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RELATIONSHIP OF PHONOLOGICAL AWARENESS AND WORD RECOGNITION TO COMPREHENSION OF TEXTS AMONG SELECTED PUPILS IN IBADAN, OYO STATE

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Abstract
This descriptive survey was conducted in Ibadan North Local Government Area of Oyo State. A total of 177 pupils were involved in the study. A multi-stage sampling technique was employed and a self-designed Pupils' Reading Inventory was administered to elicit data. Four research questions and two hypotheses were generated and tested. Mean, frequency computation, and Kruskal–Wallis test were the statistics used to analyze the data. The results of the analysis showed that there is a statistically significant difference in the means of the variables at 5% level of significance, thus, leading to the rejection of our $H_0 1$. Also, the relationship that holds among the independent variables shows positive correlation though there P-value varies. It is therefore argued that reading comprehension and by large comprehension in human communication has its foundation in explicit knowledge of language phonological structure as decoding skills are paramount to effective comprehension. The study revealed that there is dependency relation between phonological awareness, word recognition and reading comprehension to varying levels. On this basis, it was recommended that teachers should therefore endeavour to reinforce pupils' knowledge of the decoding skills of reading to enhance pupils' reading performance.

Key words: *Phonological Awareness, Simple View of Reading, Reading Comprehension, Word Recognition, Reading Performance*

Introduction

Every human being possesses what can be simply described as 'an all-purpose processing device' located within their cranial cavity. This specialized and distinguishing mass of muscles that is, the brain – is what distinguishes human capacity for language from other creatures. Literacy is acquired when the brain consciously accommodate and tune to the development of reading, writing and numeracy skills. Literacy has long been considered the main evidence of child's educational progress. As a result, more attention has been paid to the nature of the task facing children as they learn to read than to any other area of the curriculum (Crystal, 1987).

> By means of inking symbols onto a page, she was able to send thoughts and feelings from her mind to her reader's. It was a magical process, so commonplace that no one stopped to wonder at it. Reading a sentence and understanding it were the same; […], nothing lay between them. There was no gap during which the symbols were unraveled. (cf. Hall 2005:3)

Hence, anyone who is unable to read and write proficiently faces enormous social, personal, and economic limitations in today's complex and information-flooded world.

This study considers phonological awareness, word recognition and reading comprehension as important skills and body of knowledge responsible for acquisition of reading and by extension, literacy. Poor perception of the

phoneme might impede the development of phoneme awareness, which in turn could interfere with word decoding and word reading development (McBride-Chang, 1996, Manis & Keating, 2005). Phonological awareness is knowing and demonstrating that spoken language can be broken down into smaller units (words, syllables, phonemes), which can be manipulated within an alphabetic system or orthography (Podhajski, 1999). It is the ability to recognize individual letters and their correspondence with sounds, and is the basis for decoding spoken words into phonemes (the smallest sound units of language), syllables (segments of speech that are uninterrupted by obstructions to airflow), onsets (the initial sound of a word), and rimes (the unit that follows the onset) (Elhassan, Crewther & Bavin, 2017). This ability to decode and recognize printed language is vital to reading because understanding of phonological structure (awareness) is the underlying framework which determines decoding and encoding of information in print. Word recognition refers to the process of identifying words or word constituent and it has subsumed under the decoding component of the simple view of reading. Reading comprehension, however, is the process of simultaneously extracting and constructing meaning through interaction and involvement with written language (National Centre of Literacy and Numeracy for Adults, 2012). Comprehension entails understanding what is been read or heard.

Reading is therefore a complex act of communication, a skilled and strategic process which involves learning to decode and read word accurately, and rapidly constructing meaning. It is central to the acquisition of other skills and school success. As a result, pupils who are at risk of reading disability need to be identified early in life and necessary intervention provided. This complex relationship of reading development and acquisition is captured in a model described by Ramus (2001) which underlie cognitive process such as; speech perception, speech production, reading, writing, and object recognition. The model, shown in figure 1, assumes fundamentally that same information processing mechanism controls cognitive process that involves human use and understanding of language.

