly the development of PA which is heterotopically continuous (Anthony & Francis, 2005). Other literacy skills that are not targeted in this study could also be potential predictors of reading fluency.

The findings are in discord with the PGST hypothesis which underscores that phoneme awareness is acquired faster in more transparent orthographic languages in comparison to less transparent orthographic languages (Goswami, 2010). Rumanyo is a much more transparent language but, despite that, the children still performed low on phoneme awareness. Wilsenach (2019) reports that although Northern Sotho learners demonstrated a higher sensitivity towards syllable awareness, phonemes seemed to be the better predictor of reading than syllables. The results of this study do not align with this finding as it shows that even though the learners demonstrate high levels of awareness of syllables, phoneme awareness was not found to predict reading fluency. Instead, it was syllables that evince a relationship with reading.

Unlike the sample in other studies, unfortunately, children in the current study manifested a low phoneme awareness, and as such, the level of sensitivity per se is inadequate when linked to reading. The low levels of PA do not positively contribute to reading development, at least for this sample.

Figure 6: Flow diagram for Rumanyo PA and Reading Fluency



5.4.2 English PA and Reading Fluency

The English correlation results show PA components: syllable deletion, an average syllable awareness, phoneme deletion and an average of phoneme awareness contributed to ORF, however, this is a weak relationship. The findings suggest the relationship slightly contributes to the learners' reading fluency. As for the other PA units, for instance, syllable identification and phoneme identification are not compatible with reading fluency. Similarly, no relationship was found between PA and silent reading and this suggests the two are totally of different constituents and are not related to each other. Hence, learners show no dependence on PA when decoding silently.

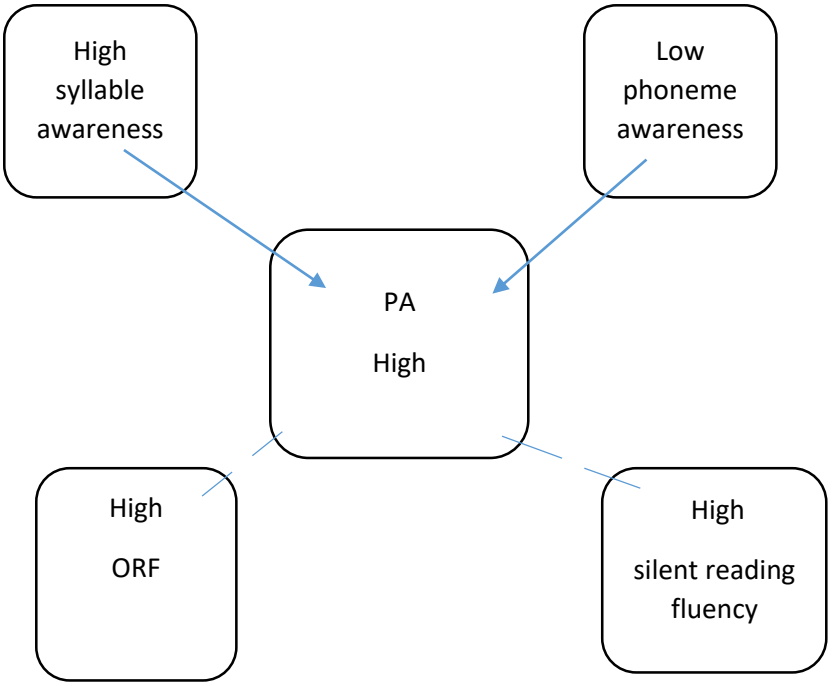
The Linear Regression shows that all English PA components were not related to reading fluency. This implies that not a single skill of PA advanced reading in English. Gottardo et al., (2016), in the study that examined the contribution of language (Portuguese, Chinese and Spanish with English as a second language) to the relationship between PA and word decoding in various orthographies on a sample of kindergartens, Grade 2s and Grade 3s, the findings indicate that PA was related to reading. Nevertheless, larger units were associated with reading in early grades, with smaller units related to reading in children with profound proficiency

(Gottardo et al., 2016). English monolinguals seem to gain syllable skills before onset-rime and phonemes, as Gottardo et al., (2016) document, in the early stages of schooling, despite English children acquiring syllables and other units earlier, phoneme awareness is the primary predictor of word reading in English. This finding complements the result in the present study that despite children's high performance on syllable awareness, PA does not show any contribution to reading fluency, however, phoneme awareness's low result evidence the reason it was found not to predict reading. Following the literature that phoneme awareness is the strongest predictor of reading (Anthony and Lonigan, 2004; Ehri et al., 2001; Wilsenach 2019). Findings suggest a low level of PA cannot benefit reading acquisition, but a high level gives an ultimate advantage to the development of reading skills.

On the contrary, conflicting findings in the study involving Grade 4s to Grade 6 in the North East Metropolitan region of Melbourne (Elhassan et al., 2017), that PA was strongly associated with children displaying a low level of reading fluency. This is because the assumption in the study was that the higher the level of PA skills, the more it predicts reading and vice versa. The findings of the present study conflict with such a result, neither the low scores on phonemes nor the high scores on syllables could predict reading fluency. This result could suggest other than PA, there could be other literacy skills responsible for being the predictor of reading fluency in English. The other possibility could be that improving scores on phoneme awareness could yield positive outcomes concerning the relationship between PA and reading fluency.

Although the learners in the sample have been in school for about three years, the result demonstrates a low level of PA on phonemes which is usually found in learners of early grades such as kindergarten and first graders. Hence, it is amply clear that PA skills are important for the attainment of reading, and a weaker sense of the skills may directly contribute to remarkably low achievements of reading fluency. Surprisingly, learners of the sample have better scores on English reading fluency, both silent and ORF. This result suggests once learners acquire the reading proficiency, PA becomes less influential to reading, perhaps which is similar with the existing literature (Pretorius and Spaull, 2016).

Figure 7: Flow diagram for English PA and Reading Fluency



5.5 Research Question 3: The Transfer of Rumanyo Phonology to English

Cross-linguistic transfer is of utmost importance to the present study, and understanding of the acquisition of emergent literacy skills, Cummins' bilingual theories, The Linguistic Interdependence Theory (Cummins, 1979) and The Linguistic Threshold Hypothesis (Cummins, 2000) is necessary at least for this study. Jiang (2011), maintains that learners's literacy in the first language provides a wider knowledge underlying numerous aspects required for learning to read and such knowledge forms a basis to facilitate the development of literacy in the second language. Language skills needed for reading and writing should be transferable. However, the transfer per se only occurs when the L1 levels of proficiency are pronounced. Only then can reading skills available in the target language be transferable to L2 (Jiang, 2011; Pang, Kamil & Spodek, 2004).

PA performances in Rumanyo show higher scores on identification tasks in comparison to other tasks, both on syllables and phoneme awareness. Even though identifying the middle sound particularly, for syllable awareness, was somehow challenging, children's performance in this particular unit was somewhat easier to manipulate as there is not much demand on cognitive processing. It is merely recognising sounds with no other extra retrieval of information required. The other PA skills such as segmenting and deletion are fundamentally about manipulation. This means that during the manipulation of these skills, it is evident that

linguistic cognition was in demand. On the contrary, identification seems to be familiar to the children. Despite that, the overall result reveals that children scored higher on syllable awareness than on phoneme awareness. Henceforth, following the literature that skills gained in the language of instruction are sufficient for literacy attainment in an additional language, it was presumed that syllable awareness in Rumanyo, will automatically transfer to English. This is per the Linguistic Interdependence Theory (Cummins, 1979). On the other hand, the children's low level of phoneme awareness in the first language was assumed as difficult to transfer to English as it can be interpreted that it is not yet acquired in L1.

