



## Towards assessment of pedagogical knowledge of early childhood educators: A case study of Sissala East Municipal, Ghana

Research article



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### Wasila Mahamud

Department of Languages, Tumu College of Education, Ghana

Email: [kpayalaz9@gmail.com](mailto:kpayalaz9@gmail.com)

 <https://orcid.org/0000-0002-1970-7933>

### Abstract

The study investigated the Pedagogical Content Knowledge of early childhood educators in teaching Language and Literacy and its impact on the learners' academic performance at early grade (Kg 1 –class 3) in the Sissala East Municipal of the Upper West Region, Ghana. The convergent parallel mixed method approach (Creswell, 2014) was used for the study. The sample was drawn, using purposive and simple random sampling techniques. The total sample for the study was 164 early childhood educators. Self-developed questionnaire, interview guides and observation checklist were used for data collection. The quantitative approach of data analysis was used to analyse the research questions and results presented in frequencies and percentages. The interviews and the observation results were analysed qualitatively through code and themes. The study revealed that the early childhood educators in the Sissala East Municipal have limited knowledge of the subject matter hence could not support their teaching of Language and literacy at the early grade effectively. The results suggested that early childhood teachers' limited pedagogical content knowledge significantly affects their quality of Language and literacy teaching. It was recommended that foundation teachers need to create-literate-rich environments to enhance teaching and learning at the lower levels.

**Keywords:** content knowledge, early childhood educators, language competence, language and literacy teaching, phonological awareness, spatial awareness



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### Public Interest Statement

The problems concerning subject matter and teaching practice are inherent when it comes to addressing the national issue of school improvement. Several national programmes which include FCUBE, Capitation Grants, Education Reforms (2007) and GES-Nationwide Inset (12) programmes have been put in place to address the essential issue of what and how teachers teach. Despite these efforts put in place by government to improve teacher quality, early childhood educators in the Sissala East Municipal have problems transferring knowledge to learners and this affects learning outcomes. Recent reports suggest that the alarming rate of poor teaching and learning outcomes in the Sissala East Municipal persist. As an illustration, National Education Assessment Unit (2013, 2016) and more recently, World Vision Ghana (2018) and Ministry of Education (2018) reports indicate that children from the Upper West Region by the end of primary two could not read with comprehension and write either in their Ghanaian language or in English language; a situation which calls for great concern.

### Introduction

For students to obtain knowledge and skills efficiently, teachers need to play an important role in facilitating this knowledge acquisition. Teachers are not only crucial in giving this support, but they are irreplaceable to the educational system. Shulman and Sykes (1983) argued that there is no system, be it microcomputer, television that can replace the teacher and that no voucher or cloning will bypass the teacher. Teachers' knowledge on reading and other literacy skills can be difficult to measure due to the several domains identified in literacy such as phonemic awareness, phonics and concept of print which are not as clearly defined as theories in maths, science and vocational (Phelps & Schilling, 2007; Reutzler et al., 2007).

Teacher's role in effective teaching is significant in achieving the goals of any curriculum. Research by Hill, Rowan and Ball (2005) revealed that the relationship between teachers' characteristics such as their behaviour, knowledge and students achievement had been investigated by two main approaches: process product and educational production function. The study on process-product looks at the correlations between teacher's classroom teaching behaviour (process) and the learner's achievement (product). Teachers' general principles of classroom management and affective factors have been identified to constitute teachers' classroom behaviour.

The educational production, according to Hill, Rowan and Ball (2005) explores what educational resources contribute to learners' achievement on a standardized test. These educational resources include learner's family background and teachers' school resources. There is the belief that a teacher's knowledge and understanding of a subject is important in impacting how they teach and how this influences learners' learning outcomes. Though some other factors such as degree obtained, courses and subject specifics studied in the universities and college are used in measuring the impact of teacher's knowledge on learners. The research on knowledge has moved from the assumption of exploring teaching effectiveness and teaching behaviours to what teachers know.

It is against this background that the proposal of pedagogical content knowledge (PCK) has brought attention to the investigation of teaching effectiveness and competence. The theory of

PCK explores and unpacks the unique professional knowledge in content teaching, which Shulman (1986) refers to as knowledge in subject matter teaching. PCK started by investigating the unique professional knowledge a teacher requires for teaching his subject well, ways of finding the difference between the content expert and a teacher who teaches the same subject and how to differentiate knowledge of an ordinary person from that of an effective teacher.