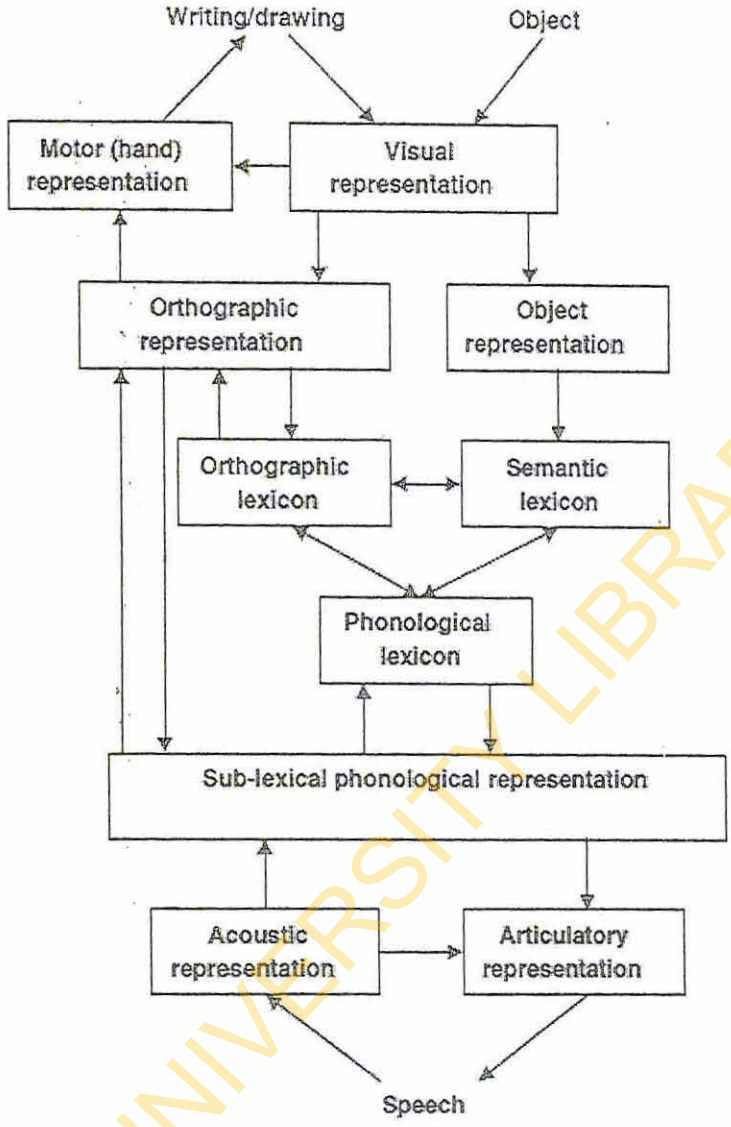

Figure 1: Information processing model of lexical access (Ramus, 2001:200)

Reading begins from the retina to the primary visual cortex, written words are encoded, like all visual stimuli. This is followed by other processes that access the orthographic representation and the mental lexicon which ensures decoding and encoding of visual representation. The two arrows connecting orthographic and phonological representations represent grapheme-phoneme and phoneme-grapheme conversion rules which must be learnt (Ramus, 2001). Thus, comprehension of written text involves the processing of the symbolic representations of parts of words, phrases, and sentences. At the same time, at a more global level, a reader must link ideas across sentences and form a mental model that incorporates complex themes and story plots (Woolley, 2011).

Yoshikawa and Yamashita (2014) posit that decoding skills supported by phonological awareness foster the accurate pronunciation of unfamiliar words and help readers create phonological representations of unknown words. Although, the effects of phonological awareness, some say, weakens with maturation and mastery of phonemic structure of spoken and written language, Carlson, Jenkins, Li, and Brownell (2013) study reveals that phonological awareness indirectly contribute to reading comprehension by means of decoding which along with vocabulary knowledge directly contribute to reading comprehension. This is in line with the postulation of the 'simple view of reading' by Goough and Tunmer (1986) which necessitates decoding and linguistics comprehension as inputs for

reading comprehension. Decoding meaning phonologically-mediated word recognition while linguistic comprehension represents lexical access and understanding of what is heard (in this instance, what is seen as visual stimulus or representation of language).

In essence, reading comprehension can be summed up according to Woolley (2011) as:

> a very complex cognitive activity. For which comprehenders are viewed not as merely passive recipients of information but as active constructors of meaning. While, skilled comprehenders use a wide repertoire of language skills to gain meaning from text by constructing a text-based model and at the same time, they draw upon and use their own background knowledge to construct a situation model of the understanding related to the text passage (Woolley, 2011:33).

