

**UNIVERSITY OF EDUCATION, WINNEBA**

**TEACHER COMPETENCY IN PHONEMIC AWARENESS  
INSTRUCTION FOR DEVELOPMENT OF READING SKILLS  
AMONG EARLY GRADE PUPILS IN EFFUTU MUNICIPALITY**



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**UNIVERSITY OF EDUCATION, WINNEBA**

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FOR DEVELOPMENT OF READING SKILLS AMONG EARLY GRADE  
PUPILS IN EFFUTU MUNICIPALITY**



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**A thesis in the Department of Special Education,  
Faculty of Educational Studies, submitted to the School of  
Graduate Studies in partial fulfilment**

**of the requirements for the award of the degree of  
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in the University of Education, Winneba**

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## DECLARATION

### Student's Declaration

I, Mary Sima Nkatiah, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

**Signature:** .....

**Date:** .....

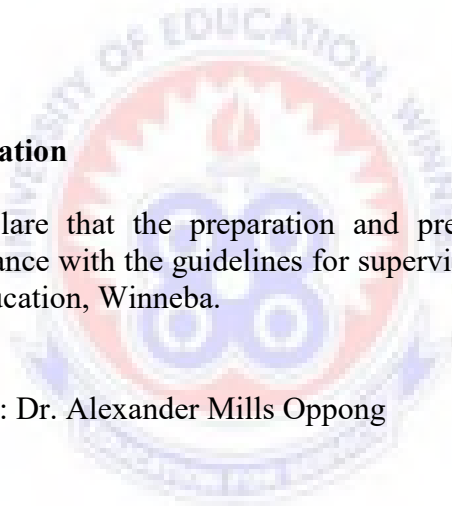
### Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of thesis as laid down by the University of Education, Winneba.

**Name of Supervisor:** Dr. Alexander Mills Oppong

**Signature:** .....

**Date:** .....



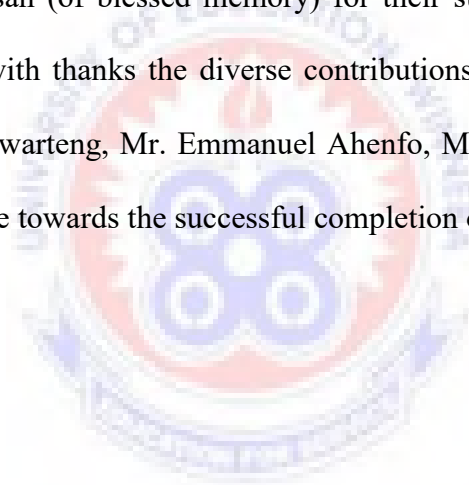
## **DEDICATION**

I dedicate this work to Kwabena, Akwasi and Kwame.



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## ABSTRACT

This study aimed to examine teacher competency in teaching phonemic awareness in the development of early reading skills among early grade pupils in the Effutu Municipality. The study employed a quantitative research approach to: (1) investigate the phonemic awareness competency level of early grade teachers, (2) find out how early grade teachers perceive their competency in teaching phonemic awareness, (3) examine the relationship between early grade teachers' perceived and actual competency levels in phonemic awareness instruction, and (4) examine early grade teachers' perception of implicit and explicit instructional strategies in teaching phonemic awareness to early grade pupils. The study used a cross sectional survey which targeted all the 134 teachers who taught at kindergarten to primary two in the 27 public primary schools within the Effutu Municipality. Out of this, 116 teachers responded to the questionnaires. The study found that, although the respondents had a significantly high perception of their competency, they generally had limited competency in phonemic awareness instruction. Moreover, the respondents who were more competent were better able to predict their competency level than their less competent counterparts although they all generally overestimated their competency levels. The respondents were also generally in strong agreement with the use of explicit instructional strategies but they also supported the use of implicit instructional strategies. Based on the findings of the study, the researcher recommended that the National Council for Tertiary Education should ensure that teacher preparation programmes of Colleges of Education and universities were designed to equip teachers with the fundamental knowledge and skills necessary for providing early systematic reading instruction. This study should also be extended to other municipalities in the country to facilitate a broader understanding of early grade teachers' competency in phonemic awareness instruction.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background to the Study

By the end of primary two (P2), all pupils in Ghanaian public schools are expected to have acquired reading skills and be reading fluently in both their mother tongue and in English language (Hartwel, 2010; Ministry of Education, 2012). However, during a practicum activity in June, 2018 as part of the researcher's MPhil course in *Assessment and Intervention of Reading Problems*, the researcher observed with fascination that majority of the primary three (P3) pupils in the public schools she visited in the Effutu Municipality were struggling to read. It was realised that majority of the pupils had difficulty manipulating phonemes (individual sounds in words). The pupils' lack of phonemic awareness (ability to manipulate individual sounds in words) hinders easy and early access to letter-sound correspondence as well as decoding strategies that facilitate accurate, fluent decoding and recognition of words (Birsh, 2011).

This observation by the researcher corroborated the disturbing report on Early Grade Reading Assessment (EGRA) conducted by the Ghana Education Service in 2015. The 2015 EGRA report indicated that, by the end of P2, majority of public-school pupils struggled with foundational reading skills and could not yet read with comprehension in neither their native language nor in English language. Of the pupils assessed, less than 2% were able to read with fluency and comprehension. Similarly, less than 40% of Ghanaian public school pupils in primary four (P4) and primary six (P6) were able to achieve proficiency in English language, comprising listening comprehension, grammar and reading (National Education Assessment Unit, 2016).

More disturbing is the fact that pupils who did not receive appropriate early reading intervention by P2 would continue to struggle with their reading throughout school (Bursuck & Damer, 2007; Blachman, 2000). As pupils mature, the struggling readers among them could face constant difficulties with word recognition and fluency which could affect their ability to comprehend what they read in future (Torgesen et al., 2001).

The researcher's interaction with some parents and teachers in the Effutu Municipality in June, 2018 revealed that there was a shifting of blame for the pupils' inability to read. While some of the parents put the blame of the pupils' inability to read on the pupils themselves, others put the blame on their teachers. Perhaps those who blamed the teachers for the pupils' inability to read had a strong case since, after all, basic school teachers' content knowledge and ability to teach beginning reading is considered as one of the key indicators of their competency (National Teaching Council, 2017).

Research has identified five core components of reading instruction that every teacher of reading should be equipped with and be familiar with in order to be able to teach reading effectively. These components include: phonemic awareness, phonics, vocabulary development, reading fluency including oral reading skills, and reading comprehension (National Reading Panel USA, 2000). Of the five components, phonemic awareness, along with knowledge of the alphabet, is a key component that contributes significantly to the effectiveness of beginning reading and spelling instruction (Birsh, 2011). Phonemic awareness is identified as a precursor to reading and mastering it in kindergarten is the single best predictor of future reading achievement (Torgesen, Wagner & Rashotte, 1994). Despite its importance as a foundational skill for reading development, phonemic awareness has often been a

domain of deficiency for pupils with significant reading difficulties (National Reading Panel USA, 2000; Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012).

This study therefore sought to develop deeper insight into teacher competency in teaching phonemic awareness in the development of early reading skills among early grade pupils in the Effutu Municipality in the Central Region of Ghana, focusing on kindergarten to P2. The problem in this study is that, though early grade teachers are expected to develop competency in phonemic awareness instruction, searches at the UEW library and the internet in the presence of the Librarian in December 2018 revealed that, though a lot of research had been conducted in the area of teacher competencies with regards to the teaching of phonemic awareness as a component of early reading instruction, yet, there was a dearth of research in that area with regards to Ghana. The major question in this study therefore centered on teacher competency in teaching phonemic awareness for the development of early reading skills among early grade pupils in the Effutu Municipality of the Central Region of Ghana. Findings of the study would provide useful information on teacher competency in phonemic awareness instruction to the Ministry of Education (MoE) and the Ghana Education Service (GES) to public basic schools in the Effutu Municipality.

The study used a survey with questions modelled on instruments used in two studies, namely *A Comparison of Schools: Teacher Knowledge of Explicit Code-based Reading Instruction* (Cohen, Mather, Schneider, & White, 2016) and *Perceptions and Knowledge of Preservice and Inservice Educators About Early Reading Instruction* (Bos, Mather, Dickson, Podhajski, & Chard, 2001) to explore teacher competency in teaching phonemic awareness as a component of early reading instruction.

In this study teacher competency refers to factual information, knowledge, abilities and skills teachers possess about phonemic awareness.

### **1.1 Statement of the Problem**

Various researchers and stakeholders in education have attributed the lack of instructional materials in teaching literacy as one of the factors that have contributed to the poor reading performance of the Ghanaian public school pupil (Heyneman, 2009; Akrofi, 2003). While this factor may hold some significance, the researcher's preliminary investigations of schools in the Effutu Municipality prior to the study made her believe that lack of instruction materials may not necessarily be the major cause of pupils' inability to read, but rather the major cause of pupils' inability to read could mainly be as a result of the level of teachers' competency in teaching phonemic awareness as a component of early reading instruction. Birsh (2011) noted that, being in charge of the details within words, sentences, and paragraphs comes about from exposure to expert teachers who have the knowledge and skills to deliver top-notch instruction from elementary school through high school. It is therefore important to understand the competency level of teachers in phonemic awareness instruction.

However, searches at the UEW Library and the internet in March 2019 in the presence of the University Librarian revealed that, though a lot of research had been conducted in the area of teacher competencies with regards to the teaching of phonemic awareness as a component of early reading instruction, yet there was a dearth of research in this area with regards to Ghana. The researcher therefore deemed it necessary to conduct this study in the Effutu Municipality in order to provide empirical information on the competency level of teachers on phonemic awareness instruction as a major factor that contributes to pupils' (in)ability to read.

Again, the Ministry of Education and the GES are eager to find solution to the issue of poor reading abilities among Ghanaian public school pupils. This sentiment had been expressed on various platforms. For instance, this sentiment was expressed by the Volta Regional Director of Education during a workshop organized for teachers in the Volta Regional Capital (Yevu-Agbi, 2019). Again, this sentiment was expressed by the Ministry of Education in the Education Strategic Plan 2010-2020 which expressed serious concern about poor literacy proficiency among basic school pupils in Ghana and the need to find solutions to the problem (Ministry of Education, 2012). Furthermore, this same sentiment was expressed by the Minister of Education and the US Ambassador to Ghana, during the launching of the project commencing the distribution of more than four million textbooks to early grade readers in Ghanaian public schools (Laary, 2016). Several parents and teachers have often blamed the pupils for their inability to develop reading comprehension skills. While these thoughts of parents and teachers could hold some truths, it would be better to assess the early grade teachers also to explore their competency level in the teaching of phonemic awareness. In contributing to finding solution to the poor reading abilities of Ghanaian public school pupils, the researcher sought to conduct empirical research into the level of teacher competency in phonemic awareness instruction as a component of early reading instruction.

Moreover, the findings from the preliminary study indicated that though some teachers did not receive training on phonemic awareness in the Colleges of Education, they had been trained through workshops organized by the GES. However, after these training workshops, no empirical research had been conducted to ascertain the competency level of the teachers in phonemic awareness instruction. Hence, this study was driven by the need for empirical information that would enable the GES



evaluate the impact of such workshops on the competency level of teachers after going through the workshops.

## **1.2 Theoretical Framework**

This study was underpinned by the Dunning-Kruger Effect theory developed by the then Cornell psychologists Justin Kruger and David Dunning in 1999. The Dunning-Kruger effect is a cognitive bias whereby people who are incompetent about something fail to acknowledge their incompetency; also, not only do they fail to acknowledge their incompetency but may sometimes even feel confident that they are competent enough (Kruger & Dunning, 1999; Dunning, 2011). However, when these people find out about their deficits and are provided with training in that area, they mostly overcome their deficit and become quite competent (Kruger & Dunning, 1999). The Dunning-Kruger Effect theory further suggests that people who are relatively more competent tend to more accurately estimate their competency compared to those who are relatively incompetent (Kruger & Dunning, 1999; Dunning, 2011, Sullivan, Ragogna, & Dithurbide, 2018; Maderick et al., 2015).

The Dunning-Kruger effect has been observed by several researchers. For example, Maderick et al. (2015) observed it in their study of preservice teachers and their self-assessment of digital competency. Sullivan et al. (2018) also observed the Dunning-Kruger effect among high school volleyball coaches. Moreover, Mahmood (2016) observed the effect in the area of information literacy whereas Oday (2019) observed it among students within the contexts of a narrative-centered gamebased learning environment.

It can be implied from the Dunning-Kruger effect that teachers with low level of knowledge and skills in phonemic awareness may not in fact recognise that they have such deficit and hence would tend to overestimate their competency level.

However, these teachers may be able to remedy this wrong notion about their competency after going through training programmes as they become more aware of their deficits after gaining more insight about the subject at hand. This new knowledge they acquire not only increases their competency but also equips them with the insight to make correct assessment of their competency. It can further be implied from the Dunning-Kruger effect that teachers who are relatively more competent in phonemic awareness would be able to estimate their level of competency more accurately compared to their relatively incompetent counterparts.

In fact, the literature suggests that many teachers do not possess adequate knowledge of phonemic awareness and other oral language concepts (Moats, 2009b; Bos et al., 2001; Cheesman, McGuire, Shankweiler, & Coyne, 2009; (Cunningham, Perry, Stanovich, & Stanovich, 2004; Fielding-Barnsley, 2010; Mather, Bos, & Babur, 2001; Moats & Foorman, 2003). However, despite their inadequate knowledge most of these teachers also tend to overestimate their competency level. Teachers who overestimate their competency level are not always open to learning new ideas (Cunningham et al., 2004; Spear-Swerling, Brucker, & Alfano, 2005). This attitude can be detrimental not only to the teachers but also to the pupils they teach, as this teachers may miss out on opportunities to acquire new knowledge which they could have used to improve their reading instructions and their pupils performance.

The Dunning-Kruger Effect theory therefore guided the researcher in developing understanding into the relationship between teachers' perceived competency in phonemic awareness instruction and their actual competency. Do teachers estimate themselves to be competent in phonemic awareness when in actuality they do not have adequate competency? In other words, are teachers who are

relatively competent able to more accurately predict their competency level than teachers who are relatively incompetent?

### **1.3 Purpose of the Study**

The purpose of this study is to examine teacher competency in teaching phonemic awareness in the development of early reading skills among early grade pupils in the Effutu Municipality (in the Central Region of Ghana).

### **1.4 Research Objectives**

The objectives of the research are to:

1. Investigate the phonemic awareness competency level of early grade teachers.
2. Find out how early grade teachers perceive their competency in teaching phonemic awareness.
3. Examine the relationship between early grade teachers' perceived and actual competency levels in phonemic awareness instruction.
4. Examine early grade teachers' perception of implicit and explicit instructional strategies in teaching phonemic awareness to early grade pupils.

### **1.5 Research Questions**

The research questions in this study are as follows:

1. What is the phonemic awareness instruction competency level of early grade teachers?
2. How do early grade teachers perceive their competency in phonemic awareness instruction?
3. What is the relationship between early grade teachers' perceived competency in phonemic awareness instruction and their actual competency level?

4. What is early grade teachers' perception about using explicit or implicit instructional strategies in teaching phonemic awareness?

### **1.6 Significance of the Study**

This study makes both theoretical and practical contributions. In terms of theoretical contributions, results of the study contribute to existing literature on teacher competency in phonemic awareness instruction as a component of early reading instruction. Findings from the study would also serve as a guide to others who would want to conduct similar studies.

In terms of practical contributions, findings of the study provide useful information on phonemic awareness instruction for teachers teaching at the early grade level in the Effutu Municipality. Findings from the study also provide useful information on the competency level early grade teachers which could inform the Colleges of Education and GES in their preservice and in-service training respectively of early grade teachers.

### **1.7 Delimitation**

Although researchers have identified five core components of reading instruction that every teacher of reading should be equipped with, the study was delimited to phonemic awareness because phonemic awareness is a precursor to reading and mastery of it at the lower classes is highly predictive of future reading achievement (Torgesen et al., 1994). Furthermore, the study was delimited to phonemic awareness instruction in the early grade because it is at the early grades that direct instruction in phonemic awareness takes place. Phonemic awareness instruction in the early grades is more effective and efficient than in the upper grades as it takes four times as much resources in improving a pupil reading problems when help is

provided in fourth grade than starting at the early grades (NICHD, 2000). Also, early graders are more receptive at learning new habits than older pupils who have to relearn the ineffective habits they have developed and overcome the pervasive feeling of failure and stress related to reading (Bursuck & Damer, 2007). The study was delimited to only lower primary teachers because it was expected that teachers teaching at the lower primary level had been equipped with competency in phonemic awareness instruction (National Teaching Council, 2017).

Moreover, in terms of teachers' perception about reading instruction, the study was delimited to only the perception of teachers on implicit and explicit teaching strategies. This was the focus of the fourth research objective of the study. Furthermore, the data collection instrument used in the study was delimited to three research instruments, namely *The Survey of Preparedness and Knowledge of Language Structure Related to Teaching Reading to Struggling Student*, the *Teacher Knowledge Assessment of the Structure of Language* (TKASL), and the *Teacher Perception about Early Reading and Spelling* (TPERS) because their content enable the researcher to meet the research objectives.

### **1.8 Limitations of the Study**

The quantitative approach used by the researcher assumed that the issues related to this study could be reduced to numbers, however, teacher competency is too broad involving several behavioural and attitudinal elements as such teacher competency could not just be reduced to numbers as it was done in this study. Thus, the study could not benefit from the rich, in-depth analysis of respondents' personal attitudes, feelings, and behaviours a qualitative methodology could have achieved.

Moreover, the cross-sectional approach adopted by the researcher did not enable the researcher examine causal relationships. As a result, even though the study attempted to examine the relationship between perceived competency and actual competency of teachers in phonemic awareness, no causal relationship could be implied. In order to mitigate the negative impact of these limitations on the findings of the study, the researcher used research supervisor validation and Cronbach's Alpha test to ensure the validity and reliability respectively of the research instruments.

### **1.9 Operational Definition of Terms**

**Reading:** Reading is the ability to pronounce words, identify words and bring meaning to the words in order to create meaning from a text.

**Struggling readers:** The term struggling readers is defined as elementary aged readers who experience unexpected reading difficulty resulting chiefly from inaccurate and/ slow word read.

**Phonemic awareness:** A part of phonological awareness, it refers to the skills and knowledge related to the ability to notice, think about, or manipulate the individual sounds (phonemes) in words e.g. segmenting mat /m/ /a/ /t/.

**Teacher competency:** It refers to factual information and skills teachers possess about phonemic awareness.

**Phoneme:** A single speech sound.

**Phoneme manipulation:** When pupils work with the individual phoneme in words.

**Phoneme segmentation:** When pupils break words into their individual phonemes, break words into syllables and syllables into onset and rimes.

**Phoneme blending:** When pupils combine individual phoneme to form words, they are also blending when they combine onset and rimes to make syllables and combine syllables to make words.

### **1.10 Organisation of the Study**

In line with the in-house style of the University of Education, Winneba, this thesis was presented in six chapters. Chapter One comprised the background to the study, statement of the problem, aim and objectives of the study, research questions, significance of the study, delimitations of the study, limitations, operational definition of terms and general layout of the study. Chapter Two focused on the literature review taking into account the research objectives and the theoretical framework of the study. Chapter Three dealt with the methodology including research design, population, sample and sampling techniques, instruments used in data collection and analysis, description and distribution of instruments. Chapter Four covered the presentation and analysis of data collected and Chapter five focused on interpretation and discussion of results. Finally, the summary of findings, conclusions, and recommendations formed the concluding chapter of the report.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter reviewed existing related literature on teacher competency in teaching phonemic awareness in the development of early reading skills among early grade pupils. The literature was reviewed from journal articles and books. The literature review covered both theoretical and empirical research papers related to the study. The following strands, which reflect the objectives of the study, were covered. Section 2.1 begins with a review of the literature on teacher competency in phonemic awareness instruction while Section 2.2 continues with a review of the literature on teacher perceived competency about phonemic awareness instruction. In Section 2.3, a review of the literature on the relationship between teacher perceived competency and actual competency in phonemic awareness instruction is presented. Section 2.4 follows with a review of the literature on teacher perception about implicit and explicit instructional strategies in teaching phonemic awareness while Section 2.5 concludes the chapter with a summary.

#### **2.1 Teacher Competency in Phonemic Awareness Instruction**

The research examining the relevance of phonemic awareness instruction is extensive and provides compelling evidence that phonemic awareness instruction is important for the development of early reading skills. Phonemic awareness is the sensitivity to phonemes – the smallest unit of sounds that carries meaning – and involves the ability to notice, think about, and work with the individual sounds in spoken word (Uhry, 2011; Armbruster, Lehr, Osborn, & Adler, 2003). Before pupils begin to learn to read, they need to develop an awareness of how the sounds or phonemes in words work. They also need to have an understanding that, words are



made up of speech sounds. For instance, changing the first sound or phoneme in the word **hug** from /h/ to /b/ changes the word from **hug** to **bug** and hence changes the meaning of the words **hug** and **bug**. A kindergarten pupil can tell the difference between the spoken words “give me a hug” and “give me a bug”. The pupil can hear the fine distinctions in the sounds (auditory discrimination) and can correctly get the meaning of either sentence.

However, phonemic awareness is more than auditory discrimination. By the time the pupil is ready to read, the pupil should be able to do more than discriminate between the sounds (Uhry, 2011). For instance, the pupil should be able to identify that **hug** starts with the /h/ sound and **bug** starts with the /b/ sound. The pupil should know that /h/ and /b/ comes at the beginning of the word and that the ends of the words rhyme. Furthermore, the pupil should be able to combine the separate sounds in the word to say the word (/b/ /u/ /g/ =bug) and should also be able to break a word apart into its separate sounds (hug = /h/ /u/ /g/).

Phonemic awareness is pivotal when it comes to early reading development. This is because it is one factor that can predict pupils' reading and spelling achievement (Torgesen et al., 1994). Pupils' ability to learn to read depends on their phonemic awareness skills (Otaiba, Allor, Werfel, & Clemens, 2016; Uhry, 2011; Stark, Snow, Eadie, & Goldfeld, 2015); this is so because pupil's ability to map the sounds they hear to the letters they are learning enables them to read words at their first encounter (Otaiba et al., 2016). Instruction in phonemic awareness when pupils are about learning to read enables pupils to read more skillfully than pupils without this instruction (Uhry, 2011).

Phonemic awareness along with other forms of phonological processing can be taught directly as a precursor to and along with instruction in letter sound relationship to pupils lacking in speech sound awareness (Otaiba et al., 2016). Moreover, phonemic awareness training improves the meta-phonological skills and improves reading performance in pupils with or without disabilities (Troia, 1999). Again, pupils taught to blend and segment sounds have been shown to perform better at word attack tasks than pupils who have received no instruction in phoneme synthesis or analysis training (Troia, 1999).

Generally, phonemic awareness instruction in the context of literacy is beneficial to pupils who are learning to read (Hatcher, Hulme, & Snowling, 2004). For instance, the meta-analysis conducted by the National Reading Panel (NRP) in the USA reported that, phonemic awareness instruction improves pupil's ability to manipulate phonemes in words. This skill, when transferred, enables pupils to learn to read and spell as well as significantly enhance their reading comprehension (National Reading Panel USA, 2000). The causative influence of phonemic awareness instruction on the development of early reading skills had previously been confirmed through a number of experimental studies across several geographical locations (for example, Bradley and Bryant, 1983; Byrne & Fielding-Barnsley, 1991; Brennan and Ireson, 1997).

