A Readability Level of Reading Materials for Vocational High School Students in Lombok, NTB

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Abstract: This study aims to find out a readability level of reading materials for the students in one of the Vocational High Schools in Lombok, NTB using Cloze procedure, Flesh formula, and Fry Graph formula for the 12th grade. This study is a descriptive quantitative research. The sample of the study were 32 students using English textbooks presented for 12th graders in one of Vocational High Schools in Lombok, NTB. There were three genres performed; descriptive, recount, and narrative text. For the Flesh formula, and Fry Graph, the researcher's observations were as the instrument of the study, meanwhile, for Cloze procedure, a test was employed to collect the data needed. The data was analyzed quantitatively described in the form of numerical description and percentage. The result revealed that analyzing the readability level through Cloze procedure was 42%, designated that the reading materials were instructional/assisted to read, and Flesh formula was 82.7%, indicated that the reading materials were easily understandable by the students, and Fry Graph formula showed that the reading materials were readable for the students. Thus, reading materials for students in one of the Vocational High Schools in Lombok, NTB was readable for 12th graders to read.

How to Cite: Kamarudin, K., & Sugianto, N. (2020). A Readability Level of Reading Materials for Vocational High School Students in Lombok, NTB. *Jurnal Paedagogy, 7*(4). doi:https://doi.org/10.33394/jp.v7i4.2852

Introduction

Trained readers are able to know a certain word as a complete letter and as unsovereign letters (Viterbo et al., 2020). By reading, readers, in this case, students attempt to comprehend the meaning of the text and the steps to develop the rhetoric in the text. As one of the basic competencies, reading has an important role to help the students be able to comprehend in a correct discourse. For both children and adults, the ability to read opens up new worlds and opportunities. Reading is one of the four skills that should be developed by the teachers in teaching English as a Foreign Language (EFL) because reading has an important priority compared with the other skills. Besides reading helps people to get information and new technology, it is also a complex process that is influenced by many factors; such as word recognition strategies, reasoning abilities, purposes of reading, situation in which reading takes place, motivation, and the complexity of the text.

Reading is the process of decoding the written text encoded by the writer. It means that in reading, the reader has to try to comprehend the main idea or thought of the writer through the text (Bruce Arne, 1984). The reader should also understand the words and grammars used in the text. Moreover, Harmer (1991) states that reading is an activity dominated by eyes and the brain. The eyes receive the messages and the brain works to process in order to know the significance of the messages.

Good materials present the subject matter in an organized manner which moves from simple to complex; which employ language appropriately to the levels of learners; which provide practice and review of learning; which stimulating to the students; which are

acceptable to the community; and which are manageable by the teacher. Besides, a good book should be an enjoyable experience for an adult who has not completely buried his students' interest and enthusiasm. Accordingly, a presented material for students must be suitable and interesting.

The choice of learning materials, especially reading materials presented in the textbook that will be used in the classroom is sometimes very important for English teachers. They have to choose the reading materials appropriate to the students' level. The texts that are too complicated and too far beyond the students' level will make the students difficult to understand the new vocabularies and the sentence patterns. Meanwhile, if the texts are under the students' level, it will make the students overconfident to comprehend. Therefore, the texts used by the teacher should be appropriate to the students' level. In other words, the text should contain the appropriate vocabularies and grammatical rules suitable for the themes and topics to be determined on the basis of students' interest (Huda, 1999). Moreover, Duffy (2009) states that "vocabulary is the basis of comprehension". Reading comprehension depends on prior knowledge or knowledge about the world; the prior knowledge is expressed with words. When the meaning of a word is unknown, it means the reader does not have background knowledge. Without background knowledge or without the vocabularies that comes with various experiences, there is no comprehension, (Duffy, 2009). It means that the appropriateness of vocabularies and comprehension with the students' level is very crucial in choosing the reading materials, especially textbook.

