USING PHONICS AS A METHOD OF TEACHING READING IN BASIC SCHOOLS

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Abstract

This study examines the use of phonics as a method of teaching reading in basic schools within the framework of generative phonology proposed by Chomsky and Halle (1968) in the Sound Pattern of English (SPE) as discussed in Hawkins (1992). The study aims at describing the patterns of phonic sounds with the application of phonological rules. It describes naturally occurring phenomena (phonemes) without experimental manipulation. The data which is collected from some existing data on phonic teaching and learning and used in this paper are from both verbal and written sources. Participants selected include teachers (T), teacher-trainees (TT) and pupils (P). The study shows the relationship between phonic symbols and letters of the alphabet in English. It attempts to present consonants and vowels occurring in word-initial, word-medial and word-final positions in English as the major sounds in the English language. Based on the synchronic data available, the paper hypothesizes that the voiceless dental fricative /θ/ and the voiced dental fricative /ð/ are the difficult sounds that are not easily pronounced in English words by the L1 learner in Ghana. The study, therefore, suggests that both teachers and teacher-trainees should have some knowledge in phonic sounds, and that an introduction to phonetics and phonology should be considered as a course in the Colleges of Education.

KeyWords: Language, phonics, reading, method, fricatives, Dagbani.

Introduction

Phonic analysis is a method for teaching reading at the basic level by developing learners' phonic awareness (the ability to hear, identify and manipulate English sounds in order to teach the sounds and the spelling patterns they represent). The term phonics was used as a synonym of phonetics, and also as a method of teaching in the 1970s. Phonics is derived from the roman text 'The Doctrine of littera' which

means a letter (littera) consists of a sound (potestas), a written symbol (figural) and a name (nomen). The relationship between a word and a sound forms the backbone of traditional phonics. Pupils, who have not learnt to read face the challenge of acquiring the initial concepts and skills of literacy in the English language. English language learners (ELL) in Ghana at the basic level come from different linguistic and cultural backgrounds which can easily influence their L2 learning with interference from their L1 experience. So, it is recognised that ELL may need extra support in learning the sound system (phonemes), vocabulary and grammar of the spoken English and the print concepts (Brown and Rogers, 2002).

My seven years of experience in teaching and supervising works of teacher-trainees on teaching practice at the basic school level using phonic analysis as a method alerted me to the fact that phonic analysis is a good method for teaching reading to beginners using sound-letter relationships of written English. Teacher-trainees always complain about the effective use of phonics both in school as students and teachers in the second language classroom. While some of them enjoy using the method, others think it is difficult. Hence, the motivation to do a study in order to suggest a reliable procedure for using phonic sounds in addition to the existing procedures to teach reading to beginners. This study uses the analytic perspective and it focuses on the role of the constituent parts (phoneme) that make up the total phenomenon as observed by Salinger and Shohamy (2001).

There are a few methods of teaching reading and these include syllabic method, eclectic method, phonic analysis, sentence or word method (Look and say method). The study focuses on investigating the phonics as a constituent method of the general methods for teaching reading. The process is going to be more specific at the level of the sound (phoneme) - letter (symbol) relation in analysing vocabulary in English. Out of the proposed methods of teaching reading at the basic level, the study examines phonic analysis as one of the methods and tests the concept in detail without considering other related linguistic variables. This is because the study has a deductive purpose with a mind set on a positive outcome of the investigation. The focus is on making a detailed analysis of the phonic sounds.

Salinger and Shohamy (2001) argue that the more restricted the scope, the more the context will have to be manipulated, since

restriction implies the selection of some aspects within the study context for close study. This assertion is purely a linguistic variable that needs the competence of using phonic sounds to teach reading. It limited to the use of phonemes to teach reading by applying the phonological rules in basic patterns of sounds in word formation in English. Participants are defined in order to ensure the control of the data and manipulation. The scope is limited to a specific target group and area where the participants and materials are readily available for the study. The more the focus is narrowed, the more necessary it is to manipulate the study context and the more likely the learners will become aware of being involved in a study. The attention of the participants was avoided in a natural context during the process of collecting data. Participants were selected in a natural situation for the effectiveness of a reliable data collection. Selection of study design and instrument were done in a way to avoid subjectivity. Furthermore, data were collected on the basis of the study design (interview) to be used during the study. The data were based more on linguistic variables (literacy skills, lexical items).

Statement of the Problem
A critical observation of teachers and pupils' performance in teaching and learning in the classroom revealed that phonic analysis as a method of teaching and learning was avoided. Both teachers and pupils showed little interest in phonics and for that matter, the problem of literacy competence in reading and writing arose. This study seeks to examine why teachers shun the use of phonics analysis as a method of teaching reading.

Objective
The principal objective of this study is to determine the state of teaching and learning phonic sounds in English, so as to provide a model for teaching, and to conduct investigation that could furnish the expanding domain of interest in phonic analysis as a method. The study is aimed at making an analytic test on the use of phonic sounds to teach reading in order to produce a model that may guide the teacher and other future users.

Research Questions

1. What is the role of phonic skills in literacy development?
2. What is the sound-letter relationship in literacy development?
3. Which L2 sounds are difficult to pronounce with respect to accuracy in reading?