## Literature Review

### **Early childhood educators' pedagogical content knowledge in teaching Language and literacy**

According to Cunningham, Zibulsky, and Callahan (2009) early childhood teachers' knowledge base is complex and explained that it is daunting to determine what teachers know, the process under which they know it and how they need to know it to be competent. In a related study, Wray, Medwell, Poulson and Fox (2004) stated that teachers' content knowledge is problematic to define and admitted that defining it did not prove easy. Teachers' content knowledge is an important source of information when it comes to how they teach their subjects in the classroom. Professions differ because each has a unique knowledge base. The kind of knowledge early childhood educators possess that enables them to teach at the early grade effectively is what this section looks at.

### **Early childhood teachers' subject matter knowledge**

According to Grossman (1990), subject matter knowledge constitutes the understanding of concepts, facts, and terminologies of learning domains. Richards (2011) explains subject matter knowledge as what teachers need to know about the concepts they teach and constitutes knowledge which is uniquely possessed by the teacher. It, therefore, implies that an early childhood educator's knowledge of language and literacy is the content knowledge that is unique to the early childhood educator of literacy. When teachers have a firm command of the language, they make an appropriate decision during instructional periods and find a plausible solution to problems in the class than a teacher who does not have adequate knowledge in their subject area (Richard, 2011).

Phelps and Schilling (2004) define content knowledge as the way teachers comprehend a particular subject to teach in a way to others. Subject matter knowledge of teachers is independent of other pedagogical areas or how a teacher may apply the methods of teaching as espoused by Cox (2008). Teachers ought to know and comprehend the disciplines they teach. When early childhood teachers exhibit sufficient comprehension of the taught subjects, it differentiates them from novice teachers of the same subject. If early childhood educators have weak background content knowledge in literacy, they may have difficulties in teaching literacy to students, which will lead to lowering the standards of effective teaching.

Cesur (2012) indicated that the basic requirement for language teachers to teach effectively is language. English teachers are expected to be competent language users to be able to impart it to learners. Garvie (1990, as cited in Cesur (2012) stated that language teachers must know about and be aware of grammar and its related parameters. They must perform very well while writing, speaking, reading and listening. To him, the competent language teacher must have both accuracy and fluency in both the written and spoken aspect of the language.

Interestingly, Wray et al. (2004) stressed the need to differentiate between English language as a school subject and Language and literacy. The authors indicated there is evidence that the

subject knowledge of specialist teachers trained in English is specific, well developed and largely literacy focused. But early childhood teachers who teach literacy are not necessarily English subject specialists who teach at the secondary level. Participants in this study though may have English background, may not be teachers who have pursued English to the degree level. Snow, Burns and Griffith (1998), did an extensive work on early literacy development practices and their findings show that when early childhood teachers have the knowledge and focus on the foundational areas of the literacy development, young children can develop into strong readers and writers. They are:

- a) Phonological (including phonemic) awareness
- b) Letter–sound correspondence (phonics)
- c) Oral comprehension and vocabulary (listening and speaking, receptive and expressive)
- d) Fluency
- e) Concepts about print and books
- f) Computer literacy

The National Reading Panel (2000) report, which analysed the full body of K-12 literacy research agrees that the five pillars identified by Snow et al. (1998) are knowledge base good for early reading instruction. It is significant to discuss how much knowledge an early childhood educator in the Sissala East Municipal needs to possess to be able to teach language and literacy effectively.

Similarly, Wray, Medwell, Poulson and Fox (2004) in a study revealed that early childhood teachers need to have knowledge of sentence parts, word segmentation, knowledge in word classes, knowledge of children’s literature, reading and writing. Cunningham, Perry, Stanovich and Stanovich (2004), argued that teachers need ‘an understanding that early oral language development is the main precursor of reading development and that it unfolds with steady growth of vocabulary, a developing syntactical awareness, ever-maturing group of pragmatics and an evolving ability to hear blend, segment and manipulate phonemes in words and sentences’ (p, 491). Also, Fillmore and Snow (2000) postulate that early childhood educators need to possess comprehensive knowledge of a language which leads to literacy achievement and are best ways to assist pupils in acquiring literacy success through appropriate methods.