Difficulties in acquiring basic reading sub skills; word identification and phonological (letter-sound) decoding results in the condition known as dyslexia. British Dyslexia Association (1995) defines dyslexia as a complex neurological condition which is constitutional in origin. The symptoms affect many areas of learning and functioning, may be described as a specific difficulty in reading, spelling and written language.

This research explore the relatedness and possible dependency of skills and ability in phonological awareness and word recognition to the comprehension of text and by extension the acquisition and development of reading ability. This linkage would be explored through the framework of phonological deficit and the simple view of reading. It has been attested by scholars the role that sensitivity to phonological structure of words and later progress in reading acquisition places given evidence from difficulties typical of pupils with dyslexia.

Theoretical framework

Figure 1 presents the Searchlights model as formalized by Clay and Cazden (1990) which clarifies the range of different types of knowledge utilized in the reading process and these different kinds of knowledge must be acquired if reading, that is, skilled reading is to take place.

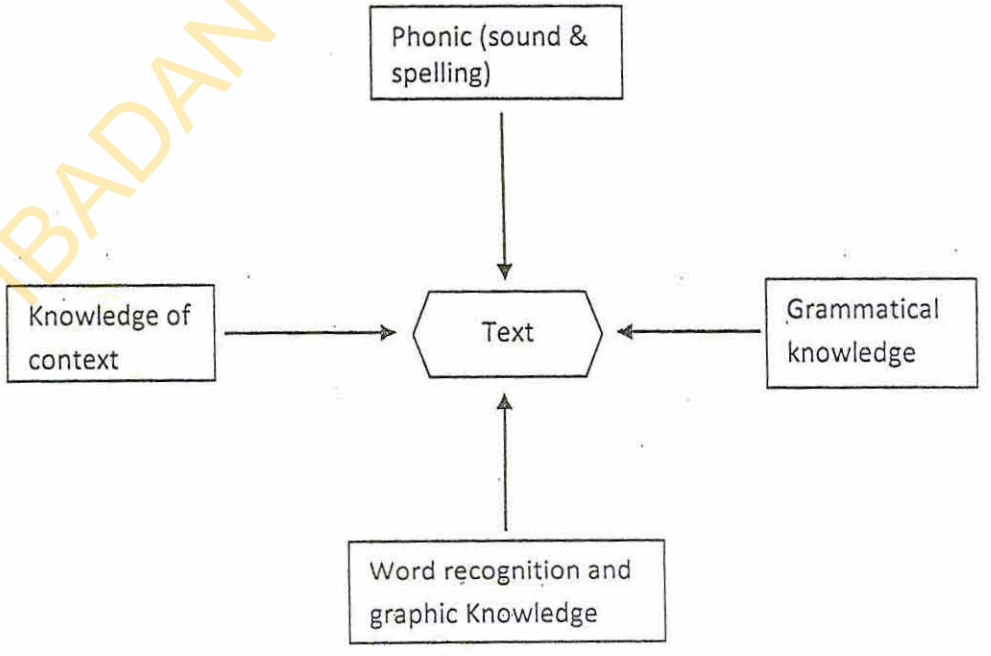

Fig. 2: The Searchlights Model (Stuart, et al., 2008)

The four broad knowledge (phonics, grammatical knowledge, word recognition and graphic knowledge, and knowledge of context) depicted in the Searchlights have been subsumed in word recognition and language comprehension processes of the Simple View of Reading. Morag Stuart *et al.* (2008) opine that the Simple View of Reading is preferable because it better accommodates research evidence as to the nature and operation of cognitive and linguistic processes in reading. The word recognition processes component translates print into language, and the comprehension processes make sense of linguistic information.

The simple view of reading introduced by Gough and Tunmer (1986) and phonological deficit bear resemblance. Owing to this, the researchers have employed both the simple view of reading and phonological deficit as mechanism to examine language and reading ability in the sampled population. The simple view of reading view reading comprehension as a product of word recognition and language comprehension

What is the simple view of reading?