Significance of the Study

Improving teaching methods will certainly develop the system of teaching and learning the English Language in our educational set-up. The outcome of the study could be of interest to people in the field of second language teaching/learning in Ghana. The teacher in the classroom who will use the concept to teach is the primary target. The linguist and sociolinguist, educationist, textbook writers, policy-makers and students of language will need the concept. The phonic sounds form the basis of learning a language since language learning begins with phonology. It involves the study of speech sounds (phonemes) in a particular languageand how to pattern the sounds to form a morpheme. With regard to this, there is the need to develop a possible procedure of using the concept to teach a beginner how to read.

Literature Review

Literacy instruction at the basic level continues to be a controversial and intensively researched area of education since the late 1960's. Opinions on teaching methods have been highly polarized, particularly in terms of how to teach children to 'crack' the written alphabetic code (Hamilton, 2007). Hooper (2010) notes that phonics is a second area that reading is built upon or it is a reading strategy that teaches reading through repetition and relationships between letters and sounds. She further mentions that phonemic awareness is the ability to isolate individual sounds (phonemes) in spoken words and if a child does not develop this skill the entire reading process will suffer. Previous accounts that review phonics as a method of teaching reading reveal that the systematic phonic work is overwhelming and much strengthened by an analytic approach as have been argued by different authorities such as Wyse and Styles (1976a 1976b), Matson (1996), Allington (1997), Wolf and Burko-Gleason (1998), Holton (2004), Gerber (2004), Leafstedt et. al. (2004), Rose (2006), Dombey

(2006), Whitaker et al. (2006), Hamilton (2007), Cihon (2008) and Hooper (2010).

Wyse and Styles (1976a) think that the best practice in the teaching of early reading brings together two key components: the acquisition of the alphabetic principle and comprehension. These components, they mentioned, should not be developed in isolation. Best practice integrates skills teaching with more authentic, contextually grounded literacy activities, responding to the interests of the learner and the literacy contexts of their homes and communities. They further provide the evidence that some teaching strategies are more effective than others; no one approach in itself can address the complex nature of reading. An integrated approach requires that teachers have a thorough understanding of a range of effective strategies, as well as knowing when and why to apply them.

Matson (1996) describes phonics as a code-oriented approach which is a traditional way of teaching that has worked successfully with most students. According to Allington (1997, p.4), "evidence indicates that most children (80-85%) already acquire phonemic awareness by the middle of first grade". Phonemic awareness is the most basic of the abilities related to reading and a skill that the reading process is built upon. Research has shown that success in phonemic awareness is critical to the reading process. Wolf and Burko-Gleason (1998, cited in Hamilton, 2007), observe that given the complexity of language, beginning learners must come to an understanding of language and the rules for ordering and combining its sounds to be successful communicators.

Holten (2004) gives the example of the word "mat" and explains that the three letters represent three phonemes [m-æ-t] which are sounds put together to form a word. Manipulating phonemes such as /m/ by substituting the first phoneme /m/ in 'mat' with /k/, it changes the word from 'mat' to 'cat' [k-æ-t]. Thus exercise mentioned above trains a child's brain sound-letter awareness.

Gerber (2004, cited in Hamilton, 2007) indicates that phonological awareness is an important component of early reading development. Leafstedt et al. (2004) have also suggested that students with phonological deficits have difficulties understanding that words can be broken into individual phonemes and therefore cannot act on that knowledge which poses a large problem in a society. According

to Whitaker et al. (2006), children are expected to recognize over 80,000 words by sight by the end of third grade.

Rose (2006) observes that teachers [should] provide systematic, direct and explicit phonics instruction so that children master the essential alphabetic code-breaking skills that are required for foundational reading proficiency. Equally, those teachers [should] provide an integrated approach to reading that supports the development of oral language, vocabulary, grammar, reading fluency, comprehension and the literacy of new technologies.

Dombey (2006) believes that the most successful schools and teachers focus both on phonics and the process of making sense of a text. Best practice brings these two key components together, in teaching that gives children a sense of pleasure. Reading can support them in making personal sense of the texts they encounter and also shows them how to lift the words off the page. In contrast, as part of the Rose enquiry learning, to decode is to read and to encode is to write, spell or print. For most children, high quality-systematic phonic work should start by the age of five, taking full account of professional judgements of children's developing abilities, hence the need to situate this work within a broad and rich curriculum. Cihon (2008:139) states that, "in 2002 a study involving 604 young children was conducted, and found that over 70% of poor readers had a history of phonological awareness or oral language deficits in kindergarten.

Implications of the Review for English Teaching and Learning in Ghana

Wyse and Styles (1976b) conclude that the findings of the review should be secured through the revised framework for teaching literacy, currently being developed by the Primary National Strategy, and through changes to: the key stage 1 English programme of study for reading, an early learning goal.

Rose (2006) again feels that analytic phonics should be adopted nationally as the preferred method for the teaching of early reading. The available study evidence supports systematic tuition in phonics at a variety of levels (e.g. phoneme, onset-rime) combined with meaningful experiences with print.

Some successful models as outlined by Foorman and Torgensen (2001) mention that effective instruction for students that are struggling to learn to read, must include explicit and

comprehensive instruction, as well as more intensive and supportive instruction than that which is required by the majority of the class. Also, they found that instruction that builds on phonemic awareness and decoding fluency in word recognition and text processing, construction of meaning, vocabulary, spelling and writing skills, is most effective. Overall, direct, systematic and comprehensive instruction that builds on phonemic awareness and phonemic decoding skills will make the most significant impact (Hamilton 2007).