Findings show that although learners performed better at syllable awareness across the tasks in English, which evinces a positive transfer, there is evidence that some incomplete/infelicitous transfer occurred. For example, the most common error learners made was inserting an additional sound in a word. This shows how these children applied Rumanyo rules of CVCV structure in English.

PA administration demonstrates syllable segmenting transfer from Rumanyo to English. This shows that few individuals segmented words in English by applying the syllable structure of Rumanyo. This was expected as English has a different syllable structure from that of the first language. English has a closed syllable structure as words do not present well-defined borders which can assist learners during segmenting tasks, making it sophisticated for children that are not native speakers of English. As Álvarez, Carreiras and Taft (2001) aptly put it, syllable boundaries seem to be determined by stress and cases of ambisyllabicity and syllabification tend not to preserve the morphological structure. For example, the word 'eating' is made out of the two-syllable structure ea and ting whereas the morphological structure is cut across producing eat plus -ing. The results from the Spanish/English first and second graders suggest that some of the PA components are distinctive and specific to each language (Goodrich, Lonigan & Farver, 2013). In this case, Rumanyo syllable segmenting tends to be a unique PA skill and as a result, the individuals with a low level of sensitivity towards English syllables transferred the skill and instead, infelicitous transfer resultantly occurred.

Rumanyo has a simple syllable structure characterised by CVCV OR VCV e.g., rutu (CVCV) for 'body', 'ame' (VCV) for 'I', resembling other Bantu languages (Probert & De Vos, 2016). Nevertheless, the language consists of complex syllable onsets, which however do not put many constraints during decoding, as these are merely single consonants that eventually map into a single phoneme. On contrary English syllables are based on much more complex

structures, for instance, CCV or CCCV e.g., /try/ [trai] (CCV) and /straw/ [strɔ:] (CCCV) (Probert & de Vos 2016). It is due to the linguistic differences between the two languages that some learners in the sample experienced difficulty segmenting syllables in the second language. The result demonstrates infelicitous transfer and this is in support of the findings from isiXhosa Grade three learners who were observed to transfer the reading strategy (whole word recognition) used in English every time isiXhosa pseudowords were presented. The findings go contrary to the Linguistic Interdependence Theory which posits that language skills, mainly for literacy, are transferable across languages (Cummins 1979).

The findings are however in harmony with the claims of the Linguistic Threshold Hypothesis. Only a small degree of PA skills predicted reading fluency, and this was syllable awareness. It is evident that for these skills to enhance early reading either within or across the language, they have to be consolidated first. Therefore, the findings of the present study are consistent with the Linguistic Threshold Hypothesis (Cummins 2000). The children's better performance on Rumanyo syllable awareness proves that a skill that is acquired at a certain level (threshold) is transferable and can benefit reading development. This explains the result of a linear regression that syllables contributed to the acquisition of reading fluency.

A lack of awareness of phonemes in Rumanyo does not show much influence in English, for example, identification and deletion in English reveal better scores (i. e average of about 50%) except for segmenting with a score below an average, although the overall result for English phoneme awareness is below an average score, it does not seem to be influenced by, Rumanyo phoneme awareness score that is also below an average score, across the tasks.

Furthermore, reading fluency in Rumanyo reflects a lack of proficiency and the transfer of literacy skills within the language is seemingly cumbersome. For example, despite learners' better performances on syllable awareness, PA failed to transfer to reading fluency in this respective language, hence the low score on Rumanyo reading fluency. It is quite apparent that the low level of proficiency in phoneme awareness is accountable as reading is highly affected by this knowledge (Edwards et al., 2016). It is in harmony with the existing literature that learners's reading proficiency is dependent on sensitivity towards the smallest unit of a word (phoneme) (Anthony & Lonigan, 2004; Wilsenach, 2019).

The cross-linguistic transfer between Rumanyo and English on reading fluency evinces a lack of association. Results suggest Rumanyo's low reading proficiency did not transfer to English

reading fluency. This is because learners performed much better on English reading tasks. When learners were presented with Rumanyo ORF reading passages, it was observed that most of them pronounced words containing click sounds with English phonology. This was not anticipated as it was presumed that the dominant language of instruction (Rumanyo) would transfer to English, instead, English phonology transferred to Rumanyo.

Nonetheless, the result reveals somewhat of a reverse flow/transfer from English to Rumanyo. Perhaps because these learners have a lack of acquisition of phoneme awareness in Rumanyo and this explains how, when learning English, PA skills in this language start to develop causing the infelicitous reverse transfers. For example, the word mucu /mu|u/ - a son/khoe, was read as /mu:ku:/ and the preposition ko /kɔ/ was read as /ku:/. It is possible that learners in the sample have not acquired Rumanyo reading skills, this seems to be because of low proficiency in reading in the language of instructions. The children then tend to make use of the developed reading skills in English while reading a text in the first language resulting in incomplete or reverse transfer.

What is interesting is that learners appeared to be proficient in reading fluency in the second language rather than in the language of instructions. Consequently, most of the learners transferred English phonology into Rumanyo ORF text. This scenario seems to complicate The Linguistic Interdependence Theory which claims a first language should facilitate teaching and learning in early grades before transitioning to a second language as a language of teaching (Sibanda, 2017). Nevertheless, the learners' encounter with these words presented a decoding problem and the only available solution was to resort to the letter-to-sound knowledge acquired in English as the Rumanyo grapheme-to-phoneme correspondences seemed to be limited to certain sounds. This suggests learners are exposed to English either at home or during kindergarten where the medium of instruction is English as so, which influences literacy acquisition in Rumanyo. The other reason could be; that learners are not exposed to the graphemes containing click sounds, thus, replacing such sounds with English graphemes. On the other hand, this could to some extent explain that a learner's failure to pronounce words with click sounds could be the loss of click sounds in favour of Bantu linguistic structures. However, the scope of the current study could not allow for the exploration of this aspect. Nevertheless, it could be a topic of another day. Furthermore, during the administration of ORF reading in English, a few individuals in the sample pronounced English words by applying the

phonology of Rumanyo. For example the word like /laɪk/ was read as /liːkəs/ and fine /faɪn/ as /fiːnə/ .

In addition, this implies that these learners had acquired Rumanyo reading skills to some extent. However, the level of proficiency in the language of instructions is not yet pronounced. Besides this, English better reading fluency skill was not consolidated by Rumanyo literacy skill and this could be contributed by other factors not known. PA skills, most especially phoneme awareness, impacted its association with reading in the first language.

Schmitz (2011) contends that young ones require the ability to recognise words as being composed of syllables, onset-rimes and phonemes, as well as manipulating smaller units of sound which can yield sufficient reading achievement for the rest of the schooling career. This is because the learners lacking such awareness and skills fall behind. PA skills are crucial and provide the reader with the ability to grasp the alphabetic scripts, while the lack of these skills does not only hinder reading but rather also affects the process of fluency and comprehension (Goswami, 2010). This was evident in the study as the lack of awareness to manipulate words into smaller units implicated the entire reading process.

With regards to PA skills, literature reports that although PA is fundamental to reading, it is important to examine the skills to determine which of the skills have a strong relationship with reading developments Anthony and Lonigan (2004), emphasise that using explicit instructions, especially those aimed at discovering phonemes, helps children to attain the reading skills. Wise, D'Angelo and Chen (2016), confirm that many research findings document PA as related to reading, mostly when a phoneme is a targeted variable. In a study that samples isiXhosa Grade 3 learners, although phoneme identification and segmenting revealed a reliable prediction of spelling, syllable awareness turned out to be the strong predictor of reading accuracy (Diemer, 2016). In Northern Sotho third graders, syllable awareness had a significant relationship with reading (Wilsenach, 2013). In the present study, syllable awareness of Rumanyo predicted reading in the first language (and remarkably, not one of the English PA variables predicted reading in English. It was, therefore, important to examine if the low ability of phoneme awareness in Rumanyo would transfer to reading while taking into consideration the cross transfer of aspects of the first language which could transfer to the second language.

