

CHAPTER II

REVIEW OF RELATED LITERATURE

In this chapter, the literature that will be used by the writer in this thesis will be explained in short reviews including reading theory and readability theory.

2.1. The Definition of Reading

For many years, three basic definitions of reading have driven literacy programs in the United States (Foertsch, 1998). According to the first definition, learning to read means learning to pronounce words. According to the second definition, learning to read means learning to identify words and get their meaning. According to the third definition, learning to read means learning to bring meaning to a text in order to get meaning from it.

Reading is about comprehending and constructing the meaning. In result, readers construct meaning by interacting with the text. According to (<http://en.wikipedia.org/wiki/reading>), reading is the cognitive process of deriving meaning from written or printed text. It is a means of language acquisition, of communication, and of sharing information and ideas. It is also means that reading is an active cognitive progress of interacting with print and monitoring comprehension to establish meaning.

Reading is a multi process involving word recognition, comprehension, fluency, and motivation. It also stated by Susan McShane (2005, p.7) that reading is a complex system of deriving meaning from print that needs an understanding how speech sound are related to print, decoding

skills, fluency, vocabulary and background knowledge, an active comprehension strategy and motivation to read.

Sometimes you can identify words and comprehend them, but if the processes do not come together smoothly, reading will still be a labored process. Abbot et al (1981: p.81) stated simply about reading that it is a silent and individual activity since the writers expectation was that the text would be read not heard. Moreover, Mc Key (1987: p.18) also stated that reading is an interaction process between languages and taught. An interactive process of reading consists of three important factors, conceptual ability, background of the knowledge and processing strategy.

Here, reading text itself refers to reading material in the form of sentences or paragraphs. Shorter pieces of reading, such as text appearing as words or phrases, are included under document use.

2.2 The Criteria of Good Reading Text

Based on Nuttal (in Brown, 2001, p.314: quoted from Hafizah:2002), there are three criteria in choosing reading text that suitable and good for students, those are: content suitability, exploitability, and readability. Moreover, content suitability is materials that can make the students interest, enjoy and also challenge to achieve the goal of the learning. Meanwhile, exploitability is a text that facilitates the achievement of certain language and content goal, which is exploitable for instructional tasks and techniques for

all skills of English. The last is readability, which is about the text with lexical and structural difficulty that can challenge the students.

Reading materials that taken and given to the students should be suitable with the level of the grade in reading skill and also can be easily understood. In this case, the role of teacher is important, teacher has to know and select which reading text that good and suitable for the students. The teacher should give the interesting, understandable and also suitable reading for the students. Teacher should not give the reading text that actually suitable to be given for the upper level, because it will be boring and difficult to be understood by the students. In result, the teacher has to be creative and careful in selecting the material since the material is an important tool in order to know whether the students understand about the material given (Foulger, 1977: quoted from Hafizah:2002).

Teacher are also has to establish the learner to read with ease, accuracy and understanding. Moreover, they can read more, because by reading more, they increase their vocabulary and knowledge automatically. This also can help them to make further gains in reading and learning. The teacher not only teaches how to recognize written words, but they also have to teach with relative ease and help the learner to develop their fluency in reading. Fluency develops with both oral language developments and print exposure. The more learner read, the more vocabulary and knowledge they acquire, and the more fluent they become in reading.

This study is going to analyze the reading texts in English for Academic Purposes (EAP) book 2007-2008 of D1 English program at University of Muhammadiyah Gresik, both book1 and book 2. Each book consist of 10 units and in each unit consist of Listening skill, Speaking skill, Reading skill and also Writing skill and some Linguistic Competences.

2.3 The Level of Reading Text

Reading material has to be suitable with the learners' need. If the reading text does not fully suitable with the learners' need. The goal of the teaching learning will not be achieved successfully.

Moreover, reading text level must be known in order to help the students and also the teacher in choosing and using the good and suitable text. It was explained by Lee (1975) that one of the factors that influence the difficulty in reading is sentence construction in which the sentence length and long grammatical explanation influence the difficulty level of written material and longer sentences are considered more difficult than shorter one.