The suitability of the text with the level of the students is commonly known as readability. Readability is an effort to match the reading level of written materials to the 'reading with understanding' level of the reader (Bentley, 1972). Readability is the important factor that influences the students to comprehend the texts to their English proficiency because it describes the ease with which a document can be read. It is a big job for the teachers to provide the appropriate reading materials, since they have to measure and analyze the text. readability gives someone the easiness to read text than others. And it frequently mystifies with legibility in which typeface and layout (DuBay, 2004).

In choosing the textbook or reading materials, the English teachers have to pay attention to three characteristics; they are readability, suitability of content, and exploitability (Nuttal, 1987). Readability, in this case, based on the explanation above, is the level of difficulty of the lexical and structural component of the reading materials or texts. The complexity of the text is very relative to the students' reading ability and the students' level. The difficulties of reading materials for the tenth graders of vocational high school have to be suitable to their level. Therefore, it is possible to say that the reading materials will have the appropriate level of difficulty or readability if the readers can understand most of the message delivered by the vocabularies and the structural elements of the text.

To make the tenth graders of vocational high school to understand the message of the reading materials in order to achieve the teaching objectives of reading skill, it is necessary to the teachers to choose the reading materials or textbooks that appropriate to the basic competence of the recent curriculum. To know how a text is readable with comprehension by the tenth graders of vocational high school, the readability formulas can be used to measure the word length/vocabularies, sentence length, comprehension, and other area of text; such as, sentence structure and organization of ideas (Shoki, 2000). Baskette et al., (1986) revealed that there are four types of readability formulas; these are, the Flesch developed by Rudolph Flesch, the fog index developed by Robert Gunning, the Cloze Procedure developed by Wilson Taylor, and the Fry's scale developed by Edward Fry. There are several formulas

designed specifically for children; Elley noun frequency method, Bormuth formula, and Washburne Morphett formula. The textbook selection of reading texts used as learning materials becomes the principal thing to develop the students' language proficiency. This selection relies on a quantitative analysis of text readability using particular formulas to know whether the text is relevant and appropriate or not to the learners' ability.

Therefore, based on the reasons above, the researcher conducted the study to measure the readability level of the reading materials textbook used for teaching reading for the 12th graders in one of vocational high schools in Lombok, NTB.

Research Method

The study employed descriptive quantitative research method purposing to know the readability level of reading materials in the textbook by using some formulas and a cloze test procedure. Creswell (2012) mentioned that quantitative method is used since it contained the data in which it is in the form of numeric form or the quantity. This study was conducted to measure the readability of the reading materials or the text that used by the students in reading activity. The Flesch-reading ease formula, the Fry graph formula, and the Cloze test procedure were used to see appropriateness reading materials presented in the textbook with the students' level. In order to achieve the study, the researcher identified the text materials from the reading section of written text presented in each unit.

Population is a group of individuals who have the same characteristic (Creswell, 2012). Population is also known as well-defined collection of individuals or objects known to have similar characteristic. The population of this research 12th graders students in one of the Vocational High Schools in Lombok, NTB which consisted of two classes. Each class consisted of 32 students. Since the number of the classes were only two classes, then the researcher took all the classes as the sample of the study through total sampling technique. Thus, 32 students were taken as the sample. For Flesh reading ease formula and fry graph formula, the instruments of the study were the observation of the researcher. So, they observed the selected texts to find out the number of sentences, words and syllables for each text since to use these two formulas those numbers were needed to be found first while for Cloze Procedure, the instrument was in the form of a test.

To collect the data needed, the researcher did some steps amid the process of having the readability levels of learning materials for reading. The researcher did the observation toward the selected text given to the students to see the words, sentences, syllables in the text books. The test was also given to the students through Close procedure. All the data were analyzed quantitatively to see the results of the study were described in the form of numeric. To analyze the data found, some steps were conducted such as; classifying the data based on the reading materials from the textbook, giving the code to the data, such as underlined or circle etc., analyzing the main data English in Focus for 12th graders of vocational high school textbook. To measure the readability level, the researcher used three formulas:

a. The Flesch-reading ease formula

$$206.835 - 1.015 \left(\frac{\text{total words}}{\text{total sentences}} \right) - 84.6 \left(\frac{\text{total syllables}}{\text{total words}} \right)$$

b. The Fry graph formula.

