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An Investigation of Phonological Awareness Skills of Learners With Kikamba Reading Disorders in First Grade in Selected Schools Within Mwala Sub - County, Machakos County, Kenya

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Abstract

The paper investigated the phonological awareness skills of learners with Kikamba reading disability. When one is considered a normal reader, he or she does not encounter much difficulty in reading and understanding texts. However, there are learners who have problems with phoneme identification and thus have difficulties in reading and comprehending texts. Such learners should be identified and assisted so that they can proceed with their learning lives. This research was guided by the following objectives: to investigate phonological awareness of learners with Kikamba reading disability; to establish the correlation among the various measures of Kikamba phonological awareness and to determine the significance of rapid automatic naming in Kikamba reading. A sample of pupils in grade one from the selected schools in Mwala sub - County, Machakos, Kenya was used in the study. Kikamba phonological awareness skills of these learners were tested to find out the nature of their awareness and skills in the tasks that were given. The study adopted an electric theoretical approach. The study was guided by the following theories: The phonological awareness theory which states that reading based on the alphabetic system requires that readers be aware that words are made up of individual sounds and the Rapid Naming theory which states that a good reader is one who has the ability to recall quickly and verbalize the names of presented objects which would also be individual alphabetic letters. The data was obtained from tape - recorded texts from respondents and analyzed to establish their nature of phonological awareness. Descriptive statistics measures which include measures of central tendency and measures of correlation was used to analyze and describe data. This study contributes theoretically and empirically to the area of phonological awareness and its importance in Kikamba reading. The paper recommends; there are difficulty levels of the various measures of phonological awareness, there is need for an effective training approach that includes these measures. Keywords: difficulties, normal readers, phonemes, phonological awareness, reading disability and nature

INTRODUCTION

Background

Reading skill which involves the skill and knowledge to understand and recognize phonemes or speech sounds is one of the essential elements of reading that formed the basis of this study.

Difficulties resulting from insufficient phonological processing of knowledge to decode words and non- words is referred to as reading disability or reading disorder. Consonant sounds and vowel sounds are referred to as phonemes. Phonemic awareness is the understanding that words are made of individual consonants and vowel sound. Phonics is the teaching of reading that puts more emphasis on letter- sound relationships. Largely, in reading studies, phonological awareness is the understanding of phonemes. It is the knowledge of readers to recognize words that rhyme, to identify the syllables in words and to recognize and manipulate sounds in words (Kirby, et al 2003). Persistent difficulties in word decoding is experienced by learners who manifest deficits in phonological awareness (Blachman, 1991).The present study sought to investigate the manifestations of phonological awareness deficits experienced by selected pupils in grade one with Kikamba reading disabilities in selected primary schools in Mwala - subcounty, Machakos, Kenya, Due to the significance of phonological awareness in Kikamba reading process.

Selection of the Research

Indigenous language as a learning area was introduced in the CBC curriculum in a bid to actualize the National language policy in education. In grade one in the Kenya Institute of Curriculum Development (KICD) curriculum design, indigenous language is covered as Literacy activities. The learning experiences and the reading tasks that learners in grade one should be able to perform include: comprehension passages, phonemic awareness, phonemic development, phrases and sentences among others. For a grade one pupil to perform well in these tasks, they should not be having any reading difficulties. The scenario where there are learners who manifest disabilities in reading is what led to the present study.

Reading Ability

This study focused on investigating pupils with Kikamba reading disorders. Reading disorder is a learning disorders characterized by significant impairment of reading accuracy, comprehension or speed to the extent that the impairment interferes with activities of daily life or academic

achievement. People with reading disorders perform below the level one would expect on the basis of their general educational opportunities and intelligence. Common problems in people with reading disorders include: Omission of words or sounds while reading, slow reading speed, difficulty decoding syllables or single words and associating them with specific sounds, poor comprehension when reading materials either aloud or silently, reversal of words or phonemes, limited sight word vocabulary and dysfluency (Owens,2008).The current study was concerned with investigating the phonological awareness skill of learners with Kikamba reading disorders which entails knowledge of phonemes that aids the learners in decoding of words.