Edelen-Smith (1999, cited in Hamilton, 2007) suggests exposing students to word play through the use of literature that deals playfully with speech sounds through rhymes. Utilizing literature that is interesting to students can be used to increase their awareness that words are made up of individual speech sounds, and that those sounds can be produced in isolation. Beginning to draw students' attention to all parts of words can be done through literature that emphasizes rhyming, alliteration and syllabication.

Methodology
The study was conceived to combine extensive school-community interactions and conceptual analysis of participants' performances. The interactions involved the use of participatory techniques entailing in-depth interviews and observation. Information for the study was both primary and secondary sources. Unstructured interview was used to collect data from primary sources, while the existing Dagbane literature (Hudu, 2013) provided the secondary information.

The study was conducted in Yendi municipality with a particular attention on the basic Schools in the locality. Guardians and identified teacher and student participants in the selected area were contacted personally for their consent. The advantage for choosing these participants for the study was that, they constituted samples from diverse neighbourhood and different schools.

The study objectives were tested through interviews. Participants used in the study were teachers, teacher-trainees and pupils from Yendi and its surroundings. All the selected participants were from the basic schools in the locality. The teachers and the pupils were selected from lower primary classes. The fact that they were from diversed social groups who always used the English Language in the classroom for interaction was indication of getting the

true reflection of the use of the phonic variables. Possible participants who had formal knowledge of linguistics were not selected because the study needed to avoid control of the variables since the knowledge of linguistics had introduced them to the use of phonics.

Population

Generally, the choice of sampling domain was driven by the purpose of the study. Snowball sampling technique was employed to select participants for the focus group interviews. To get a fair assessment, the participants constituted samples from different neighbourhood and different social groups from different basic schools. In order to collect useful data that contained the relevant linguistic variables, sixty (60) participants were purposively selected. This sample was based on Hudson's (2001, p. 160) statement that "it is unrealistic to aim at very large samples because it takes so long to process the data collected." Milroy (1987, p. 21) points out that "the most successful studies based on structured interviews have used fewer than a hundred speakers, and increasing the number of speakers tends to be counter-productive, the analytical work increases without much improvement in the result."

Two sets of participants were selected; the first set comprised twenty (20) males and twenty (20) females, representing the Teachers and Teacher-Trainees. They included sixteen (16) regular teachers comprising eight (8) males, eight (8) females who were all natives of Yendi and twenty-four (24) teacher-trainees comprising twelve (12) males and twelve (12) females who were all teacher-trainees from Tamale College of Education. The second group comprised twenty (20) pupils consisting of ten (10) boys and ten (10) girls.

Instruments

The instruments used to collect the data were Rapid and Anonymous surveys and Sociolinguistics interview. Rapid and Anonymous surveys and Sociolinquistic interviews used in this study have been described by Labov (1966), Trudgill (1974), Milroy (1980, 1988), Eckert (1989), Bauer (2011), Milroy and Gordon (2003). Three sections were used for the interviews: the first set was all the teachers; the second set was the teacher-trainees and the last set was the pupils. The study focused on the language use patterns of teaching in different basic schools and different neighbourhood. The teaching methods used by T & TT provided information necessary for an

efficient method to be used for the expected behaviour from the participants. The instrument was used to collect data on both linguistic variables [θ, ð] and social variables (age, gender). Hudson (2001, p. 169) states "a variable is a collection of alternatives which have something in common" while Korsah (2012) defines a variable as the particular linguistic form that is capable of being realized differently under the influence of various social factors.

In all, sixty (60) participants were interviewed; the interviews took place in the schools and only the information from the intervention activities introduced during the interviews were transcribed for analysis. The activities included: The Phonological Awareness Test (Robertson & Salter 1997), Segmentation Task (Smith et al., 1995) and /θ/ and /ð/ in Context (Gogovi et al., 2005).

Participants

The initial data on pronunciation were obtained in Yendi by first identifying the lower classes that had lessons on reading comprehension or dictation using the rapid and anonymous surveys techniques. These classes were taught by the regular teachers and teacher-trainees who were using phonic methods. The researcher deliberately went round asking for the correct pronunciation of some familiar words. To elicit the set of words in natural conditions, I engaged participants in natural conversation for the pronunciation of some words. The target groups of the first set were all the teachers and teacher-trainees. The following verbal questions were asked:

1. Are the lady and the gentleman a couple?
2. Which animal is drawn on the card board?
3. How do you assist the pupil to pronounce 'both'?
4. What about 'madam'?

The conversation with the participants was conducted in English since the researcher had already identified participants in each class. These questions were asked as part of the conversation; question 1 is illustrated in example (1) below:

1)   Q: Are the lady and the gentleman a *couple* /kʌpl/?
A: Yes: they are a couple [kɔpl].

(Amina [1], personal communication, February 11, 2016)

The data in (1A), represents the response of one of the participants who ended pronouncing /kʌpl/ with the variable [ʌ] as

[kɔpl] with the variable [ɔ] instead of the [ʌ] used in (1Q) by the researcher. Most participants were prominent in the use of [ɔ] in the word "couple". The participants responded with considerable emphasis on the use [f] for /θ/ in the word "both" and [d] for /ð/ in most of the words. They were also comfortable with the interview since the researcher used their preferred choice of language (Dabanli). The method of recording was to note the relevant details about each participant's pronunciation using a check-list so that none of them realized that they were taking part in a linguistic study. They were however told the purpose of the conversation after each interview session. The pupils and teacher-trainees were more cooperative than the teachers.

