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EXAMINATION OF THE READABILITY LEVEL OF SOME APPROVED SCIENCE TEXTBOOKS IN USE IN JUNIOR SECONDARY SCHOOLS IN EBONYI STATE OF NIGERIA

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ABSTRACT: *This study was designed to examine the readability level of some approved Science textbooks in use in Junior Secondary Schools in Ebonyi State of Nigeria. The sample of the study consisted of three (3) approved Science textbooks, 21 Junior Secondary Schools randomly selected from the 3 Education zones of the State. The instrument used for data collection is Science Textbook Readability Text (CSTRT). The data were interpreted using a standard guideline for calculation and readability level by Harrison (1980). The results of the findings showed that the approved Science textbooks were very readable. Based on the findings, conclusion were drawn and it was recommended that Science textbooks should be revised periodically to enrich the readability of the textbooks*

KEYWORDS*:* Examination, Science Textbook, Readability Level, Teaching, Learning

INTRODUCTION

Reading is one of the skills acquired through the teaching and learning process. It is a complex skill, which involves important perceptual components in the initial stages of learning. Travers as cited by Omiko (2011) stated that reading is more than being able to say the words represented by the texts because deriving meaning from the words requires that the learner understands the structure of the sentence and is also able to assign function to words within that structure.

For a textbook to be unambiguous and informing, it should provide their readers with ease of reading (Sholeh, 2012). Finding the right fit between students reading ability and textbooks seems to be very important. According to Feather (2004), readability of textbooks aims at finding the right fit between students reading ability and textbooks. According to Klare as cited by Najafi (2010), readability is the ease to understand or comprehend due to the style of writing adopted. Readability is what makes some textbooks easier to read than others. Indeed, many scholars and researchers were concerned about the measurement of readability of different types of texts and textbooks (e.g Jabbari and Saghari, 2011; Maftoon and Daghigh, 2001; Bargate, 2012; Kithinji and Kass, 2010; Plucinski et al, 2009; Heilke et al, 2003; Brabston et al, 1998, etc).

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According to Omiko (2011), textbooks are valuable and useful tools to the teachers in which their quality can be determined mainly by its content coverage and its readability level. The readability level of a textbook implies the extent the students use, read and understand it at optimum speed and find it interesting, Nwafor, (2013). Considerably, the readability level of a textbook being an important aspect of a textbook should be mindful by teachers and among other things, the level of difficulty of a given textbook. This determines the students' ability to understand and obtain meaning from the textbooks (Omiko, 2011).

A number of techniques have been developed for determining/testing readability of any textbooks. One method is the use of wordlists, length and word frequency developed by Macndip (1995). This method is still in use as a basis for comparison of two textbooks. Since 1940, the use of word Lengths method started given way to the use of Flesch (1948) word formula, which takes into account of the syntactic as well as semantic features of the textbook.

Cloze procedure as a method of intercepting a message from a 'transmitter" (writer or speaker), mutilating its language patterns by deleting its language patterns or parts and so administering it to readers or listeners that their attempts to make the patterns whole again potentially yield a considerable number of cloze units. It is derived from the Gestalt concept of closure". The use of cloze procedure as a reliable measure of readability has been validated by Kane (1970) and Harrison (1980). In that procedure, some words of a text are deleted and replaced by blanks. Readers are expected to supply the missing words. Thus the Cloze procedure measures the interaction between the reader and the text. A reader who finds the text easy and interesting will be able to supply more of the missing words than one who does not understand the passage. Some advantages offered by the Cloze procedure over other readability tests are:

1. It appears to reflect the sum total of all influences, which interact to affect readability.
2. The performance of the reader is being measured on samples of the text to be read.
3. When the cloze test is applied, both the reader and the book are assessed simultaneously by the use of one measure. This therefore has greater face validity.

In view of the above, the present researcher decided to examine the readability level of selected approved Science textbooks using the cloze procedure in order to ensure the readability standard of textbook.

Purpose of the Study

The purpose of the study was to examine some approved Science textbooks in use in Junior Secondary Schools (JSSs)in Ebonyi State.

Scope of the Study

The study was delimited to the examination of some approved Science textbooks currently in use in Junior Secondary Schools in Ebonyi state. These textbooks are:

- Computer Made Easy-A Practical Guide for Junior Secondary Schools Book 1-3 by Maria Eze (Book A).
- Computer Studies for Beginners Books 1-3 by Oduronke Eyitayo and Adekunle Eyitayo (Book B).

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- Log on to IT Book 1-3 by Roland Birbal, Michele Taylor (Book C).

Research Question

What is the readability index of approved Science textbooks in use in JSS in Ebonyi State?

Research Design

The study employed the descriptive design. According to Ali (2006), descriptive design studies are mainly concerned with describing this design is useful because the study involved value judgment a events as they are, without any manipulation of what caused the event or what is being observed. This design is useful because study examined the readability level of some approved Science textbooks in use in junior secondary schools in Ebonyi state.