However, despite the overwhelming evidence supporting the importance of phonemic awareness instruction for the development of early reading skills, the literature indicates that many teachers lack knowledge of oral language concepts, including phonemic awareness which is essential to early reading development (Moats, 2009b; Bos et al., 2001; Cheesman et al., 2009; Cunningham et al., 2004; Fielding-Barnsley, 2010; Mather et al., 2001; Moats & Foorman, 2003). This limited

knowledge of language structure and concepts such as phonemic awareness reduces teachers' ability to explicitly teach early reading (Mather et al., 2001).

Competency in the underlying language concepts and instructional strategies of the five components of reading – phonemic awareness, phonics, vocabulary, fluency, and comprehension – is essential if teachers are to teach reading effectively. This is because competent teachers are able to incorporate their ideas into their everyday work and as a result their pupils' performance improves (Moats & Foorman, 2003).

To be a competent teacher of reading to emergent readers, teachers must have a deeper understanding, knowledge, and insight into how pupils acquire reading, the relationship between language development and reading development, the characteristics of disabilities and the basic tenets of reading instruction methodologies (Birsh, 2011). Teachers must be able to demonstrate their knowledge and understanding of phonemic awareness as well as other language concepts (Moats, 2000; Spear-Swerling & Brucker, 2004). For instance, to be a competent teacher of phonemic awareness instruction, the teacher, must be able to count, produce, segment blend and manipulate speech sounds. Such a teacher must also be able to identify syllable, onset and rimes and be able to tell them apart (Moats, 2009a; Moats & Foorman, 2003). Furthermore, a competent teacher of phonemic awareness must be able to plan instruction, critique instructional materials and produce the best examples suitable for the particular skills being taught as well as interpret and respond to pupils' error, provide appropriate feedback to pupils and explain new concepts in several ways (Moats, 2009a).

Moreover, a competent teacher in phonemic awareness instruction must be knowledgeable about the kind of activities that foster the development of phonemic awareness such as which speech sounds are easier for pupils to segment, which are difficult as well as what level of phonemic awareness proficiency is essential for reading (Brady et al., 2009). Teachers who possess these skills regarding phonemic awareness are able to provide more accurate instruction than teachers with limited knowledge of these concepts (Spencer, Schuele, Guillot, & Lee, 2008). Such teachers will be able to effectively instruct their pupils to acquire phonemic awareness skills than teachers who do not possess these skills. As Spear-Swering et al. (2005) pointed out, it is not about how well trained and experienced one is when it comes to teaching and improving pupils reading performance, but rather is about one's knowledge of the various underlying concepts surrounding the various component of reading instruction and one's ability to translate this into classroom instruction.

Various researchers have ventured into the area of teacher competency of phonemic awareness and other basic language concepts which is essential in teaching early reading. Notable among these studies is the study conducted by Moats in 1994. In her study of 89 in-service teachers of different backgrounds, Moats developed *The Informal Survey of Linguistic Knowledge*, an instrument which she used to find out teacher knowledge of these terms used in reading (phonic knowledge, phonemic awareness, and morpheme awareness) which are essential for effective reading instruction. Findings from the Moats (1994) study indicated that teachers lacked adequate knowledge of these terms used in relation to reading. For instance, participants had difficulty counting the number of phonemes in words presented to them.

In recent years, several studies have been conducted aimed at measuring teacher competency in phonemic awareness and other related language concepts. Though different designs were used, all these studies recorded similar findings. In 2002, eight years after Moats' (1994) iconic study, McCutchen, Harry, et al. (2002) conducted a study with 59 k-second grade general and special education in-service teachers using the same instrument as Moats (1994). Interestingly the findings were quite similar to that of Moats (1994) as there were no significant differences in scores between the various types of teachers. These findings made the researchers question the ability of the special educators to engage in reading remediation of struggling readers and that of the general classroom teachers in teaching early reading as these teachers lacked knowledge of basic concept needed to teach early and struggling readers.

A recent study conducted by Cohen et al. (2016), using the *Survey of Preparedness and Knowledge of Language Structure Related to Teaching Reading to Struggling Student* among 114 kindergarten through third grade teachers, revealed that majority of teachers lacked basic knowledge in phonemic awareness and other basic concepts of language related to teaching reading. Similarly, Martinussen, Ferrari, Aitken, & Willows (2015) in their initial study of 54 teachers found that, the teachers they studied had limited knowledge in phonemic awareness with a mean of 56.3%.

Washburn et al. (2011), in their study of teacher knowledge of basic language concept and dyslexia among 185 K-fifth grades, reported that participants had difficulty counting phonemes, blending phonemes, as well as defining phonemic awareness. For instance, only 47% of the participants were able to correctly identify

the correct phoneme in the word box ‘this word requires explicit attention to the sound in the words rather than the individual letters.

Piasta, Connor, Fishman, & Morrison (2009) conducted a study on 42 first grade teachers. They sought to examine these teachers’ understanding of phonology, orthography, and morphology. Results from this study revealed that participants had difficulty with tasks involving onset and rimes and phonological awareness. Overall, the researchers reported that, many of the teachers lacked the specialized content knowledge required to inform their classroom reading practices and provide first-grade pupils with effective, explicit reading instruction.

In her survey of beginning certified teachers, Cheesman (2004) also found that, these teachers lacked the ability to differentiate between phonemic awareness and phonics and the ability to segment written words by phonemes. Again, Moats and Foorman (2003) assessed 194 k-fourth grade teachers on their knowledge of orthography, phonology, and morphology. Results from the study indicated that, participants had difficulty detecting phoneme in words. Furthermore, Mather et al. (2001) after assessing 293 k-third grades preservice and 131 in-service teachers’ knowledge of the structure of the English language reported that, participants had difficulty counting speech sounds. In sum, the participants did not demonstrate adequate knowledge of phonemic awareness and other language concepts assessed in the study.

Spencer et al. (2008) also conducted a study with 541 highly trained professionals, including speech and language pathologists, reading specialists, special education teachers, as well as kindergarten and first grade general education teachers. The aim of the study was to find out these professionals’ ability to segment phonemes (count the number of sounds), identify sounds represented by underlined letters, and

isolate sounds. Findings from the study revealed that, though speech and language pathologist did better compared to the other professions, their mean score of 37.34 points out of 47 points was not indicative of expert skills in phonemic awareness. A notable point in this study was the method used. As participants were assessed within a print context, this made it difficult for most participants to overcome their reliance on written language hence intentionally using their knowledge of print to help them count speech sounds, which in the end resulted in many errors (Spencer et al., 2008). However, the speech and language pathologists were able to overcome this weakness and look beyond the printed words to actually determine the speech sounds in the words.

The weakness highlighted in the Spencer et al. (2008) study where most skilled readers tended to intentionally rely on their knowledge of print when counting speech sounds in words was also confirmed by a study conducted by Washburn et al. (2011) when they reported that k-fifth teachers also relied on their knowledge of orthograph and counted letters instead of sounds. Of course, being knowledgeable about print is essential. However, it is this same knowledge that prevents many skilled readers from critically analysing complex word structure beyond their own literary abilities (Moats, 1994; Spear-Swerling et al., 2005; Spencer et al., 2008). That is, being literate does not guarantee one's understanding of the structural aspects of language (McCutchen, Harry, et al., 2002) neither does it correlate with explicit awareness of spoken language structure and its relationship to reading (Cunningham et al., 2004; Washburn et al., 2011). It is therefore essential for teachers of early reading to acquire skills in phonemic awareness and other basic concepts of reading instruction in order to aid their teaching of early reading to emergent readers.

In the literature, a number of factors have been identified to influence teacher competency in phonemic awareness. These include professional development programmes, teacher training programmes, years of teaching experience, qualification, and teacher educator knowledge. These are examined in more detail below.

### **2.1.1 Professional development programmes' influence on teacher competency in phonemic awareness instruction**

Various researchers have reported of an increase in teachers' competency of phonemic awareness and other basic language concepts after going through professional development sessions. Though different settings and methods were used, majority of these researchers reported similar findings. For instance, in 2002, McCutchen, Abbott et al. conducted a 2 weeks summer institute on phonemic awareness, phonology, and other basic language concepts for 44 K and first grade teachers. There was a significant increase in teacher competency of these concepts from the pre-test mean score of 54.6% to the post-test score of 61.8% after going through the training.

Similarly, Moats and Foorman (2003) conducted a study with 194 k-fourth grade teachers on their knowledge of phonology and other language concepts. Results from the study indicated that teachers who attended professional development programmes achieved higher scores than those with little or no attendance. Moreover, Spear-Swerling and Brucker (2003) found after a study of 90 preservice teachers' knowledge of graphophonemic segmentation and other basic language concepts that, approximately half of the participants received a higher score. Again, Spear-Swerling and Brucker (2004) conducted a similar study, this time, using 147 novice special education teachers in a 2-day summer institute, monthly workshops, and in-class



mentors to learn about phonological awareness and phonic. Reports after the study indicated highly significant increase in teachers' ability to segment words, count phonemes, and recognize syllable types. However, despite the increase in scores, all scores were still below proficient level.

In another study involving summer institute, monthly workshops and classroom mentor setting, Brady et al. (2009) studied 65 teachers on knowledge of phonemic awareness and code concepts. Results after the study revealed an increase in the mean pre-test score of 25.26/60 to a post-test score of 34.07/60. Again, in another summer institute study with 16 teachers but this time within ten days and three, one-day follow up sessions about phonemic awareness, phonology and balance reading instruction, McCutchen, Green, Abbott, & Sanders (2009) reported an increase in post-test mean score.

Though the literature reviewed indicates a significant increase in teacher competency level after going through professional development training, the findings showed that most of the increase fell between 50-60 percent proficiency range which is an indication of lower level mastery of language-based reading concepts (Bos, et al., 2001; Mather et al., 2001; Spear-Swerling & Brucker, 2003; Spear-Swerling et al., 2005; Washburn et al., 2011). Though there had been an increase in competency levels, this increase was not significant enough to enable the teacher gain mastery of phonemic awareness and other important construct need to teach early reading effectively (Washburn et al., 2011). This suggests that, in spite of the availability of research information about the concepts teachers need to teach in order to help pupils become good reader, majority of teachers are still not adequately equipped to teach reading.

The situation exists because the depth of linguistic knowledge needed for teachers to teach reading effectively is extensive, complex and often underestimated (Cunningham, Zibulsky, & Callahan, 2009). Hence a day or two of workshop will not be enough to adequately equip teachers to effectively engage in code-based reading instruction. A typical example is the findings from the study conducted by Cohen et al. (2016) where they found out that teachers engaged in teaching code-based reading programmes in their schools did not have adequate knowledge in code-based reading instruction even though they had previously attended a one day workshop on how to use the code-based reading materials.

Even though the required amount of time needed for teachers to increase and master the skill of teaching reading have not been established, it would not be far from the truth when one estimates that more time and devotion would be needed in order to learn how to teach reading effectively (Moats & Foorman, 2003). All teachers, including experienced teachers, need intensive instruction, practice and sufficient time to learn instruction materials and apply the knowledge gained during supervised field experience in order to increase their competency in teaching early reading and to positively affect pupils' reading outcomes (Moats, 1994; Moats, 2009b; Moats & Foorman, 2003). Hence, it is essential that training institutions make a concerted effort to develop courses that will equip teacher trainees with the necessary knowledge and skills to become competent teachers of reading (Lyon, 1998), and to further provide them with multiple opportunities to apply their knowledge under consistent supervision (Brady & Moats, 1997).

### **2.1.2 Teacher training programmes' influence on teacher competency**

There is evidence to suggest that most teacher education programmes do not adequately equip teachers with the knowledge and skills for teaching phonemic awareness and other basic language concepts as well as the know-how to design classroom environment that will support the needs of all pupils (Birsh, 2011; McCombes-Tolis & Spear Swerling, 2011). This leads to serious under-preparation among teachers regarding the theory and content of language instruction (Birsh, 2011).

Two key factors that had contributed to the under-preparation and poor competency of teachers in teaching reading are the lack of exposure to key literacy concepts at their training institutions and inappropriate textbooks chosen for such courses. For instance, in the USA, Walsh, Glaser, and Dunne-Wilcox (2006) studied the course syllabi of 72 colleges and universities to find out what skills and knowledge teacher candidates were learning in required reading courses. They reported that, out of the 72 education programmes analysed, only 15% taught all the components of the science of reading – phonics, fluency, phonemic awareness, vocabulary, and comprehension – and only four out of the 226 books used were found acceptable for teaching the science of reading.

In a similar study McCombes-Tolis and Spear Swerling (2011) reported that phonemic awareness was not mentioned in almost two-thirds of the syllabi they reviewed. They also reported that about 45% of the syllabi they reviewed did not mention any of the five components of effective reading instruction outline by the National Reading panel. In addition, most of the course syllabi lacked components such as effective reading instructional assignments related to assessment practices,

supervised assessment training with an actual child, or developing or delivering lesson plan which are integral to effective teacher training.

When Joshi, Binks, Graham et al. (2009) reviewed the 17 most widely adopted introductory reading class textbooks, they obtained similar results. They reported that only 10% of one book used in 84 university reading courses addressed the five components of reading. In another textbook used by 91 universities, phonemic awareness and fluency were absent. Even though 13 out of the 17 textbooks contained all the National Reading Panel's recommended components of reading, more than half of the textbooks were rated as "unacceptable".

These studies clearly show the lack of agreement among stakeholders in education as to what constitutes effective early grade literacy instruction. The structured knowledge needed to equip teachers to teach reading effectively is yet to fully feature in the syllabi of teacher training institutions and textbooks. As a result, majority of teachers lack adequate knowledge of written language as well as hands-on experience needed to teach reading (Cohen et al., 2016; Cunningham et al., 2004).

Various recommendations made by institutions such as International Dyslexia Association and the Emily Hall Tremain Foundation have all cited the necessity for teachers to be equipped with the knowledge and skills in science-based reading instruction (Cohen, et al., 2016). In addressing the issue of under-preparation among teachers, Birsh (2011) noted that there should be a serious reform in colleges of education and professional development programmes to fill the knowledge gap among teachers and to equip teachers with the necessary knowledge, skills and know-how to meet the dynamic needs of their pupils.

### **2.1.3 Influence of years of teaching experience and qualification on teacher competency in phonemic awareness instruction**

A review of the literature reveals a number of studies had been conducted to examine the effect of years of teaching experience and teacher qualification on teacher competency in phonemic awareness instruction. For example, Bos et al. (2001) found that in-service teachers with more than 11 years of experience had performed significantly better than preservice teachers with 1-5 years of teaching experience. In another study Spear-Swerling et al. (2005) also found that teachers with an average of 7 years teaching experience outperformed teachers with an average of 3 years' experience.

Again, Washburn et al. (2011) also reported that first year teachers had lower score on the phonemic awareness measure compared to teachers who had more than five years teaching experience. In explaining this interesting relationship between teacher's competency level and years of teaching experience, Washburn et al. (2011) concluded that, classroom instruction significantly contributes to one's knowledge repertoire, particularly because some language concepts and skills develop more with authentic classroom practice and teaching experiences. They further stated that, the classroom provides a viable environment for teachers to reflect, analyse, and incorporate new information, an opportunity which is lacking for many fresh preservice teachers due to the fast pace teacher preparatory programmes.

In contrast however, Piasta et al. (2009) and Spear-Swerling and Brucker (2003) did not find any significant correlation between teachers' performance on knowledge test in phonemic awareness and teachers' years of experience. Moreover, Spear-Swerling and Brucker (2004) reported that even participants who had experience teaching reading such as certified elementary and special educators

performed relatively low at the word structure measure and neither time spent teaching pupils nor number of reading courses significantly affected knowledge scores of the preservice teachers. Another interesting contrasting finding is that of Cunningham et al. (2004) who reported that the least experienced teachers knew more about phonemic awareness than those with more years of teaching experience. The researchers speculated that this was due to better training in recent years.

#### **2.1.4 Influence of teacher educator knowledge on teacher competency in phonemic awareness instruction**

The literature review indicated that most teacher educators themselves did not possess adequate knowledge to instruct their students effectively in teaching phonemic awareness and other basic concepts of reading, and may sometimes downplay these concepts when engaging in their reading instruction. For instance, Farkas and Duffett (2010) reported that only 44% of teacher educators thought it was necessary for public school teachers to teach phonics and phonemic awareness when teaching literacy in early grades. This situation may somehow be an indication of why some teacher trainees come out of their teacher preparation programmes half-baked and unable to provide their pupils with effective reading instruction (Binks-Cantrell, Washburn, Joshi, & Hougen, 2012; Brady & Moats, 1997). Educators who do not have adequate knowledge and also downplay these concepts may not effectively teach their students, making them ill-equipped to teach beginning reading where knowledge of phonemic awareness and other basic concepts are critical.

The review indicated that teacher educators who had higher knowledge in phonemic awareness and other basic concepts of language produced teachers who were equally knowledgeable in phonemic awareness and other basic concepts of language and vice versa (Binks-Cantrell et al., 2012). This is called the “Peter Effect”

in teacher preparation in the sense that one cannot give what one does not possess (Binks-Cantrell et al., 2012).

A study conducted in the US among various college professors from various departments who teach reading to teachers indicated that a number of participants lacked knowledge about linguistic concepts essential to teach literacy skills such as defining phonemic awareness, counting the number of morphemes in words as well as common spelling rules (Joshi, Binks, Hougen et al., 2009). Such poor performance is an indication that the educators did not possess enough explicit understanding of these concepts and hence will be unable to teach others how to apply them (Cunningham et al., 2004; Joshi, Binks, Hougen et al., 2009; Washburn et al. 2011).

When Joshi, Binks, Hougen et al. (2009) surveyed reading instructors on the causes of reading disabilities and their general philosophy of teaching reading, none of the participants was able to provide the preferred answer of quality reading instruction and only 20% were able to define phonological awareness correctly. Furthermore, 75% of the participants described their approach to reading as a balanced approach. Although not bad in itself, a balanced approach to teaching lacks the explicit systematic and intensive approach needed to teach struggling and beginning readers. As noted by Moats (2000), in the name of ‘balance’ the worst practices of whole language are persisting, and it is continuing to inflict boundless harm on young children who need to learn to read.

## **2.2 Teacher Perceived Competency in Phonemic Awareness Instruction**

In the quest to find out if teachers were aware of their competency level in phonemic awareness instruction, several researchers have explored teachers’ perceived competency in phonemic awareness instruction. Teachers’ perception of their competency (ability, preparedness, and knowledge) in teaching particular

concepts does not always reflect their actual competency in those concepts (Bos et al., 2001; Cunningham, et al., 2004). Knowing whether teachers are aware of the depth of their knowledge in phonemic awareness instruction and whether they believe in the importance of phonemic awareness instruction, can help fill any gaps in their knowledge and hence improve their competency (Brady et al., 2009). Teachers who overestimate their competency level may often not be open to learning new ideas and concepts which could cause them to create a false sense of their teaching (Cunningham et al., 2004; Spear- Swerling et al., 2005). This can sometimes be detrimental not only to themselves but to the pupils they teach as these teachers may miss out on new innovative ways of addressing specific concepts which could have enhanced their teaching and improved their pupils' performance.

When teachers were surveyed on their perception about their literacy-related knowledge and skills, the overall result indicated that the teachers had high confidence in their ability to teach reading, overestimating their literacy-related knowledge and skills (Cunningham et al. 2009). Similarly, in a study involving seven schools in two Arizona state cities, Cohen et al. (2016) found out that teachers who engaged in a code-based reading programme had higher perception of their own knowledge than teachers who were not engaged in the code-based reading programme. Despite this, the teachers who were engaged in the code-based reading programme did not perform any better than those who were not engaged in that programme.

In a US study involving 65 teachers made up of 30 special educators and 35 elementary educators, McCombes-Tolis & Feinn, (2008) also found that, the teachers they surveyed were not able to estimate their knowledge of phonological awareness accurately. Similarly, Cunningham et al. (2004) also found a mismatch between



teachers' perceived competency and their actual competency in phonological awareness. They found out that participants who rated their competency level in phonological awareness as higher actually had lower mean scores while those who rated themselves as lower significantly performed better than those who rated themselves as having higher competency. However, 9% of the participants had their perceived competency score on phonemic awareness accurately reflecting their actual scores on phonemic awareness tasks.

When years of teaching experience were compared with perceived competency level in phonemic awareness, it was found out that participants with least experience had a significantly more positive perception of their knowledge (Cunningham et al., 2004). In contrast Spear-Swerling et al. (2005) reported that participants with more than seven years of teaching experience who had also done a considerable graduate coursework saw themselves as more knowledgeable in code-based reading skills than those with less experience and coursework. Interestingly, those who rated themselves as highly knowledgeable did indeed perform better than those who rated themselves as not knowledgeable

In terms of teachers' perception about their preparedness to teach reading, Bos et al. (2001) reported that majority of general and special education teachers who felt very comfortable with the language structure saw themselves as well prepared to teach reading. Despite this two-thirds of the participants scored below 60% on the teacher knowledge measure. Overall, the teachers rated themselves as somewhat prepared to teach reading to emergent and struggling readers. Washburn et al., (2011) also reported that, on the average, in-service teachers perceived their ability to teach phonemic awareness as moderate. Cohen et al. (2016) also reported that a majority of the teachers they studied rated on-the-job experience as preparing them the most for

teaching struggling and emergent readers. Cohen et al. (2016) further reported that, majority of the teachers believed their teacher education program prepared them the most to teach reading comprehension and prepared them the least to teach phonemic awareness.

### **2.3 Relationship between Teacher Perceived Competency and Actual Competency in Phonemic Awareness Instruction**

A review of the literature indicated that teachers do not only have limited competency in phonemic awareness instruction, but also, they tend to overestimate their competency levels in phonemic awareness instruction. As a result, their perception of their competency does not always correlate with their actual competency in phonemic awareness instruction (Bos et al., 2001; Cunningham et al., 2004; Bell, Ziegler, & McCallum, 2004).

Bos et al. (2001) conducted a study among 252 preservice and 286 in-service teachers. They used The Teacher Knowledge Assessment of Structure of English Language and The Teacher Perceptions about Early Reading and Spelling instruments to examine the perceptions and knowledge of preservice and in-service educators about early reading instruction. The findings revealed that, the participants had limited competency than they thought they had, indicating a mismatch between what participants believed they knew and what they actually knew.

Cunningham et al. (2004) also conducted a study among 722 K- third grade teachers. They used The Teacher Knowledge Assessment Survey by Moats 1994 to measure teacher knowledge about phonological awareness and phonics. They sought to investigate the extent to which teachers could predict their competency by examining the relationship between their actual and perceived knowledge in phonemic awareness and other structured language concepts. Results from the study

revealed that the participants demonstrated limited competency in phonemic awareness and other structured language concepts and yet evaluated their knowledge level quite highly.

Bell et al. (2004) also conducted a study among 208 adult educators using the Knowledge of Teaching Adult Reading Skills (KTARS) instrument. The study aimed to determine the actual and perceived teaching knowledge of adult educators. The findings revealed that, there was no correlation between the adult educators' knowledge and their self-ratings of their knowledge.

A weak association between teachers' perceived competency and actual competency in phonemic awareness is dangerous, because what a learner believes they know does not only influence their learning but also the monitoring and regulation of learning (Van Loon, de Bruin, van Gog, & van Merriënboer, 2013). The sense of feeling as if one knows when, in reality, they do not know prevents teachers from seeking out new and innovative ideas for teaching, which is not only detrimental to themselves but also to the pupils they are teaching.