Teachers and Teacher-Trainees
The rapid anonymous survey had already made the researcher visit the locations of the participants and identify them through an informant. The participants were visited about two weeks for familiarization before the interviews were conducted. The researcher interviewed the participants by using the following verbal questions in a conversational manner. The researcher adopted Labov's (1984) conversational network models cited in Milroy and Gordon (2003) where sets of questions were organized around specific topics.
1. Which methods are employed in teaching reading?
2. What is the role of phonic method in teaching reading?
3. Do you know the sound and the letter relationship in reading?
4. Which L2 sounds are difficult to pronounce with respect to accuracy in reading?

The set of questions were designed to get the participants to give information about the stated research questions of the study. They were more natural talking about the challenges in teaching using the phonic approach especially the sound-letter relationship. The interview was conducted mainly in English except at a point when the Dagbanli was used to make some clarification from some of the participants who understood Dagbanli. The example in (2) illustrates one of the questions for clarification.

(2)	Q:	bo	lamba	m	pa	kpe	ŋɔ
		What	number	3sg	place. perf	here	loc.

'What number is placed here?'

	A:	lumba	tɛrii		m-ba	la
		Number	three		3sg.cop	Det

'That is number three'

(S. Admu, personal communication, February 26, 2016).

The data in (2A) presents one of the participant's responses to a question for clarification on the pronunciation of the word 'three' /θri:/ of the interview question represented in (2Q). The target variable was the use of the sound dental fricative /θ/. The questions were asked between conversational intervals in order not to put pressure on the participant. All the responses were documented and crosschecked with the initial data for accuracy. The interview was selected because it often produces valuable quantitative data that can complement quantitative analyses (Milroy and Gordon 2003, p. 61).

Pupils

The last set was the pupils. The researcher used a checklist to monitor how the pupils pronounced the words in naturally occuring conditions through their teachers. The word list was used to check how the pupils responded to reading when a teacher did a model reading of a text during a reading aloud lessons. The reading was recorded and transcribed as illustrated in 3.4.3. It also helped the researcher to track how the teachers also pronounced the words during the reading. The interviews were conducted by the researcher himself in English and Dagbanli.

Procedure

The interviews were conducted in natural settings where the participants were much comfortable doing their own things. Each interview lasted for not less than 20 minutes because the study had limited time. The whole interview spanned two months from February to the end of March.

The method used to collect the data followed that of Labov (1966) study in New York. All the questions used in the first interview were based on the three research questions. Other studies that used the same method included Trudgill (1974) and Coupland (1988). To elicit the data, rapid and anonymous survey was used to collect the initial

data (without the awareness of the participants) with a checklist, while sociolinguistic interviews were used on one-on-one exchanges between the researcher and the participants to cross-check the initial data obtained. The instruments used to collect the data on the phonic variables were described in the sections as rapid and anonymous surveys and sociolinguistic interview. The data is presented below.

The Data Collected
The data for this study was collected based on the interviews conducted. The data was collected through a series of different activities conducted during the use of the focus key informant interviews. As part of the data collection, intervention model activities were introduced to help participants practise some phonic analysis.

The Phonological Awareness Test (Robertson and Salter 1997)
The Phonological Awareness Test is an activity that involves isolation of initial sound in a word to test the association of sound with letter, and also to test sound positions (initial, medial, final) in words. The instruction used in the test is as follows: "I am going to say a word, and I want you to tell me the beginning or first sound in the word. Example, what is the beginning sound in the word 'tin'?" The data collected in this test is presented in Table 1. In the Table, the bolded numbers represent the identification of [θ] as the initial sound while the unbolded numbers represent the identification of [ð] as the initial sound.

Table 1 Phonological Awareness Test

Word	Sound	T
Took	[tʊk]	14
Dry	[drai]	13
Tin	[θin]	0
Three	[θri:]	0
Then	[ðən]	0
Though	[ðəʊ]	1
Thank	[θænk]	2
The	[ðə]	2
Them	[ðəm]	0
True	[θru:]	0

The table presents the number of participants (T, TT & P) who were able to identify the initial sounds of the words (see analysis in section 4.2.1). The bolded sounds in column two are the initial sounds. This test was also used to identify word-final position. As seen in the data, there is the association of the letters 'th' or 't' with the sound [θ] in word-initial and also 'th' again with the sound [ð] in the same environment. The activity draws participant's attention to the notion that the 'th' letters represent the sounds [θ, ð] depending on the voicing (voiced or voiceless).

Segmentation Task (Smith et al., 1995)

Segmentation Task is an activity that allows participants to identify the various segments (sounds) they hear in a given word. Segmentation involves breaking a word into segments; e.g. the word "truth" has the segments [θ], [r], [ʋ], [θ], so the sound /θ/ is a segment. Participants' response requires one step of pulling apart the sounds: e.g. [θ], [r], [ʋ], [θ]; these sounds are represented by the letters t-r-u-th. When they are asked to delete the first sound from 'truth', the response requires two steps. First, identify it and segment the sound. Second, the remaining sounds [r, ʋ, θ] need to be held in memory and then blended- /t/ ruth [θ]rʋθ]. The same words used in the first activity were repeated for consistency. The data collected is presented in table two. In the table, the bolded numbers represent the identification of [θ] as the initial sound while the unbolded numbers represent the identification of [ð] as the initial sound.