The current study has presented a low level of literacy, most especially in the first language which should not be overlooked as far as the relevance of reading to schooling is concerned. It

is even more critical in the circumstances in which learners are failing to decode even a single word.

5.6 Summary

The chapter discussed findings from the results presented in Chapter 4. In doing this, the chapter presented the discussions of the findings in manners that respond to each of the research objectives as established in Chapter 1 and reiterated throughout the thesis. The PA level in both Rumanyo and English is syllable awareness because learners show greater awareness towards it than phoneme awareness. Moreover, Rumanyo reading fluency reveals somewhat a low level of reading fluency whereas learners' scores on English reading fluency was reported above an average of 50 percent. This finding suggests learners' reading ability in the first language is developing at an extremely low pace despite its transparent orthography. Furthermore, although there is a relationship between PA and reading across the languages, it is quite apparent, this is a weak relationship. For example, in Rumanyo, only syllable awareness predicted reading, however, this contribution is not enough to advance reading fluency. In English, neither syllable awareness nor phoneme awareness predicted reading fluency. Findings on the transfer demonstrate a reverse flow/transfer that instead of Rumanyo, English phonology transferred to Rumanyo reading texts. The next chapter concludes the study. It thus gives general conclusions of the study and also provides recommendations culminating from observations of the implications of the data discussed in the thesis.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study examined PA skills of emergent bilingual Rumanyo/English Grade 3 learners. It aimed at investigating the sensitivity of learners to various PA skills in the two targeted languages and the relationship of these skills to reading fluency. The findings indicate that learners performed better on syllable awareness tasks compared to phoneme awareness for both Rumanyo and English.

The result has shown the order of performances on various PA tasks, for example in Rumanyo, from the easiest to the most difficult: syllable identification, syllable segmenting and syllable deletion. This order is replicated on Rumanyo phoneme awareness. On the other hand, English performance tasks display this order, from the easiest to the most difficult: syllable identification, syllable deletion and syllable segmenting. A similar order occurred when phoneme awareness was manipulated.

What is more striking about the findings is that despite the sample being of third graders, phoneme awareness is relatively low and this could affect the process of decoding, especially considering that the existing literature documented that phoneme awareness is the strongest predictor of reading (Wilsenach, 2019). Nevertheless, the low level of phoneme awareness suggests learners have not yet developed this skill.

The Rumanyo reading fluency results were strikingly low and this could be related to the levels of phoneme awareness which is not profound, making it difficult for children to attain proficiency in reading. Beside that, it is speculated learners of the present study experienced difficulty mapping the complex graphemes (group of consonants) into the phonemes during reading. The other aspect such as the diversity of the learners may have negatively affected the performance due to the weak oral skills such as lack of vocabularies, making it difficult to fascilitate the literacy acquisition process in the language of literacy. In this particular language, the learner's scores were better on silent reading than ORF which is similar to the literature because learners read silently, making it hard to account for errors.

In English reading fluency, learners performed better which explains how children have acquired the reading skills in this respective language compared to the language of instructions.

The findings of the current study evince that phoneme awareness has no link with reading, but that syllable awareness is related to reading in both ORF and silent reading fluency at least for Rumanyo. However, the linear regression model fit was not significant. This is an indication this relationship is not sufficient to facilitate reading. Thus, although the learners' performance looks quite good on syllable awareness, the low level of phoneme awareness could have affected the relationship between PA and reading. Nevertheless, phoneme awareness in the L1 did not contribute to reading fluency in the same language. The findings suggest syllable awareness is the predictor of reading fluency. Hence, learners of the sample could depend on syllable awareness for reading.

Moreover, findings indicate that English PA is not related to English reading fluency, as neither syllables nor phonemes predicted reading on linear regression, but what is worth noting is that English reading fluency is better despite a low average score on phoneme awareness. This finding implicates the conception of PA, that claims, a greater phoneme awareness can yield better reading outcomes. It is also evident that a different underlying literacy skill could be responsible for reading.

With regards to the factor of the transfer of the Rumanyo phonology to English, the findings of the study suggest that the transfer was somewhat vice versa and it also seems that much of the transfer was from English to Rumanyo, rather than from Rumanyo to English. Furthermore, the transfer was limited to certain linguistic units. For example, with regards to PA, a few individuals transferred Rumanyo phonology to English when the focus was on syllable segmenting. However, this resulted in infelicitous transfer. During phoneme segmenting, most of the learners segmented words in the wrong units. For instance, instead of segmenting a phoneme, a syllable was segmented and this occurred across the two languages. This was perhaps due to the learners acquiring syllable segmenting skills largely from Rumanyo, but due to the linguistic differences between the two languages, some learners failed to correctly transfer the skill from Rumanyo to English. Reading fluency tasks also manifested infelicitous transfer, as most learners read Rumanyo words with click sounds by applying English sounds, specifically where there was a click sound in a word.

6.2 Recommendations

The low performances on phoneme awareness across the two languages signifies a lack of sensitivity towards this particular unit whereas, a better performance on syllable awareness evinces learners' awareness towards the manipulation of larger sounds of words. In addition,

low reading fluency on Rumanyo indicates that there is a crisis of literacy at least in the sample of this study. Henceforth, the pedagogical method used should be interrogated and this calls for collaborative work among researchers, educators, psychologists and linguists, etc. in order to investigate and establish fundamental teaching methods that can foster the development of PA skills and eventually contribute positively to reading fluency.

This kind of study may require longitudinal studies focusing on Namibian Bantu languages versus English as a second language for the establishment to validate or improve on the findings of the current study. PA task results suggest that it is not necessary to measure all the units of PA (e.g., identification, segmenting, and deletion), especially syllable awareness of the first language, as identification does not require much word manipulation. This is so because, for example, in this study it did not evince much of a relationship with reading fluency. However, identification could still be relevant to children with no literacy foundation or the ones in lower grades than the third grade. Nonetheless, the sample of the study is too small to draw a conclusion. Hence, a number of studies targeting these skills need to be conducted before such a finding is established.

Intervention programs could help future researchers to compare the performances of the children before and after the intervention. Perhaps this will provide more answers that will enhance an understanding of early literacy acquisition. In a similar manner, the study also calls for research to investigate a threshold of reading fluency amongst the grade three English second language learners as this is necessary when assessing learners in reading fluency. This is because it was observed that speed is a challenge in this sample, more research on reading fluency is a necessity. This will provide more knowledge towards reading fluency.

PA levels, especially for phoneme awareness in the sample for this study, are still developing despite the fact that the children have been in school for three years. These challenges negatively impacted the decoding of words during the reading fluency tasks, particularly in Rumanyo. This suggests learners are perhaps not receiving instruction focusing on phonemes. As a result, the skill takes longer to develop and even much longer in the second language with complex orthography-phonology mapping. Thus, the teaching strategies on phoneme awareness need to be examined. Phonics approaches as well as morphological teaching instruction could enhance the development of phoneme awareness and research connecting these skills is called for. In this regard, longitudinal research is needed to establish the best instruction methodologies which could be correlated with phoneme awareness to improve

reading fluency. This opinion has emerged, from the study's observation that the failure to manipulate words at different positions, on different units indicates the effects of the lack of morphological knowledge (Malda et al., 2014). As such, children may need explicit instruction targeting prefixes, suffixes, and affixes.