Flesch has determined the standard reading level to be at the eighth-to ninth-grade level although he recognized that a sizeable portion of the population actually reads below this level (Rudolf Flesch, 1974). For further information about the level of reading text, below is the table of the level of suitability of the reading text should be which is based on Flesch Reading Ease Score;

Table 2.1 The Interpretation Table for Flesch Reading Ease Scores

Description of style	Flesch Reading Ease Score	Average Sentence Length in Words	Average No. of Syll. Per 100 Words	Estimated School Grade Completed	Estimated Reading Grade
Very Easy	90-100	8 or less	123 or less	4 th Grade	5 th Grade
Easy	80-90	11	131	5 th Grade	6 th Grade
Fairly Easy	70-80	14	139	6 th Grade	7 th Grade
Standard	60-70	17	147	7 th Grade	8 th and 9 th Grade
Fairly Difficult	50-60	21	155	Some High School	10 th to 12 th Grade
Difficult	30-50	25	167	High School or Some College	13 th to 16 th Grade (College)
Very Difficult	0-30	29 or more	192 or more	College	College Graduated

(Beverly L. Zakaluk and S. Jay Samuels, 1988)

2.4 Readability

In the sciences, readability is a measure of an instrument's ability to display incremental changes in its output value. Readability has been defined by George Klare (1984; 681-744) as the quality and style of writing as it relates to ease of reader comprehension and understanding. Klare (1963) also defines readability as the level of difficulty of written text. Readability is usually referenced to a school grade level. The readability of a book or paper is that grade level at which the average student can understand the material.

Generally, readability is a measure of the accessibility of a piece of writing, indicating how wide an audience it will reach. Readability is a judgment of how easy a text is to understand. The understandability of a text is an interaction between the reader (their prior knowledge of the content and the text features of the material read) and aspects of the text itself. Presentation factors unrelated to the language of the text also affect readability, for example choice of typeface, text size, layout and colors.

According to Beverly L. Zakaluk and S. Jay Samuels (1988), readability describes the ease with which a document can be read. Readability tests, which are mathematical formulas, were designed to assess the suitability of books for student at particular grade levels or ages. Most readability formulas only account for a few of the factors, specifically sentence- and/or word-length, because these factors are most indicative of reading ease

The purpose of readability is to show the level of reading whether the text is understandable, readable or not. By readability we can count with the formula whether the reading text is acceptable or not. The primary goal of readability assessment tools is to estimate the reader understands of the material as a function of the reader's language competence, the subject matter of the text, and the syntactic complexity of the passage (Hittleman, 1978; Stahl, 2003; Gunning, 2003 cited in Allison J. McFarland, 2005).

The term readability refers to all the factors that affect success in reading and understanding a text. These factors include; the interest and motivation of the reader, the legibility of the print and of any illustrations, and

also the complexity of word and sentences in relation to the reading ability of the reader.

The most frequently used tool for determining readability is a readability formula. Readability formulas measure certain features of text which can be subjected to mathematical calculations and can provide predictive information regarding how easily a text will be understood by the average reader (Chall & Dale, 1995; Fry, 1989 cited in Allison J. McFarland, 2005).

Most readability formulas only account for a few of the factors, specifically sentence and/or word-length, because these factors are most indicative of reading ease (Beverly L. Zakaluk and S. Jay Samuels: 1988). Readability formulas are considered to be predictions of reading ease but not the only method for determining readability. They do not help us evaluate how well the reader will understand the ideas in the text.

2.5 Measurement of Readability

2.5.1. Cloze Procedure

The “cloze” procedure for testing your writing is often treated as a readability test because a formula exists for translating the data from “cloze test” into numerical results.

The name “cloze” comes from the word “closure” in this procedure. Words are deleted from the text and readers are asked to fill in the blanks. By constructing the meaning from the available words

and completing the text, the reader achieves “closure”, (Beverly L. Zakaluk and S. Jay Samuels: 1988)

In 1953 the “cloze procedure” was developed and later, after 1965, formulas were developed for its use. It became a popular method for measuring the suitability of text for a particular audience. It was popular because its scoring was objective it was easy to use and analyze its used the text it self for analyze and it yields high correlations to other formulas cloze procedure consist of deleting words in a text and asking the reader to fill in the appropriate or a similar word. Usually every fifth words are deleted.