Cunningham et al. (2004), in a study, revealed three main domains of knowledge identified to be important knowledge for kindergarten to grade three teachers as phonics, children literature and phonological awareness. It is important teachers in the Sissala East Municipal know the ideas in children’s literature, have in-depth knowledge of phonics and phonological awareness so as to assist children in developing the necessary literacy skills. To be effective in the teaching of language and literacy, early childhood educators need to understand these literacy pillars, have a good command of the English language, provide explanation and examples during instruction. When early childhood educators know about language and its exceptions, they become confident in their teaching. There is a significant correlation between early childhood educators’ language proficiency and confidence in teaching. Early childhood educators who have low self-esteem in English have low confidence in their teaching practice (Richards, 2011).

In addition, Piasta, Cornor Fishman and Morrison (2009) conducted a study and reported that explicit decoding instruction was effective for students’ word-learning growth only when early

childhood teachers' knowledge of phonology, orthography, literacy-acquisition and morphology was high. To Arrow, Chapman and Greany (2015), for early grade teachers to effectively teach reading skills to children, it requires that they have a high level of understanding of the basic structure of the English language, including an understanding of the sound-symbol correspondence of written English. Brady (2009) posits that teachers need to have knowledge and understanding of phoneme awareness themselves. They should, therefore, understand how the 44 speech sounds of English are represented. They should as well know letters and their corresponding sounds and be able to tell which are easy for children to learn and which are difficult for children to learn. Teachers should be able to understand vowels and consonants and explain to children how they differ. Teachers need to understand some letters represent more than one sound, and some have different spellings.

Cesur (2012) notes that for language teachers to demonstrate knowledge of the English language, both accuracy and fluency in written and spoken language are vital. The author citing Ward (1992) indicated that English teachers have to speak, read and write English fluently and accurately. In addition to this, Cesur (2012) argues that being an effective language teacher is almost impossible without the knowledge of linguistics. Early childhood educators in the Sissala East Municipal should have enough knowledge about the structure and main features of the language to be effective in the classroom. Teachers' content knowledge is mostly about teachers' knowledge of the English language. It is in the light of this Ellis (2006) describes content knowledge as the teacher's ability to speak and write English as a competent user and the teacher's knowledge of English from an analytic perspective thus its syntax, grammar, lexical properties, generic phonology structures, literacy conventions and pragmatics

Conversely, Cunningham et al. (2004) reported that teachers generally hold higher self-perceptions of their phonic knowledge or knowledge of phonological awareness, but have low actual knowledge of these domains when they were assessed. Also, Arrow et al. (2015) observed that teachers appear to lack awareness of what they do not know. While they may have an understanding of what constitutes good practice, such as the inclusion of phonics instruction, they may have insufficient knowledge to provide that practice. Similarly, Cunningham et al. (2004) used a survey to assess how much teachers know about popular children's books. Surprisingly, ninety per cent of teachers were not familiar with the most common and popular children's book. This study would find out if teachers in the municipality are familiar with and understand children literature.

### **Knowledge in reading**

Phelps and Schillings (2007) conducted a study on the reading content knowledge needed for effective teaching of elementary reading. The study focused on two areas of teaching reading; knowledge in the word structure of the language and literary convention such as genre and style. The findings of the study revealed two main domain knowledge for reading. These domains included comprehension and word analysis. The researchers then identified numerous sub-categories, of knowledge needed to teach reading for each of these domains. Comprehension included sub-categories such as knowledge of reading to assess comprehension, teaching the knowledge of using word structures to understand word meaning, and teaching the knowledge of



determining the meaning of unknown words. Word analysis included sub-categories, such as knowledge of phonemes, the ability to interpret spelling to assess phoneme knowledge, and ability to interpret student reading to assess why students misread particular words.

### **Materials and Methods**

This research employed the mixed methods approach as the research design. Johnson and Onwuegbuzie (2004), defined the mixed method approach as the type of research in which the researcher combines qualitative and quantitative research concept, methods, approaches, and techniques into one study. In the mixed methods research, qualitative and quantitative research methods are relevant. Researchers who apply qualitative and quantitative methods employ empirical data to address research questions. The rationale for using the mixed methods design for this study is based on its advantages. Firstly, it helps the researcher gain advantage of blending the quantitative and qualitative approaches to examine the same phenomenon (De Vos, 2002). Secondly, it enables the researcher to have in-depth knowledge and understanding of some trends and patterns, examines theories and instruments, and guides in comprehending the relationship between variables (De Vos, 2002). Thirdly, it provides the researcher with a collection of flexible designs that fit in supporting rigorous examination of promising ideas. Last but not least, it provides data triangulation which overcomes the problems caused by the use of a single method. Mixed method guides researchers to respond to questions from different perspectives with or without gaps in the data collected. Similarly, it provides stronger data for a conclusion, and therefore the results can better be generalized.