Components of Phonological Awareness

Phonological awareness is the broad class of skills that involve attending to, thinking about and intentionally manipulating the phonological aspects of spoken language, especially the internal phonological structure of words. (Scarborough 2005). Word level activities, ike identifying the number of words in a phrase or sentence; Syllable tasks such as syllable counting or syllable blending; phoneme segmentation task like counting or identifying phonemes, sound blending tasks, in which learners join individual sounds or syllables to make word and phoneme manipulation like identifying, deleting, adding, substituting or transposing phonemes or syllables; rhyme tasks like identifying and producing rhymes, are corresponding instances of tasks that are often used to teach or measure phonological awareness (Schuele & Boudreau, 2008).

Phonological awareness is believed to develop from the global to the small and more subtle, that is, from the rhyme to the syllable, to intra - syllabic units, such as the onset, rhyme and then to the phoneme level (Muter, 2003; Goswami, 2005). The difficulty in phonemic awareness derives in part from the fact that we speak in overlapping vocal movements that blur distinctions between individual phonemes (Schedule & Boudreau, 2008)

This study was guided by the following tasks in formulation of tasks to test the phonological awareness of pupils with reading disability who participated in the study: Researchers employ a variety of cognitive and linguistic tasks to test phonological processing. Decoding of phonetic non-words, naming speed of familiar stimuli such as letter, digits, colors and objects and non - word repetitions, are other tasks that can be used to test phonological awareness. The tasks were specifically on phonemic awareness. Phonemic awareness is considered the most important

phonological element to the successful acquisition of reading and writing (Yopp, 1992; & Copter, 2005; Juel, 1988; Yopp, 1988).

Components of Phonological Awareness

To understand phonemic awareness better, one has to know the components that make it up. This knowledge can be obtained from understanding phonetics and phonology. Phonology deals with the study of the abstract presentation of sounds in a particular language whereas phonetics is the process of describing sounds the way they are used in speech (Roach, 2009). There are two main types of phonemes in Kikamba language. They are referred to as consonants and vowels. A combination of consonants and vowels form a syllable, which is a typical structure of sonority that peaks with the vowel (Hudson, 2000). Vowels and syllabic consonants form the peak of the word or syllable that they appear in while consonants may or may not appear on either side of the vowel. Consonant sounds can be classified based on the following parameters: voicing, place of articulation.

Kikamba Phonological Parameters

Maundu (1980) Kikamba has five varieties, the Kitui North, the central Kitui, Eastern - Southern, Kilungu and Makueni, and Machakos.Kikamba has a total of 19 consonants (Kitavi, 1992). And two more consonants found in Kitui North variety (Mathooko, 2004). The two varieties are: voiced alveolar trill [r] and the voiced velar fricative [ɣ]. This study focuses on the Kimasaku variety which does not have the two additional phonemes.

Kikamba Consonants

Place Manner	Bilabial	Dental	Alveolar	Palato-Alveolar	palatal	Velar
Stops			t			k
Prenasalised stops	mb		nd			ŋ g
Affricates				tʃ		

Prenasalized Affricate				ndʒ		
Fricatives	φ	ɵ	s			
Prenasalized Fricatives		nɵ	nz			
Nasals	m		n		ɲ	ŋ
Laterals			l			
Glides	w				j	