Close testing has been called a “rubber yardstick” because close scores reflect both the difficulty of the text and the reader’s abilities or resources. Like any readability test, the problem arises over what is considered a successful completion of the text inserting 50 % of missing words, 75 % or 100 % today educators recognize that cloze procedures are more suitable to assess readers abilities than to measure the readability of text. Critics have pointed out that in some text it measures the number of redundant words rather than implicit words.

In particular, critics suggest that cloze is inappropriate for measuring text or reader's abilities in languages other than their native language the results of close testing reflect the reader's basic intuition about the structure and vocabulary of the target language and that does not exist for the language student.

Cloze testing is widely used now to assess the abilities of readers, but is usually combined with other tests to measure grammar skills and writing ability.

2.5.2 Readability Formula

2.5.2.1 The SMOG Readability Formula

Dr. G. Harry Mc Laughlin explained that the SMOG Readability formula is a sample method you can use to determine the reading level of your writing material if a person reads at or above a grade level, they will understand 90 – 100 % of the information. Generally, you need to aim for a reading level of sixth grade or less. In addition, to ensure that the text is clear and readable, read your draft aloud.

How to use the SMOG formula:

1. Count 10 sentence in a row near the beginning of your material. Count 10 sentences in the middle. Count 10 sentences near the end (30 total sentence)
2. Count every word with three or more syllables in each group of sentence, even if the same words appear more than once.
3. Add the total number of word counted. Use the SMOG Conversion Table I to find the grade level.

2.5.2.2 Flesch Reading Ease Scale Formula

The Flesch Reading Ease readability formula calculates an index score of a text sample based on sentence length and the number of syllables.

Flesch Reading Ease is best meant for school text and is a standard used by many U.S. government agencies, including the U.S. Department of Defense. Scores range from 0-100 (the higher the score, the easier to read) and average documents should be within the range of 60-70.

Flesch Reading Ease Scale is the most widely used formula outside of the educational circles. It is the easiest formula to use and it makes adjustment for the higher end of the scale. It measures reading from 100 (for easy to read) to 0 (for very difficult to read). A zero score indicates text has more than 37 words on the average in each sentence and the average words are more than 2 syllables. Flesch has identified a “65” as the plain English score.

The Flesch Reading Ease score is part of the best-known readability scores, amongst other indicators measuring how easily an adult can read and understand a text. In response to demand, Flesch also provided an interpretation table to convert the scale to estimated reading grade and school grade completed.

The Flesch Reading Ease readability score formula rates text on a 100-point scale based on the average number of syllables per word and words per sentence. The higher the Flesch Reading Ease score, the easier it is to understand the document. For most standard documents, aim for a Flesch Reading Ease score of approximately 60 to 70.

The data obtained were analyzed by using Flesch reading ease formula which is used applies to analyze. The formula is:

$$\text{RE} = 206.835 - (84.6 \times \text{AWL}) - (1.015 \times \text{ASL})$$

Where:

RE : Reading Ease Score

AWL : Number of Syllable per 100 words

ASL : Average number of words per sentence

Table 2.2 The Interpretation Table for Flesch Reading Ease Scores

Description of style	Flesch Reading Ease Score	Average Sentence Length in Words	Average No. of Syll. Per 100 Words	Estimated School Grade Completed	Estimated Reading Grade
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Standard	60-70	17	147	7 th Grade	8 th and 9 th Grade
Fairly Difficult	50-60	21	155	Some High School	10 th to 12 th Grade
Difficult	30-50	25	167	High School or Some College	13 th to 16 th Grade (College)
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(Beverly L. Zakaluk and S. Jay Samuels, 1988)

There are series of steps to analyze the data from Flesch Reading Ease Scale formula, count every 100 words from the reading texts in the English for Academic Purposes (EAP) book 2007-2008 of D1 English Program at University of Muhammadiyah Gresik. Count a single words contraction; hyphenated word, abbreviations, figure, symbol and their combination.

Count the syllable of the text. Count the syllables in the words they pronounced. Count abbreviations, figures, symbols, and their combinations as one syllable word. If a word has two accepted pronunciations, use the one with fewer syllables. If still in doubt, check the dictionary.

Count the sentences in the text. Count as a sentence each full unit of speech marked off by a period, colon, semicolon, dash, question mark or exclamation point. Disregard paragraph breaks, colons, semicolons, dashes, or initial capital within a sentence.