In their study of the perceived and actual knowledge of phonemic awareness among 54 teacher candidates in an urban university, Martinussen, et al. (2015) found out that the teachers had significantly overestimated their knowledge level in phonemic awareness instruction, actually perceiving themselves to possess higher competency than they really had. Similarly, Cohen et al. (2016), after comparing the definitions and application knowledge of language structure, phonics, and other code-based concepts of 114 kindergarten through third-grade teachers and their perceptions of their knowledge also found that, there was a disconnection between perceived knowledge and actual knowledge among the participants. This was because most of

the participants had overestimated their knowledge of the subject at hand, as a result, the scores of their actual knowledge did not match their perceived knowledge.

Brady et al. (2009), after conducting a yearlong study among sixty-five first grade teachers at a summer institute monthly workshop and classroom mentor program, revealed in their initial survey of the perceived abilities of teachers about beginning reading concepts that, the scores of the participants did not significantly correspond with their self-rated abilities. However, after attending a reading workshop, teachers' rating of their ability to teach beginning reading concepts correlated significantly with their ability to complete phonemic awareness tasks.

#### **2.4 Implicit and Explicit Instruction in Reading**

A review of the literature indicated that, historically, there had been three main approaches to teaching reading, including whole word approach, whole language approach, and code-based approach. Proponents of these approaches to reading instruction have always been portrayed as engaging in a great debate or reading wars, as to which approach is the best and most effective when it comes to the teaching of reading (Piasta, 2004). Aside these concerns many researchers and teachers are also interested in finding the most effective instructional strategies for teaching these instructional approaches to reading (Dekeyser, 1995).

Some researchers claimed that learning to read would be too stressful when associated with rule explanations and drills, as such reading should be taught implicitly without any stress, mimicking the natural way pupils learn to speak their native language (Raju & Joshith, 2018). Other researchers have also claimed the opposite that, reading is best taught systematically and explicitly with rules and explanations (National Reading Panel, 2000). Thus, the previous literature on the

approaches to teaching reading tends to classify the different instructional approaches in terms of the degree of “explicitness” (Dekeyser, 1995).

#### **2.4.1 Implicit instruction**

Implicit instruction has been part of the teaching and learning process for a long time, and unlike explicit instruction, it has a long tradition rooted more in philosophy than in psychology (Taylor, Graves, & van den Broek, 2000). Implicit instruction was championed by the Progressive Education movements in the 1900s, which advocated that education should focus on pupils and their experience and interaction with the real world instead of experiences constructed by the teacher. Thus, implicit instruction is pupil centred, and proponents believe that pupils should be allowed to learn what they want to learn and not what is constructed by the teacher. Critical to pupils learning under this approach are choice, interest and purpose (Taylor et al., 2000).

Instruction is considered as implicit if the instructional process does not provide any rule explanation nor does it have the intension of directing a learners’ attention to a targeted skill (Norris & Ortega, 2000). Thus, in implicit instruction, pupils learn about things in their environment without the intention to do so, as such, it is usually hard to express what exactly this knowledge structure is.

Implicit instruction is also considered as a natural approach to learning (Gxilishe, 2013) as it is believed that, pupils can learn language naturally just as they were able to learn their natural language without any explicit instruction. Thus, implicit instruction aims at providing learners with conditions under which they can unconsciously infer rules and use them without awareness (Ellis, 2008). For instance, pupils can be given communication-based activities or they can be asked to read books or watch movies in the target language. The idea is that, through these less

formal mediums they would subconsciously learn the target skill simply by hearing and seeing them. Implicit instruction has its limitations as, without explicit instruction, it can be difficult to make sure pupils are learning the targeted skill. Also, it is unlikely for struggling readers to discover these targeted skills on their own without explicit instruction (Fordyce, 2013; Baleghizadeh & Derakhshesh, 2017).

Domains in which implicit instruction is apparent encompass knowledge about the physical and the social world, category learning, and first and second language learning (Reber, 1993). In language learning it is especially used in grammar and comprehension instruction (see for example Fordyce, 2013; Baleghizadeh & Derakhshesh, 2017; Ballou, 2012; Farshi & Baghbani, 2015).

A review of the literature also revealed that, among the components of reading, implicit instruction is rarely used, especially in phonemic awareness which is the focus of this study. However, when used in implicit phonics instruction, pupils are taught to learn from whole to the smallest part, phonemes associated with a particular grapheme are not taught in isolation (Dahl & Scharer, 2000). Pupils analyse words and look for common phonemes in a set of words. Blending and building are not usually taught to pupils, and pupils identify new words by their shapes, beginning and ending letters and context clues. Breaking down of whole word into part is only necessary when the pupil cannot read it as a whole word (Dahl & Scharer, 2000).

Reading instructional approaches that tend to use implicit instruction include whole word approach and whole language approach. Following is a discussion of these approaches.

### **Whole word approach to teaching reading**

The whole word approach, which is also called look and say approach (Piasta, 2004), is an approach to teaching reading, where pupils are taught to read words in their whole form without breaking them into their sub word part (Beck & Juel, 2002). The proponents of this approach are of the view that language is indeed whole and, as a result, it is best learnt as a whole with meaningful and relevant texts. The whole word approach focuses on teaching pupils to sight-read and memorise whole words presented to them (Piasta, 2004). Through consistent exposure to words, especially in a meaningful context, it is expected that pupils will learn to read words automatically without conscious attention to subunits in words. The limitation of this approach is that, it will be quite impossible for pupils to memorise all the words in a language and, as a result, they would be handicapped if they meet unfamiliar words.

### **Whole language approach**

The whole language approach is also called literature-based approach, top-down approach or inductive approach (Soiferman, 2016). This approach was popular in education circles in the 1980s (Maddox & Feng, 2013). The whole language approach utilises children's literature as a tool for teaching pupils to read (Soiferman, 2016). For pupils in the early years, pattern books are often used because of the rhyme, repetitions, predictability and the high frequency words (Goodman, 1997). Furthermore, the link between the printed text and pictures makes reading easier for the pupils. It also facilitates pupils' understanding of the story as they take cues from the pictures which in turn aids in their understanding of the story.

Proponents of the whole language approach believe that pupils learn to read naturally; hence, the focus of reading should be comprehension and immersion of pupils in high quality literary materials (Soiferman, 2016). Thus, to them, pupils will

learn to read naturally if they are immersed in literature rich environment without any direct instruction. Advocates of this philosophy also believe that pupils learn best when learning is whole, interesting, meaningful, and functional (Maddox & Feng, 2013).

Educators who use literature-based or whole language approach in teaching reading encourage pupils to look for clues in the context of what they are reading to help them understand the text they are engaged in (Maddox & Feng, 2013; Soiferman, 2016). Also, pupils are advised to skip a word and continue reading if they are not able to mention the word and then go back to the word. Pupils are not taught explicitly to sound out an unfamiliar word but rather to rely on guessing the word they do not know by relying on context clue through reading the early and later part of the sentence and from the story (Laney, 2011).

#### **2.4.2 Explicit instruction**

Explicit instruction means imparting new information to pupils through meaningful teacher/pupils interaction and teacher guidance of pupils learning (Rupley et al., 2009). Explicit instruction is also referred to as rule-based or form-based teaching, due to its structured nature and rule explanation (Spada & Lightbown, 2008). Under the explicit instructional approach, the teacher is clearly the leader, leading the teaching-learning process.

The learning objectives and the type of lessons to be learnt, determine how direct or structured the instructional approach would be; for instance, majority of learning outcomes in reading instruction can be considered as either skilled or cognitive (Rupley et al., 2009). Therefore, each learning outcome that needs to be taught would require a different lesson presentation method under explicit instruction. Skills learning involve lower level cognitive processing, are specific in nature and are



more or less automatic (Blair, Rupley, & Nichols, 2007). In skill learning the teacher is in control of the learning process and employs a high degree of structure. Examples of reading skills includes the various decoding methods used in phonics, structural analysis, and context analysis; as well as specific comprehension skills such as recognizing sequential development, fact versus opinion, and a stated main idea (Rupley et al., 2009).

However, cognitive strategies demand high level cognitive processing, are less specific in nature than skill and are supported by intentional and deliberate procedures under the command of the reader (Rupley et al., 2009; Dole, Duffy, Roehler, & Pearson, 1991). In cognitive strategy learning, teacher directness and control is still required however it is not as rigorous as seen in skilled learning. The teacher still needs to explain and model what he or she wants the pupils to learn, but it is not a strict step-by-step procedure under the control of the teacher as it is done in skilled teaching (Blair et al., 2007). Examples of cognitive strategies applied to reading include making predictions, summarizing a story, reacting critically to what is read, and inferring main ideas. It is these different and dynamic changes involved in explicit instruction that bring about the interactive relationship between teachers and pupils and, as a result, generate responsive instruction (Rupley et al., 2009).

### **Elements in explicit instruction**

Explicit instruction combines a number of elements of effective instruction. These elements include relating new information to past learning, explaining to pupils why the new skill or cognitive strategy is important and useful, eliciting pupils' interest, providing step-by-step explanations, modelling, engaging in guided practice, and practicing the ability independently in a variety of reading texts and groupings (Rupley et al., 2009).

Several applications of explicit instruction have been developed over the years but all of them share these elements in one way or the other. For instance, Reutzel, Child, Jones, and Clark (2014) outline seven core instructional moves associated with the concept of explicit instruction as applied to teaching elementary reading. These are (a) direct explanation, (b) modelling, (c) guided practice, (d) independent practice, (e) feedback, (f) discussion, and (g) monitoring. These elements are examined in detail as follows.

According to Reutzel et al. (2014), direct explanation is when new materials are taught in a plain and concrete manner. The teacher teaches the new material in a step by step manner, giving description of the process being taught in a brief and consistent language (Blair et al., 2007). That is the what, how, why and the when of what is being learned are provided by the teacher in a clear and comprehensible language (Clark & Graves, 2005).

Modelling is an explicit teaching strategy that teachers use to help students conceptualized reading skill and strategies and how to apply them. Modelling involves demonstrating to pupils how to apply the skills they have obtain. Modelling varies in relation to how much information is explicitly provided (Dole et al., 1991). Explicit types of modelling used extensively in teaching cognitive strategies includes talk-alouds and think-alouds. Both of these involve teacher discussion and teacher–student interaction. In talk-alouds, the teacher demonstrates the cognitive strategies whiles discussing the steps in the process being learned (Reutzel et al., 2014). Think-alouds often involve discussion of the steps used in a strategy, but they also include a description of the reasoning that readers use when performing the task. Think-alouds are intended to help students get inside the teacher’s mind and begin to understand what strategies they can use when doing similar tasks.

Directly controlled by the teacher, guided practices is characterized by varying degrees of teacher–pupils interaction. In this process the teacher acts as a mediator (Samar & Dehqan, 2012). In Vygotsky’s theoretical work, mediated instruction is explained as providing guidance to a pupil in learning a particular skill (Fadeev, 2019). In the initial stage of the learning process, the amount of guidance provided is greater, and then, the teacher gradually withdraws the assistance to a little or none at the end of the learning process. Guided practice involves scaffolding .Scaffolds are forms of support provided by the teacher or a peer to help bridge the gap between a pupils current abilities and the intended goal that, the pupil could not have achieve without help (Rupley et al., 2009). Scaffolding is an instructional strategy that allows teachers to mediate student learning (Samar & Dehqan, 2012). Thus instead of providing explicit steps, one can give support or scaffolds. Scaffolds can be general aids such as modelling or demonstrating a strategy, it can also be more specific such as making suggestions. For example, —That block tower keeps falling. One way we can help it is by putting the bigger ones at the bottom. What other way can we do it?” During this phase, instructors prompt and scaffold pupils’ learning as necessary. Scaffolding is gradually eliminated as pupils demonstrate accuracy in using the material being taught. Positive and corrective feedback is provided during this phase, and instruction is adjusted to match student needs. When pupils reach a high level of mastery (typically 85 percent accuracy or higher) the instructor moves out of the guided practice phase.

Independent practice is an active application of the knowledge, skill, concept or strategy learnt by the pupil (Rupley et al., 2009) thus, after achieving a high level of mastery, pupils move to the independent practice phase where they independently demonstrate their new knowledge and skills without any assistance. During

independent practice, the instructor closely monitors pupils and provides immediate feedback as necessary. Countless independent practice activities can be used with pupils, and the primary focus of the independent practice activity should be related to the content of the modelling and guided practice. If pupils demonstrate difficulty at this stage, instructors evaluate and adjust their instruction to re-teach concepts as needed. Independent practice is a crucial element of explicit instruction as it ensures that, pupils can successfully apply newly acquired knowledge, skills, strategies, or concepts on their own (Archer & Hughes, 2011).

Feedback involves teachers giving the correct verbal feedback to pupils regarding their application of skills, strategies and processes and concepts (Taylor, Pearson, Peterson, & Rodriguez, 2003). It is essential that teachers provide feedbacks when answers are correct, and also reteach material or correct pupils' incorrect response (Reutzler et al., 2014). Appropriately given feedback is a powerful tool used to close the gap between the pupil's current response and the desired response (Archer & Hughes, 2011).

Discussion often involves asking questions, eliciting pupils' responses, asking pupils to elaborate on a response, and providing opportunities for students to interact with teacher or peers in a group setting (Wilkinson & Son, 2011). Discussion typically occurs most frequently during guided practice or immediately following direct explanations. When discussion is included as part of explicit instruction, the teacher is often the initiator and facilitator (Archer & Hughes, 2011).

Monitoring is seen as carefully attending to pupils responses (Archer & Hughes, 2011). Monitoring is ongoing and consistent (Gersten & Geva, 2003). That is, monitoring can be thought of as continuous teacher assessment to determine how pupils are responding to instruction. Monitoring pupils' performance can be formal or

informal. Monitoring can also include the use of formal assessments given to pupils to determine their level of understanding, the effectiveness of instructional practices, status of pupils outcomes, and selection of future instructional strategies and tasks (Rupley et al., 2009). Blair et al. (2007) identified three different types of monitoring: pupils' interviews, teacher observations, and viewing samples of pupils work. Monitoring is essential because it is the mechanism that informs teachers about the quality and quantity of student progress to shape and inform their instructional decision making (Archer & Hughes, 2011)

The reading instruction approach that teaches reading explicitly is the code-based approach. Following is a discussion of the code-based approach.

### **Code-Based Instruction**

Proponents of the code-based approach to reading see reading as consisting of a set of sub skills or strategies which must be explicitly taught (Pressley, 2001). This approach is also called the systematic approach (National Reading Panel USA, 2000) or skills approach (Piasta, 2004). In this approach pupils are taught to use letter and other sub word knowledge in order to sound out unfamiliar word parts and then blend them together until a recognizable pronunciation is achieved. Here, teachers rely on deductive instruction in order to teach a specific skill to pupils.

The deductive instructional strategy involves the following steps; (1) state the skill (2) provide examples of the skill or rule; (3) provide guided practice; and (4) provide independent practice (Soiferman, 2016). Thus, after a teacher is certain that pupils have mastered the skills being taught, pupils are given the opportunity to practice on their own. This shows the teacher that the pupils have mastered the concept being taught. Supporters of this approach believe that, pupils should first be

taught the rules of the alphabet and the sounds associated with them (Snow, Burns, Griffin, & Young, 1998).

### **2.4.3 Importance of explicit and implicit instructional strategies**

Many studies have been conducted to find out about the efficacy of using either explicit or implicit instructional approach in teaching. For example, Spada and Tomita (2010) conducted a meta-analysis to investigate the various effects of implicit or explicit instruction on simple or complex language features in English. Thirty articles were included in their review. The overall finding of the meta-analysis indicated that explicit instruction is more effective than implicit instruction.

Rod Ellis, Loewen, and Erlam (2006) conducted a study among students learning English in a private language school in New Zealand. Majority of learners (77%) were from East Asian countries. The study trained low intermediate ESL learners on the English past tense with implicit feedback and explicit feedback. Their study showed that learners trained with explicit feedback scored higher than those with implicit feedback in delayed post-tests, but this difference did not manifest in immediate post-tests.

Similarly, Yabuki-Soh (2007) conducted three hours of classroom training on Japanese relative clauses with 60 JFL learners of various L1 backgrounds at the end of the first-year university course. Learners were divided into three training groups: form, meaning, and the combination of form and meaning. The results showed that explicit form/rule-based teaching is significantly better than the other two groups of participants on both production and comprehension of relative clauses.

Furthermore, Kemper, Verhoeven, and Bosman (2012) conducted a study among 127 pupils from special and regular education schools in the Netherlands. The study aimed to compare the differential effectiveness of explicit and implicit

instruction of two Dutch spelling rules. Students with and without spelling disabilities were instructed a spelling rule either implicitly or explicitly in two experiments. Results from the study indicated that, explicit instruction is more effective than implicit instruction for the teaching of spelling rules when generalization is aimed at. Similarly, Farshi and Baghbani (2015) found that, student, who receive, explicit instruction scored higher than those who received implicit instruction. Nazari (2013), found that, pupils who were taught grammar explicitly outperform those who were taught implicitly.

The studies reviewed so far suggest that, the use of explicit instruction is more effective in improving pupils learning than implicit instruction. However a few studies have also shown that there is not much different in pupils performance when either explicit or implicit performance is used. For instance, Sanz and Morgan-Short (2004) found in their study investigating the effect of explicit information (i.e., explanation and explicit feedback) on the acquisition of Spanish word order that, all the groups which were used in the study, with or without explicit information improved similarly on the tests. Similarly, VanPatten and Oikkenon (1996) also conducted a study with fifty nine participants. The focus was to teach participants using structured input activities and explanation to teach object pronouns and word order in Spanish. Participants were put into three groups, one with explanation and structured input activities; one with explanation only and one with structured input only. The results indicated that the two groups with structured input activities performed significantly better than the group with explanation only, but showed no difference between themselves. This therefore suggests that pupils can learn effectively if either explicit or implicit instructional strategies are used.

A few other studies also suggest that implicit instruction is also an effective instructional strategy. For instance, Bosman, van Hell, & Verhoeven (2006) conducted a study in which they taught children in a 10-minute session to regularize the pronunciation of strange, non-native Dutch words. Strange words were spelt according to the rules of the language they were borrowed from and thus do not obey prototypical Dutch sound-spelling rules. The results showed that, students who were taught to apply the regularized way of reading showed better spelling performance than students who were asked to pronounce the word as it should be according to the rules of the language it was borrowed from. More importantly, when they were presented with a novel set of words, they correctly indicated which items suited this strategy and which items did not. This study therefore suggest that those taught implicitly did better than those who were taught explicitly.

Similarly, Bryant, Nunes, and Snaith (2000) concluded that pupils learned implicitly. They examined young children's knowledge of the ending of the English past tense. The underlying rule stated that when the past tense has the same sound as the present, -ed is added to the verb (e.g., learn – learned, walk – walked), whereas it is spelled phonetically, that is, with a  $-d$  or a  $-t$ , when past and present tense sound differently (tell – told, sleep – slept). Although 8- and 9-year-old children were not told about the underlying rule, they appeared to use this rule when writing pseudo words without being able to explain the underlying rule, leading to their conclusion that the children learnt regularity implicitly while reading. Also, Doughty (1991) trained 20 ESL learners of various L1 backgrounds on English relative clauses with explicit or implicit instruction, for 10 hours of computer-based training (10 sessions of 1 hour each). Findings indicated that, although explicit and implicit instructions were equally effective with respect to gains in relativisation, the implicit group



demonstrated significantly better comprehension of the context than the explicit group.

The general conclusion one could draw from the review of literature, is that, though explicit instruction dominates as the most effective instructional strategy, implicit instructional strategy can also be useful at times.

#### **2.4.4 Teachers' perception about implicit and explicit instructional approach to teaching phonemic awareness**

It is interesting to note from the literature review that teachers tend to have different perceptions about implicit and explicit instructional approaches to teaching phonemic awareness which may possibly influence their use of explicit or implicit instructional strategies in their teaching of phonemic awareness as part of their early reading instruction. Bos, Mather, Narr, and Babur (1999) surveyed a group of teachers about their perception of implicit and explicit phonic instruction before and after taking part in a professional development training. Results from the initial survey revealed that teachers had positive attitude towards implicit instruction. However, by the end of the course, the teacher's perception about implicit instruction had significantly lowered and their attitude towards using explicit instruction was more positive, and participants rated the class as "very valuable" to "extremely valuable". Despite this, they still retained their positive attitude towards implicit instruction.

Similarly, Brady et al. (2009) surveyed teachers' attitude about explicit and implicit code instruction before and after attending a professional development seminar. Though initial results indicated that, teachers rated implicit instruction higher, the results after the seminar indicated that teachers significantly lowered their perception about implicit code instruction after the training. Brady et al. (2009) observed a positive correlation between teachers attitude and their increased

knowledge. The researchers further noted that, teachers who express poor attitude towards professional development programmes had the least increase in knowledge.

However, when Bos et al. (2001) administered the teacher perception about early reading and spelling survey to a group of 538 preservice and in-service teachers, results from the survey indicated that, the teachers expressed positive attitude towards using both explicit and implicit code instruction. This therefore suggests that, the teachers do not fully embrace one theoretical orientation, but rather are willing to use both. As noted by Pressley et al. (2001), competent teachers are those that do not stick to one instructional orientation but rather combine practice that work well for them, and do not worry about theoretical purity when teaching. Competent teachers are those who are able to tailor instructions to meet their pupils' needs.

Mather et al. (2001) administered the Teacher Perceptions Toward Early Reading and Spelling (TPERS) survey to a group of preservice and in-service teachers to examine if classroom experience influenced teacher's perception about explicit language-based instruction. The in-service teachers were more positive toward code-based instruction than were preservice participants. Overall, participants were more positive toward code-based instruction than holistic instruction or implicit-based instruction. However, despite the fact that both preservice and in-service teacher expressed positive attitude towards code-based instruction, they all downplayed the importance of understanding the alphabetic principle or the effective use of different identification strategies. Moreover, they were not concerned if pupil miscues altered the meaning of a text. The attitude displayed here is an indication that, though these teachers in general express positive perception toward explicit instruction, they do not possess adequate knowledge about this instructional orientation.

Similarly, Troyer and Yopp (1990) reported that, the teachers they surveyed did not perceive code-based tasks essential in the reading process. This attitude was clearly displayed when, on a scale of one to six, the teachers rated two essential skills need to become a proficient reader (namely, determining the number of syllables and segmenting sounds) as being the least important.

## **2.5 Teacher Competency in Early Grade Reading Instruction in Ghana**

A review of the literature on teacher competency in early grade reading instruction in Ghana indicated that there is limited research on teacher competency in phonemic awareness instruction in Ghana. This is quite surprising considering that significant attention is given to pupils' development of phonemic awareness as a component of early reading in the country's early grade curriculum (National Teaching Council, 2017). However, several previous studies had focused on different aspects of teacher competency in early grade reading instruction in Ghana (for example Hartwell, 2010; Man, Nuobepuor, Kogri & Kpogwiiri, 2019; Akyeampong, Lussier, Pryor & Westbrook, 2013; Pryor, Akyeampong, Westbrook & Lussier, 2013; Opoku-Amankwa, Brew-Hammond & Mahama, 2012; Abdul-Razak, 2016).