Rumanyo syllable awareness is quite acceptable and this could be linked to the teaching strategy used to teach Rumanyo which focuses on combining consonants and vowels (e.g., ba, be, bi, bo, bu), (de Vos et al., 2014). Research on PA among grade three learners on English should extend the examination of the relationship between PA and reading to combine other literacy components of literacy such as vocabulary. This could provide more knowledge concerning the aspect that could predict reading fluency after the result of this study does not show any prediction on either phoneme awareness or syllable awareness.

Reading fluency should be explored across the junior primary phase and the sample should include both teachers and learners. This might provide a better understanding of the genesis of the reading difficulties.

The improvement of the low performances by learners on Rumanyo ORF requires the reading of texts that include words containing click sounds. This will help the children get acquainted with such words. On the other hand, this calls for further research on the loss of click sounds in Rumanyo in the favour of Bantu sound structures.

It is also worth noting that one of the reading components, reading comprehension is crucial and in order to strike a balance on literacy research, future research should include the component. This is necessary for a better understanding of learners' performances on literacy acquisition, especially when the grade three learners are the focus and it is at this stage, learners are transitioning from learning to read to reading to learn.

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Appendix A: Rumanyo Letter to Phoneme Correspondence

Orthography	Phonemes	Words	Translation
1. b	b	**b**ata	hide
2. p	p	**p**ita	pass
3. pw nonstop	pw	**pw**i**pw**ita	drinking
4. bw	bw	**bw**akata	boiling
5. d	d	**d**uka	run
6. dw lazy	dw	**dw**apa	feeling
7. t	t	teta	cut
8. t	t	tetuka	turn
9. ty	ty	**ty**akura	to smash
10. tw	tw	**tw**ara	take
11. k	k	**k**ura	then
12. g	g	do**g**oro	until
13. kw	kw	**kw**ita	paint
14. tj	ʧ	**tj**indji	change
15. d	d	duka	run
16. dj	ʤ	**dj**uma	spoiled
17. v	β	**v**eta	law
18. vh	v	**vh**onga	mix
19. f vegetable	f	**f**ura	sorting
20. z	z	kukata**z**a	disturb
21. sh	ʃ	**sh**ikoverero	shirt
22. shw	ʃw	**shw**ika	to cover
23. gh	ɣ	ku**gh**ura	buy
24. h	ɦ	**h**ompa	king
25. m	m	**m**untu	person
26. mb	mb	**mb**uto	seed

27. mf	mf	**mf**a	death
28. mbw	mbw	**mbw**anda	bump
29. mp	mp	**mp**uku	mouse
30. mw	mw	**mw**i	heat
31. mpw milled	mpw	**mpw**e	small
32. mvh	mv	**mvh**ura	rain
33. n	n	**n**uka	smell
34. ñ	ŋ	**ñ**arure	to grape
35. nʈ	nt	**nʈ**ipa	muscles
36. ntj	nʧ	**ntj**oni	shy
37. ntw objects on the head	ntw	**ntw**ike	placing
38. ntjw	nʧw	**ntjw**i	fish
39. nd	nd	**nd**iro	expensive
40. ndy	ndy	**ndy**a	food
41. ndw	ndw	ma**ndw**ara	nails
42. nw	nw	**nw**a	drink
43. ny	ŋ	**ny**ama	meat
44. ndj	nʤ	**ndj**ugho	house
45. ndjw	nʤw	**ndjw**edu	beard
46. nk	ŋkʱ	**nk**ondo	power
47. ng	ŋg	**ng**oro	knee
48. nkw	ŋkʱw	**nkw**engu	malaria
49. ngw	ŋgw	**ngw**e	leopard
50. l	l	**l**ina	lice
51. ly	ly	**ly**a	eat
52. r	r	**r**a**r**a	sleep
53. rw	rw	**rw**ana	fight
54. c	| or !	**c**uka	bust
55. gc traditional bed	g| or g!	ce**gc**a	a
56. nc	n| or n!	**nc**umita	kiss

57. ngcw stick	n|w or n!w	**ngcw**a	a protective
58. ngc	n| or n!	shaka**ngc**ongco	fisherman
59. nch fish	n|h	li**nch**e	a sardine

Vowels

a ~[a], i. e. d**a**n**a**- dance

e ~ [ɛ], i.e. t**e**ta - cut

i ~ [i], i.e. d**i**ka - build

o ~[ɔ], i.e. t**o**ta - create

u ~ [u], i.e. r**u**tu - body

aa~ [a:], i.e. mbw**aa**mbwa- useless

ee ~ [ɛ:], i.e. g**ee**ge - redish

ii ~ [i:], i.e. nh**ii** - yes

oo ~ [ɔ:], i.e. t**oo**to- whitish

uu ~ [u:], i.e. m**uu** - the sound of a cattle

Appendix B: Rumanyo General Instructions for PA Tasks

Before you start, remember the following:

- **Call out the code of the participants, right at the start of the recording**
- **Make sure that the child repeats the correct word twice.**
- **After the child gives a response, please repeat exactly what the child hassaid loud and clear, so that I can hear it on the recording.**
- **Remember, it is an oral task. Therefore, letter sounds should be used not names. For example, when you sound out the initial sound of 'nest', you need to pronounce the actual sound, not 'en'.**
- **Discontinue testing any participant taking longer than 5 minutes on one question and quickly record the child's code on the withdrawal paper.**

(Read it before you start the session)

English	Rumanyo
Hallo	Moro
Today we are going to play a game with words.	Namuntji, kuna kuyenda tuka danaure nankango.
In this game, there is no right or wrong answer	Mushidanauka shino, kapi mukakara nalilimbururo lyauhunga ndipo lyalipuko.
It's just for fun.	Vyavyo kuvi kara tupu vyakudanena uwawa.
Do you want to have fun?	Nove una shana kudanauka ndi?
Right. You are going to hear words and those words are not real.	Yaro. Makura mushidanauka shino, ku uka yuvanga nkango vana kutwenya ano odo nkango ne dadipe.
The words are going to be new to you, but just relax and enjoy the game.	Mpiri ngoli dina kara dipe kukoye, shimpe kuuka yiva tupu omo vavidanaukanga. Makura, u kuture tupu udane nawa shiri. Ndisha?

Appendix C: Rumanyo Syllable Awareness Tasks

Identifying syllables

English	Rumanyo
Do you know how to clap your hands?	Waviyiva kukanda maghoko ghoye ndi?
Perfect!	Yaro!
We are going to play a word game. And this game will need us to clap our hands at some points.	Ngoli, kuna kuyenda tuka dane udano wankango. Makura, muudano uno kutu ka kanda maghoko ghetu pavirugho vimwe.
For example,	Shihonena
I will ask you to say a word. Say‘rupuka’.	Nkene ni kupure u twenye nkango ‘rupuka’. Ghambashi ‘rupuka’.
Now we must clap to the first sound in this word ‘rupuka’.	Ngoli tuka kande ngoli kushintetwa shakuhova. Ghamba ‘rupuka’.
The first sound is ‘ru’.	Shintetwa shakuhova ntjo, ‘ru’.
‘Rupuka. Can you use your fingers while you are saying the word slowly?Show finger to the first, second and third sound.	‘Rupuka’. Rughanita ngoli nyara doye kutwara muvintetwa. ‘Rupuka’.
Say ‘rupasa’.	Twenya ‘rupasha’.
Clap to the second sound in the word ‘rupasa’. What is the second sound?	U kande kushintetwa shauviri munkango ‘rupasha’. Ashi nke shintetwa shauviri?
Yes. That is correct. It is ‘pa’.	Ya. Uhunga. ‘pa’.
‘Rupasa’. Can you indicate with your fingers the first, second and third sound?	‘Rupasha’.Rughanita shi nyara doye u neyange kuvintetwa.
Good. We now know how to play the game. I am going to ask you to make claps to some more sounds in words. Are you ready?	Yaro! Tuna viyiva sha ngoli ashi weni omo tudanauka nankango. Kuna kuyenda nka nikakupure uka kande kuvintetwa vimwe munkango. Una kuwapayikiri sha?