Figure the average number of syllable per word. Divide the number of words (100) by the number of sentences.

Find the average sentence length and word length of the text in the readability chart. Take a straightedge or ruler and connect two figures. The intersection of the straightedge or ruler with the center column shows the readability.

2.5.2.3 Gunning “FOG” Readability Formula

The Gunning Fox index was developed by Robert Gunning and is one of the simplest and most effective manual tools for analyzing readability. Gunning defines hard words as those with more than two syllables. To get to a fourth-grade readability level, you need to write with an average sentence

length of eight words and no more than one out of 50 words being three or more syllables. It is relatively easy to calculate and accurate within one grade level. The ideal score for readability with the Fog index is 7 or 8; anything above 12 is too hard for most people to read (Robert Gunning, 1952).

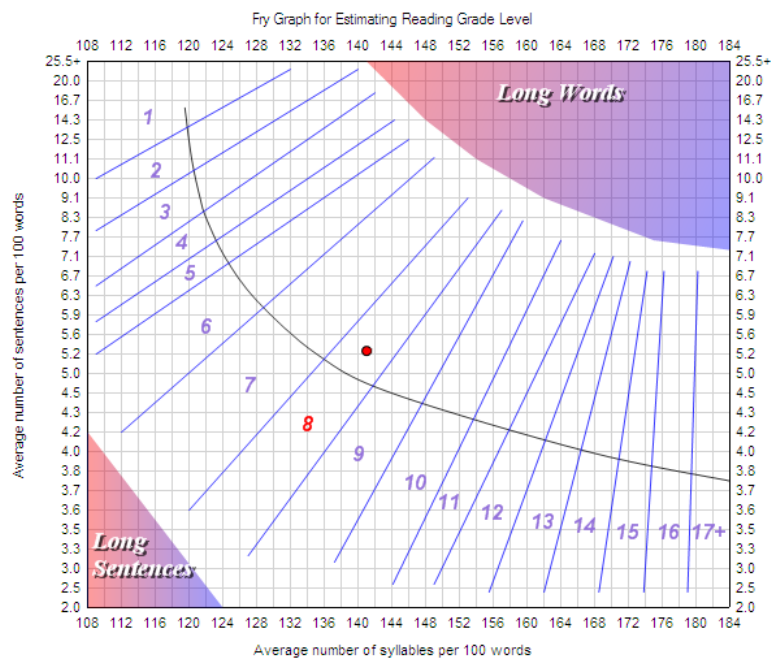
Here are steps to analyze a writing using the Fog Index:

1. Select a sample of at least 100 words. Count the number of sentences. Divide the total number of words in the sample by the number of sentences to get the average sentence length (ASL).
2. Count the number of words with three or more syllables in the sample, do not count: 1) proper nouns; 2) hyphenated words; or 3) two-syllable verbs made into three with -es and -ed endings.
3. Divide this number by the number of words in your sample. For example, 15 long words divided by 100 words gives you 15 percent hard words (PHW).
4. To get the fog index, add the average sentence length and the percent hard words and multiply this by .4. The formula looks like this: $(ASL + PHW) \cdot 4 = \text{Grade Level}$. This is the number of years of schooling the reader would have to have to understand the writing sample.

2.5.2.4 Fry Readability Graph

The Fry Graph is a graphical test for English text, developed by Dr. Edward Fry in 1977. The Fry graph is designed for most text, including literature and technical documents, and can be used for both primary and secondary age reading materials.

The U.S. grade level is calculated by the average number of sentences and syllables per hundred words. These averages are plotted onto a specific graph where their intersection determines the reading level of the content. Note that this graph is very similar to the Raygor graph. Below is an example of a Fry graph;



The Fry Graph formula is:

- Extract a 100-word passage from the selection. If the material is long, take sub samples from the beginning, middle, and end.
- Count the number of sentences in each passage. Count a half sentence as .5.
- Count the number of words in each passage containing three or more syllables.
- Find the point on the Fry Graph.

This test requires a 100-word sample and it is suitable for all ages from infant to upper secondary.