Following the introduction of the National Literacy Acceleration Project (NALAP) rolled out by the Ghana Education Service and the Ministry of Education to improve early grade pupils reading and writing, Hartwell (2010) investigated the effectiveness of NALAP. The study was conducted within 60 schools in 13 districts within 6 regions in the then 10 regions of Ghana and made the following findings related to teacher competency. First, many teachers felt that, the timing gap between when they received the training in NALAP and the late start of the programme due to the late delivery of teaching learning material impeded their confidence in implementing the NALAP programme in their classrooms. New teachers who were

assigned to the early grade classes also failed to use the available teachers guide to implement the programme in their classrooms due to their inadequate knowledge about the programme. Moreover, teachers who used the teacher's guide did not fully follow the activities prescribed in the guide but rather went by the traditional ways, focusing on pupils' repetition of single words and memorization of text.

Man et al. (2019) also conducted a similar study in the Upper West region of Ghana using 100 lower primary teachers to evaluate the impact of NALAP on the teaching of literacy and language from KG1 to P3. Findings from the study revealed that, the teachers did not fully implement the NALAP programme as they only used the materials and methodologies provided to some extent. The findings also revealed that, NALAP teaching and learning materials were available in schools, however, they were not enough, and some school had none.

Again, Akyeampong et al. (2013) conducted a study which focused on teacher preparation to teach reading and mathematics in six African countries, including Ghana. The purpose of the study was to examine how initial teacher education shaped beginning teachers' professional understandings of effective practice in the context of learning to teach reading and basic mathematics. Findings from the study showed that, teachers in the study had limited competency in teaching reading as many of the teachers had uneven knowledge in reading. They reported that, most of the teachers taught based on abstract activities rather than on pedagogical content. They also reported that, most of the teachers overestimated their competency in teaching early reading, when in reality their competency did not actually match their understanding of early reading instruction.

Pryor et al. (2013) also conducted a study on initial teacher training and continuing professional development of teachers in six African countries including Ghana. The study sought to build a comprehensive picture of teacher preparation related to reading and mathematics in the early years of primary school. It also sought to identify factors that contributed to successful practice and that led to increased pupil learning outcomes, as well as specific barriers and constraints that impeded teacher practice and pupil progression in basic numeracy and literacy. Findings from the study revealed that, there were many deep gaps in the curriculum taught and consequently in teacher knowledge and skills in teaching early grade reading.

Opoku-Amankwa et al. (2012) conducted a study on two reading promotion programmes in basic schools in Ghana (a books scheme for primary schools and reading assessment programme). The purpose of the study was to evaluate the progress made so far, the constraints and setbacks of the schemes, and make suggestions for the improvement of the schemes and similar ones in the future. Among others, findings from the study indicated that, little was known about the two schemes. Also, teachers interpreted and implemented the reading assessment programme in a range of ways according to their own understanding, leading to inconsistent assessment of pupils.

Abdul-Razak (2016) also examined the use of phonics as a method of teaching reading in basic schools. The study found that only 17% of participants (made up of teachers and teacher-trainees in the Norther Region of Ghana) had some knowledge about phonics. Moreover, 80% of participants (made up teachers, teacher-trainees, and pupils) had no knowledge on phonics.

## **2.6 Summary of the Literature Review**

This chapter reviewed related literature on the research topic. The chapter was discussed under the following strands: teacher competency in phonemic awareness instruction, teacher perceived competency about phonemic awareness instruction; relationship between teachers' perceived competency and actual competency in phonemic awareness instruction; implicit and explicit instruction in reading, including teacher perception about implicit and explicit instructional strategies in teaching phonemic awareness; and teacher competency in early grade reading instruction in Ghana. It could be concluded from the review of the literature that there had been numerous and extensive studies on teacher competencies with regards to teaching phonemic awareness as a component of early reading instruction, yet there was a dearth of research in this area with regards to Ghana.

Even though previous research has addressed several aspects of teacher competency in early reading in Ghana, little attention has been given to teacher competency in phonemic awareness instruction in Ghana. Moreover, during a literature search at the UEW Library in the presence of the University Librarian, the researcher did not find any prior empirical studies that examined teacher competency in phonemic awareness for the development of early reading skills among early grade pupils in the Effutu Municipality. This study therefore sought to address this research gap by focusing on teacher competency in phonemic awareness instruction for the development of early reading skills in the Effutu Municipality (in the Central Region of Ghana).

## CHAPTER THREE

### METHODOLOGY

#### 3.0 Introduction

This chapter sought to offer detailed and explicit perspective on the research methodology and approaches adopted to gather data for the study. Areas covered included: research approach, research design, population, sample size, sampling techniques, instrument used for data collection, validity and reliability, procedure for data collection, method of data analysis and ethical considerations.

#### 3.1 Research Approach

The study employed quantitative research approach to explore teacher competency in phonemic awareness instruction for the development of early reading skills among early grade pupils in public schools within the Effutu Municipality. Quantitative research approach emphasises objective measurement and the statistical or numerical analysis of data collected through polls, questionnaires and surveys which are generalized across a group of people or used to explain a particular phenomenon (Creswell & Creswell, 2018; Babbie, 2018).

The quantitative approach was appropriate for this study because the researcher sought to measure the level of teacher competency in phonemic awareness instruction through survey, hence, the researcher employed this approach to enable her obtain numerical data in order to explain the phenomenon under study. In the study, the researcher sought to examine the relationship between teachers' actual competency level and teachers' perceived competency level. Since quantitative research involves examining relationship among variables (Creswell & Creswell, 2018) the researcher deemed it appropriate to employ the quantitative research approach as it aided the researcher in achieving the research objectives. Findings from

this study were arrived at through the use of questionnaires which enabled the researcher to quantify the data collected.

### **3.2 Research Design**

The research utilized cross sectional survey to explore teacher competency in teaching phonemic awareness for the development of early reading skills among early grade pupils in the Effutu Municipality. Cross sectional survey is a one-time study that seeks to provide a snapshot of what is happening within a group or an organization by looking at their similarities and differences without the manipulation of variables (Creswell & Creswell, 2018). Cross sectional survey provides important knowledge about attitude, practice and opinions (Gall, Gall, & Borg, 2007). In the study, the researcher utilised cross sectional survey to gather information at a particular point in time from various respondents in public schools within the Effutu Municipality.

### **3.3 Population**

The target population of the study was 134 teachers according to data obtained from the Effutu Municipal Education Directorate in April, 2019. This number consisted of all teachers who taught at kindergarten (KG) to primary two (P2) in the 27 public primary schools within the Effutu Municipality according to the list of schools obtained from the Effutu Municipal Education Directorate of GES on 25<sup>th</sup> April, 2019 (see Appendix C). The population distribution of respondents is presented in Table 1.



**Table 1: Population Distribution of KG – P2 Teachers in Public Basic Schools in the Effutu Municipality as at 4th May, 2019**

<b>Name of School</b>	<b>Location</b>	<b>Male Teachers</b>	<b>Female Teachers</b>	<b>Total</b>
A.CM KG/ Primary school	Sankor	0	4	4
A.M.E. Zion A/B KG/Primary	Abasraba	0	8	8
A.M.E. Zion C Primary	Abasraba	1	1	2
A.M.E. Zion D KG/Primary	Abasraba	0	4	4
Akosua Village M/A Primary	Akosua Village	0	4	4
Ansaful M/A Basic School	Ansaful	0	4	4
Ansarudeen Islamic Basic	Winneba Zongo	0	4	4
Atekyedo M/A KG/Primary	Atekyedo	1	3	4
Atteitu/Osubon. M/A Primary	Atteitu	0	4	4
Don Bosco Cath. Boys Primary	Roman Hill	0	4	4
Don Bosco Cath. Girls Primary	Roman Hill	0	4	4
Essuekyir Methodist Primary	Essuekyir	0	4	4
Gyahadze M/A KG/Primary	Gyahadze	0	4	4
Gyangyanadze M/A KG/Primary	Gyangyanadze	0	4	4
Methodist A/B KG/Primary	Ndaamba, Abowie	0	8	8
Methodist C/D KG/Primary	Ndaamba, Abowie	0	8	8
New Winneba M/A Basic	New Winneba	0	4	4
Ntakorfam M/A Basic	Ntakorfam	0	4	4
Presbyterian KG/Primary	Kojo Beedu	0	4	4
St. John's Anglican Primary A	Abasraba	1	3	4
St. John's Anglican Primary B	Abasraba	0	4	4
UNIPRA North Primary	UEW, North Campus	0	8	8
UNIPRA South A/B KG/ Primary	UEW, South Campus	0	8	8
UNIPRA South C KG/ Primary	UEW, South Campus	0	4	4
UNIPRA South Inclusive	UEW, South Campus	0	4	4
Winneba M/A KG/Primary A/B	Kojo Beedu	0	8	8
Winneba M/A KG/Primary C/D	Kojo Beedu	0	8	8
<b>Total</b>		<b>3</b>	<b>131</b>	<b>134</b>

**Source:** Effutu Municipal Education Directorate, May 2019

### **3.4 Sample Size**

The study targeted the entire population of interest, that is, all the 134 teachers teaching in KG to P2 in the 27 public primary schools in the Effutu Municipality. This was made up of 3 male teachers and 131 female teachers as shown in Table 1. Of the total number, 116 teachers responded to the questionnaires, representing a response rate of 86.57%. The background information on the teachers have been presented and discussed in chapter four of this report.

### **3.5 Sampling Technique**

The researcher used census sampling technique to select the participants for the study in order to ensure that enough data were obtained for the quantitative analysis given the relatively small population size. This technique is also referred to as complete collection or total population sampling (Gay, Mills, & Airasian, 2008). It is a purposive sampling technique in which the researcher seeks to include in the study the entire population that meet the criteria of interest (Etikan, Musa, & Alkassim, 2016; Gay et al., 2008). The researcher purposively selected the entire population of KG – P2 classroom teachers because they were the focus of the study that could provide the needed information to answer the raised research questions in the study.

### **3.6 Instrument used for Data Collection**

Questionnaire was employed to elicit data from the participants. Questionnaire is a form or document used in quantitative research, in which respondents complete and return the completed form or document to the researcher (Creswell & Creswell, 2018). Questionnaire facilitates quantification of the data collected and enables easy analysis and visualisation of results (Creswell & Creswell, 2018). Respondents often

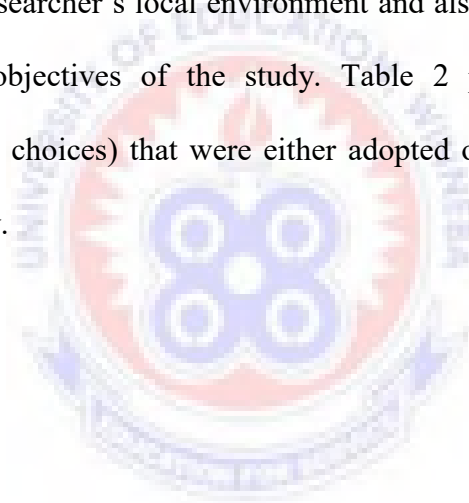
complete the forms by ticking or marking choices. The researcher used questionnaire for the collection of data because the study employed a cross sectional survey to explore in-depth knowledge about teachers' attitudes, opinions, practices and competencies in teaching phonemic awareness to early grade pupils.

The research instrument used in this study involved an adaptation of questions used by past researchers. Some of the items were modified, eliminated or adapted, with special attention given to questions that focused on knowledge and skills related to phonemic awareness and perception of teachers about explicit and implicit instruction in phonemic awareness. The survey instrument consisted of five sections, namely: the general questions section, classroom practice section, knowledge section, application section and the perception section. In most instances, the survey questions required responses to multiple-choice questions.

The questions used in this instrument included questions modelled on instruments used in two studies, namely: *A Comparison of Schools: Teacher Knowledge of Explicit Code-based Reading Instruction* (Cohen et al., 2016) and *Perceptions and Knowledge of Preservice and Inservice Educators About Early Reading Instruction* (Bos et al., 2001). The instrument used by Cohen et al. (2016) was *The Survey of Preparedness and Knowledge of Language Structure Related to Teaching Reading to Struggling Students*. This instrument seeks to compare teachers' definitions and application knowledge of language structure, phonics, and other code-based concepts, as well as their perceptions of their own knowledge. The instrument had a reliability coefficient of 0.812 Cronbach's alpha. The instruments used by Bos et al. (2001) were *The Teacher Knowledge Assessment of the Structure of Language* (TKASL) instrument with a reliability coefficient of 0.60 Cronbach's alpha and *The Teacher Perception about Early Reading and Spelling* (TPERS) instrument. The

TPERS instrument measures two reading instructional orientations: explicit code instruction with a reliability coefficient of .70 Cronbach's alpha and implicit code instruction with a reliability coefficient of .50. The selection of question items from these instruments was based on their relevance to the objectives of the study.

*The Survey of Preparedness and Knowledge of Language Structure Related to Teaching Reading to Struggling Student* (Cohen et al., 2016) consisted of 38 items (refer to Appendix E). Of the 38 question items, 10 question items were either adapted or adopted for this study. The researcher made adaptations to some of the questions in the instruments because the researcher wanted the research instrument to suit the terms used in the researcher's local environment and also enable the instrument to fit into the research objectives of the study. Table 2 presents the question items (excluding response choices) that were either adopted or adapted from Cohen et al. (2016) for this study.



**Table 2: Adoption and adaptation of question items from Cohen et al. (2016)**

<b>Item No.</b>	<b>Original question item in Cohen et al. (2016)</b>	<b>Adopted/adapted question in study</b>
1	Where did you receive your teacher preparation training?	Which type of educational institution did you attend?
2	How many years have you taught?	For how long have you been teaching?
3	What is the highest degree you have earned (e.g., B.S., B.A., M.A., etc.)?	What is the highest qualification you have received (e.g., Cert A, Diploma, BEd, BA, MEd, MA, MPhil, etc.)?
5	Did you receive any literacy-related training on reading instruction as part of your education which significantly enhanced your ability to teach reading?	How many credit hours of literacy-related training on reading instruction did you receive as part of your teacher training education?
6, 7	Have you attended any literacy-related professional development training sessions or workshops such as Orton Gillingham, Wilson Reading System, Reading Recovery etc. which significantly enhanced your ability to teach reading? If so, please list the trainings here	How many literacy-related professional development training sessions (e.g. workshops, seminars, conferences, etc.) on reading instruction have you attended? Please list the trainings here.
8, 9	What are your biggest challenges in regard to teaching struggling readers? If you could receive any additional training regarding teaching struggling readers, what areas would you like the training to cover?	What is your biggest challenge with regards to teaching phonemic awareness as part of early reading instruction?  Which of the following areas would you like to receive additional training to enable you gain more knowledge with regards to teaching phonemic awareness as part of early reading instruction (Please select all that apply)?
10	How prepared did you feel to teach the following to struggling readers after completing your teacher preparation program	How competent in terms of the following do you feel to teach phonemic awareness as part of your early reading instruction?
12	The terms <i>onset</i> and <i>rime</i> refer to	The terms <i>onset</i> and <i>rime</i> refer to
13	Phonemic awareness is primarily	Phonemic awareness is primarily
25	Which has correctly separated the word –strand” into the onset and the rime?	Which of the following has correctly separated the word <i>strand</i> into the onset and rime?

The study also employed two instruments from Bos et al. (2001), namely, *The Teacher Knowledge Assessment of the Structure of Language* (TKASL) and *The Teacher Perception about Early Reading and Spelling* (TPERS) (see Appendix F and Appendix G respectively). The TKASL instrument comprised 20 question items, while the (TPERS) comprised 12 question items on a six-point Likert scale. From the TKASL instrument, the researcher either adopted or adapted eight (8) question items. The researcher also either adapted or adopted nine (9) question items from the TPERS instrument which were used on a six-point Likert scale to assess teachers' perception of explicit and implicit instruction. Table 3 presents the question items (excluding response choices) that were either adopted or adapted from Bos et al. (2001) for this study.



**Table 3: Adoption and adaptation of question items from Bos et al. (2001)**

Item No.	Original question item in Bos et al. (2001)	Adopted/adapted question in study
11	A phoneme refers to	A phoneme refers to
16	How many speech sounds are in the word <i>grass</i> ?	How many speech sounds are in the word <i>grass</i> ?
17	How many speech sounds are in the word <i>box</i> ?	How many speech sounds are in the word <i>box</i> ?
18	What type of task would this be? Say the word –eat”. Now say cat without the /c/ sound	Which type of tasks will this be? –Say the word <i>cat</i> . Now say <i>cat</i> without the /c/ sound.”
19	What type of task will this be? I am going to say some sound that will make one word when you put them together. What does /sh/ /oe/ say	Indicate the type of task this would be?‘ If I put the sounds /sh/ /oe/ together to form the word <i>shoe</i>
20	What is the second sound in the word <i>queen</i> ?	What is the second sound in the word <i>queen</i> ?
21	Identify the pair of words that begins with the same sound.	Identify the pair of words that begins with the same sound.
22	If you say a word, and then reverse the order of the sound, <i>enough</i> will be?	If the pronunciation of the word <i>enough</i> is reversed it will be:
26	All children can learn to read using literature base authentic text	All pupils can learn to read using literature base authentic text
26	Poor phonemic awareness contributes to early reading failure	Poor phonemic awareness contributes to early reading failure
26	Picture cues can help children identify words in the early stages of reading.	Picture cues often help pupils identify words in the early stages of reading
26	Time spent reading contributes directly to reading improvement	Time spent reading contributes directly to reading improvement
26	Learning to use context cues (syntax and semantics) is more important than learning to use grapho-phonetic cues (letters and sounds) when learning to read.	Learning to use context clue is more important than learning to blend and segment words when learning to read.
26	If a beginning reader reads“‘ house“‘ for the written word <u>h</u> ome‘ the response should not be corrected	If a beginning reader reads“‘ house“‘ for the written word <u>h</u> ome‘ the response should not be corrected
26	It is important for teachers to demonstrate to pupils how to segment words into phonemes when reading and spelling	It is important for teachers to demonstrate to pupils how to segment words into phonemes when reading and spelling
26	Adult-child shared book enhance language and literacy development	Adult-child shared book enhance language and literacy development
26	K-teachers should know how to assess and teach phonological awareness (i.e. knowing that spoken language can be broken down into smaller units: words, syllables, phonemes)	Teachers should possess competency in how to teach and assess phonemic awareness

In all, the questionnaire used in this study comprised 26 question items (see Appendix D). There were seven (7) general questions out of which six (6) (question items 1, 2, 3, 5, 6, and 7) were adapted from the *Survey of Preparedness and Knowledge of Language Structure Related to Teaching reading to Struggling Students* and one (1) (question item 4) was developed by the researcher. Three (3) questions (question items 8, 9, and 10) on classroom practice of phonemic awareness including a Likert scale assessing the level of competency in phonemic awareness were also adapted from the *Survey of Preparedness and Knowledge of Language Structure Related to Teaching reading to Struggling Students*.

Five (5) question items were set by the researcher to assess teacher knowledge of phonemic awareness. Two (2) out of the five question items (question items 12 and 13) were adopted from the *Survey of Preparedness and Knowledge of Language Structure Related to Teaching reading to Struggling Students*, one (1) question item (question item 11) was also adopted from *The Teacher Knowledge Assessment of the Structure Language* and the remaining two (question items 14 and 15) were developed by the researcher.

Ten (10) question items in the questionnaire assessed respondents' application of phonemic awareness. Of these 10 questions items, one (1) (question item 25) was adapted from the *Survey of Preparedness and Knowledge of Language Structure Related to Teaching Reading to Struggling Students*; three (3) (question items 18, 19, and 22) were adapted from *The Teacher Knowledge Assessment of the Structure Language* and additional four (4) (question items 16, 17, 20, and 21) were adopted from the same instrument. The remaining two (2) question items (question items 23 and 24) were developed by the researcher.



A six-point Likert scale that assesses teachers' perception of implicit and explicit instruction was also adapted from *Teacher Perception of Early Reading and Spelling* instrument. Question items of the questionnaire were based on the purpose and objectives of the study.

In all, the researcher made adaptations to 14 of the questions in the instruments used in the study. This was important because the researcher wanted the research instrument to suit the terms used in the research environment and to enable the instrument to fit the research objectives of the study.

### **3.7 Pilot Study**

A small-scale trial of the questionnaire was conducted in April 2019 with ten early grade teachers (KG-P2) in two public primary schools in the Swedru Municipality to identify challenges in the research plan. Corrections were made to the questionnaire based on the feedback from the pilot study before the full-scale study.

### **3.8 Validity**

Validity means the researcher checks for the accuracy and credibility of the findings (Creswell & Creswell, 2018). Thus, validity assessment is used to check the appropriateness of data collection instrument during the pilot study. In simple terms validity checks help to ensure that a research instrument measures what it is supposed to measure and how well it does so.

The content validity of the questionnaire was determined with the assistance of the research supervisor who examined the research questions alongside each item of the questionnaire in order to ensure that it measured what it was supposed to measure. Observations made by the supervisor were used to effect the necessary

corrections of the instrument. Further improvements to the instrument were made based on the observations during the pilot study.

### **3.9 Reliability**

Reliability refers to the extent to which items in a research instrument generate consistent responses over several trials when tried with different respondents in the same setting or in similar circumstance. Simply put, it refers to the consistency and repeatability of an instrument (Creswell & Creswell, 2018; Fraenkel & Wallen, 2003).

The statistical reliability of the questionnaire used in the study was computed using Cronbach's Alpha which estimates the internal consistency of an instrument (Shemwell, Chase, & Schwartz, 2014). The Cronbach's Alpha test produced a reliability coefficient of 0.75. A reliability coefficient of 0.7 and above is satisfactory for any educational research instrument (Shemwell et al., 2014). Hence the reliability coefficient of 0.75 was deemed acceptable in this study.

### **3.10 Access**

In order to elicit the cooperation and show respect to participants in the study, it is of the essence that the researcher obtained permission from the research sites before entering. The researcher collected an introductory letter, dated 8<sup>th</sup> April, 2019 from the head of the Department of Special Education, University of Education Winneba (see Appendix A), to seek permission from the GES Directorate of the Effutu Municipality to conduct the study in the public primary schools within the Effutu Municipality. The GES Directorate granted the permission by a letter of introduction, dated 25<sup>th</sup> April, 2019 (see Appendix B) for the researcher to conduct the study. The researcher also obtained a list of the schools and contact numbers of all the head teachers from the Directorate (see Appendix C). The GES Directorate further

distributed copies of their introductory letter through the Circuit Supervisors in the Municipality to the schools ahead of the researcher's visit.

Armed with the introductory letters and contact numbers of the various head teachers of the schools, the researcher first made phone calls to the heads between 30<sup>th</sup> April, 2019 and 4<sup>th</sup> May, 2019. Through the phone calls, the researcher booked appointments with the heads to visit the schools and administer the questionnaires. The researcher explained to the head teachers the purpose of the research and the potential role of the teachers in the study. The researcher obtained information on the number of early grade teachers in the schools to facilitate the determination of the size of the population. The researcher verbally sought the consent of the individual teachers to participate in the study.

### **3.11 Procedure for Data Collection**

After gaining access to the research site, the researcher met the teachers on the days of the data collection. The researcher verbally thanked all the teachers for consenting to participate in the study and assured them of the confidentiality involved in the study.

A week before data collection, four research assistants (RAs) were trained by the researcher to help her collect data from participants. The researcher trained the research assistants to ensure that all the procedures related to administering and collecting the questionnaires followed the same procedures each time the questionnaires were administered in order to minimise experimenter differences. The RAs collected all the answered questionnaires for the researcher in four brown A3 envelopes. The questionnaires were administered to the respondents on 8<sup>th</sup> May, 2019 and 9<sup>th</sup> May, 2019. Both days were clear and sunny days. The questionnaires were administered to the teachers in a group setting. Thus, the teachers selected in each

school assembled in one suitable classroom in their respective schools to complete the questionnaires. Given the number of respondents in each school, a classroom was spacious enough to ensure reasonable spacing of the respondents. The classrooms were generally well ventilated. All the participants in each school were seated facing the front of the classroom. The number of participants in a group was dependent on the number of streams in the schools. On the average, there were four teachers in a group in schools with one stream while schools with two streams had eight teachers in a group on the average.