The target population for the research included all early childhood educators in the Sissala East Municipal in the Upper West Region of Ghana. The target population is the aggregate of cases, about which the researcher would like to make generalizations (Polit & Hungler, 1999). Early childhood here is defined as pupils from Kindergarten one to basic three. The accessible population of the study was, teachers in five selected circuits in the Sissala East Municipal. The five circuits were chosen mainly on two grounds: first, the researcher considers five circuits as the accessible population which comprises 180 early childhood educators (KG- 1 to class 3) out of nine (9) circuits. The researcher utilized three data collection instruments. The first is a questionnaire which sought early childhood educators' views on their educational background, content knowledge, and instructional strategies they use in teaching literacy.

The second instrument was the interview where the research had the privilege to have a face to face interaction with participating teachers on their teaching, and the third was observation. The researcher observed teachers as they taught in the classroom in order to get empirical data about their content knowledge, knowledge of instructional strategies, knowledge of learners, and how these instructional strategies influence children's performance. The researcher used the observation tool to assist in triangulating the data and to see if the responses they provided in the interview support their classroom practices. The researcher designed the observation tool to conform to the purpose of the study.

### Data analysis

The quantitative data analysis was done using the Statistical Package for Social Sciences (SPSS) software version 20. The descriptive statistics (figures, percentages and frequencies) and percentages were used to analyse the respondents' responses to the questionnaire after they had been coded. The data was presented in tables and percentages. The qualitative data (interview and observation) was analysed through codes and themes. The researcher identified main themes by summarizing, interpreting and categorizing the collected data, as Merriam (2009) indicated. The interviews were transcribed as soon as the data collection was done. Responses from participants were grouped for ease of data of management. The researcher used coding to label the data. The main themes in the study were early childhood educators' knowledge, pedagogical knowledge, and knowledge of learners and the impact of early childhood educators' PCK on learners' academic achievement. Each major theme provided sub-themes in the study.

### Findings/Results

#### **What content knowledge of early childhood educators underpins their teaching of Language and literacy at the early grade?**

The researcher was interested in finding out from the respondents, knowledge of the subject matter in teaching Language and literacy. The Table 1 below presents the frequency, percentages, mean score and standard deviation for 164 early childhood educators' knowledge of the questionnaire. The result is illustrated in Table 1 below

**Table 1: Teachers' knowledge of subject matter**

Statements	SD		D		A		SA		N	Mean	S Dev.
	Freq	%	Freq	%	Freq	%	Freq	%			
1. I have a good understanding of how children acquire language and literacy skills	3	1.9	3	1.9	96	59.2	60	37	162	3.31	.605
2. I can apply my knowledge of syntax (phrase and sentence structure).	4	2.5	6	3.7	107	66	45	27.8	162	3.19	.616
3. I can apply my knowledge of phonology to help students develop oral, reading and writing skills	5	3.1	6	3.7	88	54.7	62	38.5	161	3.29	.684
4. I can apply my knowledge of morphology	2	1.2	11	6.8	110	68.3	38	23.6	161	3.14	.579
5. I have a wide knowledge of vocabulary			9	5.6	102	63.8	49	30.6	160	3.25	.549
6. I can apply my knowledge concept of print to help students identify books cover, etc.	2	1.3	4	2.5	101	63.1	53	33.1	160	3.28	.574
7. I can apply my knowledge of reading to assist Pupils' development of oral skills	4	2.5	7	4.4	114	71.3	35	21.9	160	3.13	.519

Note: Note: The mean values, Strongly agrees (SA) =3.5 - 4.0= Agree (A) = 2.5 - 3.4, Disagreed (D) = 1.5 – 2.4, Strongly disagreed (DA) =1-1.4,