The Simple View of Reading, introduced by Gough and Tunmer (1986), identifies two components of reading: 'word recognition' and 'language comprehension', both are essential to developing fluent and effective reading. The Simple View of Reading thus proposed that skilled reading entails development of a set of processes by which printed words are recognised and understood (that is, word recognition processes), and development of increasingly sophisticated language comprehension processes, by which texts as well as spoken language are understood and interpreted. Both processes are necessary for reading but none is self-sufficient. Inability of a child to adequately recognise words in print inhibit understanding. How can you understand what you do not know? Four possible patterns of performances can be identified in line with different levels of abilities in word recognition and language comprehension. The pattern is presented below:

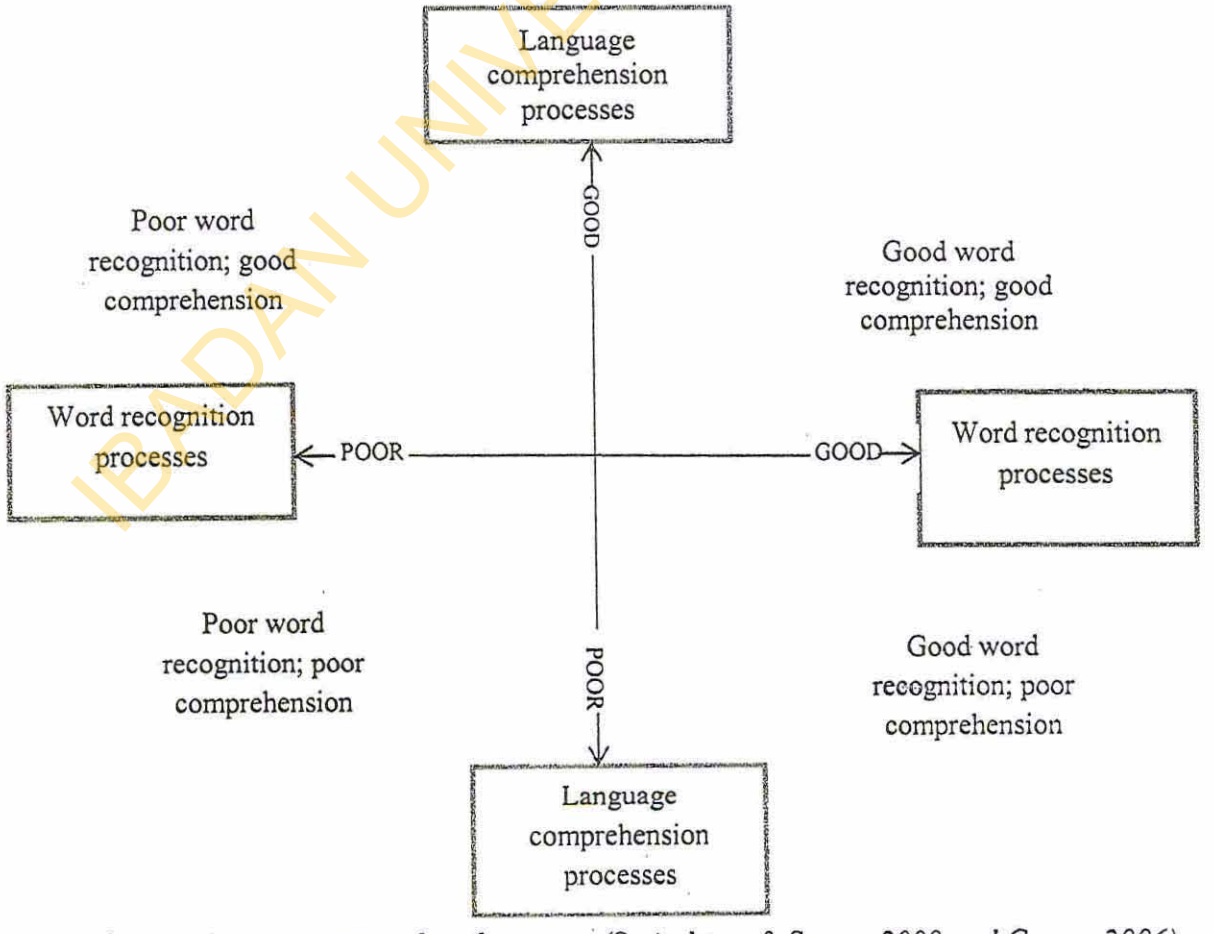

Fig.3: Different patterns of performance (Stainthrop & Stuart, 2008 and Crown 2006)

De Oliveira, da Silva, Dias, Seabra and Macedo (2014) posit that the first component of the simple view of reading, decoding, can be understood as the conversion of graphic symbols into sounds, during either reading aloud or silent reading. While, the second component, linguistic comprehension is a general skill that is not specific to written language but refers to the understanding of oral language. The latter allows for the understanding of auditory stimulus and the text comprehension process involved in reading. When both abilities, i.e. decoding and linguistic comprehension, are preserved, a written stimulus can be decoded and understood, and then reading comprehension occurs.