Identification Syllables Stimuli in Rumanyo

1. Twenya ‘matwika’. Makura, u kande ngoli kushintetwa sha kuhova munkango ‘matwika’. ‘ma’
2. Twenya ‘rabutu’. Kanda kushintetwa shauviri munkango ‘rabutu’. **‘bu’**
3. Twenya ‘mukufi’. Kanda kushintetwa shautatu munkango ‘mukufi’. ‘fi’
4. Twenya ‘ncumeta’. Kanda kushintetwa shakuhova munkango ‘ncumeta’. ‘ncu’
5. Twenya ‘kuronamu’. Kanda kushintetwa shautatu munkango ‘kuronamu’. ‘na’
6. Twenya ‘ndjerandjari’. Kanda kushintetwa shakuhova munkango ‘ndjerandjari’. ‘ndje’
7. Twenya ‘vangure’. Kanda kushintetwa shapauviri munkango ‘vangure’. ‘ngu’
8. Twenya ‘reyifa’. Kanda kushintetwa shautatu munkango ‘reyifa’. ‘fe’
9. Twenya ‘likumudu’. Kanda kushintetwa shakuhova munkango ‘likumudu’. ‘li’
10. Twenya ‘mushangu’. Kanda kushintetwa shauviri munkango ‘mushangu’. ‘sha’.

Segmenting Syllables Rumanyo

English	Rumanyo
Do you know a tortoise? Do you know how a tortoise walks? Is it slow or fast?	Waliyiva liyoghoro ndi? Weni lyayendanga liyoghoro, kukughora sha?
Perfect!	Yaro.
Do you also know that a tortoise speaks slowly?	Nove wavi nongonona ashi liyoghoro mpiri kughamba kwalyo maranga?
Very good. Let me show you how a tortoise speaks.	Nawa ngudu. Tanko ngoli nikuneghede omo lyaghambanga liyoghoro.
A tortoise is so slow, that when it speaks, it says sounds by sounds. For example, a word ‘batira’. A tortoise will say ‘ba’ ‘ti’ ‘ra’.	Liyoghoro kutwenya nkango kudamaura yira weno: nkango ‘batira’, lyalyo kuyitetaura yikare ‘ba’’ti’ ‘ra’.
Let’s try to speak like a tortoise: ‘ba’ ‘ti’ ‘ra’.	Toko ngoli tuli temwinine ashi: ‘ba’ ‘ti’ ‘ra’.
Let’s try another word like ‘kangombu’.	Toko nka tusheteke yino nkango ‘kangombu’.
How will a tortoise say ‘kangombu’?	Ashi liyoghoro weni litwenya ‘kangombu’?
‘ka’ ‘ngo’ ‘mbu’.	Ashi ‘ka’ ‘ngo’ ‘mbu’.

Good. Are you ready to speak like a tortoise?	Yaro! Nove kuvura u ghambe yira liyoghoro?

Segmenting Syllable Stimuli

1. Twenya ‘lirepu’. Yighambe yira liyoghoro. ‘li-re-pu’
2. Twenya ‘cumuko’. Yighambe yira liyoghoro. ‘cu-mu-ko’
3. Twenya ‘mpimaku’. Yighambe yira liyoghoro. ‘mpi-ma-ku’
4. Twenya ‘rankuti’. Yighambe yira liyoghoro. ‘ra-nku-ti’.
5. Twenya ‘rendjerandje’. Yighambe yira liyoghoro. ‘re-ndje-ra-ndje’.
6. Twenya ‘likungare’. Yighambe yira liyoghoro. ‘li-ku-nga-re’
7. Twenya ‘rodogo’. Yighambe yira liyoghoro. ‘ro-do-go’
8. Twenya ‘fukughura’. Yighambe yira liyoghoro. ‘fu-ku-ghu-ra’
9. Twenya ‘memakidi’. Yighambe yira liyoghoro. ‘me-ma-ki-di’.
10. Twenya ‘nchonchoshasha’. Yighambe yira liyoghoro. ‘ncho-ncho-sha-sha’.

Deletion Syllables

English	Rumanyo
We are now going to play a game of a boy named Oto. Oto likes playing with letters which his mom bought for him to form words. One day, his little sister named Mate, who is so naughty, started messing up the words by removing some letters from the begging of the words while Oto was in the kitchen. As she was removing the letters, for example ‘nu’from the word ‘nuti’, she could say goodbye ‘nu’. When Oto got back, and started to read aloud his words, the words sounded funny.	Kuna kuyenda tuka danauke udano wa mumati walidina Oto. Uno Oto kwahora kutendaura nkango nandanda vamughulira vawina, makura liyuva limwe, kauni kendi kakakadona kalidina Mate ne, kautwini shiri. Mbyo katamikire kuupangako ndanda dakuhoverera, uye Oto munkonda yakulyera. Pakughupapo ndanda shihonena ‘nu’ kunkango ‘nuti’, uye kughamba shi: ‘mbayoye’ ‘nu’. Makura opo a yire oto ashi a varurure nkango dendi, dado adi yuviki mwapeke.

I am now going to act like Mate, and you are going to be Oto. I will be commanding you to say words after I have taken away some sounds.	Ame kuni kakara ngoli Mate, ano ve uka kare Oto. Kuni ka ku tantera uka twenye oyo nkango yika hupangopo.
For example, if I say ‘timuma’. And then I say goodbye to ‘ti’. The word will become. ‘mu-ma’.	Shihonena, nkene tusheteke nkango ‘timuma’. Makura nirenke ashi Mbayoye ‘ti’. Munkango ‘timuna’ kupakahupa ‘mu-na’.
Perfect! Let’s try one more word. ‘Shinkuramba’. Goodbye ‘shi’.	Yaro! Toko nka tukasheteke nkango yino: ‘shinkuramba’. Mbayoye ‘shi’
Good. The word will become ‘nku-ra-mba’.	Nawa ngudu. ‘nku-ra-mba’.
We now know how to play the game.	Una viyiva sha ngoli ashi weni uka vi dana.
Are you ready?	Kuna kuyenda ngoli tuka dane nankango dadingi. Ndisha?

Deletion Syllable Stimuli for Rumanyo

1. Twenya ‘koruto’. Mbayoye ‘ko’. ‘ruto’
2. Twenya ‘gciraku’. Mbayoye ‘ku’. ‘gcira’
3. Twenya ‘nkururambo’. Mbayoye ‘nku. ‘ru-ra--mbo’
4. Twenya ‘yerafi’. Mbayoye ‘fi’. ‘ve-ra’
5. Twenya ‘vekuma’. Mbayoye ‘ku’. ‘ve-ma’
6. Twenya ‘vadirashe’. Mbayoye ‘va’. ‘di-ra-she’.
7. Twenya ‘kunyinge’. Mbayoye ‘nge’. ‘ku-nyi’
8. Twenya ‘hataura’. Mbayoye ‘u’. ‘ha-ta-ra’
9. Twenya ‘mughunyenda’. Mbayoye ‘mu’. ‘ghu-nye-nda’
10. Twenya ‘shaninkeli’. Mbayoye ‘li’. ‘sha-ni-nke’