The Likert scale statement explored the respondents' knowledge and other variables about teaching language and literacy. From the results, it can be deduced that the majority of the respondents agreed to the various statements about the teachers' knowledge of subject matter. This is because 156 (96.2%) respondents revealed that early childhood educators have a good understanding of how children acquire language and literacy, for instance, items #3 indicated that most of the teachers agreed to have a good understanding of how children acquire Language and literacy skills. Considering that the mean score by respondents is 3.31, it means that the early childhood teachers have the belief that they actually have a good understanding of how children acquire and literacy skills. Therefore, it is expected participants will apply the needed steps to guide them in their learning outcomes. 152(93.8%) apply their knowledge of syntax (phrase and sentence structure) to assist students in developing written and spoken English. Considering item #5 "I can apply my knowledge of phonology to help students develop oral, reading and writing skills", 150 (93.5%) respondents agreed with a mean score of 3.29 which can be concluded that majority of the respondents have agreed they apply their knowledge of phonology (sound) to help students develop oral, reading and writing skills. This finding falls in line with Cumminghumb, Zubulsky, Stanovich and Stanovich (2009), who suggested that early grade teachers need a working knowledge of the phonological system of English, including the ability to articulate, identify, count, and manipulate phonemes; an understanding that sounds and letters are separate entities; and an understanding of the importance of secure and accurate phonological representations for words in print.

Knowledge of morphology is one of the key component early childhood teachers should have. As a result, the teachers were asked to respond to the statement "I have knowledge of morphology (structure of words) to assist students development of oral and literacy skills". Out of the total of 164 respondents, 148(91.9%) respondents representing the majority agreed to the statement while the remaining 13(8%) disagreed to the statement. With a mean score of 3.14, it can be concluded that the teachers have adequate knowledge of morphology.

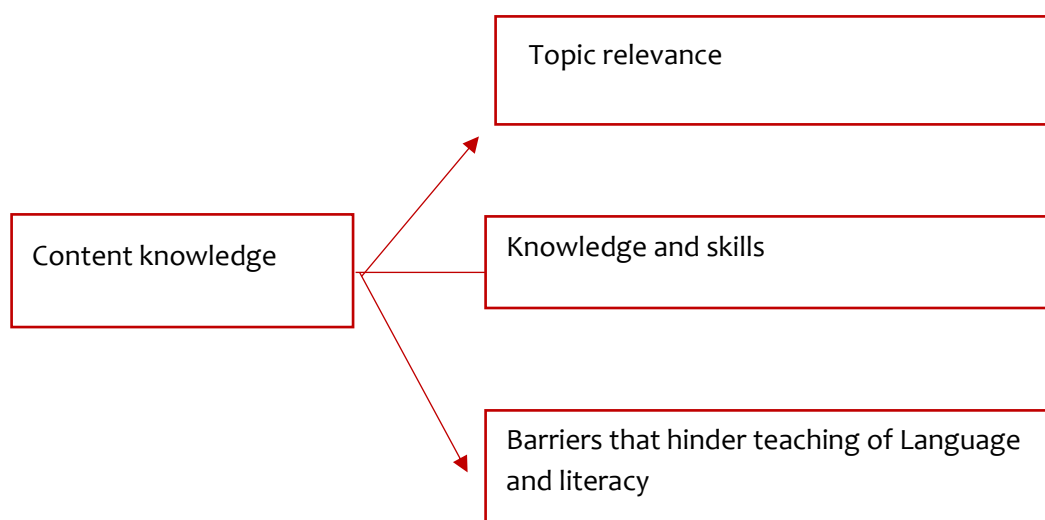
In addition, 151(94.4%) agreed that they have a wide knowledge of vocabulary. It implies that majority of the respondents are of the view that words introduced to children should be reinforced and enriched for deeper understanding throughout the classroom Graves (2006). The National Institute for Child Health and Development, (2005) suggests that when teachers have knowledge in oral language and implement them in class, it provides children with an opportunity to understand how to access their knowledge in a way that will help them understand the words in the text.