Methodology

The study area is Ibadan North Local Government Area (LGA) the LGA in which the University of Ibadan is located. Primary data was collected for the purpose of this research. A total of one hundred and seventy seven pupils were involved in the study. At the beginning of the study, Basic Four pupils of four private primary schools were selected, but more emphasis was on the pupils nominated by the teachers as having difficulty with reading.

A multi-stage sampling technique was employed to elicit data. The stages are teased out as follows. The first stage involved a purposive selection of private primary schools in Ibadan North Local Government as the sample area. At the second stage, there was a random selection of four private schools. The third stage entailed administration of the Diagnostic Reading Inventory, an instrument used to screen the pupils nominated by teachers as poor readers. The fourth stage was the administration of the Pupils' Reading Inventory. Four research questions and two hypotheses were generated and tested at 0.05 level of significance.

This study seeks to answer the following questions:

1. What is the level of phonological awareness among the participants?
2. What is the level of word recognition among the participants?
3. What is the level of reading comprehension among the participants?
4. What kind of interaction existing between participants' phonological awareness, word recognition and reading comprehension?

Hypotheses

$H_0$1 – There is no significant difference between the mean scores for phonological awareness, word recognition, and reading comprehension of pupils.

$H_0$2 – There is no dependency relationship between:

a. Phonological awareness and word recognition
b. Phonological awareness and reading comprehension
c. Reading comprehension and word recognition

This study used frequency tables, means, and correlation to analyse the data. Kruskal-Wallis is used in this research to test the significant difference and the dependency relationship of a null and alternative hypothesis. It is very useful for comparing difference between means and ascertaining significant relationship between variables. The variables were pupils' performance in phonological awareness, word recognition and reading comprehension.

Results

Research question 1 - What is the level of phonological awarencss among the participants?

Table 1: Level of phonological awareness of participants

	Frequency	Percentage
5.00	16	9.0
6.00	10	5.6
7.00	6	3.4
8.00	5	2.8
9.00	10	5.6
10.00	130	73.4
Total	177	100.0

Table 1 shows that a large percentage of the pupils could match letter-sound correspondence given. That is, 85.3% scored 7 and above out of the 10 questions in the sub-section. While 14.7% scored below 7, the least score is 5.

Research question 2 – What is the level of word recognition among the participants?

Table 2: Level of word recognition of participants

	Frequency	Percentage
.00	7	4.0
2.00	2	1.1
4.00	1	.6
6.00	1	.6
8.00	5	2.8
10.00	161	91.0
Total	177	100.0

From table 2, 91% of the pupils performed very well in the word recognition test scoring 10. While the remaining 9% is a composite of 5 pupils who scored 8, 1 pupil who scored 6, 1 pupil who scored 4, and 2 pupils who scored 2

Research question 3 – What is the level of reading comprehension among the participants?

Table 3: Level of reading comprehension of participants

	Frequency	Percentage
3.00	1	.6
4.00	3	1.7
5.00	18	10.2
6.00	18	10.2
7.00	21	11.9
8.00	28	15.8
9.00	51	28.8
10.00	37	20.9
Total	177	100.0

Table 3 shows that 87.6% of the sampled pupils performed above average in the reading comprehension test while 10.2% had an average score of 5 and 2.2% faired below average.

Research question 4 – What is the kind of interaction between participants' phonological awareness, word recognition and reading comprehension?