Appendix D: Rumanyo Phoneme Awareness Tasks

Identification Phonemes

English	Rumanyo
Do you know how to clap your hands?	Waviyiva kukanda maghoko ghoye ndi?
Perfect!	Yaro!
We are going to play a word game. And this game will need us to make small claps of our hands to the words.	Ngoli, kuna kuyenda tuka dane udano wankango. Makura, tuna hepa karughanita maghoko ghetu to kakande kutwara munkango.
For example	Shihonena
I will ask you to say a word. Say ‘rambi’.	Kuni kakupura ghuka twenye nkango yino. Twenya ‘rambi’.
Now we must clap to the first sound in this word ‘rambi’.	Renka ngoli u kande kumushagharo wakuhova munkango ‘rambi’.
The first sound is ‘r’	Mushagharo wakuhova ngo ‘r’.
‘Rambi’Can you use your fingers while we say the word. Show first, second and third.	‘Rambi’. Makura, rughanita ngoli nyara doye mposhi u neyede mushagharo wakuhova, wauviri nawautatu munkango yinya.
Good. Say ‘cuki’.	Yaro! Twenya shi ‘cuki’.
Clap to the second sound in the word ‘cuki’. What is the second sound?	Kanda kumushagharo wakuhova munkango ‘cuki’. Ashi mushagharo munke unya?
Yes. That is correct. It is ‘u’.	Nawa ngudu. Muuhunga. Wagho ngo mushagharo ‘u’.
Indicate with your fingers to the first, second, and third sound to the word ‘cuki’.	Negheda ngoli nanyara doye mushagharo wakuhova, wauviri nawautatu munkango ‘cuki’.
Good. We now know how to play the game.	Yaro! Tuna yiva ngoli ashi weni omo tudana uno udano.

Identification Phoneme Stimuli

Rumanyo

1. Twenya ‘mani’. Kanda kumushagharo wakuhova mu ‘mani’. ‘m’
2. Twenya ‘ntengi’. Kanda kumushagharo wauviri mu ‘ntengi’. ‘e’
3. Twenya ‘nutju’. Kanda kumushagharo wautatu mu ‘nutju’. ‘tj’
4. Twenya ‘shimbeka’. Kanda kumushagharo wakuhova mu ‘shimbeka’. ‘sh’
5. Twenya ‘yeghu’. Kanda kumushagharo wauviri mu ‘yeghu’. ‘e’
6. Twenya ‘nuncipa’. Kanda kumushagharo wautatu mu ‘nuncipa’. ‘nc’
7. Twenya ‘ntjenune’. Kanda kumushagharo wakuhova mu ‘ntjenune’. ‘ntj’
8. Twenya ‘muraku’. Kanda kumushagharo wauviri mu ‘muraku’. ‘u’
9. Ntwenya ‘nyami’. Kanda kumushagharo wautatu mu ‘nyami’. ‘m’
10. Twenya ‘kimpu’. Kanda kumushagharo wakuhova mu ‘kimpu’. ‘k’

Segmenting Phonemes

English	Rumanyo
Now we are going to check how the robot talk. Do you know what a robot is?	Ovyo vina kakwamo ko ngoli, kuna kuyenda tuka kona-kone omo lya ghambanga limuroboti. Wayi va ashi nke roboti?
Perfect! A robot speaks with pride. We are now going to speak like a robot.	Yaro. Lyalyo ne kughamba shiri namanyami. Makura natwe kuna kuyenda ngoli tuka ghambe yira limuroboti.
But a robot does not say a word smoothly, instead, it says a word sound-by-sound.	Limuroboti ne lyakara naudito wakutwenya nkango nayintje. Makura ovyo lyarughananga lyalyo ne, kutwenyaura tupu dimushagharo da mo munkango lina horo kutwenya.
For example, a word ‘tuke’, a robot will say ‘t’ ‘u’ ‘k’ ‘e’.	Yira nkango ‘tuke’lyalyo kuyi twenya ashi ‘t’ ‘u’ ‘k’ ‘e’.
If it wants to say a word such as ‘ropi, how will a robot say it?	Nkene nkango yira ‘ropi’ ne yayo weni omo liyitwenya limuroboti?
Great. ‘r’ ‘o’ ‘p’ ‘i’.	Yaro. ‘r’ ‘o’ ‘p’ ‘i’

Do you also want to speak like a robot?	Nawa ngudu. Kuvhura nove u ghambe yira limuroboti ndi?

Segmenting Phoneme Stimuli for Rumanyo

1. Twenya ‘ceka’. Yighambe yira limuroboti. /c/ e/ k/ a /
2. Twenya ‘avi’. Yighambe yira limuroboti. /a / v/ i/
3. Twenya ‘muca’. Yighambe yira limuroboti. /m/u/c/a/
4. Twenya ‘hupi’. Yighambe yira limuroboti. /h/ u/ p / i/
5. Twenya ‘kami’. Yighambe yira limuroboti. /k/ a/ m/ i/
6. Twenya ‘kude’. Yighambe yira limuroboti. /k /u/ d /e/
7. Twenya ‘nkiku’. Yighambe yira limuroboti. /nk/i/k/u/
8. Twenya ‘ntevi’. Yighambe yira limuroboti. /nt/e/v/i/
9. Twenya ‘bateru’. Yighambe yira limuroboti. /b/a/t/e/r/u/
10. Twenya ‘mbakira’. Yighambe yira limuroboti. /mb/a/k/i/r/a/

Deletion Phonemes

English	Rumanyo
Right now, we are going to play a game of a thief of sounds. Therefore, some of the sounds in the words, will be stolen by a thief. And these sounds will be the first sounds in words. This will make the words to sound different.	Kuna kuyenda tuka danauke nankago omo dimushagharo dimwe munkango kudika dongonoka nga mo mukonda yawidi. Makura vino kuvika renkita nkango detu dika kutjindje nka pakuditwenya.
For example, say ‘fure’. Without ‘f’?	Shihonena, twenya ‘fure’. Kuupa ko ‘f’?
Great. It is ‘ure’.	Yaro. ‘ure’.
Let’s try one more. Say ‘tungo’. Without ‘t’?	Tanko tusheteke nka nayino. Twenya ‘tungo’. Kuupa ko ‘t’?
Perfect! it is ‘ungo’.	Nawa ngudu. Nhii, ‘ungo’.
Are you ready to play?	Kuvhura sha nove u dane udano uno?

Deletion Phonemes Stimuli for Rumanyo

1. Twenya ‘puri’. Kuupa ko ‘p’? ‘uri’
2. Twenya ‘mincu’. Kuupa ko ‘m’? ‘incu’
3. Twenya ‘pompe’. Kuupa ko ‘p’? ‘ompe’
4. Twenya ‘mwina’. Kuupa ko ‘mw’? ‘ina’
5. Twenya ‘nili’. Kuupa ko ‘n’? ‘ili’
6. Twenya ‘totamu’. Kuupa ko ‘t’? ‘otamu’
7. Twenya ‘redugo’. Kuupa ko ‘r’? ‘edugo’
8. Twenya ‘nganeku’. Kuupa ko ‘ng’? ‘aneku’
9. Twenya ‘sharupa’. Kuupa ko ‘sh’? ‘arupa’
10. Twenya ‘lyamaku’. Kuupa ko ‘ly’? ‘amaku’

Appendix E: English General Instructions for PA Tasks

Before you start, remember the following:

Call out the code of the participants, right at the start of the recording

Make sure that the child repeats the correct word twice.

After the child gives a response, please repeat exactly what the child have said loud and clear, so that I can hear it on the recording.

Remember, it is an oral task. Therefore, letter-sounds should be used not names. For example, when you sound out the initial sound of 'nest', you need to pronounce the actual sound not 'en'.