Also, 154 (96.1%) of the respondents agreed that they can apply their knowledge of the concept of print to identify a book cover, authors names, etc. to help students develop oral, reading and writing skills in English. Given that the mean score is 3.28 means that majority of the teachers have agreed that they can apply their knowledge of the concept of print in assisting pupils to acquire print skills. This is in consonance with Cunningham et al. (2004), whose study revealed three main domains of knowledge identified to be important knowledge for kindergarten to grade three teachers as phonics, children literature and phonological awareness. While 149(93.2%) agreed that they could apply their knowledge of reading to assist pupils' development of oral skills, the responses indicate they have adequate knowledge of subject which Richards (2011) believes when

teachers have adequate knowledge of the content they teach and also have a leading command of the language, they make appropriate decision during instructional periods and find plausible solution to problems in the class than a teacher who does not have adequate knowledge in their subject area.

### Discussion

In order to confirm the level of knowledge the early childhood educators revealed in the questionnaire, the researcher interviewed the respondents. The sub-themes that emerged from the interview were: topic relevance, knowledge and skills needed to teach and barriers that hinder the teaching of Language and literacy (see the in summary in figure 1 below).



Source: (Field data, 2019)

Figure 1: Summary of respondents' views on their subject matter knowledge

**Topic relevance**

Shulman (1986) described topic relevance as the teacher's ability to understand a specific topic within a discipline and to determine which topics are essential to include in his or her instruction, as well as which topics can be considered peripheral. When the researcher posed an open question as "Which language and literacy topics do you consider essential to teach?" Study participants articulated their content knowledge of topic relevance by identifying specific topics they felt were essential to include in their Language and literacy lessons. The essential topics that emerged included: writing, phonics, rhymes, sorting, matching reading, letter identification, word recognition, conversation etc. though all the respondents could not state why they chose those topics.

*T2: The essential topic to teach are: listening and speaking, pronunciation: reading- word recognition."*

*T3: "The important topic to teach is storytelling "*

*T10: Speaking, reading, writing, story sharing, rhymes, phonics, writing, drawing, visual discrimination, matching sorting auditory.*

Teachers identified reading, phonics, letters of alphabet identification, writing story-sharing and drawing as essential topics. T1, T5, T6, T7 indicated that reading, phonics, letters of alphabet identification, writing story-sharing drawing as essential topics. Almost 90% of teachers understood the meaning and significance of phonics as an essential topic to be taught. From their responses, it shows that the early childhood teachers have some level of knowledge in the topics that are necessary for teaching Language and literacy as most of the topics that have been mentioned are in congruence with what The Ministry of Education- National Syllabus for English Language (primary 1-3) has stipulated. These are rhymes/poems, story, and conversation manipulating: copying Letters and simple drawing and labelling phonic and reading. This is also supported by what the National Reading Panel (2008) has indicated.

**Knowledge teachers should possess to teach language and literacy**

On the question of what skills and knowledge early childhood teachers should possess in teaching Language and literacy, varied skills and knowledge of teachers were mentioned as to what content base teachers should possess in teaching language and literacy. Major skills and knowledge that emerged from the data were listening, reading, speaking, writing, creativity, and phonics, loving and caring, sorting, matching.

*T1: "The teacher should be able to impart knowledge s, know the needs of the children. Understand their ages and learning difficulties. The skills are the aspects that should include; listening skills writing skills, generic skills."*

*T2 : "The teacher should know the behaviour of children*

*T3: "should have an understanding of the topic."*

*T5 : "Teachers should have knowledge of all the four skills, thus reading speaking, writing, listening skills, and general knowledge in English are necessary for teaching Literacy."*

When their interview answers were analysed, most of the respondents did not mention anything about knowledge of grammar, phonological awareness, phonics, children's literature communication, reading, writing listening and speaking. Assessing the content and skills of the teachers, they results have shown teachers limited knowledge in content. Teachers' responses were contrary to what (Moat, 1994; Cunningham et al, 2004; Wray et al., 2004) suggested. It was only teacher T5 and T1 who admitted that knowledge of grammar, the four language skills and general knowledge of English are necessary for teaching Language and literacy.

T1: *"the skill are the aspects that should include; listening skills writing skills, generic skills"*.

These teachers (T1&T5) observation results showed that they have some good amount of knowledge and skills required to teach Language and literacy. They have shown a command of the English language as compared to the other respondents interviewed. Much like the results on other aspects, early childhood educators are not quite familiar with principles that underpin activities for teaching listening. Averagely, 100% of the teachers are aware of the importance of teaching listening, but few of them incorporate it in their lessons. It is necessary attention is paid to this aspect because the syllabus identified listening as a key aspect of oral communication.