Area of the Study

The area of the study is Ebonyi State of Nigeria. Ebonyi State is located in the south East Zone of Nigeria. It was created in 1996 from both Abia and Enugu State. Specifically, the study covered all the three education zones namely; Abakaliki, Afikpo and Onueke. This study was carried out in these zones because no such study had been done there since the creation of the state in 1996.

Population of the Study

The population of the study included all the 17 approved computer studies textbooks in use in Ebonyi State and all the teachers of computer studies in public junior secondary schools.

Sample and Sampling Techniques

Three (3) computer studies textbooks (Bk 1-3) out of seventeen (17) approved textbooks for computer studies in Ebonyi State junior secondary schools were simple randomly selected. Seven (7) junior secondary schools were drawn from each of the three Education zones of the state, irrespective of the number of schools in each of the education zones. Therefore from the three zones, a total of twenty one (21) junior secondary schools were drawn through simple random sampling.

METHODOLOGY

Instrument for Data Collection

The instrument used for the data collection is Computer Studies Textbook Readability Text (CSTRT).

Validation of the Instrument

The instrument was validated by three specialists from Measurement and Evaluation.

Reliability of the Instrument

The reliability indices of (CSTRT) are 0.75, 0.78 and 0.85 for Computer Made Easy –A practical guide for junior secondary schools Bk 1-3 by Maria Eze, Computer Studies for Beginners Bk 1-3 by Oduronke etal, and Log on to IT Bk 1-3 by Roland etal respectively.

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Method of Data Collection

Data were collected using the Computer Studies Textbook Readability Text (CSTRT) of the three sampled computer studies textbooks.

Method of Data Analysis

A standard guideline for calculation and readability level by Harrison (1980) was used to determine students mean readability score in each of the textbooks. Teachers perception rating scale (TPRS).

Below is the standard guideline by Harrison:

Guidelines for Interpreting Cloze Test Scores

Scores	Interpretation
60% and above	The students' understanding of the text is adequate and they can work on the book on their own.
40% to 59%	The students' understanding of the text is adequate enough for the book to be used with the teacher's assistance.
Below 40%	The students' understanding of the text is inadequate and the use of the book can lead to frustration.

RESULT OF THE ANALYSIS

Research Question

What is the readability index of approved computer studies textbooks in use in JSS in Ebonyi State? The data used in answering this research question were obtained from the "Computer Studies Textbook Readability Text" (CSTRT), the mean readability scores of the three Computer Studies Textbooks examined were computed and presented in the table below:

Book	A			B			C		
Class	JS1	JS2	JS3	JS1	JS2	JS3	JS1	JS2	JS3
Mean Readability Score	60.1%	61.2%	61.1%	61.5%	63.1%	62.1%	56.2%	55.1%	58.1%
Grand Mean	60.8%			62.2%			56.5%		
Decision	Very Readable			Very Readable			Very Readable		

Acceptance range = 40% and above

Table above shows the readability scores for all the three computer studies textbooks in use in Ebonyi State Junior Secondary Schools. The results presented in the Table reveals that the readability scores of the examined textbooks are within the acceptance range of readability.

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Discussion

The major findings of the study were based on the research question that guided the study. The data collected and the results obtained on readability showed that the three computer studies textbooks examined had the following mean readability scores: Textbook A had 60.1%, 61.2% and 61.1% for JS 1, JS 2 and JS 3 respectively, Textbook B had 61.5%, 63.1% and 62.1% for the class levels respectively and Textbook C had 56.2%, 55.1% and 58.1% for JS 1, JS 2 and JS 3 respectively. The readability score was high, may be the students are familiar with the books.

The result indicate that all the three computer studies textbooks examined are readable, the findings are in agreement with Omiko (2011) whose work showed that all the chemistry textbooks he examined are readable. Textbooks should be revised periodically and with simple language to enhance students understanding of the topics.

CONCLUSION

Based on the results of the study using the Harrison's (1980) interpretation of cloze readability of textbooks, it was found that all the three computer studies textbooks in use in Junior Secondary Schools in Ebonyi State are readable.

RECOMMENDATIONS

Based on the findings and conclusions of this study, the researcher made the following recommendations:

1. Approved computer studies textbooks in use in junior secondary schools in Ebonyi State should be revised periodically. This would help to enrich the content and readability of the textbooks. Those computer studies textbooks whose readability levels are high should be recommended for the Junior Secondary Schools.

2. A committee of specialists/experts should be appointed, to select and recommend computer studies textbooks. Such specialists/experts should include computer/ education specialists, computer teachers, curriculum planners, computer studies textbook authors, science teachers, expert representative from State Universal Basic Education Board. The selection and recommendation of any computer studies textbook should be based on acceptable yardstick (standard) lay down by the expert.

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