The participants were given as much time as they needed to complete the questionnaires. They were however encouraged to finish on time so as to be able to go back to continue their lessons. The questionnaires were collected from the respondents once they indicated to the researcher or RAs that they had finished completing the questionnaires. Before leaving the classroom, the researcher or RAs counted the administered questionnaires to ensure that all questionnaires administered had been collected back. After collecting the completed questionnaire, the researcher or research assistant verbally thanked each participant. The researcher also shared materials on phonemic awareness with participants who made requests and directed them to sites on the internet where they could access materials to help them teach the concepts.

### **3.12 Data Analysis Procedure**

The collected data were analysed using SPSS (Version 23). Following the data collection, the completed questionnaires were manually screened to ensure that only questionnaires that had responses were included in the analysis. Questionnaires that had no responses at all were excluded from the analysis. The observations were then coded and entered into the SPSS software. Descriptive statistics such as

frequency counts and simple raw percentages were used for analysis. In analysing the relationship between variables, Spearman's rank correlation and Paired Samples *t* Test were used. Also mean scores of the Likert items and their corresponding standard deviations were calculated and used for analysis. The details of the data analysis are presented in chapter four.

### **3.13 Ethical Considerations**

Adherence to ethical standards when planning both qualitative and quantitative research is very important and researchers have a duty both to their subjects and to their profession to adhere to the ethical standards associated with conducting a research study (Creswell & Creswell, 2018). Participants were informed about the research and the participants gave their informed consent before participating in the research. The researcher and RAs also met with the participating teachers in groups of four or eight on the average in their various schools in the Effutu Municipality to explain the purpose and significance of the study to them. Participants were assured of strict confidentiality and that any information they provided on the study would be kept strictly confidential.

The participants were also assured that they had the right to withdraw from participating in the study at any time they felt uncomfortable to participate in it. Questions were invited from participants regarding any concerns they had on their participating in the study. In addition, the researcher encouraged honesty in the relationship between her and the participants while being sensitive to locally established institutional policies and guidelines for conducting the research.

The researcher did not just leave the various schools abruptly after collecting the data, but rather showed her appreciation by verbally thanking the participants after collecting the answered questionnaires. The researcher also shared materials on

phonemic awareness with participants who made requests and directed them to sites on the internet where they could access materials to help them teach the concepts. Moreover, the researcher considered cultural, religious, gender, disability and any other significant differences within the participants in the planning, conduct and reporting of the research. The right of anonymity on the part of participants was also respected and considered in the course of the research.



## CHAPTER FOUR

### PRESENTATION AND ANALYSIS OF FINDINGS

#### 4.0 Introduction

This chapter presents the results and analysis of findings that emerged from the study. The analysis is based on the data generated from questionnaires administered to the early grade teachers in the 27 public primary schools within the Effutu Municipality as indicated earlier in chapter three. The presentation and analysis of findings starts with an analysis of the findings on the background of the respondents followed by analysis of findings in respect of the four research questions of the study.

#### 4.1 Background of Participants

The findings on the background of the respondents who took part in the study are presented in Table 4. It can be observed from Table 4 that the respondents were fairly distributed across the respective early grades from KG 1 to Primary 2. In all, 24.1% taught KG. 1, 25.9% taught KG. 2., 25.0% taught P. 1, and 22.4% taught P. 2. However, 2.6% of the respondents did not indicate their grade. The respondents were generally experienced in teaching. It was interesting to find that as many as 40.5% had been teaching for a decade and above and another 40.6% had been teaching for between four to nine years. Only 18.1% of the respondents had been teaching for less than four years while one respondent (0.9%) did not indicate their years of teaching experience.

Findings from the study revealed that, with the exception of one respondent representing 0.9% who reported of not having any teacher training education, all the remaining 115 respondents representing 99.1% had received teacher training education. Of the total number of respondents, 81 representing 69.8% had all received

teacher training education at the university level with 34 representing 29.3% of respondents receiving teacher training education in colleges of education/teacher training colleges. In terms of their highest qualification, majority of the respondents (54.3%) had a bachelor's degree in education, followed by 37.1% with diploma. Only 0.9% of the respondents were teaching with a certificate. Moreover, 5.2% of the respondents had master's qualification with 4.3% having either MPhil or M.Ed.

It was further revealed that 103 of the respondents (88.8%) indicated that they had received literacy-related training as part of their education with 53.5% indicating they had received at least 3 credit hours of literacy related training. Eight respondents representing 6.9% did not indicate the credit hours of literacy-related training they had received. Moreover, 87.0% of the respondents had attended literacy-related professional development (PD) training sessions. However, majority (50.8%) had attended less than five literacy-related PD training sessions in their entire teaching career with 7.8% of the respondents having never attended any literacy-related PD training session in their career. The remaining 5.2% of the respondents did not indicate the number of literacy-related PD training sessions they had attended. The literacy-related PD programme mostly attended by the respondents was the USAID Learning programme (34.4%). This was followed by Jolly Phonic (33.9%) and NALAP (19.7%). Other programmes attended by the respondents were Early Childhood Workshop (6.0%), Integrated Approach to Literacy (1.6%), Breaking Reading Barriers (1.6%), EGRA (1.6%), TESSA Training (0.5%), and Mentorship Training (0.5%).



**Table 4: Background of participants**

<b>Variable</b>	<b>Category</b>	<b>n</b>	<b>%</b>
Teacher training institution attended	Teacher training college	11	9.5
	College of education	23	19.8
	University	81	69.8
	I have no teacher training education	1	0.9
	<b>Total</b>	<b>116</b>	<b>100.0</b>
Years of teaching experience	0 – 3 years	21	18.1
	4 – 6 years	25	21.6
	7 – 9 years	22	19.0
	10 years and above	47	40.5
	No response	1	0.9
	<b>Total</b>	<b>116</b>	<b>100.0</b>
Highest qualification	Cert A	1	0.9
	Diploma	43	37.1
	B.Ed	63	54.3
	BA	2	1.7
	Med	2	1.7
	MA	1	0.9
	MPhil	3	2.6
	Other	1	0.9
	<b>Total</b>	<b>116</b>	<b>100.0</b>
Grade taught	KG. 1	28	24.1
	KG. 2	30	25.9
	P. 1	29	25.0
	P. 2	26	22.4
	No response	3	2.6
	<b>Total</b>	<b>116</b>	<b>100.0</b>
	Credit hours of literacy-related training	Zero (0)	5
1 hour		15	12.9
2 hours		26	22.4
3 hours		54	46.6
4 hours		3	2.6
9 hours		1	0.9
6 hours		2	1.7
7 hours		2	1.7
No response		8	6.9
<b>Total</b>		<b>116</b>	<b>100.0</b>

<b>Variable</b>	<b>Category</b>	<b>n</b>	<b>%</b>
Number of literacy-related PD training sessions	Zero (0)	9	7.8
	1 session	12	10.3
	2 sessions	20	17.2
	3 sessions	17	14.7
	4 sessions	10	8.6
	5 or more sessions	42	36.2
	No response	6	5.2
	<b>Total</b>	<b>116</b>	<b>100.0</b>
List of literacy-related PD training programmes	Jolly Phonics	62	33.9
	NALAP	36	19.7
	Learning (USAID)	63	34.4
	An Integrated Approach to Literacy	3	1.6
	Early Childhood Workshop	11	6.0
	TESSA Training	1	0.5
	Mentorship Training	1	0.5
	Breaking Reading Barriers	3	1.6
	EGRA	3	1.6
	<b>Total</b>	<b>183*</b>	<b>99.8**</b>

\*Total exceeds 116 due to multiple selection by respondents

\*\*Total is less than 100 due to rounding

*Source: Researcher's Computations from Survey Data, May 2019*

#### **4.2 Research Question 1: What is the phonemic awareness instruction competency level of early grade teachers?**

Research question one sought to measure the level of early grade teachers' actual competency level in phonemic awareness instruction. Teachers' level of competency in phonemic awareness instruction was measured using three variables, namely: preparedness, knowledge (definitional knowledge) and ability (application knowledge). Analysis of findings on actual competency level is presented according to the defined components of teacher competency, namely teacher preparedness, knowledge and ability.

#### 4.2.1 Actual preparedness

In defining respondents' actual preparedness to teach phonemic awareness, the researcher considered the number of credit hours of literacy-related training respondents had had during their teacher preparation programme as well as the number of literacy-related professional development (PD) training sessions on reading instruction they had attended in the course of their teaching career. In determining respondents' level of actual preparedness, the researcher ranked the respondents from 1 (Not at all competent) to 5 (Extremely competent) based on their number of credit hours and number of PD training sessions respectively. The average of these rankings was then used as their overall level of preparedness to teach phonemic awareness. Table 5 presents a summary of how the rankings were done in measuring actual preparedness of the respondents.

**Table 5: Measurement of actual preparedness of teachers**

<b>Number of Credit Hours</b>	<b>Number of Professional Development Training Attended</b>	<b>Rank</b>	<b>Interpretation</b>
0	0	1	Not at all competent
1-2	1-2	2	Minimally competent
3-4	3	3	Moderately competent
5-6	4	4	Very competent
7 and above	5 and above	5	Extremely competent

As indicated in Table 5, a rank of 1 (Not at all competent) was assigned to both zero credit hours and zero PD sessions whereas a rank of 2 (Minimally competent) was assigned to credit hours and PD sessions ranging from one to two. A rank of 3 (Moderately competent) was assigned to credit hours ranging from three to four as well as three PD sessions respectively. Moreover, a rank of 4 (Very competent) was assigned to credit hours ranging from five to six as well as four PD

sessions respectively. Finally, a rank of 5 (Extremely competent) was assigned to seven or more credit hours and five or more PD sessions respectively.

Table 6 presents the findings on teachers' actual level of preparedness determined based on the number of credit hours of literacy related courses taken and the number of literacy-related professional development courses attended.

**Table 6: Actual preparedness of respondents**

<b>Competency level</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Not at all competent	6	5.2
Minimally competent	23	19.8
Moderately competent	40	34.5
Very competent	45	38.8
Extremely competent	2	1.7
Total	116	100

*Source: Researcher's Computations from Survey Data, May 2019*

Looking at competency in terms of respondents' level of actual preparedness to teach phonemic awareness, Table 6 indicates that the respondents were generally competent in terms of their preparedness to teach phonemic awareness, with 75.0% of them being at least moderately competent. Of the total number of respondents, 38.8% were found to be very competent, with 34.5% and 1.7% respondents found to be moderately competent and extremely competent respectively. Only 19.8% and 5.2% respondents were found to be minimally competent and not at all competent respectively.

#### **4.2.2 Actual knowledge (definitional)**

Measurement of actual definitional knowledge of respondents in phonemic awareness was done based on the respondents' score on the five (5) questions that assessed definitional knowledge in phonemic awareness as explained in chapter three. Respondents were ranked based on their scores as follows.

**Table 7: Measurement of actual definitional knowledge**

Score	Rank	Interpretation
0	1	Not at all competent
1-2	2	Minimally competent
3	3	Moderately competent
4	4	Very competent
5	5	Extremely competent

It can be seen from Table 7 that a rank of 1 (Not at all competent) was assigned to a score of zero while a rank of 2 (Minimally competent) was assigned to a score of one to two. Ranks of 3 (Moderately competent), 4 (Very competent) and 5 (Extremely competent) were assigned to scores of three, four, and five respectively.

Table 8 presents a summary of the findings on teachers' actual level of definitional knowledge in phonemic awareness.

**Table 8: Actual definitional knowledge of respondents**

Competency level	Frequency	Percentage (%)
Not at all competent	2	1.7
Minimally competent	67	57.8
Moderately competent	30	25.9
Very competent	15	12.9
Extremely competent	2	1.7
Total	116	100

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 8 summarises the respondents' performance on items assessing respondents' actual definitional knowledge in phonemic awareness. From the data, it was observed that, the respondents generally did not have adequate definitional knowledge of phonemic awareness with more than 59% falling within either the minimally competent category or the not at all competent category. Of the respondents, 41% were found to be at least moderately competent, with 25.9% being moderately competent. Of the remaining respondents, 1.7% were found to be extremely competent and 12.9% were found to be very competent.

To throw more light on the performance of the respondents with respect to their definitional knowledge, Table 9 represents number and percentage of respondents who answered correctly each item on knowledge. For the purpose of this section, the correct answer for each item has been indicated in bold.

**Table 9: Correct answers by items on knowledge**

<b>Item</b>	<b>Correct answers</b>
A phoneme refers to (a) a single letter <b>(b) a single speech sound</b> (c) a single unit of meaning (d) a grapheme	79(68.1%)
The terms <i>onset</i> and <i>rime</i> refer to (a) two words that contain different vowel digraphs yet rhyme <b>(b) the two parts of a syllable; the initial consonant or consonants, and the vowel and any final consonants</b> (c) two consonants joined together in one syllable to produce one sound (d) the separate syllables in a two-syllable word, as well as the two words that comprise a compound word	56(48.3%)
Phonemic awareness is primarily (a) the ability to derive meaning from a word <b>(b) the ability to recognize and manipulate the individual sounds in spoken language</b> (c) the ability to use sound-symbol (phoneme-grapheme) correspondences to read and spell new words (d) both b and c	67(57.8%)
Phoneme manipulation refers to (a) the ability to identify words that begins with the same sounds (b) the ability to isolate a single sound from within a word <b>(c) the ability to modify, change or move an individual sound in a word</b> (d) the ability to combine individual sounds in a word	35(30.2%)
The linguistic term for the spoken or written vowel and the final consonant(s) (if any) in a word (e.g. o in do; -oat in coat; -eat in meat) is referred to as (a) syllabus <b>(b) rime</b> (c) alliteration (d) onset	51(44.0%)

**Source:** *Researcher's Computations from Survey Data, May 2019*

From Table 9, it was observed that, majority of the respondents (68.1%) were able to correctly identify the definition of a phoneme, followed by 57.8% respondents who were able to correctly identify the main definition of phonemic awareness. For the question assessing respondents' knowledge of the meaning of "onset and rime",

48.3% of respondents were able to do this task correctly. However, 44% were able to correctly identify the meaning of “time” while 30.2% of the respondents correctly identified phoneme manipulation.

#### 4.2.3 Actual ability (application knowledge)

Measurement of actual ability of respondents was done based on their score on the ten (10) questions assessing application knowledge of phonemic awareness as explained in chapter three. Respondents were ranked based on their score as follows.

**Table 10: Measurement of actual ability (application knowledge)**

Score	Rank	Interpretation
0	1	Not at all competent
1-3	2	Minimally competent
4-6	3	Moderately competent
7-9	4	Very competent
10	5	Extremely competent

As indicated in Table 10, on the questions assessing actual ability (application knowledge) of the respondents, a rank of 1 (Not at all competent) was assigned to a score of zero whereas a rank of 2 (Minimally competent) was assigned to a score of one to three. Ranks of 3 (Moderately competent) and 4 (Very competent) were assigned to scores of four to six and seven to nine respectively. Finally, a rank of 5 (Extremely competent) was assigned to a score of ten.

Table 11 presents a summary of the findings on teachers' actual ability (application knowledge) to put into practice the definitional knowledge they have acquired in phonemic awareness instruction.

**Table 11: Actual application knowledge**

<b>Competency level</b>	<b>Frequency</b>	<b>Percentage</b>
Not at all competent	4	3.4
Minimally competent	53	45.7
Moderately competent	53	45.7
Very competent	6	5.2
Extremely competent	0	0
Total	116	100

*Source: Researcher's Computations from Survey Data, May 2019*

From Table 11, it can be observed that 91.4% respondents were found to be either minimally competent or moderately competent. However, 5.2% of the respondents were reported as being very competent with 3.4% being not at all competent. There was no recording of any respondent being extremely competent.

To enhance understanding with respect to respondents' actual ability in phonemic awareness, Table 12 indicates the percentage of respondents who answered correctly on each item on the ability (application knowledge) section of the questionnaire. For the purpose of this section, the correct answer for each item has been indicated in bold.



**Table 12: Percentage of correct answers by items on ability (application)**

<b>Item</b>	<b>Correct answers</b>
How many speech sounds are in the word grass? (a) Two (b) Three <b>(c) Four</b> (d) Five	34(29.3%)
How many speech sounds are in the word box? (a) One (b) Two (c) Three <b>(d) Four</b>	3(2.6%)
Which type of task will this be? –Say the word cat. Now say cat without the /c/ sound.” (a) Blending (b) Rhyming (c) Segmentation <b>(d) Deletion</b>	44(37.9%)
Indicate the type of task this would be if I put the sounds /sh/ /oe/ together to form the word shoe. <b>(a) Blending</b> (b) Segmentation (c) Rhyming (d) Manipulation	98(84.5%)
What is the second sound in the word queen? (a) /u/ (b) Long / e/ (c) /k/ <b>(d) /w/</b>	3(2.6%)
Identify the pair of words that begins with the same sound. (a) joke-goat <b>(b) chef-shoe</b> (c) quiet-giant (d) chip-chemist	53(45.7%)
If the pronunciation of the word enough is reversed it will be: (a) fun (b) phone <b>(c) funny</b> (d) one	34(29.3%)
If the word grab is broken apart into its separate sounds e.g. grab = /g/ /t/ /a/ /b/, what type of tasks will that be? (a) Isolation (b) Categorisation <b>(c) Segmentation</b> (d) Addition	77(66.4%)
–What word do you have if you add /s/ to the beginning of park?” This kind of task is referred to as (a) phoneme deletion (b) phoneme blending <b>(c) phoneme addition</b> (d) phoneme isolation	62(53.4%)
Which of the following has correctly separated the word strand into the onset and the rime? (a) stra.... nd (b) str....and <b>(c) st.... rand</b> (d) strand does not contain onset and rime	15(12.9%)

*Source: Researcher’s Computations from Survey Data, May 2019*

Table 12 shows that the respondents generally performed poorly on tasks which asked them to identify speech sounds in words, an indication that, respondents have limited knowledge when it comes to the identification of speech sounds in words. For instance, the least score of 2.6% was recorded on two items, the items that asked respondents to identify the number of speech sounds in the word **box** and the one that asked respondents to identify the second sound in the word **queen**. This

was followed by 29.3% which was recorded on the tasks that asked respondents to identify the number of speech sounds in the word **grass** and 45.7% that was recorded on the tasks that asked respondents to correctly identify that, the words **chef and shoe** begins with the same sound. Also only a few of the respondents (12.9% ) were able to separate the word **strand** into its onset and rime. However, compared to the sound identification tasks respondents did better at the phoneme manipulation tasks as the figures recorded were quite encouraging and some even surprising. For instance, an overwhelming majority of 84.5% were able to identify the blending task of putting the sound /sh/ and /oe/ together whiles 66.4% were able to identify the phoneme segmenting task with 53.4% being able to identify the phoneme addition task. The phoneme deletion task recorded the least score among the phoneme manipulation tasks recording 37.9% which is below average.

#### 4.2.4 Total actual competency

Total actual competency was arrived at by finding the simple mean of the ranked scores on the three components of teacher competency (preparedness, knowledge, and ability). Table 13 represents a summary of findings on the respondents' total actual competency level considering their preparedness, knowledge and ability. This therefore indicates their overall actual level of competency in phonemic awareness instruction.

**Table 13: Total actual competency**

Competency level	Frequency	Percentage
Not at all competent	3	2.6
Minimally competent	32	27.6
Moderately competent	76	65.5
Very competent	5	4.3
Extremely competent	0	0
<b>Total</b>	<b>116</b>	<b>100</b>

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 13 shows that, an overwhelming majority (95.7%) of respondents were at best moderately competent in phonemic awareness instruction. However, 2.6% of the respondents were reported as not at all competent with the rest falling within the minimally and moderately competent categories. Interestingly, no respondent was reported as being extremely competent in phonemic awareness instruction.

#### 4.2.5 Mean actual competency

To facilitate deeper understanding of the level of competency of the respondents, the researcher further determined the total mean actual competency of the respondents as well as the mean competency in the defined components of competency namely preparedness, knowledge and ability. This was based on the ranked competency levels (from 1 to 5) of the respondents as explained earlier in this chapter. Table 14 represents respondents' mean actual competency.

**Table 14: Mean actual competency**

<b>Competency</b>	<b>Mean</b>	<b>SD</b>
Preparedness	3.12	0.92
Knowledge	2.55	0.81
Ability	2.53	0.65
<b>Total competency</b>	<b>2.72</b>	<b>0.59</b>

*Source: Researcher's Computations from Survey Data, May 2019*

From the Table 14, it can be observed that the respondents generally had limited knowledge about phonemic awareness instruction, recording a mean total competency score of 2.72 (SD=0.59). However, despite this overall performance, it was observed that respondents' level of preparedness was slightly above moderately competent with a mean score of 3.12 (SD=0.92). On the other hand respondents' knowledge and ability in phonemic awareness was inadequate as the recorded means

of 2.55 (SD=0.81) and 2.53 (SD=0.65) are above minimally competent but below moderately competent.

#### **4.3 Research Question 2: How do early grade teachers perceive their competency in phonemic awareness instruction?**

Research question two sought to find out how early grade teachers perceived their competency in phonemic awareness instruction. In measuring teachers' perceived competency, respondents were asked to rate themselves on the five-point Likert scale assessing the level of competency in phonemic awareness according to the three components of teacher competency, namely: knowledge, ability and preparedness. The ranking of each component of perceived competency of the teachers was done as follows.

**Table 15: Measurement of perceived competency**

<b>Perceived level of competency</b>	<b>Rank</b>
Not at all competent	1
Minimally competent	2
Moderately competent	3
Very competent	4
Extremely competent	5

It can be seen from Table 15 that, for each component of perceived competency, a rank of 1 was assigned where the respondent indicated "Not at all competent". Where the respondent indicated "Minimally competent" and "Moderately competent", ranks of 2 and 3 respectively were assigned. Moreover, ranks of 4 and 5 were assigned where the respondent perceived themselves to be "Very competent" and "Extremely competent" respectively.

Total perceived competency was arrived at by finding the mean of the ranked values on the three components of teacher competency. Analysis of findings on perceived competency is also presented according to the defined components of teacher competency, namely teacher preparedness, knowledge, and ability.

#### 4.3.1 Perceived preparedness

Table 16 presents findings on respondents' perceived preparedness in phonemic awareness instruction.

**Table 16: Perceived preparedness**

Competency level	Frequency	Percentage
Not at all competent	3	2.6
Minimally competent	9	7.8
Moderately competent	43	37.1
Very competent	50	43.1
Extremely competent	11	9.5
<b>Total</b>	<b>116</b>	<b>100.1*</b>

\*Total is more than 100 due to rounding

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 16 show respondents' perception of their preparation to teach phonemic awareness to early grade pupils. From the table, it can be seen that, the respondents generally perceived themselves as highly competent to teach phonemic awareness. It was found out that 89.7% of the respondents considered themselves as being at least moderately competent with 43.1% perceiving themselves as very competent and 9.5% perceiving themselves as extremely competent. Only a few of the respondents (10.4%) perceived themselves to be either not at all competent or minimally competent in terms of preparation to teach phonemic awareness.

