

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter reviews the understanding theory used in the study concerning with the readability. To be more specific, this review of related literature discusses about previous studies, nature of textbook, types of textbook and textbook component, the criterion of good textbook, nature of reading text, criteria of good reading text, nature of syllabus, syllabus in Senior High School nature of readability, approach to measure readability: judgment and readability formula, and procedure in counting readability.

A. Previous Studies

The writer takes some previous studies as the comparison and guidance of this research. The first is “The Readability Level of Reading Text in the English Textbook Entitled “Look Ahead 2” Published by Erlangga”.¹ This study is written by Fahrudin. In this study, the writer uses this study as the main reference in finding readability. The study aimed to know and measure the readability level of the reading texts in the English textbook entitled “Look Ahead 2” Published by Erlangga. The finding shows that from 6 units that divided into 23 reading texts in the English textbook, all the text are readable and suitable for the eleventh grade of Senior High School, but there two texts more proper used in senior high school that are entitled *Proverbial Value and Can AFI Guarantee One to be a Talented Singer*, where both the text are fairly difficult.

¹ Fahrudin. *The Readability Level of Reading Text in the English Textbook Entitled Look Ahead 2 Published by Erlangga*. Skripsi. t. dt

The second is “The Readability Level of Reading Texts in the English Language Textbooks Used by The Tenth Grade”.² This study is researched by Ika Yuli Rahmawati. The research used descriptive approach to analyze the data. The reading texts were taken from two English language textbooks; “Developing English Competencies for Grade X” published by the Department of National Education and “English Today 1” published by Quadra. The result is six texts with different type are selected from each textbook. All of selected texts are analyzed by using Flesch Reading Ease Formula and Fry Graph Formula. Both formulas show that the reading texts mostly appear on 7th level. It indicates that the texts are easily to be read by the tenth grade students. The study also found that “English Today 1” has some texts with higher difficulty level than “Developing English Competencies for Grade X”. In other words, reading texts in “English Today 1” is more challenging for the student so that the teacher should give more guidance in reading session.

The third is “Assessing Text Readability Using Cogitively Based Indicates” by Scott Acrossley, Jerry Greenfield, Daniel S. McNamara. This study is an exploratory examination of the use Coh-Metrix, a computational tool that measures cohesion and text difficulty at various levels of language, discourse and conceptual analysis. It is suggested that Coh-Metrix provides an improved means of measuring English text readability for second language (L2) readers, not least because three Coh-Metrix variables, one lexical confederality, one measuring syntactic sentence similarity and one measuring word frequency, have correlates

² Yuli Ika Rahmawati. *The Readability Level of Reading Texts in the English Language Textbooks Used by The Tenth Grade*. Journal. t. dt

in psycholinguistic theory. The current study draws on the validation exercise conducted by Greenfield with Japanese EFL students, which ‘partially replicated Bormuth’s study with American students. It finds that Coh-Metrix, with its conclusion on the three variables, yields a more accurate prediction of reading difficulty than traditional readability measures. The finding indicates that linguistic variables related to cognitive reading process contribute significantly to better readability prediction than the surface variables used in traditional formulas. Additionally, because these Coh-Metrix variables better reflect psycholinguistic factors in reading comprehension such as decoding, syntactic parsing, and meaning construction, the formula appears to be more soundly based and avoids criticism on the grounds of construct validity.

The fourth is “*The Variance Amongst the Results of Readability Formulas Regarding U. S History Books*” by Elizabeth Instone in partial fulfillment of the requirements for the degree of Master Education. This investigation sought to explore the readability of textbooks for use in U.S history classes. The research questions in this study was: What is the variability of three different readability formulas on selected U.S history textbooks? In the study, three different readability formulas were analyzed: the Flesch-Kincaid, Gunning (FOG), and Fry Graph. Three U.S history textbooks previously used in classrooms were chosen for the study. Descriptive statistics were used to determine the variance amongst the results. The result show there was a great amount of variance amongst the readability formulas regarding U.S history textbooks.

The fifth is “*Evaluating Online Health Information: Beyond Readability Formulas*” by Gondy Leroy, PhD, Stephen Helmreich, PhD, James. R. Cowie, PhD, Trudi Miller, and Wei Zheng. There are formulas to measure readability levels, but there is little understanding of how linguistic structures contribute to these difficulties. They were developing a toolkit of linguistic metrics that are validated with representative users and can be measured automatically. In this study, they provide an overview of their corpus and how readability differs by topic and source. They compare two documents for three groups of linguistic metrics. They report on a user study evaluating one of the differentiating metrics: the percentage of function words in a sentence. Their results show that this percentage correlates significantly with ease of understanding as indicated by users but not with the readability formula levels commonly used. Their study is the first to propose a user validated metric, different from readability formulas.