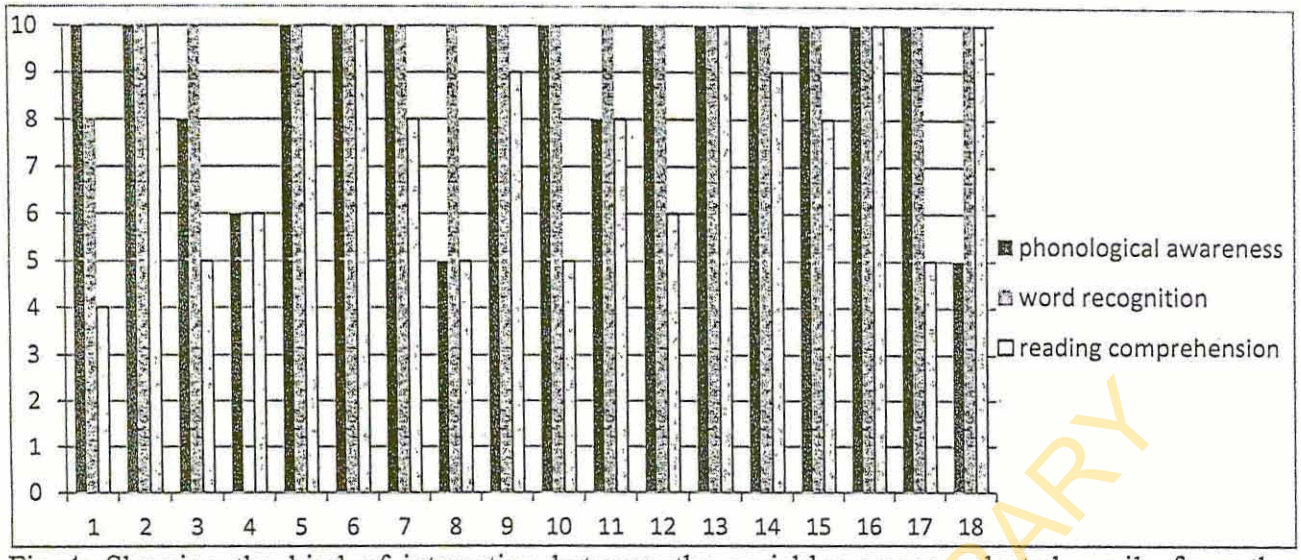

Fig 4: Showing the kind of interaction between the variables among selected pupils from the sample.

Different patterns of relationship with regards to the pupils' performance expressed among the variables range from a high score in phonological awareness to low score in word recognition and comprehension. But never is there an instance of a high score (5 -10) in comprehension accompanied by a low score (below 5) or zero in phonological awareness. There are instances of high score in word recognition and low score in phonological awareness and comprehension owing to the frequency of usage of certain words and objects which are part of children's worldview regardless of whether the pupil know the segments or can write such words. For example, a child can recognize a chalk-board if shown one or asked to point at one. However, the same child might not be able to pronounce or understand chalk-board if presented in print. This thus expresses the complexity of reading ability and the range of knowledge involved.

Testing of hypotheses

Hypothesis 1

H_{01} – There is no significant difference between the mean scores for phonological awareness, word recognition, and reading comprehension.

Analysis: Kruskal–Wallis test was used to see if there is significant difference in the mean values of the variables (phonological awareness, word recognition and reading comprehension). Table 4 shows the mean values for the variables:

Table 4: showing Kruskal-Wallis Statistics on Mean Scores of Variables

	Groupin g	N	Mean Rank
OverallRanks	1.00	177	443.00
	2.00	176	266.50
	3.00	178	89.50
	Total	531	

Test Statistics[a,b]

Table 5

	OverallRanks
Chi-Square	471.109
Df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test
b. Grouping Variable: Grouping

The results of the analysis show that there is a statistically significant difference in the means of the three variables at 5% level of significance. We reject the null hypothesis that there is no significant difference in the mean of the three variables. This implies that participants obtained different scores in phonological awareness, word recognition and reading comprehension. These scores are however related as was earlier revealed in figure 4.

Hypothesis 2 – There is no dependency relationship between:

a. Phonological awareness and word recognition
b. Phonological awareness and reading comprehension
c. Reading comprehension and word recognition

The relationship that holds among the variables (phonological awareness, word recognition, and reading comprehension) is positive as indicated on Table 6:

Table 6: Dependency relationship table

Variable	N	Dependency relationship	Sig.
Phonological Awareness and Word Recognition	177	.132	.081
Phonological Awareness and Reading Comprehension	177	.278	0.000
Reading Comprehension and Word Recognition	177	.226	.002

The dependency relationship existing between phonological awareness and word recognition was observed to be 0.132. The P-value 0.081 is greater than 0.05. Thus we do not reject the null hypothesis that there is no dependency relation between phonological awareness and word recognition. This implies that there is no dependency relationship between phonological awareness and word recognition.