The steps to measure the readability level of reading materials using fry graph formula are: Step 1: Selecting the samples of 100 words randomly. Step 2: Finding Y, the average number of sentences in each 100-word passages (calculating the nearest tenth. Step 3:

Finding X, the average number of syllables in each 100-word passages. Step 4: Enter the graph with the average sentence and number of syllables. Draw dot if the two lines meet. Area with dot identifies the approximate reading grade level of the content.

c. The Cloze Test Procedure

It is designed in a rational deletion procedure by deleting every n-th word. Rational deletion also allows the designer to avoid deleting words that would be difficult to predict from the context. This readability formula measuring passages of between 250 and 300 words and find out how the words relate each other by deleting every n-th word. The lower the score, it means the more difficult the text. Because even advance readers cannot correctly complete more than 65% of the missing words, text for assisted reading require the minimum score of 35% or more. While the text for unassisted reading needs a higher score.

Purpose	Cloze
Unassisted reading	50% – 60%
Instructional, assisted reading	35% - 50%
Frustration level	Below 35%

Result and Discussion

The Analysis of the Readability Level Using Cloze Procedure

The important features that commonly measured are word length, sentence length, and the significant of comprehension. Three texts were taken randomly to be analyzed in the cloze test procedure. In this study, the texts given in the tests were recount and narrative. The exact word method gave credit to test-takers only if they insert the exact word that was originally deleted.

a. The first test

The total of students : 32

The total of test : 22

Table 1. The First Cloze Test Procedure

f (the correct replacement)	n (total of students)	fn
6	3	18
7	2	14
8	5	40
9	9	81
10	7	70
11	2	22
12	3	36
14	1	14
	32	295

After getting the total score of correct or exact replacements made by all the students, then the researcher found the percentage of the score by using the scoring system of cloze procedure. Then to find out the percentage of the score i.e.:

$$\frac{exact\ replacement}{total\ deletion} \times 100\%$$

$$\frac{295}{32 \times 22} \times 100\%$$

$$\frac{295}{704} \times 100\%$$

0.42 x 100% = 42 %

(295 is the total score of f (exact replacements made by students) multiply n (number of students who could make the exact replacements), 22 is the total deletions, 32 is the number of students who took the test, and 42% is the percentage of cloze procedure score of the test for text 1.

b. The second test

The total of students   : 32
The total of test   : 26

Table 2. The Second Cloze Test Procedure

f (the correct replacement)	n (total of students)	fn
7	1	7
8	4	32
9	4	36
10	5	50
11	5	55
12	7	84
13	5	65
14	1	14
	32	341

Then to find the percentage, the score was counted by using the same scoring system as previous page.

$$\frac{341}{32 \times 26} \times 100\%$$
$$\frac{341}{832} \times 100\%$$
$$= 0.41 \times 100\% = 41\%$$

(341 is the total score of f (exact replacements made by students) multiply n (number of students who could make the exact replacements), 26 is the total deletions, 32 is the number of students who took the test, and 41.% is the percentage of cloze procedure score of the test for text 2)

c. The third test

Total of students   : 32
Total of test   : 30

Table 3. The Third Cloze Test Procedure

f (the correct replacement)	n (total of students)	fn
9	1	9
10	3	30
11	5	55
12	6	72
13	4	52
14	5	70
16	7	112
18	1	18
	32	418

Then to find the percentage, the score was counted by using the same scoring system as previous page.