### **What learners need to know in Language and literacy?**

The respondents were asked in the interview to speak their minds on what they thought young learners needed to know about reading and writing in lessons. The import of the question was for the researcher to have insight into foundation teachers' knowledge about learners reading and writing. For the kindergarten teachers, children should be able to read letter of the alphabet, write the letters very well.

T4: *"I think the skills learners need is copying the letters of the alphabet and being able to read them"*

This suggests that the teachers are concerned with children's who are beginners to be able to read and understand from the initial stage the purpose of reading as a means to an end but failed to get the children to understand that reading empowers them to handle books appropriately and equips them with phonological awareness skills. The primary one to three teachers also believe children need skills of speaking, listening and writing.

T1: *"what children need is the ability to copy sentences and construct their own"*

The responses were different from what children really need to acquire in reading and writing as stipulated in the curriculum. Children at primary one to three are actually supposed to listen, understand and follow directions, instructions etc. given in a language; read coherently and understand what is conveyed in a piece; speak a language clearly, and express themselves clearly and comprehensively through writing. The emphasis of children reading was reading for enjoyment as a skill applicable in other subject areas. On the aspect of writing, early childhood teachers

concentrated on children's copying letters from the board but did not see the need for beginning writers to grip the pencils well and form legible letters. Primary one to three learners, they need to move beyond copying to writing simple short descriptions and writing correct sentences from substitution tables. The researcher was also interested in knowing if foundation face teachers' challenges in teaching language and literacy.

### **Challenges early childhood educators face in teaching language and literacy**

The researcher interviewed participants to know the barriers that hinder their teaching of Language and literacy. Analysis from their responses revealed these themes: lack of teaching and learning materials, lack of knowledge in phonology.

#### **Lack of teaching-learning materials**

On the issue of the availability of teaching materials, all the respondents admitted that the teaching and learning materials are limited. Considering that all the respondents have said the materials are limited, it is evident the materials are not actually available in almost all the schools. It is worth noting that teaching-learning materials serve an important component of learning, especially at the kindergarten through to the elementary level. This was revealed when T-TEL (2016) conducted a study and revealed that teaching-learning materials create a productive learning environment for young learners and that the use of teaching-learning materials support learners to learn a topic better than the absence of TLMS. T-TEL (2016) espoused that though there are numerous relevance of TLMS, there is short of teaching-learning materials across schools and colleges in Ghana.

*T10 "Lack of Teaching Learning Materials in the classroom. AFRIKIDS provided some Teaching Learning Materials that are technical to use".*

*T8 "Some others had to do with Teaching Learning Materials. If you are trying to build a point and there are no Teaching-Learning Materials, it becomes difficult."*

*T9: "Lack of play materials even though we have outdoor games on our time table. The classroom is not conducive. The closeness of classes make voices of teachers from other classes echo, and this distracts the learner's attention. We also lack space to create learning corners."*

#### **Inadequate knowledge in phonology**

The respondents admitted that pronunciation of sounds is a major problem for them.

*T5 "Some of the phonetics sound like /o/, /ε/, /ɔ/ and the rest are difficult to pronounce by the children. I have that problem myself. I cannot pronounce some of the vowels. Phonics is difficult to teach because some of these letters have more than one sound."*

From the interview results, a majority of educators were also able to correctly identify the number of phonemes in three of five words, to correctly isolate the number of phonemes in four or five words. However, certain constructs appeared to suggest a lack of depth of knowledge for educators in this study. The majority of educators were unable to identify the number of phonemes



in two of five words (exit and cough). Early childhood educators in the Sisaala East Municipal might have been challenged by the lack of one-to-one correspondence with the number of phonemes and the number of letters, but a majority of educators correctly identified the number of phonemes in words such as **mat**, **sat** and **pin** but could not identify phonemes in words like **laugh** [la:f], **play**[pleɪ], **weigh**[weɪ] **exit** [eksɪt] which also do not have one-to-one correspondence between the number of phonemes and letters. The reason these teachers have this challenge according to Cunningham and O'Donnell (2015) is that teachers' knowledge of morphology, orthography and phonology is very weak and that many teachers have little knowledge on spoken and written structures of language and so are inefficient in giving instructions in such areas.