Kikamba Vowels

Kikamba vowel system contains seven vowel phonemes (Ndeti, 1972) a) Short

Vowel

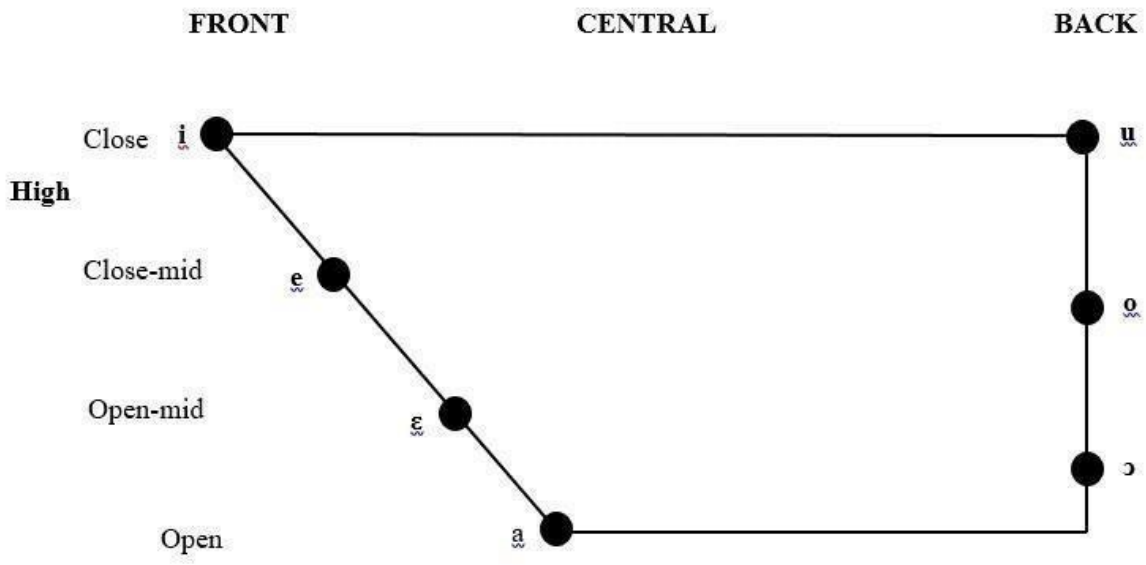

FIGURE 1: THE VOWEL CHART

	Front	Back
Close	ii	uu
Close - mid	ee	oo ɛɛ oo
Open-mid	ɛɛ	ɔ ɔ
Open	aa	

FIGURE 2: LONG VOWELS

PHONETIC AND ORTHOGRAPHICAL REPRESENTATION OF KIKAMBA VOWELS

IPA Symbol	Kikamba Orthography	Examples	Gloss
a	a	vata /vata/	need
ɛ	e	ete /ɛ tɛ /	bring
e	î	wîa /wea/	work
i	i	ndia /ndia/	Fool
ɔ	o	osa /ɔ sa/	take
o	û	kûna /kona/	beat
u	u	mumo /mumɔ /	grace

THEORETICAL FRAMEWORK

The current study adopted the phonological awareness theory and and the rapid automatized naming theory. These theories are thus explained in details.

Phonological Awareness Theory

A processing ability mostly related to literacy is phonological awareness. It encompasses phoneme awareness which is the ability to manipulate individual sounds (phonemes) in words, and rudimentary phonological skills, such as judging whether two words rhyme. It demonstrates that individuals who have difficulty detecting or manipulating sounds in words will struggle with learning to read. Explicit instruction on phonological awareness is beneficial for typically developing children, young children at risk of reading difficulties and for poor readers (Anthony & Francis, Carts & Kamhi, 2005; Ehri et al., 2001; Kirby, Pfeiffer, & Padilla, 2003).

Distinctions among phonological awareness skills based on unit of word structure include whether the syllables are the focus of the task or whether smaller intrasyllabic units, like onsets, rhymes or phonemes are the focus. The onset is the initial consonant or consonant cluster present in many but not all Kikamba syllables; The rhyme is the remaining vowels and consonants. For instance, in the word ndia /ndia/ which means fool in Kikamba 'nd' is the onset; ‘i’ is the rhyme and /nd/, /i/ is the rhyme and /nd/, /i/ and /a/ are the phonemes.

Two patterns of phonological awareness development are evident. First, children can become increasingly sensitive to smaller and smaller parts of words as they grow older. Children can detect and manipulate syllable before they can detect or manipulate onsets and rhymes, and they can detect or manipulate onsets and rhymes before they can detect phonemes within intrasyllabic word units. Secondly, children can detect similar and dissimilar - sounding words before they can manipulate sounds within words, and children can generally blend phonological information before they can segment phonological of the same linguistic complexity (Anthony et al., 2003). Finally, children refine phonological awareness skills they have already acquired while they are learning new phonological awareness skills (Anthony et al., 2003; Anthony et al., 2005)

The study found phonological awareness theory relevant to this study in that it informs the study of the importance of the learners having phonological processing abilities in order to be good readers. In addition, the theory suggests the various tasks that can be used to detect if a child has developed phonological awareness skills. The current study used the following tasks to determine the nature of phonological awareness skills; phoneme manipulation; phonological production; non-word reading; phoneme blending and phoneme segmentation all of which were informed from the

tasks suggested in this theory. The present study looked at the skills of learners at the word level, the phoneme level and the syllable level. These distinctions are important in the analyses of the responses of the respondents in the current study.

Rapid Automatic Naming (Naming Speed Theory)

The ability to recall quickly and to verbalize the name of a presented object is called rapid naming. Naming speed is typically accessed by Rapid Automatic Naming Test (Denckla and cutting, 1999), which requires children to name familiar colors, digits, letters and pictured objects (Klein, 2002). Researchers and clinicians have known for years that the Rapid Automatized Naming test (RAN) is a strong predictor of early reading ability and that people who have poor performances on these tasks are expected to have difficulty reading fluently (Katzir et al., 2006; Wolf and Bowers, 1999).