### 4.3.2 Perceived definitional knowledge

Respondents rated themselves on how competent they were in terms of their definitional knowledge in phonemic awareness instruction. Table 17 presents findings of these ratings.

**Table 17: Perceived definitional knowledge**

<b>Competency level</b>	<b>Frequency</b>	<b>Percentage</b>
Not at all competent	3	2.6
Minimally competent	12	10.3
Moderately competent	40	34.5
Very competent	54	46.6
Extremely competent	7	6
<b>Total</b>	<b>116</b>	<b>100</b>

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 17 indicate that majority of the respondents (87.1%) rated themselves at least moderately competent in terms of their knowledge in phonemic awareness instruction. In all 6% of the respondents perceived themselves to be extremely competent while 46.6% and 34.5% considered themselves very competent and moderately competent respectively. Only 2.6% of the respondents perceived themselves not at all competent while 10.3% considered themselves minimally competent.

### 4.3.3 Perceived ability (application knowledge)

Respondents were asked to rate their ability in phonemic awareness instruction, that is, how well they are able to apply their definitional knowledge of phonemic awareness. Table 18 presents respondents' perception about their abilities in teaching phonemic awareness to early graders.

**Table 18: Perceived ability (application knowledge)**

<b>Competency level</b>	<b>Frequency</b>	<b>Percentage</b>
Not at all competent	0	0
Minimally competent	9	7.8
Moderately competent	39	33.6
Very competent	55	47.4
Extremely competent	13	11.2
<b>Total</b>	<b>116</b>	<b>100</b>

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 18 indicate that majority of the respondents (58.6%) perceived themselves to be highly competent in terms of their ability to teach phonemic awareness with 47.4% and 11.2% rating themselves very competent and extremely competent respectively. Only 7.8% of the respondents perceived themselves to be minimally competent while none of the respondents rated themselves not at all competent.

#### **4.3.4 Total perceived competency**

Total perceived competency was calculated based on how the respondents rated themselves on the defined components of competency namely preparedness, knowledge and ability. Table 19 represents respondents' total perceived competency in phonemic awareness instruction.

**Table 19: Total perceived competency**

<b>Competency level</b>	<b>Frequency</b>	<b>Percentage</b>
Not at all competent	0	0
Minimally competent	8	6.9
Moderately competent	42	36.2
Very competent	57	49.1
Extremely competent	9	7.8
<b>Total</b>	<b>116</b>	<b>100</b>

*Source: Researcher's Computations from Survey Data, May 2019*

Analysis of the data presented in Table 19 revealed that, a greater proportion of the respondents (56.9%) perceived themselves to be highly competent in phonemic awareness instruction as 7.8% and 49.1% of the respondents perceived themselves as extremely competent and very competent respectively. Of the total number of respondents, 36.2% perceived themselves to be moderately competent while 6.9% perceived themselves to be minimally competent with none perceiving themselves to be not at all competent.

#### 4.3.5 Mean perceived competency

To provide a deeper insight into the perceived competency of the respondents, their mean perceived competency was determined according to the defined components of competency. Table 20 presents the mean perceived competency of the respondents in phonemic awareness instruction.

**Table 20: Mean perceived competency**

<b>Competency</b>	<b>Mean</b>	<b>SD</b>
Perceived preparedness	3.49	.87
Perceived knowledge	3.43	.86
Perceived ability	3.62	.79
Total perceived competency	3.58	.74

*Source: Researcher's Computations from Survey Data, May 2019*

The data represented in Table 20 indicates that respondents generally perceived their overall competency to be above moderately competent but below very competent with a mean of 3.58 (SD=0.74). Their perceived competency in each of the defined components fell within a close range of their total perceived competency with their perceived ability having the highest mean of 3.62 (SD=0.79). This was followed by their mean perceived preparedness being 3.49 (SD=0.87) with the mean perceived knowledge being the lowest at 3.43 (SD=0.86).



#### 4.3.6 Perceived biggest challenge with regards to teaching phonemic awareness

Related to how the respondents perceived their competency in phonemic awareness instruction is what they perceived as their biggest challenge with regards to teaching phonemic awareness. Generally, teachers who perceived themselves as highly competent would not consider inadequate knowledge as their major challenge and would not be open to new ideas (Cunningham et al., 2004; Spear-swerling et al., 2005). The respondents were therefore asked what their biggest challenge was with regards to teaching phonemic awareness as part of early reading instruction. The findings are summarised in Table 21.

**Table 21: Perceived biggest challenge with regards to teaching phonemic awareness**

<b>Biggest challenge</b>	<b>Frequency</b>	<b>Percent</b>
Inadequate knowledge about phonemic awareness instruction	15	12.9
No clear guidelines for teaching phonemic awareness in my teaching syllabus	8	6.9
Inadequate instructional materials on phonemic awareness	61	52.6
Difficulty in getting access to resources on phonemic awareness instruction	18	15.5
Insufficient time for repetition	2	1.7
Bridging between the Ghanaian languages and English	2	1.7
Pupils do not learn the phonics after school	5	4.3
No response	5	4.3
<b>Total</b>	<b>116</b>	<b>100</b>

*Source: Researcher's Computations from Survey Data, May 2019*

It can be seen from Table 21 that the majority of the respondents (52.6%) cited "Inadequate instructional materials on phonemic awareness" as the biggest challenge they had with regards to teaching phonemic awareness as part of early reading instruction. This was followed by 15.5% of the respondents who cited "Difficulty in getting access to resources on phonemic awareness instruction". Only 12.9% of the respondents cited "Inadequate knowledge about phonemic awareness instruction" as

the biggest challenge they had with regards to teaching phonemic awareness. It was also observed that 6.9% of the respondents considered “No clear guidelines for teaching phonemic awareness in my teaching syllabus” as their biggest challenge while 4.3% seemed to blame pupils citing “Pupils do not learn the phonics after school” as their biggest challenge.

#### **4.4 Research Question 3: What is the relationship between early grade teachers’ perceived competency in phonemic awareness instruction and their actual competency level?**

Research question three sought to find out the relationship between early grade teachers’ perceived competency in phonemic awareness instruction and their actual competency level. The researcher used two tests to examine the relationship between early grade teachers’ perceived competency in phonemic awareness instruction and their actual competency level, namely Spearman's rank correlation test and Paired Samples *t* Test.

##### **4.4.1 Spearman’s rank correlation test**

The Spearman’s rank correlation test is used to examine the direction and strength of the relationship between two variables when one or both variables are skewed or ordinal and is particularly robust when extreme values are present (Mukaka, 2012). The Spearman's rank correlation test was ran between the various measures of perceived competency and actual competency as explained earlier using the ranked values. The resulting Spearman's rank correlation coefficient ( $r_s$ ) was interpreted based on the direction (positive or negative) of  $r_s$  and magnitude (weak or strong) of  $r_s$ . The results of the Spearman’s rank correlation test is presented in Table 22.

**Table 22: Relationship between perceived competency and actual competency**

		Actual prepare- dness	Actual knowle- dge	Actual ability	Total actual competency
Perceived preparedness	Correlation Coefficient	.296**	-.052	.027	.194*
	Sig. (2-tailed)	.001	.578	.772	.037
	N	116	116	116	116
Perceived knowledge	Correlation Coefficient	.236*	.015	.039	.126
	Sig. (2-tailed)	.011	.873	.681	.179
	N	116	116	116	116
Perceived ability	Correlation Coefficient	.166	.093	.049	.139
	Sig. (2-tailed)	.075	.323	.603	.137
	N	116	116	116	116
Total perceived competency	Correlation Coefficient	.229*	.093	.049	.211*
	Sig. (2-tailed)	.014	.319	.599	.023
	N	116	116	116	116

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

*Source: Researcher's Computations from Survey Data, May 2019*

From Table 22 significant correlation was observed between respondents' perceived preparedness and actual preparedness; perceived preparedness and total actual competency; perceived knowledge and actual preparedness; total perceived competency and actual preparedness; as well as total perceived competency and total actual competency. It is important to note that all the observed significant correlations were positive and weak.

Analysis of the results of the Spearman's rank correlation test indicated a correlation coefficient of 0.211 between respondents total perceived competency and total actual competency at a significance level of 5% ( $p = 0.023$ ). The highest significant correlation coefficient (0.296) was observed between perceived preparedness and actual preparedness at a significance level of 1% with the lowest significant correlation coefficient (0.194) observed between perceived preparedness and total actual competency at a significance level of 5%. Interestingly, no significant

relationship was observed between any of the components of perceived competency and actual knowledge or actual ability.

#### **4.4.2 Paired Samples *t* Test**

To better understand the relationship between early grade teachers' perceived competency in phonemic awareness instruction and their actual competency level, a Paired Samples *t* Test was run on respondents' total perceived competency and total actual competency in order to determine whether there was significant difference between them. The Paired Samples *t* Test is used to compare the means of two groups of scores from the same population of interest or from a related population of interest (Gerald, 2018).

For the purpose of the Paired Samples *t* Test, the respondents were categorised into two (based on their total actual competency) according to those who were below moderately competent (BLMC) and those who were at least moderately competent (ALMC) in order to examine differences between the two categories as suggested by the Dunning-Kruger Effect theory. As discussed earlier in chapter 1, the Dunning-Kruger Effect theory implies that respondents in the BLMC category would be expected to have a higher mean of paired differences than respondents in the ALMC category. The paired samples statistics of the two categories of respondents are presented in Table 23.

**Table 23: Paired samples statistics between perceived competency and actual competency**

Category	Paired variables	Mean	N	Std. Deviation	Std. Error Mean
BLMC	Perceived competency	3.37	35	0.731	0.124
	Actual competency	1.91	35	0.284	0.048
ALMC	Perceived competency	3.67	81	0.725	0.081
	Actual competency	3.06	81	0.242	0.027
All	Perceived competency	3.58	116	0.736	0.068
	Actual competency	2.72	116	0.587	0.054

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 23 show that 35 of the respondents fell in the BLMC category while the remaining 81 fell in the ALMC category. It was found that the respondents in the BLMC category had a mean perceived competency of 3.37 (SD=0.731) compared to their mean actual competency of 1.91 (SD=0.284). On the other hand, the respondents in the ALMC category had a mean perceived competency of 3.67 (SD=0.725) compared to their mean actual competency of 3.06 (SD=0.242). The Paired Samples *t* Test results are presented in Table 24.

**Table 24: Paired Samples *t* Test between perceived competency and actual competency**

Paired variables	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			
Perceived competency - Actual competency (BLMC)	1.457	.817	.138	10.554	34	.000
Perceived competency - Actual competency (ALMC)	.605	.719	.080	7.572	80	.000
Perceived competency - Actual competency (All)	.862	.843	.078	11.009	115	.000

*Source: Researcher's Computations from Survey Data, May 2019*

From Table 24, it was observed that, overall, there was a significant difference between the respondents' perceived competency and actual competency with an overall mean of paired differences of 0.862 (SD = 0.843) and a Paired Samples *t* Test statistic of 11.009 ( $p = 0.0000$ ). The mean of paired differences of respondents in the BLMC category being 1.457; SD = 0.817) was relatively much higher compared to that of those in the ALMC category (mean = 0.605; SD=0.719). Thus, those in the ALMC category were better able to estimate their competency than those in the BLMC category.

#### **4.5 Research Question 4: What is early grade teachers' perception about using explicit or implicit instructional strategies in teaching phonemic awareness?**

Research question four sought to find out about early grade teacher's perception about using explicit or implicit instructional strategies in teaching phonemic awareness. To measure respondents' perception about implicit and explicit instruction in phonemic awareness, the researcher used the six-point Likert scale that assesses teachers' perception of implicit and explicit instruction. This tool required respondents to indicate their level of agreement or disagreement with certain statements that supported either explicit instruction or implicit instruction in phonemic awareness. The statements were mixed and respondents were not made aware which ones supported explicit or implicit instruction in order to ensure that they were objective in their ratings. The statements were rated on the six-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (6). A middle or neutral point was not included so respondents were compelled to at least "mildly agree" or "mildly disagree". If they had no opinion at all or did not understand the statement, they were asked to leave the item blank.

However, to facilitate easy analysis and interpretation of the data, the researcher analysed each data set differently hence obtaining two data sets, one for explicit and the other for implicit instruction.

#### 4.5.1 Teachers' perception about explicit instruction

Table 25 indicates the extent of respondents' agreement with the statements supporting explicit instruction in phonemic awareness.

**Table 25: Teachers' perception about explicit instruction**

<b>Statement</b>	<b>Agree</b>	<b>Disagree</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Poor phonemic awareness contributes to early reading failure	96(83.5%)	19(16%)	115	4.84	1.59
It is important for teachers to demonstrate to pupils how to segment words into phonemes when reading and spelling	103(90.3%)	11(9.7%)	114	5.04	1.28
Teachers should know how to teach and assess phonemic awareness	109(95.6%)	5(4.4%)	114	5.24	1.02
<b>Mean of means (explicit)</b>				<b>5.04</b>	

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 25 shows that, the respondents were generally in strong agreement with the importance of explicit code instruction, with the overall mean rating of the statements supporting explicit instruction being 5.04. In all, 95.6% of the respondents agreed that teachers should know how to assess and teach phonemic awareness while 90.3% agreed that it is important for teachers to demonstrate to pupils how to blend and segment words when reading. However, relatively fewer respondents (83.5%) agreed that poor phonemic awareness contributes to early reading failure.

#### 4.5.2 Teachers' perception about implicit instruction

Table 26 presents findings on the extent of respondents' agreement to statements supporting the usage of implicit instructional strategies in teaching early grade pupils.

**Table 26: Teachers' perception about implicit instruction**

<b>Statement</b>	<b>Agree</b>	<b>Disagree</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
All pupils can learn to read using literature base authentic text	66(60%)	44(40%)	110	3.69	1.63
Picture cues helps pupils identify words in the early stages of reading	105(93.7%)	7(6.3%)	112	5.32	1.11
Time spent reading contributes directly to reading improvement	104(90.4%)	11(9.6%)	115	4.92	1.24
Learning to use context clue is more important than learning to blend and segment words when learning to read.	54(47.4%)	60(52.6%)	114	3.28	1.52
If a beginning reader reads "house" for the written word <u>h</u> ome' the response should not be corrected	37(32.7%)	76(67.3%)	113	2.9	1.62
Adult-child shared book enhance language and literacy development	99(90.3%)	11(9.7%)	113	4.82	1.11
<b>Mean of means (implicit)</b>				<b>4.2</b>	

*Source: Researcher's Computations from Survey Data, May 2019*

The data presented in Table 26 indicates that respondents' agreement with implicit instruction was generally positive with the overall mean rating of the statements supporting implicit instruction being 4.02. However, they only mildly agreed to the statements, with majority of them actually disagreeing with two of the statements. That is, 52.6% disagreed that learning to use context clue is more important than learning to blend and segment words when learning to read while 67.3% also disagreed that if a beginning reader reads "house" for the written word home" the response should not be corrected. In terms of those agreeing to the



statements supporting implicit instruction, 32.7% agreed to not correcting systematic related words; 93.7% agreed to the importance of picture cues in early reading instruction; 60% agreed to literature-based authentic text; 90.4% agreed to time spent reading; and 90.3% agreed to adult child shared reading.



## **CHAPTER FIVE**

### **DISCUSSIONS OF FINDINGS**

#### **5.0 Introduction**

This chapter presents a discussion of the findings of the study which were presented in chapter four. The discussion highlighted the major findings of the research and inferences made from them in view of findings from related previous studies. Like the related presentation and analysis of findings in chapter four, the discussion of findings in this chapter was based on the research questions raised to guide the study.

#### **5.1 Research Question 1: What is the phonemic awareness instruction competency level of early grade teachers?**

Research question one was posed to find out about the phonemic awareness instruction competency level of early grade teachers. In this study, teacher competency to teach phonemic awareness was explored in terms of teacher preparedness, teacher definitional knowledge, and teacher application knowledge to teach phonemic awareness to early grade pupils. The discussion focuses on the defined components of competency as well as the overall competency of the respondents.

##### **5.1.1 Level of preparedness of respondents**

Looking at competency in terms of respondents' level of actual preparedness to teach phonemic awareness, findings from the study indicated that the respondents were generally competent in terms of their preparedness to teach phonemic awareness, with 75% of them being at least moderately competent. It was observed that, of all the defined components of competency, respondents' level of preparedness

was the highest with a mean score of 3.12 (SD=0.92). Cohen et al. (2016) and Bos et al. (2001) make similar findings. The finding is consistent with the background data in Section 4.1 which indicated that 99.1% of the respondents had all received some form of teacher training education with 69.8% having received teacher training to the university level. Again, majority of the respondents (88.8%) had received some form of literacy related training during the teacher preparation program. Furthermore a large proportion of the respondents (87.0%) had also attended literacy-related professional development training sessions (PD).

The implication of this finding is that, with their level of competency in terms of their preparedness to teach phonemic awareness, the respondents were expected to be able to teach phonemic awareness with at least moderate competency to early graders. This is because evidence suggests that teachers who receive quality training and are knowledgeable in phonemic awareness are also able to teach their pupils effectively (Moats, 2009b; Moats & Foorman, 2003; Binks-Cantrell et al., 2012). This is what researcher's call the Peter effect in teacher preparation program: competent teachers produce competent pupils (Binks-Cantrell et al., 2012).

### **5.1.2 Definitional knowledge of respondents**

Results from the study indicated that the respondents generally had low level of competency in the definitional aspect of phonemic awareness instruction. It was observed that 59.5% of the respondents fell within the category of either "minimally" or the "not at all" competent, with only 40.5% being "at least moderately competent". The definitional aspect of the assessment recorded a mean score of 2.55 (SD = 0.81). However, compared with the application aspect of the questionnaire which recorded a mean score of 2.53 (SD=0.65), respondents generally did better in the definitional aspect. This suggests that, although the respondents generally had limited competency

in phonemic awareness, they at least had an upper hand when it came to the definitional aspect compared with the application aspect.

These findings were similar to findings of previous studies, for example, Stark et al. (2015), Washburn et al. (2011), and Cunningham et al. (2004). Stark et al. (2015) reported on teachers in Australia that, though 79% of the participants in their study were able to define “phoneme”, the participants found it challenging to count phonemes with only 5%, 44% and 45% being able to correctly identify the number of sounds in the words “box”, “grass”, and “brush” respectively. Only one out of twenty teachers knew the most common articulation of the letter x (The letter “x” has two phonemes, namely: /k/ and /s/). Similar findings were also reported by Washburn et al. (2011). In their study, Washburn et al. (2011) found that the participants generally found it difficult in doing tasks that required them to apply their knowledge; yet, they performed better on tasks requiring them to define terminologies. In Cunningham et al. (2004) participants were equally unable to perform tasks that required them to apply their knowledge in phonological awareness and phonics.

Respondents’ performance in the definitional aspect was consistent with expectation that doing tasks that required one to apply or transfer their knowledge to their own life or a context different than one in which it was learned is usually difficult for most people. Rather, it is easier for people to answer questions that test their ability to memorise or recall terms than to apply their acquired knowledge in real life situations (Cohen et al., 2016).

This finding therefore suggests that the respondents could not fully apply the definitional knowledge they had obtained into classroom learning/teaching situations. Some respondents lack the know-how to apply the definitional knowledge they possess because they might not have been given examples of how that knowledge

could be applied in real life or given enough opportunity to practice using their knowledge in real life situations (Moats, 1994; Moats, 2009b; Moats & Foorman, 2003).

### 5.1.3 Application knowledge (ability) of respondents

In terms of their actual ability (application knowledge), it was revealed in the study that 91.3% of the respondents were either minimally competent or moderately competent. The mean actual competency of the respondents in the application of knowledge was 2.53 (SD= 0.65). This suggests that, the respondents had inadequate application knowledge in phonemic awareness instruction. This perhaps could be attributed to the fact that they found it difficult transferring the theoretical knowledge they possess into practice in the classroom. As mentioned earlier, this difficulty could stem from the fact that, the respondents might not have been exposed to enough examples or may not have been given enough opportunity to practice (Moats, 1994; Moats, 2009b; Moats & Foorman, 2003). The implication here is that since the respondents were unable to fully apply their theoretical knowledge into practice, they would not be able to use their theoretical knowledge in the appropriate context in their classroom teaching and learning situations. This perhaps might have contributed to their poor performance in the application aspect of the questionnaire.

It was further revealed that most of the respondents were unable to identify the number of speech sounds (phonemes) in words such as **box** and **grass**. Only 2.6% and 29.3% of the respondents correctly identified the number of sounds in **box** and **grass** respectively. Similarly, only 2.6% of the respondents were able to identify the second sound in the word **queen**.

These findings indicate that between 70.7% and 97.4% of the respondents were unable to do what they would normally expect KG pupils to do in beginning reading programmes (Cunningham et al., 2004). In beginning reading programmes, KG pupils are normally taught to identify the sounds they hear in words. For example, the first sound in the word “church” is /ch/.

The inability of most of the teachers to identify the number of sounds in the words **box**, **grass** and **queen** seemed to suggest that most of the teachers were operating more on the level of orthographic pattern, thus identifying letters instead of sounds (Washburn et al., 2011; Cohen et al., 2016). For instance when asked to identify the number of sounds in the word box, the respondents counted the letter **x** instead of hearing and counting the sounds /k/ and /s/ to get two sounds in the letter **x**: thus there are four sounds in the word “box”, namely: /b/ /o/ /k/ /s/. This suggests that most of the respondents failed to focus their attention on the sound stream within words when attempting to breakdown words, but rather focused on the letters. This finding is similar to what was reported by Spencer et al. (2008) where participants in their study relied on their knowledge of print to help them count speech sounds, which in the end resulted in many errors. Washburn et al. (2011) also reported similar findings when they reported that, the participants they studied relied on their knowledge of orthography and counted letters instead of sounds.

The knowledge of print is essential; however, it is this same knowledge of print that prevents many from paying attention to the complex word structure beyond their own literary abilities (Moats, 1994; Spear-Swerling et.al., 2005; Spencer et al., 2008). This suggests that, because many people are able to read the words in print, they are satisfied and as such do not worry themselves to take into account the fine details that make up print. This prevents them from learning more about the word

structure aside what they already know. Knowing how to read is therefore not a guarantee that one would also be knowledgeable and competent about the structural aspect of language (McCutchen, et al., 2002); neither does it also correlate with explicit awareness of spoken language structure and its relationship to reading (Cunningham et al., 2004; Washburn et al., 2011). It is therefore of essence for teachers of early reading to consciously acquire skills in phonemic awareness so that they would be competent in the structural aspect of language. This would in turn aid them in their teaching of early reading to emergent readers. Teacher knowledge in identifying the individual sounds and their ability to segment these sounds in words are essential to teaching pupils to segment sounds in words and develop phonemic awareness which is essential in teaching pupils to learn to read (McCutchen et al., 2002).

Although respondents did not generally perform well in the application assessment questions, it was interesting to note that respondents were able to score highly (84.5%) in the phoneme blending task. This achievement is not surprising as results from the analysis of the background of the respondents indicated most of them (68.3%) had attended the Jolly Phonics or Learning (USAID) PD sessions which are generally known to focus on blending and counting of sounds. Perhaps this show of competency in the blending tasks could be as a result of the training they received during the PD sessions. This suggests that professional development training could improve teacher competency. This finding supports the Dunning-Kruger effect theory where one part suggests that when people are made aware of their incompetency and receive training in the area where they were deficient, they are able to overcome their incompetency and become competent (Kruger & Dunning, 1999). The finding is also consistent with those of Podhajski, Mather, Nathan, and Sammons (2009), Moats and

Foorman (2003), Brady et al. (2009), and Spear-Swerling and Brucker (2003) where participants who had attended professional development courses on phonemic awareness and other structural language concepts did better on their tests than those who had not received such training.