2.5.2.5 Flesch-Kincaid Formula

The Flesch-Kincaid readability formula is a US Government Department of defense standard test. It was designed for technical documents and is mostly applicable to manuals and forms, rather than schoolbook text or literary works. This test calculates the U.S. grade level of a text sample based on sentence length and syllable count. This test, along with Simplified ARI and New Fog Count, is part of the Navy Readability Indices collection of tests.

The Flesch-Kincaid Grade Level readability score analyzes and rates text on a U.S. grade-school level based on the average number of syllables per word and words per sentence, for example, a score of 8.0 means that an eighth grader would understand the text. Given standard writing averages seventh to eighth grade, aim for a Flesch-Kincaid score between 7.0 and 8.0

The Flesch-Kincaid Formula is below:

$$GL = (11.8 * ASW) + (.39 * ASL) - 15.59$$

Where:

GL	U.S. grade level
ASW	Average number of syllables per word
ASL	Average sentence length

2.5.2.6 Powers, Sumner, Kearsley Readability Formula

This is the only one of the formula suitable for primary age books select samples of 100 words. Powers, Sumner, Kearsley is used for primary age (Kindergarten to 7th grade) readers. This test is not suitable for secondary age books, and is best meant for material in the 7-10 age range.

Powers, Sumner, Kearl Readability Formula is below:

$$GL = (ASL * .0778) + (NS * .0455) - 2.2029$$

Where:

GL	U.S. grade level
ASL	Average sentence length
NS	Number of syllables per 100 words

2.5.2.7 McLaughlin "SMOG" Formula

The McLaughlin SMOG readability formula calculates the U.S. grade level of a text sample based on sentence length and number of complex words (i.e., words that contain three or more syllables).

The McLaughlin SMOG is generally appropriate for secondary age (4th grade to college level) readers. SMOG tests for 100% comprehension, whereas most formulas test for around 50%-75% comprehension.

Note that numerals are fully syllabized (i.e., sounded out) for this test, so Readability Studio always overrides the numeral syllabication setting when calculating it.

This test requires a 30-sentence sample; however, note that Readability Studio always analyzes the entire document to guarantee the most accurate results and does not use sub samples for any of its test calculations. If a formula requires a sub sample of a specific size, then normalization is used.

Note that, this test is often referred to as an acronym for Simple Measure of Gobbledygook, although the origin of its name is actually a nod to Robert Gunning's Fog index.

The SMOG Formula is below:

$$GL = \text{ROUND}(CW) + 3$$

Where:

GL	U.S. grade level
CW	Number of complex words (3+ syllables)

This test tends to give higher values than the other formulae, because Mc Laughlin intended it to predict the level necessary for 100 % comprehension of the text (whatever that means), whereas other test were validated against lower comprehension levels.

2.5.2.8 FORCAST Formula

The FORCAST readability formula was devised for assessing U.S. army technical manuals and forms. It is the only test not designed for running narrative, so it is mostly appropriate for multiple-choice quizzes, applications, entrance forms, etc. This test calculates the US grade level of a text sample based on its number of monosyllabic words.

Note that FORCAST results may be slightly different from other tests because it does not take sentence length into account. If your document is structured mostly with tables and lists then expect there to be some variance between the FORCAST grade level and other tests' grade levels.

Here is the FORCAST formula:

$$GL = 20 - (M/10)$$

Where:

GL	U.S. grade level
M	Number of monosyllabic words

This formula was validated at only a 35 % score on comprehension tests and only focuses on the count of one-syllable word.

2.5.2.9 Dale-Chall Readability Formula

The Dale-Chall Formula is based on an average sentence length and the number of unfamiliar words, using a list of 3,000 words commonly known by fourth grade children. The idea behind this formula is that readers typically find it easier to read, process and recall a passage if the words are familiar. The Dale-Chall formula is applied only to books appropriate for students in grades four and up (Chall, J.S. and E. Dale, 1995).

Finally, from those briefly explanations about the literature that underlined this research, including the measurements formulas that can be used to measure the readability, the researcher comes to the end decision about the readability formula that will be used later is The Flesch Reading Ease Scale Formula. The researcher decides to use it considering that this formula is the best meant for school text and is a standard used by many U.S. government agencies, including the U.S. department of defense. Moreover, Flesch is also the most widely used formula outside of educational circles. It is also the easiest formula to use and it makes adjustment for the higher end of the scale.