Rapid naming tasks are characterized by whether the task includes orthographic recall (letters and numbers) or pictorial recall (pictures and colours). Good readers engaged in a rapid naming task frequently will read more fluently (I.e faster and more accurately) on those tasks involving orthographic naming ability than on pictorial tasks (Klein, 2002).

The current study used the automatic naming theory to help explain the speed of reading of the respondents in the phonological awareness tests. This theory informed the timing of each test the respondents took in the study.

MATERIALS AND METHODS

This paper employed a descriptive research design in investigating of phonological awareness skills of learners with Kikamba reading disorders in selected primary schools in Mwala - Sub county, Machakos, Kenya. Descriptive research design is a method designed to investigate the current status and the nature of a given phenomenon (Kasomo, 2006). The researcher focused on grade one pupils. Measures of phonological awareness were the independent variables and single word reading was the dependent variable. A descriptive research design includes measures and techniques that produce non - statistics data. These data can be symbols, sounds, words and other non - numerical records (Davies 2007 and Mc Nabb2004). The study employed this approach because part of the data was non- numerical.

This paper employed descriptive statistics in summary of data specifically percentages and frequencies of the scores of the respondents in the phonological awareness tests. The data was collected through tape recording and thereafter transcribed and then analyzed in prose and the numerical data presented using means, frequencies and percentages. Statistical analysis was also done to measure the correlation between the various measures of phonological awareness.

The study was conducted in primary schools in Mwala sub - county, Machakos, Kenya. Most of the residents who live in Mwala sub-county are Kambas of Machakos dialect. This area is therefore an ideal area of study because the respondents who speak the language had a probability of being selected in the study.

The researcher selected 25 respondents from a group of 65 pupils who had been recommended by their various class teachers from sixteen schools that had been visited exhibiting various reading disorders. The respondents sixteen boys and nine girls were aged between five to nine years old.

This research was guided by the following objectives: to investigate phonological awareness of learners with Kikamba reading disability; to establish the correlation among the various measures of Kikamba phonological awareness and to determine the significance of rapid automatic naming in Kikamba reading

RESULTS AND DISCUSSION

The Nature of Phonological Awareness Skills of the Respondents

This study used various tasks in determining the learners' skill in phonological awareness that are suggested by the phonological awareness theory. They included; phonological manipulation, non-word reading, phonological production, phoneme segmentation and phoneme blending to test the respondent's nature of phonological awareness.

Mis- Articulation in the Pa Tests

It was observed that substitution mis- articulations were the most common followed by the atypical mis - articulations with phoneme deletions and insertions being fewer in the tasks. The respondents also showed inadequate phonemic awareness in the segmentation task.

Substitution Mis - Articulation

This study discussed substitution mis - articulation in two categories. These are articulation substitutions involving consonant sounds and those involving vowel sounds.

Substitution of Consonant Sounds

Roach (2009) classified consonant sounds according to some of the following distinctive features: place of articulation, voice and manner of articulation. The present study has grouped Substitution mis - articulation realized into these three categories then explained.

Voicing Mis - Articulation

In the following examples consonant sounds were classified under "voice" because the changes in words depended on whether the sound involved was voiced or voiceless. The sound /nɵ / was substituted the sound /ɵ / in the non - word "nthî" transcribed as /nɵ e/. Both are dental sounds. However, the consonant sound /nɵ / is voiced and the consonant /ɵ / is voiceless.

The respondents were to identify the first sound in the word /tuta/meaning sweep. The sound /t/ was substituted with /nd/. The respondents response was /ndunda/. These sounds are produced when the blade of the tongue comes into contact with alveolar ridge. Thus, they are alveolar sounds. /nd/ is voiced alveolar stop while /t/ is its voiceless counterpart.

Mis- Articulations due to Place of Articulation

Consonant sounds are classified depending on the position within the vocal tract where constrictions take place during articulation. These sounds are produced along continuum based on the movement of both active and passive articulators within the vocal tract. For instance /m/ is bilabial, /k/ velar and is /s/ alveolar.