#### **5.1.4 Overall competency of respondents**

Findings from the study indicated that, overall, the respondents had limited competency in phonemic awareness. Their mean actual competency in teaching phonemic awareness to early grade pupils was determined to be below moderately competent at a mean score of 2.72 (SD=0.59) on a scale ranging from 1 to 5 with a score of 3 indicating moderately competent. An overwhelming majority (95.7%) of the respondents were below or at best moderately competent with only 4.31% found to be very competent. Interestingly, no respondent was found to be extremely competent in phonemic awareness instruction.

These findings are quite alarming and one that raises much concern as it suggests that the respondents had limited competency in phonemic awareness instruction. It is of much concern because these teachers had the direct responsibility of teaching pupils to acquire early reading skills. Therefore, if these teachers are limited in their competency to teach phonemic awareness to aid early reading development, then automatically their pupils would be at a high risk of having deficits in early reading skills.

The respondents' limited competency in phonemic awareness is quite baffling as their background data in Section 4.1 indicated that, most of the respondents had high qualification in education with majority being degree holders. Analysis of the actual preparedness of the respondents also indicated that they had taken a good number of credit hours of literacy-related training during their teacher preparation



programme. Aside this, majority of the respondents had attended significant number of on-the-job professional development training sessions on reading instruction which in a sense should have improved their overall competency. This therefore raises questions about the quality and effectiveness of the training these teachers received during their preservice teacher preparation and PD sessions. A review of the literature suggests that this mismatch between teacher education/training and competency of teachers in phonemic awareness could be due to a number of factors. These include limited teacher educator competency in phonemic awareness (Washburn et al. 2011), wrong selection of textbooks chosen for reading and literacy courses (Joshi, Binks, Graham et al. 2009) and in-extensive coverage of the structured knowledge and content needed to teach phonemic awareness and other structured language concepts in the available reading syllabus (McCombes-Tolis & Spear Swerling, 2011, Walsh et al., 2006; Rozen 2004).

The findings indicating low competency of the respondents in the study support earlier findings by researchers such as Bos et al. (2001), Washburn et al. (2011), Cunningham et al. (2004), Moats (2009b) Cheesman et al. (2009), and Cohen et al. (2016), all of whom reported of preservice and in-service teachers having limited knowledge in phonemic awareness and other structured language concepts. In the study by Bos et al. (2001), respondents were unable to answer nearly half of the questions on knowledge of structure which consisted of questions on phonemic awareness, phonics, and other structured language questions. In both studies by Washburn et al. (2011) and Cunningham et al. (2004) respondents were equally unable to answer the definitional and application knowledge questions presented to them. Cohen et al. (2016) also reported that, majority of respondents performed poorly on their survey questions which sought to assess respondents' definitional and

application knowledge of language structure; phonemic awareness and other code-based concepts. These findings therefore suggest that, in many cases, teachers at the early grade level who are supposed to be teaching phonemic awareness to pupils rather have limited competency themselves.

## **5.2 Research Question 2: How do early grade teachers perceive their competency in phonemic awareness instruction?**

Research question two examined respondents' perception about their competency in phonemic awareness instruction. This section presents the discussion of the findings on the respondents' perception presented in terms of the three components of teacher competency, namely: preparedness, knowledge, and ability.

### **5.2.1 Respondents' perception of their preparedness, knowledge and ability**

Results from the analysis about respondent's perception of their preparation to teach phonemic awareness to early grade pupils indicated that, respondents generally perceived themselves as highly prepared to teach phonemic awareness, with more than 84% of the respondents considering themselves to be at least moderately competent. In terms of their knowledge to teach phonemic awareness, results from the analysis indicated that, a high percentage of the respondents (79.3%) rated themselves as at least moderately competent to teach phonemic awareness with 43.3% and 30.17% considering themselves to be very competent and moderately competent respectively. Their perception in the application section of the questionnaire was not much different from the other ones, as their ratings of their competency in the application section of the questionnaire was also quite high, with 94% of the respondents claiming to be highly competent.

The general impression obtained from this analysis was that respondents generally have high perception of their competency in phonemic awareness in terms of preparedness, knowledge, and ability to teach phonemic awareness to early graders. Perhaps respondents' perception of their competency may be attributed to their background. The background data gathered for the study revealed that the respondents generally had quite an impressive background in terms of their preparation to teach phonemic awareness. Their background data revealed that, most of the respondents had a bachelor's degree in education, had attended numerous literacy related PD sessions and had been teaching for several years at the early grade level. Participants' qualifications and participation in numerous on-the-job PD sessions perhaps might have boosted their confidence causing them to perhaps rate themselves higher than they actually are. Cohen et al. (2016) found out that teachers from schools using code-based reading instruction reported of being more competent to teach phonemic awareness than their counterparts who were not using code-based reading, assuming that, because they use code-base instruction, they were more competent.

### **5.2.2 Overall perceived competency of respondents**

Results from the analysis indicated that the respondents had a significantly high perception of their overall competency in phonemic awareness instruction even though they actually had limited competency in phonemic awareness as indicated in the discussion under research question one. Respondents' overall mean perceived competency was determined to be significantly above moderately competent at a mean rating of 3.61 (SD=0.71) on a scale ranging from 1 to 5 with a rating of 3 indicating moderately competent and 4 indicating very competent. A significant majority (54.31%) of the respondents perceived themselves to be highly competent with 6.90% perceiving themselves to be extremely competent.

These findings were similar to those of several previous studies which reported that participants had overestimated their competency. For example, Cunningham et al. (2004) reported that, the respondents she studied had overestimated their competency in phonological awareness. Similarly, Cohen et al. (2016) also reported that participants had significantly higher rating of their total perceived knowledge in phonemic awareness and other structured language concepts. Martinussen et al. (2015) also reported that, the participants they had studied had significantly overestimated their competency levels in phonemic awareness, actually believing that they had high competency. The implication of these findings is that respondents' perception of their competency was not an accurate reflection of their actual competency. Respondents' inability to accurately predict their level of competency is of concern because people need to know what they do not know so that they would be readily receptive to acquiring new ideas in order to improve their competency (Cunningham et al., 2004.). This suggests that people would not willingly acquire new information unless they knew that, they were deficient in that area.

In this study, a significant number of respondents did not see inadequate knowledge of phonemic awareness as a challenge, when asked to state their biggest challenge with regards to phonemic awareness instruction, despite their limited competency. Instead, majority of the respondents (52.6%) cited "Inadequate instructional materials on phonemic awareness" as the biggest challenge they faced with regards to teaching phonemic awareness as part of early reading instruction. Only 12.9% of the respondents cited "Inadequate knowledge about phonemic awareness instruction" as the biggest challenge they had with regards to teaching phonemic awareness. This suggests that, majority of the respondents did not acknowledge their limited competency in phonemic awareness neither did they see it

as a challenge hence citing inadequate teaching learning materials and other factors as their biggest challenges rather than inadequate knowledge.

### **5.3 Research Question 3: What is the relationship between early grade teachers' perceived competency in phonemic awareness instruction and their actual competency level?**

This section examined the relationship between respondent's actual knowledge and their perceived knowledge. This was done using the Spearman's rank correlation test and the Paired Sample t Test.

The Spearman's rank correlation test yielded a correlation coefficient of 0.211 between respondents' total perceived competency and total actual competency at a significance level of 5% ( $p = 0.023$ ), an indication of a significant but positive and weak correlation between respondent's actual competency level and their perceived competency level. This finding supports the analyses under research questions one and two. The respondents generally perceived themselves to be highly competent when, in fact, they had limited competency in phonemic awareness. This is consistent with the Dunning-Kruger effect theory that people who are incompetent about something fail to acknowledge their incompetency and may even feel confident that they are competent enough (Kruger & Dunning, 1999; Dunning, 2011).

This result is consistent with the findings of Brady et al. (2009); Martinussen, et al. (2015) and Cohen et al. (2016), which did not find any strong correlation between respondents' actual competency and perceived competency. The result however contrasts that of Spear-Swerling and Brucker (2005) who reported a stronger correlation between what their participants actually believed they knew and what they actually knew. The implication in the study is that, teachers' perception or belief of their competency does not always reflect their actual performance on the job.

Other significant observations that were made in the study include a significant correlation between perceived preparedness and actual preparedness; perceived preparedness and total actual competency; perceived knowledge and actual preparedness; total perceived competency and actual preparedness. This suggests that teacher preparation is significantly correlated to teacher overall competency. It also further suggests that, the respondents had a more accurate perception of their competency in terms of their preparation.

The paired samples analysis of the respondents' total perceived competency and total actual competency indicated that the respondents categorised as below moderately competency (BLMC) had a mean perceived competency of 3.37 (SD=0.731) compared to their mean actual competency of 1.91 (SD=0.284) whereas those categorised as "at least moderately competent" (ALMC) had a mean perceived competency of 3.67 (SD=0.725) compared to their mean actual competency of 3.06 (SD=0.242). This implies that, although the respondents in the BLMC category had a significantly lower level of competency in phonemic awareness compared to their counterparts in the ALMC category, the respondents in the BLMC category perceived themselves to be almost competent as their counterparts in the ALMC category.

Results from the Paired Sample *t* Test also indicated that there was a significant difference between the respondents' perceived competency and actual competency with an overall mean of paired differences of 0.763 (SD = 0.845) and a Paired Samples *t* Test statistic of 9.648 ( $p = 0.000$ ). This further confirms that the respondents had generally overestimated their competency, a finding that is consistent with the Dunning-Kruger effect (Kruger & Dunning, 1999; Dunning, 2011). It was further observed that the mean of paired differences of respondents in the BLMC

category (mean =1.171; SD = 0.857) was relatively higher compared to that of those in the ALMC category (mean = 0.617; SD=0.717).

These findings therefore suggest that, the respondents who were in the “at least moderately competent” category were better able to predict their competency level than those who were in the “below moderately competent” category. The implication here is that, those who did well on the test were closer to accurately predicting their competency than those who were less competent. The findings from the study therefore support several earlier studies, including Maderickl et al. (2015), Sullivan et al. (2018), Mahmood (2016), and Ocaý (2019) in validating the Dunning-Kruger effect which implies that those who are competent in a particular subject matter would be able to predict their level of competency better than those who are not competent.

#### **5.4 Research Question 4: What is early grade teachers’ perception about using explicit or implicit instructional strategies in teaching phonemic awareness?**

Research question four sought to find out about early grade teachers’ perception about using explicit or implicit instructional strategies in teaching phonemic awareness. The discussion is organised according to the analysis of the results on the respondents’ perception about explicit and implicit instructional strategies.

#### **5.4.1 Perception of explicit instructional strategies**

Results from the study indicated that the respondents were generally in strong agreement with the importance of explicit code instruction, with the overall mean rating of the statements supporting explicit instruction being 5.04. The rating was on a scale of 1 to 6 with 1 being strongly disagree and 6 being strongly agree. This result suggests that the respondents strongly supported the use of explicit instructional techniques in their teaching of phonemic awareness, which is encouraging. This is because early systematic and explicit instruction in phonemic awareness has been found to improve early reading achievement of early graders (Moat, 2012). Moreover, explicit instruction is one of the most appropriate ways to teach pupils phonemic awareness, most especially to pupils who have difficulty mastering the alphabetic principle (Moat, 2012; Foorman & Torgesen, 2001). Explicit instruction gives room for teachers to breakdown tasks into small sequence of steps needed for reading at grade level while also giving teachers the opportunity to recognise missteps that may thwart their efforts (Bursuck & Damer, 2007).

This finding about teachers' perception of explicit instructional strategies in the study is consistent with those of Brady et al. (2009), Bos et al. (2001) and Mather et al. (2001), all of whom found that participants in their studies agreed to the use of explicit code instruction. The finding is however in contrast with McCutchen, et al. (2002) who found that the participants they studied did not show any preference for either explicit or implicit instructional strategy.

#### **5.4.2 Perception of implicit instructional strategies**

Respondents' agreement with implicit code instruction was generally positive with the overall mean rating of the statements supporting implicit instruction being 4.02 on a scale of 1 to 6 with 1 being strongly disagree and 6 being strongly agree.



The respondents however mostly disagreed with two of the statements supporting implicit instruction. That is, 52.6% disagreed that learning to use context clue is more important than learning to blend and segment words when learning to read while 67.3% also disagreed that if a beginning reader reads “house” for the written word “home” the response should not be corrected. The overwhelming disagreement of the respondents with these two statements suggests that, although the respondents supported implicit instructional strategy, they would not like to leave anything to chance when teaching their pupils how to read, but would explicitly correct any wrong word and would also explicitly teach pupils how to pronounce new words they come across. Yet, their agreement with the other statements supporting implicit instruction implies that, respondents would not hesitate to use an implicit approach if they felt that approach would benefit their pupils and ensure their pupils would develop skills necessary for beginning reading.

It is therefore clear from the findings of the study that the respondents did not fully embrace or reject one theoretical orientation or approach to reading instruction. This is a good thing as it is an indication that they would explore all available avenues in order to ensure that their early graders acquired the skills to read. This attribute is commendable because, knowledgeable and informed teachers combine practices that work for them without bothering about theoretical purity when teaching (Pressley et al., 2001). This finding in the study is consistent with those of Bos et al. (2001), Brady et al. (2009) and Mather et al. (2001) who found that participants in their studies agreed to the use of explicit code instruction, yet supported the use of implicit instructional approach.

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.0 Introduction

This chapter presents a summary of findings of the study in section 6.1. Section 6.2 presents the conclusion drawn based on the findings of the study. The findings and conclusions were organised based on the objectives of the study. Section 6.3 concludes the chapter by making some recommendations for practice and further research.

#### 6.1 Summary of Findings

The study aimed to examine teachers' competency in phonemic awareness instruction for the development of early reading skills among early grade pupils. The study employed quantitative research approach and utilised a cross sectional survey to explore teacher competency in phonemic awareness instruction for the development of early reading skills among early grade pupils in public schools within the Effutu Municipality. The study used the census sampling technique, targeting all the 134 teachers who taught at kindergarten to primary two in the 27 public primary schools within the Effutu Municipality. Of the total number, 116 teachers responded to the questionnaires, representing a response rate of 86.57%. SPSS (version 23) software was used to analyse the data into frequency counts, simple raw percentages, and means with their corresponding standard deviations. Spearman's rank correlation and Paired Sample t Test were used to analyse the relationship between actual competency and perceived competency of the respondents. The findings of the study are summarised as follows.

First, findings from the study indicated that the respondents generally had limited competency in phonemic awareness instruction. The respondents' level of preparedness was the highest among all the defined components of competency. However, it was revealed that the respondents generally had low level of competency in terms of their actual definitional knowledge and application knowledge (ability).

Second, results from the analysis about respondent's perception of their preparation to teach phonemic awareness to early grade pupils indicated that, the respondents had a significantly high perception of their overall competency in phonemic awareness instruction even though they actually had limited competency in phonemic awareness. The respondents generally perceived themselves as highly competent in terms of all the three components of competency, namely: teacher preparedness, knowledge, and ability.

Third, an analysis of the relationship between respondents' perceived competency and actual competency in phonemic awareness revealed that the respondents had generally overestimated their level of competency. However, respondents who were more competent were able to predict their competency level better than their less competent counterparts. Findings from the Spearman's rank correlation indicated a significant positive but weak correlation between respondents' perceived competency and actual competency in phonemic awareness instruction. The Paired Sample t Test conducted on the respondents' total perceived competency and total actual competency also indicated that there was a significant difference between the respondents' perceived competency and actual competency in phonemic awareness instruction. This difference was however wider among respondents categorised as "below moderately competent" than those categorised as "at least moderately competent".

Fourth, findings from the study revealed that the respondents were generally in strong agreement with the use of explicit instructional strategies. They also supported the use of implicit instructional strategies.

## **6.2 Conclusions**

Based on the findings of the study and discussions of those findings, the following conclusions had been made. First of all, evidence from the study clearly suggests that, early grade teachers in the Effutu Municipality had limited competency in phonemic awareness instruction. Teachers' level of competency in phonemic awareness was found to be below moderately competent. This therefore suggests that early grade teachers within the Effutu Municipality had inadequate competency in phonemic awareness instruction and hence would find it difficult teaching their pupils to develop early reading skills in phonemic awareness. Teachers' limited competency in phonemic awareness is of much concern as teachers in the early grade have the direct responsibility of teaching their pupils to read.

Secondly, the evidence in the study clearly suggests that teachers in the Effutu Municipality had a significantly high perception of their overall competency in phonemic awareness instruction even though they actually had limited competency in phonemic awareness. The implication here is that, since most of these teachers had wrong notion of their competency, they would not be open to learning new ideas as people need to know what they do not know in order to be receptive about learning new ideas.

Thirdly, there is overwhelming evidence from the study to suggest that, the respondents generally overestimated their competency in phonemic awareness instruction. The respondents generally perceived themselves to be highly competent when, in fact, they had limited competency in phonemic awareness instruction. The

evidence further brought to the fore that the respondents who were more competent were better at estimating their competency than their counterparts who were less competent.

Finally, evidence from the study clearly suggests that the respondents in the study were generally in strong agreement with the importance of explicit code instruction, while at the same time not rejecting the use of implicit instructional strategy. The implication here is that, even though respondents' first choice of instructional strategy would be explicit instruction, they would also not hesitate to use implicit instructional strategies if the need arose. It is therefore clear from the findings of the study that the respondents did not fully embrace or reject one theoretical orientation or approach to reading instruction. They would explore all available avenues in order to ensure that their early graders acquired the skills to read.

### **6.3 Recommendations**

Based on the findings from the study, the researcher made recommendations for practice and further research.

#### **6.3.1 Recommendations for practice**

The following recommendations were made for practice based on the findings of the study.

- The National Council for Tertiary Education should ensure that teacher preparation programmes of Colleges of Education and universities are designed to equip teachers with the fundamental knowledge and skills necessary for providing early systematic reading instruction. For instance, prospective early grade teachers should be taught to understand the salient differences and similarities between spoken and written language.

- Teacher training institutions and the GES should adopt practical approaches in training preservice and in-service early grade teachers respectively in phonemic awareness to enable them fully apply the definitional knowledge they acquire into classroom learning/teaching situations. For example, the teachers should be given examples of how their knowledge could be applied in real life and given enough opportunity to practice using their knowledge in real life situations.
- The GES and headteachers should provide opportunities for early grade teachers to explore and discover the potential of phonemic awareness for the development of early reading skills. This would motivate them to develop their own knowledge and skills in phonemic awareness instruction and apply their knowledge in their classrooms to provide systematic reading instruction.
- The GES should conduct regular follow-up studies to evaluate teachers' knowledge after organising professional development trainings in phonemic awareness. This would enable them to gauge the competency level of teachers after the training and address any gaps in their competency.

### **6.3.2 Recommendations for further research**

The following recommendations were made for further research based on the findings of the study.

- The study should be extended to other municipalities in the country to facilitate a broader understanding of early grade teachers' competency in phonemic awareness instruction.
- Further research should be conducted on the factors that account for early grade teachers' inability to fully apply the definitional knowledge they acquire in phonemic awareness instruction into classroom learning/teaching situations.

- This study should be extended to the upper grades where teachers could help pupils who are still struggling to read after early grade to develop their phonemic awareness in order to improve their reading.



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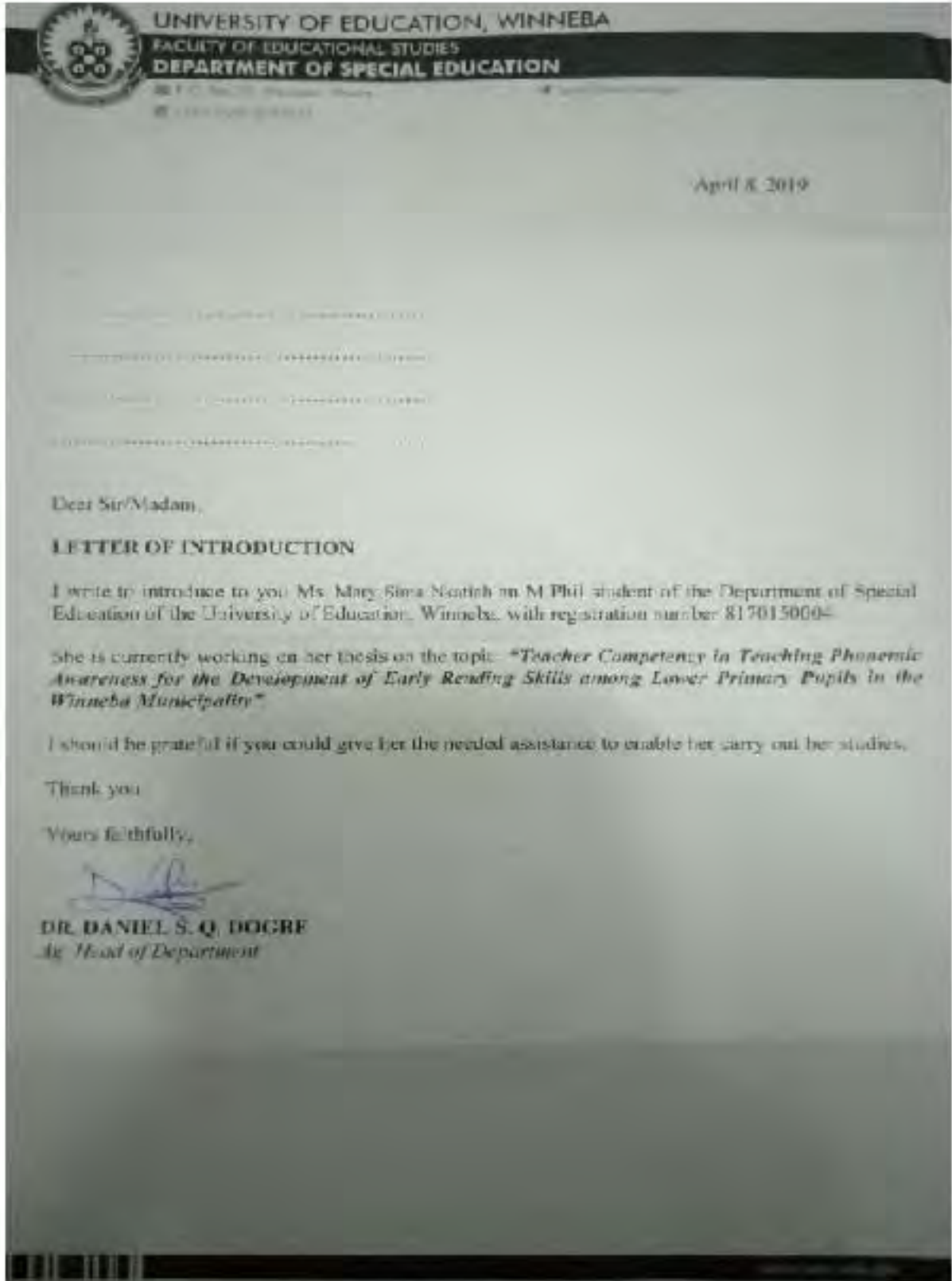
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## APPENDICES

### APPENDIX A

#### Letter of Introduction



## APPENDIX B

### Permission Letter from GES

**GHANA EDUCATION SERVICE**

  
REPUBLIC OF GHANA

UNIVERSITY OF EDUCATION  
P.O. BOX 240  
WINNEBA  
TELEPHONE: 030-2222222  
FAX: 030-2222222  
EMAIL: [ges@uow.edu.gh](mailto:ges@uow.edu.gh)

BY THE NO. OF INSTRUMENTS BY VOL. 475  
Trans Ref. No. \_\_\_\_\_ DATE: 28<sup>th</sup> APRIL 2019

**LETTER OF INTRODUCTION**

We acknowledge receipt of your letter dated 8<sup>th</sup> April, 2019 introducing a student who would like to conduct a research in the Effutu Municipality.