(Read it before you start the session)

English
Hallo
Today we are going to play a game with words.
In this game, there is no right or wrong answer
It's just for fun.
Do you want to have fun?
Right. You are going to hear silly words and those words are not real.
The words are going to be new to you, but just relax and enjoy the game.

Appendix F: English Syllable Tasks

Identifying Syllables

English
Do you know how to say sounds in a word?
Perfect!
We are going to play a word game. And this game will need us to say the whole word and say some sounds of the word.
For example,
I will ask you to say a word. Say‘tamtig’.
Now we must say the first syllable in this word ‘tamtig’.
The first syllable is ‘tam’.
‘tamtig’. Now, place your right hand under your chin while you are saying the word slowly. Use your left-hand fingers to indicate to the first, second and third syllable while saying the word.
Say ‘sigmib’.
Say the second syllable in the word ‘sigmib’. What is the second syllable? “mib”
Yes. That is correct. It is ‘mib’.
‘sigmib’. Now, place your right hand next to your chin, and again indicate with your left-hand fingers to the first, second and third syllable while saying the word?
Good. We now know how to play the game. I am going to ask you to say some syllables in words. Are you ready?

Identification Syllables Stimuli in English

1. Say ‘dodi’. Now say the first syllable in the word ‘dodi’. ‘do’.
2. Say ‘pula’. Now say the last syllable in the word ‘pula’. ‘la’.

3. Say ‘siva’. Now say the last syllable in the word ‘siva’. ‘va’.
4. Say ‘kamu’. Now say the first syllable in the word ‘kamu’. ‘ka’.
5. Say ‘natpab’. Now say the last syllable in the word ‘natpab’. ‘pab’.
6. Say ‘kithod’. Now say the last syllable in the word ‘’. ‘kithod’. ‘tho’
7. Say ‘yimrab’. Now say the first syllable in the word ‘yimrab’. ‘yim’.
8. Say ‘plerzun’. Now say the last syllable in the word ‘plerzun’. ‘zun’.
9. Say ‘vitwup’. Now say the last syllable of ‘vitwup’. ‘wup’.
10. Say ‘brakob’. Now say the first syllable in the word ‘brakob’. ‘bra’.

Segmenting Syllables English

English
Do you know a tortoise? Do you know how a tortoise walk? Is it slow or fast?
Perfect!
Do you also know that a tortoise speaks slowly?
Very good. Let me show you how a tortoise speaks.
A tortoise is so slow, that when it speaks, it says sounds by sounds. For example, a word ‘shanrop’. A tortoise will say ‘shan-rop’.
Let’s try to speak like a tortoise: ‘shan-rop’.
Let’s try another word like ‘pumsilk’.
How will a tortoise say ‘pumsilk’?
‘pum-silk’.
Good. Are you ready to speak like a tortoise?

Segmenting Syllable Stimuli

1. Say ‘yobysag’. Say ‘yobysag’ like a tortoise. ‘yob-y-sag’.
2. Say ‘ungraked’. Say ‘ungraked’ like a tortoise. ‘ung-raked’.
3. Say ‘foppedy’. Say ‘foppedy’ like a tortoise. ‘fop-pe-dy’.

4. Say ‘cunsenlep’. Say ‘cunsenlep’ like a tortoise. ‘cun-sen-lep’.
5. Say ‘dapfezzle’. Say ‘dapfezzle’ like a tortoise. ‘dap-fez-zel’.
6. Say ‘wempingly’. Say ‘wempingly’ like a tortoise. ‘wem-pi-ngly’.
7. Say ‘slomtarish’. Say ‘slomtarish’ like a tortoise. ‘Slom-tar-ish’.
8. Say ‘pobbletud’. Say ‘pobletud’ like a tortoise. ‘pob-bel-tud’.
9. Say ‘shonster’. Say ‘shonster’ like a tortoise. ‘shon-ster’.
10. Say ‘sabren’. Say ‘sabren’ like a tortoise. ‘sab-ren’.

Deletion Syllables

English
We are now going to play a game of a boy named Ben. Ben likes playing with letters which his mom bought for him to form words. One day, his little sister named Jenny, who is so naughty, started messing up the words by removing some letters from the words while Ben was in the kitchen. As she was removing the letters, for example ‘dit’ from the word ‘ditpass’, she could say goodbye ‘dit’. When Ben got back, and started to read aloud his words, the words sounded funny.
I am now going to act like Jenny, and you are going to be Ben. I will be commanding you to say words after I have taken away some sounds.
For example, if I say ‘natyfet’. And then I say goodbye to ‘fet’. The word will become. ‘naty’.
Perfect! Let’s try one more word. ‘snaplevet’. Goodbye ‘vet.
Good. The word will become ‘snaple’.
We now know how to play the game.

Are you ready?

Deletion Syllable Stimuli for English

1. Say ‘trinlib’. Say ‘trinlib’ without ‘trin’. ‘lib’.
2. Say ‘doldwep’. Say ‘doldwep’ without ‘wep’. ‘dold’.
3. Say ‘glabnish’. Say ‘glabnish’ without ‘glab’. ‘nish’.
4. Say ‘ruckrad’. Say ‘ruckrad’ without ‘rad’. ‘ruck’.
5. Say ‘sildteg’. Say ‘sildteg’ without ‘sild’. ‘teg.
6. Say ‘truttle’. Say ‘truttle’ without ‘tle’. ‘trut’.
7. Say ‘fladwap’. Say ‘flapwap’ without ‘’. ‘flap’. ‘wap’
8. Say ‘fornsav’. Say ‘fornsav’, without ‘sav’. ‘forn’.
9. Say ‘globling’. Say ‘globling’, without ‘glob’. ‘ling’.
10. Say ‘reckledrin’. Say ‘reckledrin’, without ‘drin’. ‘reckle’.

Appendix G: English Phoneme Tasks

Identification Phonemes

English
Do you know how to clap your hands?
Perfect!
We are going to play a word game. And this game will need us to make small claps of our hands to the words.
For example

I will ask you to say a word. Say ‘rop’.
Now we must clap a bit to the first sound in this word ‘rop’.
The first sound is ‘r’
‘Rop’ Can you use your fingers while we say the word. Show first, second and third sound to the word “rop”.
Good. Say ‘ved’.
Clap a bit to the second sound in the word ‘ved’. What is the second sound?
Yes. That is correct. It is ‘e’.
Indicate with your fingers to the first, second, and third sound to the word ‘ved’.
Good. We now know how to play the game.

Identification Phoneme Stimuli

English

1. Say ‘tig’. Now clap a bit to the first sound of the word ‘tig’. ‘t’.
2. Say ‘gup’. Now clap a bit to the second sound of the word ‘gup’. ‘u’.
3. Say ‘hap’. Now clap to the first sound of the word ‘hap’. ‘h’.
4. Say ‘wob’. Now clap a bit to the second sound of the word ‘wob’. ‘o’.
5. Say ‘slom’. Now clap a bit to the first sound of the word ‘slom’. ‘sl’.
6. Say ‘grob’. Now clap a bit to the second sound of the word ‘grob’. ‘o’.
7. Say ‘spig’. Now clap a bit to the third sound of the word ‘spig’. ‘g’.
8. Say ‘plone’. Now clap a bit to the first sound of the word ‘plone’. ‘pl’.
9. Say ‘misk’. Now clap a bit to the second sound of the word ‘misk’. ‘i’.
10. Say ‘nild’. Now clap a bit to the third sound of the word ‘sild’. ‘ld’.

Segmenting Phonemes

English

Now we are going to check how the robot talk. Do you know what a robot is?
Perfect! A robot speaks with pride. We are now going to speak like a robot.
But a robot does not say a word smoothly, instead, it says a word sound-by-sound.
For example, a word ‘lib’, a robot will say ‘/l/i/b/’.
If it wants to say a word such as ‘relt, how will a robot say it?
Great. ‘/r/e/lt/’
Do you also want to speak like a robot? Perfect!