Though the coefficient of dependency between phonological awareness and reading comprehension is 0.278, the P-value is 0.000 is less than 0.05, we therefore reject the null hypothesis that there is no dependency relation between phonological awareness and reading comprehension. This implies that there is a dependency relationship between phonological awareness and reading comprehension.

Though the dependency relation between reading comprehension and word recognition is 0.226, the P-value is 0.002; we therefore reject the null hypothesis that there is no correlation between reading comprehension and word recognition. This implies that there is a dependency relationship between reading comprehension and word recognition.

The correlation among the variables is however low in degree because certain external factors could also come to play which may impact on the relation. Such external factors include; environment, motivation to read, stress, parents education, socio-cultural and educational context. These are what de Oliveira, da Silva, Dias, Seabra and Macedo (2014) identified as additional psychological components that can affect the reading comprehension process as well as intelligence and locus of control.

Discussion of findings

In the model called the simple view, a poor reader may either have deficit in decoding, language comprehension, or both Therefore, our findings by no means downplay the necessity of phonological awareness (decoding) for reading comprehension and by large language comprehension. Since the P-

value is 0.000 < 5% (0.05) the results of the analysis show that there is a statistically significant difference in the means of the three variables at 5% level of significance leading to the rejection of our $H_0$1. Also, the relationship that holds among the variables is positive though there P-value varies. This attests what the simple view of reading overtly acknowledges to be true that the foundations of word recognition processes and of text comprehension processes are not different.

Also, the coefficient of dependency between phonological awareness and reading comprehension is 0.278, the P-value 0.000 is less than 0.05. This implies that there is a dependency relationship between phonological awareness and reading comprehension. This is in agreement with Lazarus and Alake (2016) which revealed that decoding skills have the highest contribution (70.3%) to predict comprehension in pupils with learning disability. Hence, decoding skills are paramount in effective comprehension.

Different patterns of relationship with regards to the pupils' performance expressed among the variables range from a high score in phonological awareness to low score in word recognition and comprehension. But never is there an instance of a high score (5 -10) in comprehension accompanied by a low score (below 5) or zero in phonological awareness. This is in consonance with Seabra and Dias (2012); de Oliveira, da Silva, Dias, Seabra and Macedo (2014) that comprehension processes and word recognition share some variance, but at the same time, there are abilities that contribute with unique variance to each one, such as the vocabulary to comprehension and phonological awareness to word recognition. They further expressed the view that decoding skills has been expanded to include word recognition

The findings of this research suggest that language comprehension processes do not become operative in reading until the pupils have acquired knowledge in decoding skills (word identification) to comprehend.

Conclusion

This study explored the relatedness and dependency of skills and ability in phonological awareness and word recognition to the comprehension of text and by extension the acquisition and development of reading ability. Since pupils selected have some reading difficulty, the study revealed that there is dependency relation between phonological awareness, word recognition and reading comprehension to varying levels. Hence, phonological awareness indirectly contribute to reading comprehension by means of decoding which along with vocabulary knowledge directly contribute to reading comprehension.

Recommendations

On the basis of the findings of this study, the following recommendations were made:

i. Teachers should therefore endeavour to reinforce pupils' knowledge of the two foundational skills of reading, that is, phonological awareness and word recognition in order to boost pupils' reading performance and overall academic achievement.

ii. Linguists should put into consideration phonological and orthographical representation of languages in the designing of writing system for undocumented languages as well as to ensure smooth transfer of knowledge between a child's first and second language.

iii. Parents of pupils with reading difficulties should provide opportunities to improve the acquisition of phonological awareness, word recognition in order to boost pupils' reading comprehension.

iv. Government should embark on public enlightenment campaign that emphasizes the need to intervene early in the acquisition of language and reading skills of all learners in society, including putting in place measures that enable easy remediation of reading difficulties.

References

British Dyslexia Association. (1995). *Dyslexia: The journal of the Bristish Dyslexia Association.* Chichester, UK: Wiley.