Table 2: Segmentation Task

Word	Sound	T
Truth	[θ] rʋθ]	**2**
That	[ð] æt]	3
Tin	[θ] in]	**3**
Three	[θ] ri:]	**3**
Then	[ð] ən]	3
though	[ð] əʋ]	1
Thank	[θ] ænk]	**2**
The	[ð] ə]	2
Them	[ð] əm]	2
True	[θ] ru:]	**5**

The table presents the number of participants (T, TT &P) who were able to identify the initial sounds and other segments in the words (see analysis in section 4.2.1). This activity was used to develop participants' knowledge on sound-letter relationship. The data also show the association of 'th' with [θ] in word-initial and 'th' [ð] in the same environment. The activity also draws participants' attention to the notion that 'th' represents the sounds [θ, ð] depending on the voicing (voiced or voiceless).

/θ/ and /ð/ in Context (Gogovi et al., 2005)

Participants' reading a comprehension text in class on the linguistic variables [θ, ð] were recorded and transcribed. That passage was written in the form of a dialogue purposefully for the lesson without the knowledge of all the participants. First was model reading by T and TT in class for pupils to listen and second, pupils reading aloud. The data below represents the reading of all the participants. For the purpose of understanding, only the words containing the variables are transcribed and the bolded parts are the variables. The underlying forms (actual pronunciation) are represented in / / while the surface forms (participants' pronunciation) during the reading are represented in [ ]. The surface forms are written directly under the underlying forms in italics to show how participants pronounced the words in that context.

T, TT & P reading data:

/θælmə/ and /ruθ/ were /θinkiŋ/ of /visiθiŋ/ /temə/. /bəʊθ/ of /ðəm/ met at /ðə/ /θɛθi-θriː/ square
[tælmə]   [ruf]   [tinkiŋ]   [visitiŋ] [temə] [bəuf]   [dəm]   [də] [tɛti-tri]
at /ten/ /θɜːθi/ on /θɜːsdei/ morning and the following /daːlɔg/ /tʊk/ place between /ðəm/:
[ten] [tɜːti]   [tɜːsdei]   [daːlɔg] [tʊk]   [dəm]:
Thalmar: /did/ [did]   you /tɛl/   [tɛl] your /faːðə/ [faːdə]?
Ruth: Yes, I have /təʊld/ [təʊld] him about next /θɜːsdei/ [tɜːsdei].
Thalmar: I have also /təʊld/ [təʊld] my /maːðə/ [maːdə] /ðə/ [də] /θrʊθ/ [trʊf] about our trip.
Adopted from Gogovi et al. (2005).

The data also shows the association of 'th' with [θ] in both word-initial and word-final and 'th' and'd' with   [ð] in the same environment. The activity also draws participants' attention to the idea that 'th' represents the sounds [θ, ð] depending on the voicing (voiced or voiceless).

Data Analysis

The statistical procedures used to test the research questions were analysis of linguistic variables (phonic sounds) and social factors (participants, gender and age). It should be noted that the pronunciation of the variables were realized with the social factors. Each variable was tested against the background of all the social factors. The results are tabulated in different tables with the totals and percentage total boldened. For the purpose of this study and easy analysis, the participants are represented with the following: T – teachers, TT- teacher-trainees and P – pupils.

Results and Discussion

The results are presented in two sections; the first section reports the results of component analysis done on the linguistic variables that verify the [θ] and [ð] as difficult sounds and second the analysis of the findings on phonic skills as well as the sound-letter relationship in literacy development. Results of the data gathered from the interviews are presented in the tables as well.

The Data Obtained

Table 3 presents, according to gender, the 60 participants selected for the study. It shows that 50% males and 50% females were selected for the study. The bolded figures represent the analysis. Gender balance was considered in selecting the participants for this study.

Table 3: Participants * gender cross tabulation

Participants	Gender		Total
	Male	**Female**	
Teacher (T)	8	8	16
Teacher-trainee (TT)	12	12	24
Pupils (P)	10	10	20
Total	**30**	**30**	**60**
% of total	**50%**	**50%**	**100%**

The Table presents the distribution of the participants according to gender to confirm the equal representation of all the groups. It shows that the percentage of total count comprises 50% of male participants and 50% of female making a total of 100%.

Testing the Research Questions

Tables 4 and 5 confirm the research questions by showing which L2 sounds are difficult to pronounce and sound-letter relationship with respect to accuracy in reading. The results here reflect the data presented in (3.4.1-.3.4.2).

Table 4: Pronunciation of /θ/ cross tabulation

Participants	Pronunciation		Total
	/t/	/θ/	
Teacher (T)	14	2	16
Teacher-trainee (TT)	18	6	24
Pupils (P)	20	0	20
Total	52	8	60
% of total	87%	13%	100%

The distribution in Table 4 shows the pronunciation of the linguistic variable [θ] as a phonic sound. It presents a total count of fifty-two (52) participants representing 87% of both male and female showing frequency of participants substituting the dental fricative /θ/ with the alveolar stop [t] in English words while a total count of eight (8) participants representing 13% of both male and females show frequency of /θ/ in their pronunciation. This represented both T and TT since none of P could pronounce the sound. It is also noticed that most of the participants are comfortable with the surface from [t].