Permission has been granted to Ms. Mary Sima Nkatiah an M.Phil student of the Department of Special Education, University of Education, Winneba to use kindergarten (KG) and Lower Primary School teachers in selected schools within the Effutu Municipality for a research from 7<sup>th</sup> May to 14<sup>th</sup> June, 2019.

She is working on the topic: **Teacher Competency in Teaching Phonemic Awareness for Development of Early Reading Skills among Lower Primary Pupils in the Winneba Municipality**.

Teachers in the selected schools should co-operate with her to gather the necessary data on the topic while also ensuring that she abides by the ethics of the teaching profession.

  
**ROSE TENKORANG**  
**MUNICIPAL DIRECTOR OF EDUCATION**  
**EFFUTU-WINNEBA**

THE AS HEAD OF DEPARTMENT  
DEPARTMENT OF SPECIAL EDUCATION  
UNIVERSITY OF EDUCATION  
WINNEBA

MS. MARY SIMA NKATIAH  
DEPARTMENT OF SPECIAL EDUCATION  
UNIVERSITY OF EDUCATION WINNEBA

Copy to: All Circuit Supervisors  
Effutu Municipal  
Winneba

## APPENDIX C

### List of Participating Schools

TEFUTU MUNICIPAL EDUCATION DIRECTORATE

LIST OF PUBLIC PRIMARY SCHOOLS

*Mr. Seth Ekwemeli  
Director  
Planning & Staff  
0244576107*

No.	SCHOOL NAME	LOCATION	
1	A.C. M'KQ PRIMARY SCHOOL	SANKOR ✓	02445426576
2	A.M.E. ZION A/B KG/PRIMARY	ABASRAHA	0244223057
3	A.M.E. ZION C PRIMARY	ABASRAHA	02444107358
4	A.M.E. ZION D KG/PRIMARY	ZION MISSION	0244322251
5	AKOSUA VILLAGE M/A KG/PRY	AKOSUA VILLAGE	4 km from Mission 024462222
6	ANSATEL M/A BASIC SCHOOL	ANSATEL ✓	0244425477
7	ANSARU'DEEN ISLAMIC BASIC	ZUNGO	0208993890
8	ATEKYEDU M/A KG/PRIMARY	ATEKYEDU ✓	0249892814
9	ATTEITU/OSUBON, M/A PRY	ATTEITU ✓	4 km from 0244503277
10	DON BOSCO CATH. BOYS PRY	ROMAN HILL	0545968254 ✓
11	DON BOSCO CATH. GIRLS PRY	ROMAN HILL	02449211601
12	ESSUEKYIR METHODIST PRY	ESSUEKYIR ✓	02287769256
13	GYAHADZE M/A KG/PRIMARY	GYAHADZE ✓	0244431314 ✓
14	GYANGYANADZE M/A KG/PRY	GYANGYANADZE ✓	0244833798 ✓
15	METHODIST A/B KG/PRIMARY	NDAAMBA, ABOWIE ✓	0244686402
16	METHODIST C/D KG/PRIMARY	NDAAMBA, ABOWIE ✓	0243288404
17	NEW WINNEBA M/A BASIC	NEW WINNEBA ✓	0243450044
18	NTAKORAM M/A BASIC SCH.	NTAKOREAM	0209665758
19	PRESBYTERIAN KG/PRY	KUJO BEEDE	0243682976
20	ST. JOHN'S ANGLICAN PRY 'A'	ABASRAHA	0242129592
21	ST. JOHN'S ANGLICAN PRY 'B'	ABASRAHA	0244410771
22	UNIPRA NORTH PRIMARY	LEW, North Camp	4 km from 024342269
23	UNIPRA SOUTH A/B KG & PRY	LEW, South Camp	0244779075
24	UNIPRA SOUTH C KG-PRIMARY	LEW, South Camp	024865817
25	UNIPRA SOUTH D INCLUSIVE	LEW, South Camp	0243105132
26	WINNEBA M/A KG/PRY & SS	KUJO BEEDE	0246110452
27	WINNEBA M/A KG/PRY & MT	KUJO BEEDE	024453579

## APPENDIX D

### Questionnaire for Early Grade Teachers

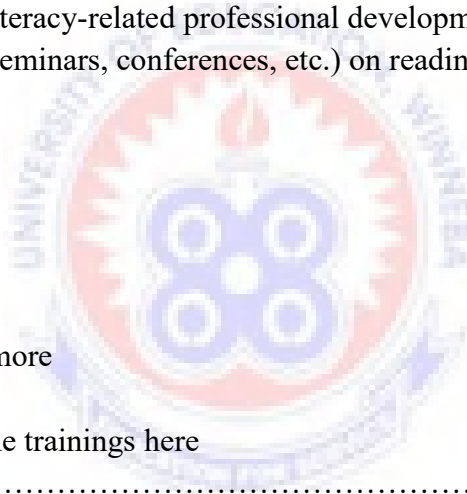
UNIVERSITY OF EDUCATION, WINNEBA  
FACULTY OF EDUCATIONAL STUDIES  
DEPARTMENT OF SPECIAL EDUCATION

My name is Mary Sima Nkatiah, an MPhil student at the University of Education, Winneba (Winneba Campus). I am conducting a study on the topic Teacher Competency in Phonemic Awareness Instruction for the Development of Early Reading Skills among Early Grade Pupils in the Effutu Municipality in the Central Region of Ghana. I thank you for participating in this study. The study is purely for academic purpose and would have no direct impact on your job. The survey results are anonymous and no individual or school would be identified by their names. Do not write your name on this questionnaire paper. You are kindly requested to complete all the questionnaire items. Your honest response would help me complete this study successfully. Again, I sincerely thank you for participating in this study.

#### Section One: General Questions

1. Which type of educational institution did you attend?
  - i) Teacher training college
  - ii) College of education
  - iii) University
  - iv) Other institution (Please specify) .....
  - v) I have no teacher training education
  
2. For how long have you been teaching?
  - i) 0 – 3 years
  - ii) 4 – 6 years
  - iii) 7 – 9 years
  - iv) 10 years and above
  
3. What is the highest qualification you have received?
  - i) Cert A
  - ii) Diploma
  - iii) BEd
  - iv) BA
  - v) MEd
  - vi) MA
  - vii) MPhil
  - viii) Other (Please specify).....

4. Which grade do you teach?
  - i) KG. 1
  - ii) KG. 2
  - iii) P. 1
  - iv) P. 2
  - v) Other (Please specify).....
  
5. How many credit hours of literacy-related training did you receive during your teacher preparation program?
  - i) 0
  - ii) 1 hour
  - iii) 2 hours
  - iv) 3 hours
  - v) 4 hours
  - vi) Other (Please specify).....
  
6. How many literacy-related professional development training sessions (e.g. workshops, seminars, conferences, etc.) on reading instruction have you attended?
  - i) 0
  - ii) 1
  - iii) 2
  - iv) 3
  - v) 4
  - vi) 5 or more
  
7. Please list the trainings here  
.....  
.....  
.....



**Section Two: Classroom Practice**

8. What is your biggest challenge with regards to teaching phonemic awareness as part of early reading instruction?
  - i) Inadequate knowledge about phonemic awareness instruction
  - ii) No clear guidelines for teaching phonemic awareness in my teaching syllabus
  - iii) Inadequate instructional materials on phonemic awareness
  - iv) Difficulty in getting access to resources on phonemic awareness instruction
  - v) Other (Please specify)  
.....

9. Which of the following areas would you like to receive additional training to enable you gain more knowledge with regards to teaching phonemic awareness as part of early reading instruction (Please select all that apply)?

- i) Onset and rimes
- ii) Phoneme blending and segmentation
- iii) Phoneme manipulation
- iv) Instructional games and activities in phonemic awareness instruction
- v) Assessing phonemic awareness
- vi) Rhyme and Alliteration
- vii) None of the above
- viii) Other (Please specify)

.....

10. How competent in terms of the following do you feel to teach phonemic awareness as part of your early reading instruction?

	<b>Not at all competent</b>	<b>Minimally competent</b>	<b>Moderately competent</b>	<b>Very competent</b>	<b>Extremely competent</b>
Knowledge					
Preparedness					
Ability					

### Section Three: Knowledge

- 11. A phoneme refers to
  - a. a single letter
  - b. a single speech sound
  - c. a single unit of meaning
  - d. a grapheme
  
- 12. The terms *onset* and *rime* refer to
  - a. two words that contain different vowel digraphs yet rhyme
  - b. the two parts of a syllable; the initial consonant or consonants, and the vowel and any final consonants
  - c. two consonants joined together in one syllable to produce one sound
  - d. the separate syllables in a two-syllable word, as well as the two words that comprise a compound word
  
- 13. Phonemic awareness is primarily
  - a. the ability to derive meaning from a word
  - b. the ability to recognize and manipulate the individual sounds in spoken language.



- c. the ability to use sound-symbol (phoneme-grapheme) correspondences to read and spell new words.
  - d. both b and c
14. Phoneme manipulation refers to.....
- a. the ability to identify words that begins with the same sounds
  - b. the ability to isolate a single sound from within a word
  - c. the ability to modify, change or move an individual sound in a word
  - d. the ability to combine individual sounds in a word
15. The linguistic term for the spoken or written vowel and the final consonant(s) (if any) in a word (e.g. *o* in *do*; *-oat* in *coat*; *-eat* in *meat*) is referred to as
- a. syllabus
  - b. rime
  - c. alliteration
  - d. onset

#### Section Four: Application

16. How many speech sounds are in the word *grass*?
- a. Two
  - b. Three
  - c. Four
  - d. Five
17. How many speech sounds are in the word *box*?
- a. One
  - b. Two
  - c. Three
  - d. Four
18. Which type of task will this be? –Say the word *cat*. Now say *cat* without the /c/ sound.”
- a. Blending
  - b. Rhyming
  - c. Segmentation
  - d. Deletion
19. Indicate the type of task this would be if I put the sounds /sh/ /oe/ together to form the word *shoe*.
- a. Blending
  - b. Segmentation
  - c. Rhyming
  - d. Manipulation

20. What is the second sound in the word queen?
- /u/
  - Long / e/
  - /k/
  - /w/
21. Identify the pair of words that begins with the same sound.
- joke-goat
  - chef-shoe
  - quiet-giant
  - chip-chemist
22. If the pronunciation of the word *enough* is reverse it will be:
- fun
  - phone
  - funny
  - one
23. If the word grab is broken apart into its separate sounds e.g. grab = /g/ /r/ /a/ /b/, what type of tasks will that be?
- Isolation
  - Categorisation
  - Segmentation
  - Addition
24. –What word do you have if you add /s/ to the beginning of park?” This kind of task is referred to as
- phoneme deletion
  - phoneme blending
  - phoneme addition
  - phoneme isolation
25. Which of the following has correctly separated the word *strand* into the onset and the rime?
- stra.... nd
  - str....and
  - st.... rand
  - strand* does not contain onset and rime

**Section Four: Teacher Perception about using Explicit and Implicit Code Instructional Strategies in Phonemic Awareness Instruction.**

26. To what extent do you agree or disagree with the following statements?

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Mildly disagree</b>	<b>Mildly agree</b>	<b>Agree</b>	<b>Strongly agree</b>
All pupils can learn to read using literature base authentic text						
Poor phonemic awareness contributes to early reading failure						
Picture cues helps pupils identify words in the early stages of reading						
Time spent reading contributes directly to reading improvement						
Learning to use context clue is more important than learning to blend and segment words when learning to read.						
If a beginning reader reads ‘‘ house‘‘ for the written word ‘_home‘ the response should not be corrected						
It is important for teachers to demonstrate to pupils how to segment words into phonemes when reading and spelling						
Adult-child shared book enhance language and literacy development						
Teachers should know how to teach and asses phonemic awareness						

## APPENDIX E

### Survey of Preparedness and Knowledge of Language Structure Related to Teaching Reading to Struggling Student Instrument (Cohen et al., 2016)

R. A. Connor et al.

#### Section 3: Definitions

1. The writing system of a language is called
  - a. orthography
  - b. phonics
  - c. semantics
  - d. phonology

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

2. A teaching method that teaches the relationship between the sounds of a language and the letters used to represent them is called:
  - a. directionality
  - b. orthography
  - c. miscue analysis
  - d. phonics

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

3. Phonemic awareness is primarily
  - a. the ability to derive meaning from a word
  - b. the ability to recognize and manipulate the individual sounds in spoken language.
  - c. the ability to use sound-symbol (phoneme-grapheme) correspondences to read and spell new words.
  - d. both b and c

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

4. A written letter or combination of letters that are used to represent a single speech sound is called a:
  - a. consonant blend
  - b. minimal pair
  - c. grapheme
  - d. syllable

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

5. A phoneme is:
  - a. a single letter
  - b. a single speech sound
  - c. a single unit of meaning

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

4. Which word contains a consonant blend?
- a. push
  - b. look
  - c. straw
  - d. clip

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

5. Which of the following words contains a consonant digraph?
- a. bring
  - b. sleep
  - c. much
  - d. tired

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

6. Which word has a schwa (/ə/) sound?
- a. eagerly
  - b. problem
  - c. formulate
  - d. story

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

7. Which of the following words has a prefix and a suffix? You may mark more than one.
- a. prejudice
  - b. property
  - c. teaching
  - d. salamander

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

8. Which has correctly separated the word "strand" into the onset and the rime?
- a. str...nd
  - b. str...and
  - c. st...rind
  - d. "strand" does not contain an onset or rime.

How sure are you of your answer? Circle: 0 % 25 % 50 % 75 % 100 %

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

11. A prefix and a suffix are

- a. morphemes that are added to a root or base word that may change the word's part of speech but not its meaning
- b. free morphemes to which other affixes can be added
- c. morphemes that cannot stand alone but are used to form a family of words
- d. morphemes that are added to a root or base word that may change the word's part of speech and its meaning

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

12. The terms onset and rime refer to

- a. two words that contain different vowel digraphs yet rhyme
- b. the two parts of a syllable: the initial consonant or consonants, and the vowel and any final consonants
- c. two consonants joined together in one syllable to produce one sound
- d. the separate syllables in a two syllable word, as well as the two words that comprise a compound word

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

13. Sounds in which the vocal cords are used are called:

- a. reversals
- b. variants
- c. miscues
- d. voiced

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

14. Fill in the blank. \_\_\_\_\_ primarily helps to support phonics instruction.

- a. repeated readings
- b. decodable text
- c. guided reading
- d. independent reading

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

15. In a word that contains a closed syllable,

- a. there must be more than one syllable
- b. there is a "silent e" at the end of the syllable
- c. the vowel makes a short sound and is followed by a consonant

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- d. there can be more than one vowel but it is closed in by one or more consonants

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

16. A diphthong is

- a. a vowel sound composed of two parts that glide together
- b. a vowel sound spelled with two different vowels that make one sound
- c. two consonant letters that represent one speech sound
- d. a spelling pattern that contains a silent letter

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

### Section 3: Application

How many speech sounds are in the following words?

- a. eight
- b. grass
- c. box
- d. queen
- e. brush
- f. knee
- g. through

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

2. For each of the words determine the number of syllables.

- a. disassemble
- b. heaven
- c. observer
- d. frogs
- e. teacher

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

3. For each of the words determine the number of morphemes.

- a. disassemble
- b. heaven
- c. observer
- d. frogs
- e. teacher

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

4. Which word contains a consonant blend?

- push
- look
- straw
- clap

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

5. Which of the following words contains a consonant digraph?

- bring
- sleep
- much
- tired

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

6. Which word has a schwa (/ə/) sound?

- eagerly
- problem
- formulate
- story

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

7. Which of the following words has a prefix and a suffix? You may mark more than one.

- prejudgment
- property
- teaching
- salamander

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

8. Which has correctly separated the word "strand" into the onset and the rime?

- str...nd
- st...and
- st...rand
- "strand" does not contain an onset or rime.

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %



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9. Identify the pair of voiced and unvoiced consonant sounds.

- a. /b/ /p/
- b. /d/ /g/
- c. /f/ /s/
- d. /n/ /m/

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

10. Which sentence is an example of decodable text?

- a. The bear snatched the meat away from the trainer.
- b. She watched the slippery, slimy, slugs slink by.
- c. The fat cat sat on the mat.
- d. The car was found down the road in the snow.

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

11. An example of a word with a closed syllable would be:

- a. keep
- b. clothes
- c. limit
- d. heard

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

12. Which of the following words contains a diphthong?

- a. drip
- b. battle
- c. shut
- d. boy

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

13. Which pair of words contains the same underlined sound?

- a. intend...baked
- b. weight...height
- c. was...votes
- d. push...pump

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

14. Which pair of words begins with the same sound?

- a. joke-goat
- b. chef-shoe
- c. quiet-giant
- d. chip-chemist

How sure are you of your answer? Circle. 0 % 25 % 50 % 75 % 100 %

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## APPENDIX F

## Teacher Knowledge Assessment of the Structure of Language (TKASL) Instrument (Bos et al., 2001)

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and sound levels. Items were developed or adapted from several sources (Lerner, 1997; Moats, 1994; Rath, 1994). Items were selected to represent content about phonological awareness and phonics. The original technical properties were determined on a longer assessment (25 items) with 55 inservice teachers. Overall internal consistency was .83 (Cronbach's coefficient alpha). The knowledge assessment used for this study was reduced to 20 items with an overall internal consistency of .60 (Cronbach's alpha) based on the 286 inservice teachers, with the reduced reliability related to the decreased variability and number of items (Pudhazur & Schmelkin, 1991). Table IV presents each item on the assessment with the percent of preservice and inservice educators correctly answering each item.

Table IV. Percentage of Correct Answers by Items on the Knowledge Assessment for the Preservice and Inservice Educators.

Item	Preservice <sup>a</sup> (n = 252) %	Inservice <sup>b</sup> (n = 286) %
Which word contains a short vowel sound? (a) treat (b) start (c) slip (d) cold (e) point	81	93
A phoneme refers to: (a) a single letter (b) a single speech sound (c) a single unit of meaning (d) a grapheme	93	88
A pronounceable group of letters containing a vowel sound is a: (a) phoneme (b) grapheme (c) syllable (d) morpheme	53	64
If <i>ije</i> were a word, the letter <i>j</i> would probably sound like the <i>i</i> in: (a) <i>if</i> (b) <i>beautiful</i> (c) <i>find</i> (d) <i>ceiling</i> (e) <i>sing</i>	88	93
A combination of two or three consonants pronounced so that each letter keeps its own identity is called a: (a) silent consonant (b) consonant digraph (c) diphthong (d) consonant blend	43	61
Example of a voiced and unvoiced consonant pair would be: (a) <i>b-d</i> (b) <i>p-b</i> (c) <i>t-f</i> (d) <i>g-j</i> (e) <i>c-s</i>	19	22
Two combined letters that represent one single speech sound are a: (a) schwa (b) consonant blend (c) phonetic (d) digraph (e) diphthong	23	48
How many speech sounds are in the word "right"? (a) two (b) three (c) four (d) five	76	81
How many speech sounds are in the word "box"? (a) one (b) two (c) three (d) four	8	15

*continued*

**Table IV. Percentage of Correct Answers by Items on the Knowledge Assessment for the Preservice and Inservice Educators. (continued)**

Item	Preservice <sup>a</sup>	Inservice <sup>b</sup>
	(n = 252) %	(n = 286) %
How many speech sounds are in the word "grass"? (a) two (b) three (c) four (d) five	46	43
What type of task would this be? Say the word "cat." Now say cat without the /c/ sound. (a) blending (b) rhyming (c) segmentation (d) deletion	42	59
What type of task would this be? "I am going to say some sounds that will make one word when you put them together. What does /sh/ /oe/ say?" (a) blending (b) rhyming (c) segmentation (d) manipulation	67	69
Mark the statement that is false: (a) Phonological awareness is a precursor to phonics (b) Phonological awareness is a oral language activity (c) Phonological awareness is a method of reading instruction that begins with individual letters and sounds (d) Many children acquire phonological awareness from language activities and reading.	30	33
What is the second sound in the word "queen"? (a) u (b) long e (c) k (d) w	41	32
A reading method that focuses on teaching the application of speech sounds to letters is called: (a) phonics (b) phonemics (c) orthography (d) phonetics (e) either a or d	45	30
A soft c is in the word: (a) Chicago (b) cat (c) chair (d) city (e) none of the above	71	91
Identify the pair of words that begins with the same sound. joke - goat (b) chef - shoe (c) quiet - giant (d) chip = chemist	90	94
If you say the word, and then reverse the order of the sounds, "ice" would be: (a) easy (b) sea (c) size (d) sigh	54	67
If you say the word, and then reverse the order of the sounds, "enough" would be: (a) fun (b) phone (c) funny (d) one	65	72
All of the following nonsense words have silent letters, except: (a) bamb (b) wrin (c) shipe (d) knam (e) phop	28	46

Adapted from: Lerner, 1997; Moats, 1994; Rath, 1994.

## APPENDIX G

### Teacher Perception about Early Reading and Spelling (TPERS) Instrument (Bos et al., 2001)

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**Table III. Mean Ratings for the Items on the Perception Survey for Preservice and Inservice Educators by Factors.**

Factors/Items	Preservice n = 252 M (SD)		Inservice n = 286 M (SD)	
<b>Explicit Code Instruction</b>				
K-2 teachers should know how to assess and teach phonological awareness (i.e., knowing that spoken language can be broken down to into smaller units: words, syllables, phonemes).	5.74	(0.55)	5.86	(0.37)
Controlling text through consistent spelling patterns (The fat cat sat on a hat.) is an effective method for children who struggle to learn to identify words.	4.83	(1.06)	4.90	(0.93)
Poor phonemic awareness (awareness of the individual sounds in words) contributes to early reading failure.	4.72	(1.09)	5.27	(0.79)
K-2 teachers should know how to teach phonics (letter/sound correspondences).	5.59	(0.61)	5.79	(.44)
It is important for teachers to demonstrate to struggling readers how to segment words into phonemes when reading and spelling.	5.23	(0.76)	5.33	(0.70)
Phonic instruction is beneficial for children who are struggling to learn to read.	5.17	(0.86)	5.38	(0.70)
<b>Implicit Code Instruction</b>				
Time spent reading contributes directly to reading improvement.	5.56	(0.73)	5.63	(0.62)
Learning to use context clues (syntax and semantics) is more important than learning to use grapho-phonics cues (letters and sounds) when learning to read.	3.40	(1.30)	3.13	(1.16)
If a beginning reader reads "house" for the written word "home," the response should not be corrected.	3.25	(1.56)	3.49	(1.35)
Picture cues can help children identify words in the early stages of reading.	5.52	(0.91)	5.65	(0.60)
Adult-child shared book reading enhances language and literacy growth.	5.77	(0.54)	5.84	(0.40)
All children can learn to read using literature-based, authentic texts.	3.73	(1.49)	3.14	(1.45)

\* Ratings: 1 = strongly disagree, 2 = disagree, 3 = mildly disagree, 4 = mildly agree, 5 = agree, 6 = strongly agree