The consonant /ɲ / was substituted with the consonant /n/ in the non- word "nya" transcribed as /ɲ ya/. This led to the production of na/na/. The consonants /ɲ / and /n/ are nasals. However, /ɲ / is produced palatal whereas /n/ is alveolar. Another instance is that which involves two fricatives /nɵ / and /nz/ in the non - word /nɵ e/. The respondents instead of reading /nɵ e/ were reading /nze/.

Mis - Articulation due to Changes of Manner and Place of Articulation

Two distinctive features were used to determine mis - articulations: place of articulation and manners of articulation. The nature of constriction that takes place when the sounds are being

produced is referred to as manner of articulation. Thus, a sound can be classified as a lateral, velar, stop and nasal just to mention a few.

It was observed that sound /j/ was replaced with /l/ in the non - word "ya" transcribed as /ja/. This made the resultant word be. "la ". Even though they are voiced, /j/ is palatal glide while /l/ is alveolar lateral. Substitution of one of these two sounds in the same word position leads to new words of the Kitui dialect but same meaning.

Substitution Mis - Articulation with the Vowel Sounds

There are different parameters used to classify vowel sounds: shape of the lips, horizontal tongue position and vertical tongue height. In terms of shape of the lips, a sound is either spread, round or neutral. In relation to horizontal tongue position, a sound can be said to be front, central or back. In relation to vertical vertical tongue height, a vowel sound can be said to be high, midhigh and low. Substitution mis - articulations involving the use of vowel sounds in the present study were determined using these parameters.

In the study some target sounds and the sounds that they were substituted with, in the non - word reading task and the phonological production task are illustrated below. For instance,the close - mid front unround vowel /e/ was substituted with the close high front unround vowel /i/. Articulations of either sound in place of the other results in a different sound and can even change the meaning of the word. In the word /wea/ work the substitution leads to a new word /wia/ fear. Another example involves sound /o/ which is a close - mid back round with /u/ a close high back round. In articulating the non - word /ko/ ended up with a word /ku/ which means there. The assumption of the study is that the respondents were transferring their knowledge of sight word vocabulary to read these words. Short Versus Long Vowels

A change in the meaning of Kikamba word can stem from the length of the vowel used in the word. The short /ɔ / is open - mid back round vowel was substituted with long open - mid back round back /ɔ :/ when respondents were instructed to produce Kikamba words words that had the vowel /ɔ /. Examples of word given were: ng'ombe cow and ngo leopard. A transcription of these words reveals that the 'o' is a long vowel sound /ɔ :/ (ngombe / ŋɔ :mbɛ / and ngo /ŋ gɔ :/ . The short vowel /ɛ / was substituted with /ɛ :/ . The responses given by the respondents were: mbeve accordium and kenda nine. A transcription of the two words shows that the first 'e' is a long vowel

/ɛ :/ instead of the short /ɛ / . That is /mbɛ :ɸ ɛ / and /kɛ :nda/. These mistakes show that the respondents' letter knowledge Does not correspond to the sound knowledge. Arrow (2007) A child with good phonological awareness will be aware of the sound in a word in addition to knowing the letters that make up the word. This is called letter -sound knowledge.

Letter Naming

In the phonological manipulation test, the mis - articulations of naming letters instead of articulating the sounds was realized more than in any other test used in the current study. The respondents were expected to identify the first sound, the missing sound and the last sound in the Kikamba words in the phonological manipulation test. The respondents identified the letters instead of the sounds that appeared in the word positions as illustrated in the table below.

Target Sound	Letter	Target sound	Letter	Target sounds	Letter
/j/	y	/s/	s	/l/	l
/k/	k	/n/	n	/ɸ /	v

Arrow (2007) Literature shows that letter knowledge is a key component in training children how to read even though is not a clear demonstration of phonological awareness. Normally, the letter knowledge is acquired through the phonics approach. Studies show that, when phonics approach is combined with teaching of phonological awareness it would enhance children's reading abilities.

Phoneme Insertion

The respondents were expected to identify the initial sounds in words, missing sounds and the last sound, in the phoneme manipulation test. In this test there were numerous insertions of the vowels in identification of various consonants. Examples of the articulations are illustrated in the table below.