Table 5: Pronunciation of /ð/ cross tabulation

Participants	Gender		Total
	/d/	/ð/	
Teacher (T)	13	3	16
Teacher-trainee (TT)	16	9	24
Pupils (P)	20	0	20
Total	49	11	60
% of total	82%	18%	100%

The distribution in Table 5 shows the pronunciation of the linguistic variable [ð] as a phonic sound. It presents a total count of forty-nine (49) participants of both male and female comprising T, TT and P who show a frequency of [d] pronunciation representing 82%, while eleven (11) participants of both male and female comprising T and TT show /ð/ frequency in their pronunciation representing 18%. This means that 82% of the participants substitute the dental fricative

/ð/ with the alveolar stop /d/. Again, it is also noticed that most of the participants are comfortable with the surface from [d].

Table 6: Knowledge of participants on the role of phonic skills and sound-letter relationship in literacy development

Participants	Research Questions	Phonic skills	Sound-letter relation No idea	Total
Teacher (T)	4	0	12	6
Teacher-trainee (TT)	6	2	16	24
Pupils (P)	0	0	20	20
Total	10	2	48	60
% of total	17%	3%	80%	100%

The distribution in Table 6 presents the knowledge of participants in research questions 1 and 2. It shows that a total count of ten (10) participants comprising only T and TT have knowledge about phonics representing 17% while a count two of (2) participants comprising TT have knowledge about phonics. A total count of forty-eight (48) participants comprising T, TT and P have no knowledge about phonics representing 80%. The data suggest that only 20% of participants comprising T, TT and P have knowledge about phonics and sound-letter relationship while 80% have no idea. This confirms research questions 1 and 2.

Discussion and Conclusion
Results obtained in this study provided support for the three research questions, although other studies are certainly needed in other contexts and from other perspectives. The discussion in this study are presented in three sections according to the research questions stated in this study. Section one discusses the first research question that determines the knowledge of participants on phonic skills in literacy development; section 2 discusses the second research question that determines participants' knowledge on sound-letter relationship in literacy development and section 3 concludes on the third research question that determines which L2 sounds are difficult to pronounce with respect to accuracy in reading.

Knowledge of Participants on Phonic Skills

The first research question was tested on the variables in the interview to determine the knowledge of participants on phonic skills in teaching and learning reading. This was tested using the linguistic variables /θ/ and /ð/ in Context in (3.4.3). The findings were that a total of ten (10) participants comprising only T and TT have knowledge about phonics representing 17%. A total count of forty-eight (48) participants comprising T, TT and P have no knowledge ont phonics representing 80%. It was observed that only four (4) T had an idea on phonics; six (6) TT had an idea on phonics while none of P had an idea about phonics sounds. This proved that the phonic analysis was not used to teach reading at the basic level due to lack of knowledge on it on the part of the teachers and those under training. It wasevident in the data in (3.4.3) that all the participants substituted /θ/ and /ð/ with [t] and [d] during the reading activities but they were all accurate in pronouncing words with [t] and [d]. The data also showed that the participants associated 'th' or 't' with [θ] in both word-initial and word-final and 'th' and 'd' with [ð] in the same environment. The activity also drew participants' attention to the notion that 'th' in Thalmar and 't' in 'truth' is pronounced as /θ/ while 'th' in 'the' and 'd' in 'madam' is pronounced as /ð/. So when 'th' is voiceless, it is pronounced as /θ/ as in 'think' and when 'th' is voiced, it is pronounced as /ð/ as in 'them' (see table 6).

Knowledge of Participants on Sound-Letter Relationship

The study presented a total count of sixty participants, representing 100% of both male and female. The second research question was tested on the variables in the interview to determine the knowledge of participants on sound-letter relationship in teaching and learning reading. This was tested in phonological awareness test, segmentation task and /θ/ and /ð/ in context discussed in 3.4 above. The results showed that none of T has knowledge of sound-letter relationship; two (2) T had the knowledge of sound-letter relationship and none of P had an idea about sound-letter relationship as shown in table 6. Only 3% of T, TT and P showed knowledge of sound-letter relationship as illustrated in table 6. The results presented in Table 3 for phonic awareness test showed that 87% of both male and female substituted the dental fricative /θ/ with the alveolar stop [t] in English words while 13% of both male and females showed frequency of /θ/ in their

pronunciation. Again, the results of segmentation task in Table 5 showed that both T and TT show /ð/ frequency in their pronunciation representing 18% while 82% of the participants substituted the dental fricative /ð/ with the alveolar stop /d/. This, therefore, confirms why sound-letter relationship causes difficulty in pronunciation of words in English language and, the need for the sound substitution.