The lack of content knowledge to teach it can hamper the way early childhood educators teach. Darling –Hammond (2006) agrees with the above assertion from the research she conducted. The findings were that effective teaching needs a good amount of content knowledge and how to teach it well. Similarly, Bertram (2011) asserts that content knowledge is not only the facts about the subject but a deep understanding of concepts and how to explain them. The results of this study support other studies demonstrating challenges in content knowledge in this particular construct (Cunningham, Zibulsky, & Callahan, 2009; McCutchen et al., 2002; McCutchen et al., 2009; Spear-Swerling & Brucker, 2002).

Though Cunningham et al (2009, p.488) explain “it is daunting to determine what teachers know, under what circumstances, and how they need to know it to be masterful”. It was necessary to explore the knowledge teachers have in teaching Language and literacy. The researcher made an observation of 20 early childhood teachers to assess how they demonstrate a thorough conceptual understanding of the phonological awareness, phonemic awareness, vocabulary knowledge, and, communication and concept of print. The competencies observed were based on the observation guide. The table 2 below summarizes the researcher's observations on participants' demonstration of subject matter knowledge.

**Table 2: Observation results of participants**

PCK Elements to be observed	Competence areas	Not very well	Not well	Well	Very well	Total
<b>Knowledge of subject matter</b>	Demonstrate a thorough conceptual understanding of phonological awareness, phonemic awareness	0	11(55%)	9(45%)	0	20
	Demonstrate knowledge of vocabulary	0	5(15%)	15(75%)	0	20
	Demonstrate knowledge of reading techniques	0	13(65%)	0	7(35%)	20
	Demonstrate knowledge of activities for pupils to develop writing skills	0	7(35%)	12(60%)	01(5%)	20
	Demonstrate knowledge of grammar, and pronunciation spelling skills	0	10(50%)	10(50%)	0	20
	Demonstrate command in use of English	0	13(65%)	7(35%)	0	20

The data from Table 2 above presents the observation carried out on twenty early childhood educators in the Sissala East Municipal. The competences were measured using “well, very well, not very and not well” The results showed that 9(45%) demonstrated a thorough conceptual understanding of phonological awareness, phonemic awareness. 15 (75%) demonstrated knowledge of vocabulary. 10(50%) demonstrated knowledge of grammar, and pronunciation and spelling skills, whereas 7(35%) demonstrated command in the use of English Language. The results revealed that most of the teachers demonstrated a poor conceptual understanding of phonemic and phonological awareness skills. These early childhood teachers were not really proficient in teaching phonics. This was evident in one of the kindergarten classes. When it was time for phonics, the two teachers, and two mentees in the class were indecisive as to whom to handle the lesson. One of the mentors volunteered and taught. Few of the teachers who had AFRIKIDS training could appropriately take children through phonological awareness activities such as blending, segmenting but did not make use of the other activities such as deletion, association, rhyming. As a result, the teachers were not comfortable with their lessons to be observed. These findings are similar to, Cunningham et al. (2004) who reported that teachers generally hold higher self-perceptions of their phonic knowledge or knowledge of phonological awareness, but have low actual knowledge of these domains when they were assessed.

With regard to knowledge of reading methods and techniques, most teachers were seen teaching reading using reading aloud to the detriment of the other teaching techniques. On the issue of knowledge of writing and spelling, the early childhood educators performed averagely well as a number of them were seen demonstrating knowledge of writing when they taught learners on topics such as writing capital letters and lowercase letters, prepositions, commands, copying sentences etc. Generally, the questionnaire results have shown that early childhood educators in the Sissala East Municipal have adequate subject matter knowledge in teaching Language and literacy but the observation result contradicted the results from the questionnaire and the interview indicating that most of the teachers could not demonstrate a thorough conceptual understanding of phonological awareness, vocabulary knowledge concept of print. Some could not demonstrate adequate knowledge of the subject matter, knowledge of reading techniques, and knowledge of activities for pupils to develop writing skills, among others. This could be as a result of different respondents used for the data collection, interview and observation.

## Conclusion

It can be concluded from the findings of the study that teachers’ have some knowledge in the subject matter but this knowledge is limited as far as ‘what’ to teach at the lower level is concerned. This is because the results revealed teachers had poor knowledge in phonology and could not also mention the knowledge and skills they need in teaching Language and literacy. They also demonstrated limited knowledge in mentioning the topics necessary to teach in the lower level.

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