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
http://ojs.ikipmataram.ac.id/index.php/pedagogy/index

Oktober 2020. Vol. 7 No. 4
p-ISSN: 2355-7761
e-ISSN: 2722-4627
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$$\frac{418}{32 \times 30} \times 100\%$$

$$\frac{418}{960} \times 100\%$$

$$= 0.43 \times 100\% = 43\%$$

(418 is the total score of f (exact replacements made by students) multiply n (number of students who could make the exact replacements), 30 is the total deletions, 32 is the number of students who took the test, and 43.% is the percentage of cloze procedure score of the test for text 3). Then the results of those tests are counted in order to get the final result. i.e.:

$$\frac{result\ of\ text\ 1 + result\ of\ text\ 2 + result\ of\ text\ 3}{3}$$

$$\frac{42\% + 41\% + 43\%}{3}$$

$$= 42\%$$

Figure A

Purpose	Cloze
Unassisted reading	50% – 60%
Instructional, assisted reading	35% - 50%
Frustration level	Below 35%

Based on total of the result i.e. 42%, It can be concluded that the reading materials were instructional/assisted to read.

The Analysis of the Readability Level Using Flesch Formula
Text 1
For the first text, the first step taken by the researcher was limiting the text into 100 words only. Then, the she counted the number of sentences and the number of syllables in that 100-words passage. As the result, she got 10 sentences and 135 syllables. After that the number of sentences and syllables were entered to the formula:

$$206.835 - 1.015 \left(\frac{total\ words}{total\ sentences} \right) - 84.6 \left(\frac{total\ syllables}{total\ words} \right)$$

$$206.835 - 1.015\ \underline{(100)} - 84.6\ \underline{(135)}$$
$$\qquad\qquad\quad 10 \qquad\qquad 100$$
$$206.835 - 1.015\ (10) - 84.6\ (1.35)$$
$$(206.835 - 10.15) - (84.6 \times 1.35)$$
$$196.685 - 114.21$$
$$82.475$$

(The numbers of 206.835, 1.015 and 84.6 are constant values which are always the same when this formula is used, while 135 is the total syllables, 100 is the total words, 10 is the total sentences, and 82.475 is the readability score for text 1).

Text 2
As the previous calculation, after getting 100 words, the researcher counted the number of sentences and the number of syllables of it. In the text, she found 10 sentences and 136 syllables. The numbers were then entered to the formula as follows:

$$206.835 - 1.015\ (100 \div 10) - 84.6\ (136 \div 100)$$
$$= 206.835 - 1.015\ (10) - 84.6\ (1.36)$$

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Oktober 2020. Vol. 7 No. 4
p-ISSN: 2355-7761
e-ISSN: 2722-4627
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$$= (206.835 – 10.15) – (84.6 \text{ x } 1.36)$$
$$=196.685 – 115.056$$
$$= 81.629$$

(The numbers of 206.835, 1.015 and 84.6 are constant values which are always the same when this formula is used, while 136 is the total syllables, 100 is the total words, 10 is the total sentences, and 81.629 is the readability score for text 2).

Text 3

In the third text, the researcher found 9 sentences and 132 syllables within 100 words. Then she entered the numbers of sentences and syllables to the formula:

$$206.835 – 1.015 \ (100 \div 9) – 84.6 \ (132 \div 100)$$
$$= 206.835 – 1.015 \ (11.11) – 84.6 \ (1.32)$$
$$= (206.835 – 11.27) – (84.6 \text{ x } 1.32)$$
$$= 195.565 – 111.672$$
$$= 83.89$$

(The numbers of 206.835, 1.015 and 84.6 are constant values which are always the same when this formula is used, while 132 is the total syllables, 100 is the total words, 9 is the total sentences, and 83.89 is the readability score for text 3). Since the readability level in this study is for reading materials not for each text, so after getting the scores from all texts, then the scores were added and divided by three:

$$\text{Result :} \frac{Score \ of \ text \ 1 + score \ of \ text \ 2 + score \ of \ text \ 3}{3}$$

$$= \frac{82.475 + 81.629 + 83.89}{3}$$

$$= 82.7$$

Figure B

Score	Note
80.0 – 100.0	Easily understandable by an average 14-year-old students
60.0 – 70.0	Easily understandable 15-17-year-old students
0.0 – 30.0	Best understood by university graduates

From the calculation above, the researcher found that the final result of the score is 82.7. By looking at the table of Flecsh Reading-ease formula in chapter two, the score of 82.7 shows that the reading materials of this book are easily understandable by the students (12th graders).