Sound Substitution

The third research question was tested on the variables in the interview to determine English sounds which were difficult for L2 learners in teaching and learning reading in Ghana. This was tested in phonological awareness test, segmentation task and /θ/ and /ð/ in context as discussed in 3.4 above. The results tabulated in Tables 4 and 5 confirmed that a total count of 87% participants showed frequency of substituting /θ/ with [t] in English words while a total count of 13% showed frequency of /θ/ in their pronunciation. 18% showed frequency of /ð/ in their pronunciation while 82% of the participants substituted the dental fricative /ð/ with the alveolar stop /d/. None of P could pronounce /ð/ in any of the words in the data presented in (3.4.1 - 3.4.3). It is important to conclude that the dominant variant in participants' pronunciation were [t, d] showing that /θ, ð/ were the L2 sounds that were difficult to pronounce with respect to accuracy in reading and for that matter the third research question was also answered.

Linguistic Variables Necessary for Using Phonics

The results of the knowledge of use of phonics confirmed that T, TT and P all had little or no idea on the phonic sounds as well as the difference between a sound and a letter. It is established that language operates at the level of literacy skills of speaking and writing. Speaking as a productive skill makes use of speech which is produced as a result of speech sounds- consonants and vowels. The sounds that are used in English are represented linguistically by phonic symbols which are conventionally presented in two slashes or slants, / / or square brackets [ ], for example, /b/ or [b]. But for writing, also as a productive skill, the letters of the alphabet presented in inverted commas are used conventionally to represent the phonic sounds, for example 'b'. Each of the phonic symbols represents only a sound in

English Language. But in phonic analysis, a sound is spelt in different forms and represented physically by different letters, for example /f/ in the word initial of 'flood' /flʌd/ is 'f'; in the word 'phone' /fəʊn/, it is 'ph' in the word final of 'laugh' /læf/, it is 'f'. These show that symbols and letters are different and so the need to know sound-letter relationship in pronunciation of words. The twenty-four consonant sounds in English language are represented by twenty-four phonic symbols which are physically represented by twenty-one (21) letters in words. All the sound can occur at word initial, word medial and word final except /ŋ/ which only occurs in word medial and word-final and /ʒ/ which also only occurs in word medial as illustrated in Table 7.

The twenty English vowel sounds as illustrated in Table 8 are also represented physically by only five letters. The vowels are the nucleus of the English syllable structure and are difficult in sound-letter relationship. One vowel sound may be realized differently in different words, for example /ʌ/ in cup /kʌp/ is realised as a letter 'u'; in monkey /mʌnki/, it is heard as letter 'o'; in blood /blʌd/, it is realised as 'oo'; in couple /kʌpl/, it is heard as 'ou'. It is important to note the differences between the pure vowels and the diphthongs. Physically, a letter in a word may sound like a pure vowel with one pitch sound as in pat /pæt/, while in a different word it will sound like a diphthong with two pitch sounds as in table /teibl/. Consequently, it is important to note that pronunciation depends on the sounds and not the letters, therefore there is the need to apply auditory-visual aspect in dealing with phonics. The Tables below present the English phonics (consonants and vowels) and their relationship with letters in word-initial, word-medial and word-final. It provides the data for participants to practise before they can successfully do the intervention activities presented during the interviews.

Table 7: English Consonants

Sounds	Distribution of Sounds		
	word-initial	**word-medial**	**word-final**
/p/	pan /pæn/	happy /hæpi/	map /mæp/
/b/	ban /bæn/	babby /beibi/	lab /læb/
/m/	man /mæn/	mama /mæmə/	come /kʌm/
/w/	one /wʌn/	away /æwei/	NA
/f/	fan /fæn/	elephant /elefænt/	laugh /læf/
/v/	van /væn/	river /rivə/	wife /waiv/
/θ/	three /θri:/	nothing /nætiŋ/	truth /truθ/

/ð/	the /ðə/	madam /ma:ðəm/	NA
/t/	ten /ten/	letter /letə/	mat /mæt/
/d/	done /dʌn/	wedding /wɛdiŋ/	wide /waid/
/s/	cent /sent/	sister /sistə/	nice /nais/
/z/	zero /zerəʊ/	puzzle /pʌzəl/	boys /boiz/
/n/	know /nəʊ/	money /mʌni/	cane /kein/
/l/	load /ləʊd/	play /plei/	people /pi:pəl/
/r/	wrong /rɔŋ/	mirror /mirɔ/	NA
/ʃ/	she /ʃi:/	nation /neiʃən/	fish /fiʃ/
/ʒ/	NA	pleasure /pleʒə/	NA
/ʧ/	church /ʧɜ:ʧ/	teacher /ti:ʧə/	march /mæʧ/
/ʤ/	judge /ʤʌʤ/	larger /la:ʤ/	college /kɔliʤ/
/k/	come /kʌm/	chemical /kemikəl/	link /link/
/g/	game / geim/	bigger /bigə/	leg /leg/
/ŋ/	NA	NA	sing /siŋ/
/j/	yes /jes/	NA	NA
/h/	home /həʊm/	yahoo /jəhu:/	NA

Table 7 presents the English consonant sounds and their relationship with the letters in word-initial, word-medial and word-final. The symbols in column 1 represent the phonic sounds in English, column 2 is the distribution in word-initial, column 3 is word-medial and column 4 is the word-final. The transcribed forms represent the actual sounds in / /. It is observed that some of the sounds are restricted in their distribution represented by NA which means the sound is not applicable in that environment. The vowels are found between the consonants in the CVC words as illustrated below:

Table 8: English Vowels

Sounds	Distribution of Sounds		
	word-initial	word-medial	word-final
/i:/	eat /i:t/	bead /bi:d/	see /si:/
/i/	it /it/ bid /bid/	money /mʌni/	NA
/ɛ/	egg /ɛg/	parent /pɛrɛnt/	NA
/æ/	athlete /ætlit/	man /mæn/	NA
/ʌ/	an /ʌn/	blood /blʌd/	NA
/3:/	NA	bird /b3:d/	NA
/ə/	about /əbaʊt/	correct /kərɛkt/	mother /ma:ðə/
/a:/	are /a:/	heart /ha:t/	car /ka:/

/ɔ/	off /ɒv/	pot /pɒt/	mirror /mirɔ/
/ɔ:/	or /ɔ:/	lord /lɔ:d/	saw /sɔ:/
/ʊ/	NA	cook /cʊk/	to /tʊ/
/u:/	NA	soon /su:n/	two /tu:/
/ei/	eight /eit/	table /teibəl/	pay /pei/
/ai/	eye /ai/	kite /kait/	by /bai/
/ɔi/	oil /ɔil/	soil /sɔil/	boy /bɔi/
/əʊ/	open /əʊpən/	boat /bəʊt/	go /gəʊ/
/aʊ/	out /aʊt/	mouth /maʊθ/	cow /kaʊ/
/iə/	ear /iə/	beard /biəd/	here /hiə/
/eə/	air /eə/	head /heəd/	her /heə/
/ʊə/	NA	cured /kʊəd/	poor /pʊə/

Table 8 shows the English vowels with column 1 presenting the vowel sounds. Columns 2, 3 and 5 show the distribution of the vowels with the boldened parts showing the letters that represent the vowel in words. Some of the vowels do not occur in all environments and are indicated as not applicable (NA). The knowledge of this data will guide every participant to a successful phonic analysis.

Conclusion
The study examined the use of phonic sounds as a method of teaching reading at the basic level. The study observed from the data that 17% of the participants, comprising only T and TT have knowledge about phonics and 80% of the participants comprising T, TT and P had no knowledge on phonics. The study showed that none of T had knowledge of sound-letter relationship while two (2) T had knowledge of sound letter relationship and none of P had an idea on sound-letter relationship. This confirmed that 87% showed frequency of substituting /θ/ with [t] in English words while a total of 13% showed frequency of /θ/ in their pronunciation. Other findings showed that 82% of the participants presented frequency of [d] in pronunciation while 18% of the participants showed /ð/ frequency in their pronunciation. None of P could pronounce /ð/ in any of the words. It was concluded that the dominant variant in participants' pronunciation were [t, d] showing that /θ, ð/ are the L2 sounds that are difficult to pronounce with respect to accuracy in reading.

The study however suggested that in teaching /θ, ð/, identified as unusual sounds in English, the pupils must practise how these sounds are produced by placing the tip of the tongue behind the upper

teeth and pronounce words like: tin /θin/, true /θtri:/, think /θink/ etc. Mechanical drill for example can be used to enforce accuracy by practising the sounds in isolated words in a conversation. At the basic level, it is good to identify phonics as one of the components of word recognition which include structural clues, context clues and sight words. Phonic analysis can be based on the pre-requisite knowledge of sight words; for instance the sound /ʌ/ may be related to the sight words cup [kʌp], couple [kʌpl], monkey [mʌnki]. These would show the correspondence of sound-letter relationship as presented in Tables 7 and 8.

At this stage, it is clear that TT is generally the innovator in linguistic change. In view of this, the study proposes the introduction of phonetics and phonology as part of the English language courses offered at the Colleges of Education in order to prepare the teacher well on the physical properties of sounds and patterns of sound (see Table 7). This will make the use of phonic analysis in teaching much easier and comprehensible. Currently, the English sounds are only taught as a subtopic under speech as part of the level 100 first semester English course in the Colleges of Education. As a result, the TT only learns it as part of a course requirement and not as a methodological tool for teaching reading. It is expected that a future study may increase the number of participants in order to ascertain some of the claims the study made.

It seemed clear that the informational and symbolic functions of the linguistic variables constituted an important factor in the processes of teaching and learning reading using phonics. As part of the intervention, three models were used to test the variables; these models could be practised to facilitate the use of phonics to teach reading. Consequently, language planners as well as language activist can do a further study on the models presented to improve the use of phonic analysis as a methodological tool to teach reading at all levels.

Recommendations

The purpose of this research was to determine the impact of phonic analysis as a method of improving reading skills of basic school pupils. After researching phonological awareness and noting its accolades, the objective of the study was to discover its impact on the

researcher himself. Based on the results of the study, the following recommendations were made:

- Phonic analysis should be a valuable part of every pupil's reading educational development.
- Phonic analysis as a method of reading should be introduced at the pre-school level to create phonological awareness.
- Some strategies teachers can use to strengthen reading skills through phonics include, phonics games such as sounding out words, rhyme words, and making up nonsense words.
- Phonetics and phonology should be introduced as a course of study at the College of Education.
- The following steps can be used as a model for teaching phonics at the basic level. This model involves the ability to attend to, identify, and manipulate the sounds that are representative of letters in the English language.
  - Exposure to alliteration in text.
  - Word-initial and word-final sound identification/comparison (minimal pair test)
  - Sound/symbol correspondence (sound-letter relationship)
  - Sound segmentation
  - Sound blending (synthesis)
  - Sound substitution

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