Carlson, E., Jenkins, F., Li, T., & Brownell, M. (2013). The interaction of vocabulary,

phonemic awareness, decoding, and reading comprehension, *The Journal of Educational Research,* 106(2), 120 – 131. http://dx.doi.org/10.1080/00220671.2012.687791

Crown, (2006). *Primary framework for literacy and mathematics*, Primary National Strategy

Crystal David, (1987). *The Cambridge Encyclopaedia of Language*, Cambridge: Cambridge University Press.

De Oliveira, D.G., da Silva, P. B., Dias, N. M., Seabra, A. G. & Macedo, E. C. (2014). Reading component skills in dyslexia: Word recognition, comprehension and processing speed. *Frontiers in Psychology,* 5, 1339. doi: 10.3389/fpsyg.2014.01339

Elhassan, Z., Crewther, S. G., & Bavin, E. L. (2017). The contribution of phonological awareness to reading fluency and its individual sub-skills in readers aged 9- to 12- years, *Frontiers in Psychology.* 8,533. doi: 10.3389/fpsyg.2017.00533

Fernandez, E. M., & Smith, C. H. (2010). *Fundamentals of Psycholinguistics*, Chichester, Wiley & Sons Ltd, The Atrium, Southern Gate.

Hall, C. J., (2005). *An introduction to language and linguistics – Breaking the language spell,* London/New York Continuum, The Tower Building 11 York Road London. Pp. xvii, 344.

Hoover, W. A., & Gough, P. B. (1990). Reading and Writing: An Interdisciplinary Journal 2:127-160, Kluwer Academic publishers.

Joanisse F. Marc, Manis R. Franklin, Keating Patricia, and Seidenberg S. Mark. (2000). Language Deficits in Dyslexic Children: Speech Perception, Phonology, and Morphology *Journal of Experimental Child Psychology 77*, 30-60 retrieved from http://publish.uwo.ca/~marcj/Joanisse-JExpChPsych-2000.pdf

Lazarus, K. U. & Alake, M. Y. (2016). Influence of decoding skills and prior knowledge on comprehension of narrative texts among pupils with learning disabilities in Osogbo, Osun State. *African Journal of Vocational Education,* 6(1), 99-107.

Literacy and Numeracy for Adults (2012). Reading comprehension. Retrieved on 30 June, 2017 from http://www.literacyandnumeracyforadults.com/resources/354679.

Manis, F. R., McBride-Chang, C., Seidenberg, M. S. Keating, P., Doi, L. M., Munson, B. & Petersen, A. (1997). Are Speech Perception Deficits Associated with Development Dyslexia? *Journal of Experimental Child Psychology* 66, 211 – 235.

McBride-Chang, C. (1996). Models of Speech Perception and Phonological Processing in Reading. *Child Development,* 67, 1856 – 1876.

Podhajski, B. (1999). *Time for teachers: What teachers need to know about what children need to know to learn to read.* Williston, VT: Stern Center for Language and Learning.

Ramus, F. (2001). Outstanding questions about phonological processing in dyslexia, *Dyslexia,* 7 (4), 197-216 doi: 10.1002/dys.205

Snow, C. E., Burns, S. M., Griffin, P. (1998). Preventing Reading Difficulties in Young Children. National Academy Press Washington, DC retrieved from http://files.eric.ed.gov/fulltext/ED416465.pdf

Stuart, M., Stainthrop, R., & Snowling, M. (2008). Literacy as a Complex Activity: deconstructing the simple view of reading; *Literacy,* 42 (2), 59-66.

Vellutino F. R., Tunmer W. E., Jaccard J. J., Chen RuSan. (2007). Components of Reading Ability: Multivariate Evidence for a Convergent Skill Model of Reading Development, *Scientific Studies of Reading*, 11 (1), pp3-32 Lawrence Erlbaum Associates, Inc. retrieved from http://www.iapsych.com/wj3ewok/LinkedDocuments/vellutino2007.pdf

Vellutino, F. R., Fletcher, J. M., Snowling, M. J. & Scanlon, D. M. (2004). Specific reading disability (dyslexia): What have we learned in the past four decades? *Journal of Child Psychology and Psychiatry* 45(1), 2-40.

Woolley, G. (2011). *Reading comprehension: Assisting children with learning difficulties*, www.springer.com/978-94-007-1173-0 DOI 10.1007/978-94-007-1174-7_2

Yoshikawa, L., & Yamashita, J. (2014). Phonemic awareness and reading comprehension among Japanese adult learners of English. *Open Journal of Modern Linguistics,* 4, 471–480