Target sound	Phoneme insreted	Examples of articulation
/tʃ /	/i/	/ti/

/mb/	/e/	/me/
/nz/	/i/	/ni/

The vowel sounds that are inserted in the target phonemes tend to influence the way the respondents articulated the phonemes. Even though this shows no serious identification problems, it is noted that these respondents are lacking in the awareness of the segments that should go into the different parts of a syllable. The results show that the respondents were not aware that the onset of a word should only contain the initial consonant sound and that vowel sound is part of the time. Children should be made aware of how to identify the sounds that go to the onset and the ones that are part of the coda when teaching them phonological awareness skills. Such awareness has been shown to aid the children in acquiring reading competence.
(Lonigan et al., Tunmer & Chapman, 2007).

Phoneme Deletion

The phonological process where a speaker omits a sound or sounds that are expected to be articulated in a word is called phoneme deletion. Mis- articulations as a result of deletion were not common in the respondents' answers. Some examples of such mis- articulations are illustrated in the table below.

Target Word	Sound Deleted	Words Articulated
inyanya tomato /eɲ a:ɲ a/	/e/	nyanya /ɲ a:ɲ a/
Îtumbî egg /etumbe/	/e/	tumbi /tumbe/
wakya greetings /watʃ a/	/w/	akya /atʃ a/

Analysis of Mis - Articulations in Segmentation

These are mis- articulations made while attempting to identify the individual sounds in the words that were given in the phoneme segmentation test

It was observed that some respondents spelled words instead of individual sounds that made them up. For instance, the word aka women was segmented into /a/, /k/ and /a/. Some spelled < a>, <k> and <a>. Such respondents lacked letter-sound knowledge which is very vital in performance of phonological awareness tasks that test on the segmenting skills at the phonemes level.

Pronunciation of the entire task required the respondents to identify the phonemes that made up the words. 25.6 percent of the respondents opted to read the entire word instead of identifying the segments that made them up. For example, in the word mbua rain instead of identifying the sounds /mb/, /u/ and /a/ their response was mbua. This is an indication that phoneme segmentation is a difficult task among the phonological awareness tasks.

In splitting the word, it was noted that 32% of the respondents could not identify the individual phonemes in the words. One of the mistakes was where the respondents split the word into two with the vowel in the word combined with consonant in the word. For instance in the word mbaki tobacco instead of identifying phonemes /mb/, /a/, /k/ and /e/ the respondents split the word to "mba-kî " . This shows that the respondents were aware that words can be split but they are lacking the phonological awareness that words can also be split further into smaller units called phonemes. Segmenting at the phomemes level is one of the most difficult tasks for children learning to read (Chen, 2009; Armbruster, et al. 2004)

Descriptive Statistics of the Performance of the Respondents

It was observed that there were difficulty levels in the measures of testing the phonological awareness skills of learners in grade one with reading disabilities. Phonological production was the least difficult, followed by non - word reading and phoneme blending tests. The most difficult sub - tests were phonological manipulation and phoneme segmentation.

Significance of Rapid Automatic Naming in Learners Reading

From the results it was evident that respondents spent the least time in phoneme segmentation with mean limit of only 1 minute 6 seconds, followed by phoneme blending with a mean of 1 minute and 9 seconds. Non-word reading task had a mean of 2 minutes and 9 seconds, phonological

manipulation with a mean of 3 minutes and 9 seconds and lastly phonological production with mean of 8 minutes and 4 seconds.

The study observed that one of the reasons the respondents spent less time In PS was because they did not have any idea what to do. This finding leads to the observation in the present study that performing a phonological task cannot singly be explained by rapid automatic naming speed alone that is reading is influenced by other underlying components one of them being phonological awareness.

The analysis of the transcribed data in this study indicates that the respondents who scored low marks in the sub-tests of phonological awareness also spent longer time in responding to the tasks. It was also evident that there were no significant differences in the time taken by respondents in answering the PA tests across the ages of the respondents. The time taken by the girls was slightly higher than that of the boys in PB and PP whereas the time taken by the boys was slightly higher than girls in NW, PM, and PS.

CONCLUSIONS AND RECOMMENDATIONS

The current study contributes theoretically and empirically to the area of phonological awareness and its importance in Kikamba reading. Theoretically, this study provides additional evidence that phonological awareness is a key factor in Kikamba reading and that children with deficits in it are likely to experience reading disabilities. Practically, it gives the nature of awareness of the respondents' phonological awareness deficits.

The findings of this study could be helpful to the curriculum developers in designing appropriate instructional strategies that will involve teaching of indigenous language reading using all the measures of phonological awareness. The study notes that there are difficulty levels of the various measures of phonological awareness and recommends that there is need for an effective training approach that includes these measures.

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