Segmenting Phoneme Stimuli for English

1. Say ‘sab’. Say ‘sab’ like a robot. ‘/s/a/b/’.
2. Say ‘hig’. Say ‘hig’ like a robot. ‘/h/i/g/.
3. Say ‘lim’. Say ‘lim’ like a tortoise. ‘/l/i/m/.
4. Say ‘mab. Say ‘mab’ like a tortoise. ‘/m/a/b/.
5. Say ‘pesk. Say ‘pesk’ like a tortoise. ‘p/e/sk/’.
6. Say ‘spon’. Say ‘spon’ like a tortoise. ‘/sp/o/n/’.
7. Say ‘thid’. Say ‘thid’ like a tortoise. ‘/th/i/d’.
8. Say ‘glep’. Say ‘glep’ like a tortoise. ‘/gl/e/p/’.
9. Say ‘prag’. Say ‘prag’ like a tortoise. ‘/pr/a/g’.
10. Say ‘chan’. Say ‘chan’ like a tortoise. ‘/ch/a/n/’.

Deletion Phonemes

English
Right now, we are going to play a game of a thief of sounds. Therefore, some of the small sounds in the words, will be stolen by a thief. And these sounds will be the first and

last sounds in words. This will make the words to sound different.
For example, say ‘lib’. Without ‘l’?
Great. It is ‘ib’.
Let’s try one more. Say ‘relt’. Without ‘lt’?
Perfect! it is ‘re’.
Are you ready to play?

Deletion Phonemes Stimuli for English

1. Say ‘pab’. Say ‘pab’ without ‘p’. ‘ab’.
2. Say ‘blick’. Say ‘blick’ without ‘bl’. ‘ick’.
3. Say ‘nug’. Say ‘nug’ without ‘g’. ‘nu’.
4. Say ‘besh’. Say ‘besh’ without ‘b’. ‘esh’.
5. Say ‘bron’. Say ‘bron’ without ‘br’. ‘on.
6. Say ‘dath’. Say ‘dath’ without ‘d’. ‘ath’.
7. Say ‘sab’. Say ‘sab’ without ‘b’. ‘sa’.
8. Say ‘swock’. Say ‘swock’, without ‘sw’. ‘ock’.
9. Say ‘fung’. Say ‘fung’, without ‘ng’. ‘fu’.
10. Say ‘frane’. Say ‘frane’, without ‘fr’. ‘ane’.

Appendix H: The Order of the PA Tasks

Syllables:

- Syllable identification
- Syllable segmenting
- Syllable deletion

Phonemes:

- **Phoneme identification**
- **Phoneme segmenting**
- **Phoneme deletion**

Appendix I: General Instructions for Reading Assessments

Before the child starts reading, remember the following:

1. Click start the recording,
2. Call out the code of the participants so that it is recorded as well
3. Before the participant starts reading, write down his/her code on top of the passage
4. Instruct the child on the reading task such as a reading aloud text expect learners to read aloud for the voice to be picked by the recording
5. Tell the child to use a finger to point out word by word while reading
6. Press the stop watch to start counting minutes immediately the child starts reading from the title of the topic
7. In case of the silent reading task, watch out the last sentence and last word read and record it on the research guide for silent reading next to the child's code.
8. Kindly record any participant withdrawing from the task or the ones who are failing to do the task after 5 minutes.
9.Note: After listening to the recording of oral reading fluency test, kindly record the last sentence and last word the child has read next to his/her code

Appendix J: English ORF Assessment

Joy's holiday

Joy's family is going to visit Granny. They are happy and can't wait to go. The family will sleep at Granny's house. She lives far away. Father packs the car. Joy brings his dog. The dog also likes to visit Granny. "Hurry up!" says mother.

A truck passes them on the road. It is going too fast. Father moves his car out of the way. Joy is scared. His sisters are scared as well. The dog barks. "We will be fine," says joy's mother.

"At last! There is Granny," says Joy. Granny lives in a small village. She has her own chickens. "I love your house," says mother.

(110 words).

Appendix K: English Silent Reading Assessment

The guest of honour

John is not a happy boy. He does not want to go to school anymore. He is unhappy because of Biff, the school bully.

He hits them, he pulls their hair, he pinches them and he teases them. Biff is not nice. He has no friends.

Alice has an idea. She organized a part with some few friends. On Friday afternoon, they baked a cake. They also bought sweets, cooldrinks, balloons and party hats. Alice invited the whole class to the party. Everybody is at the party and people wanted to know the guest of honour. Alice did this as an idea to make Biff the guest of honour. She thinks Biff is a bully as he got no friends. (120 words)

Appendix L: Rumanyo ORF Assessment

Mancu mukongo

Mancu muswamane ahoro kushana. Mukondashi uye naliro lyendi kwaparukanga tupu munyama yavikorama. Mancu kwatunga namukamaliwe walidina Shigcanta navana vavo vaviri muwiya waNcorosha. Mundi wavo pantanda, ano uro wavo ne cegca. Muruvhundja tupu panya, Mancu panchunu yendi, kutura mo ndamba dendi, vyuu muwiya. Ano makanya nagho nakughashuva shi nampiri kadidi.

Muwiya Mancu kuna kakongwa ko vandimba vatatu, nduno umwe, nambambi mbiri. Uye mpo ana vyuka wangu-wangu aka shimburure lipata lyendi morwa vavo kapi vatunganga livango limwe, nkoko kuyemburuka-yemburuka nkovakarera mukukwama vikorama. Yino ndjo mpo yashicu.

Opo vana yatiki palirambo, Shigcanta navanuke kuna hafa ngudu tupu vana kukanka ndjambawe nda, yira karuvu parupupo.

Appendix M: Rumanyo Silent Reading Assessment

Shiranda shavanane

Shirenga kwakalire mukadona waruhafo dogoro mpopo va doghorokire vawina. Makura vashe ava kwara ko mukadi wamupe. Vawina vaShirenga vashitumbwena kapi va mu holire. Uye karenkanga Shirenga a rughane unene. Uye kapi kapanga Shirenga ndya dakugwana nkwandi vashe navo mpo va li mumundi. Shirenga kwakalire naghoma kuvitantera vashe.

Liyuva limwe, Shirenga akutantere mwene ashi, “Kehe muno vi karera! “Ame ngani yenda kwankwirikwande. Ngaka vhura kumpakera mbiri,” Makura a ghupu shiranda shendi shamushanga vamupire nakufa vawina shakumupopera kuviponga. “Shiranda shavanane ngashi mpa lirago”. Uye a kugwanikilire namakiti ghakukushuva-shuva mundjira yendi ene ngoli kurenka shi amukwate, uye kuyerura shiranda shendi makura likiti kaduka likaferemo.

Appendix N: A Copy of the Approval Letter

21 July 2020

Erwina Karupu

Email: g17k7915@campus.ru.ac.za

Review Reference: 2020-0981-3571

Dear Prof de Vos

Title: Phonological awareness of emergent bilingual Rumanyo/English learners

Principal Investigator: Prof Mark de Vos

Collaborators: Ms. Erwina Mushinga Karupu, Ms. Tracy Probert

This letter confirms that the above research proposal has been reviewed and APPROVED by the Rhodes University Ethical Standards Committee (RUESC) – Human

Ethics (HE) sub-committee.

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying

when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes

changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to

indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should

be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the

committee of the date of submission and/or any reference or cataloging number allocated.

Sincerely,

Prof Arthur Webb

Chair: Human Ethics Sub-Committee, RUESC-