The Analysis of the Readability Level Using Fry Graph Formula

The steps to measure the readability level of reading materials using fry graph formula are first the researcher select samples of 100 words in the textbook, the second the researcher find y (vertical), the average number of sentences per 100 word passage (calculating to the nearest tenth), the third the researcher find x (horizontal), the average number of syllables per 100-word sample and the last is the researcher find the zone where the two coordinates meet shows the grade score. As the samples, the researcher chose three texts that are the same with those which are used in Flesch reading-ease formula. And she also limited the texts into 100-words only. The following are the numbers of sentences and syllables that the researcher got from each text :

Text 1

Sentences (Y line) : 10

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p-ISSN: 2355-7761
e-ISSN: 2722-4627
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Syllables (X line)   :135
It can be described that in the text 1, the researcher found 10 sentences and 135 syllables.
Text 2
Sentences (Y line)   : 10
Syllables (X line)   : 136
From the text two, the researcher found 10 sentences and 136 syllables.
Text 3
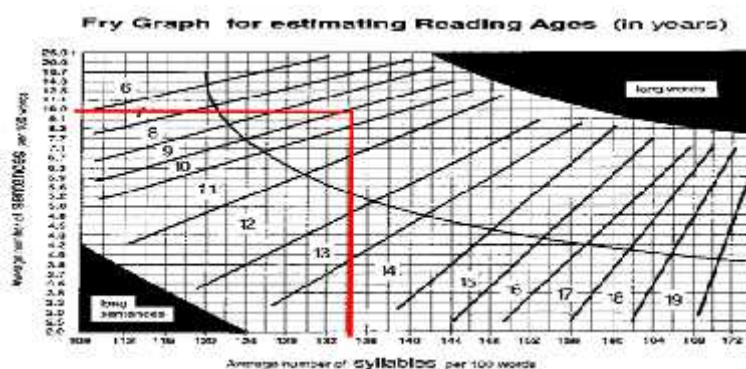Sentences (Y line)   : 9
Syllables (X line)   : 132

By looking at the text 3, the researcher found 9 sentences and 132 syllables. To know the result of those texts, the researcher found the X (the horizontal) by adding the number of syllables in text 1, text 2 and text 3 and divided them by 3

$$X = \frac{135 + 136 + 132}{3}$$
$$= \frac{403}{3}$$
$$= 134.33$$

In finding the Y(the vertical), the researcher did the same like in finding the X. She found it by adding the number of sentences in text 1, text 2 and text 3 and divide them by 3:

$$Y = \frac{10 + 10 + 9}{3}$$
$$= 9.6$$

From the calculation above, the researcher found that the average the average number of syllables (X) is 134.33 and number of sentences (Y) is 9.6. And then to see the readability level based on fry graph formula, she checked on the graph and drew two lines based on the average number of sentences and the average numbers of syllables, the vertical line is for the Y and the horizontal line is for the X. The researcher drew over until those lines met at a point. Area with dot identifies the approximate reading grade level or the readability level of the reading materials.

Fry Graph for estimating Reading Ages (in years)

Conclusion and Suggestion

This study found that the result of cloze test procedure result was 42%, it indicated that the reading materials were instructional/assisted to read. Then, the result of flesch reading ease formula was 82.7, it designated that by looking at the table of Flecsh Reading-ease formula presented, that score showed that the reading materials of this book were easily understandable by an average students (12th graders), and The Fry graph formula showed that the reading materials were readable for the students. Because most of the results showed that the reading materials in the text book were instructional, it could be concluded that the

reading materials in the book were readable for 12th graders. Therefore, it is highly suggested for further researchers of readers to apply these three methods to see the readability of certain text books for teaching reading materials in a certain level at school.

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