The sixth is “*A Comparison Between the Difficulty Level (Readability) of English Medical Texts and Their Persian Translation*” by Ali Akbar Jabbari (Corresponding Author), PhD and Nazanin Saghari, MA. This study compares the readability level of English medical texts and their corresponding Persian translations. In this study, 50 translated booklets and their corresponding texts in English were assessed-all these booklets are translated versions of BMA publications and kept in Iran's National Library. Comparisons of these texts were made using Gunning Fog Index and SMOG Readability Index Grade. Then, significant difference between the data obtained from English medical texts and their Persian translations were made. A significant difference was observed

between the number of multi-syllables words and readability scores in English medical texts and their corresponding Persian texts, but no significant difference was observed between the number of words and sentences in these two groups. Therefore, it is necessary to omit needless words, use fewer complex (multi-syllabuses) words, and use shorter sentences.

The difference between those sixth related studies with this study is the book will be analyzed. The writer focus only on the textbook entitled “*Bahasa Inggris SMA/MA/MAK For Grade XI Semester I*” published by The Ministry of Education and Culture of Indonesia.

B. Textbook

1. Nature of Textbook

There are many definitions of textbook based on the experts, the first Hornby states that textbook is an instruction used as guidance in the teaching and learning process.³ In line with this Richards and Schmidt state, textbook is a book on a specific subject used as teaching learning guide, especially in a school or college. Textbooks for foreign language learning are often part of a graded series covering multiple skills (listening, reading, writing and grammar) or deal with a single skill (e.g. reading).⁴

From the definition above it can be concluded the textbook is compilation of the information, source of knowledge and as an instruction media that prepared to explore students’ potential.

³ A. S. Hornby, *Oxford.*, page., 1234

⁴ Jack. C Richard Schmidt, *Longman*, page., 550

2. Types and Components of Textbook

a. Types of Textbook

Types of textbook involves (1) Core textbook series, text in a leveled sequence for pre-beginning to high-intermediate level (2) Supplemental texts, books that can be used alongside a core textbook which included a specified skill categories such listening, reading, speaking, writing, vocabulary, and pronunciation, (3) Grammar texts. There are two categories of grammar texts, they are Core Grammar series that included usage and rules followed by oral and written practice and assessment. Then, Reference Grammar Texts do not contain assessment and practice, but list and index of English Grammar rules. (4) Content based texts, texts that address specific subjects or topic areas such as citizenship, social studies, academic preparation, or workplace ESL. These books are published as individual stand alone texts or in leveled series; and (5) Dictionaries, the references are available that include definitions that draw from limited, high frequency and vocabulary.⁵ Based on the explanation, some of textbook types above perhaps can help the teacher in choosing or looking references.

b. Textbook Components

Many core textbook series for adult learners designed with similar components or sections. Widell gives the common design or layout that may be can help the teachers compare and contrast contents and

⁵ Kathleen Santopiero Weddel, *How to choose a good ESL textbook for adult education and family literacy learner*, Northern Colorado Professional Development Center, Page.,4

instructional methods used in different textbooks. Those are typical student book and a typical teacher book or guide, for more specific as follow:

A typical students book may contain these major components are (1) Instruction, notes to the teacher and/or learner, (2) Scope and sequence, a table of contents listing the topics, vocabulary, skills, outcomes and standards covered in each unit, (3) Units, each unit may include a presentation of new language (vocabulary, content structures), practice activities, application of activities and an evaluation or end of unit performance assessment, (4) Tape scripts, (5) Answer key, (6) Grammar appendices, (7) Index.⁶

c. Criteria of Good Textbook

The selection of the good textbook is not easy job for the teacher, because it should be based on the psychological needs, interests and abilities of the student. Rombepanjung clarifies in Ainiyah about classify a good textbook that must meet several requirements as mention as follows: First, it must be realistic which means it can be used by both teachers and students and easily found in the market. Second, it must relevant to the age or level of the students and the objectives should be achieved. Third, it must be interesting to the students. And last, it must be in line with the approach used.⁷

⁶ Ibid., page 5

⁷ Iswatul Ainiyah., Page. 8

More specific Sequin explain the good English textbook divided into two aspect that are Academic features and Physical features, as mentioned below:

Good English textbook based on academic features, (1) introduction of the author, (2) Exercises, (3) Glossary, (4) Illustrations and, (5) Bibliography. And for physical features, there are six components those (1) Printing, (2) Size, (3) Paper, (4) Cover, (5) Binding and, (Price).⁸

Sequin also break down the aspects of textbook evaluation. Aspects which should be evaluated correspond to those defined as determining the quality of textbooks are, (1) Content, (2) Pedadogical approach, (3) Language, and (4) Illustrations.⁹ In the readability context, all those aspects are equally important. Their level should judged to be at least very satifactory if the final mansucript or textbook is to be approved. Imperfections or inferior level in one aspect will inevitably have negative impacts on the others. For example, phrases which are too long and complex, or too many unfamiliar words and terms, can impede comprehension of the text and discourage the main interest in content.

From the expert explanation above hope it will be guide line for the teacher to consider good textbook which including interest, levels and background of knowledge for the student that relevant with the condition.

⁸ Roger Sequin, *The Elaboration of school textbooks Methodological Guide*, Division of Educational Sciences, Contents and Methods of Education UNESCO. 1989, page 18

⁹ Ibid., p. 56

C. Reading Text

1. Nature of Reading Text

Johnson state reading is the practice of using text to create meaning. Johnson definite simply, but emphasize two key words, that are creating and meaning.

Hornby state reading text is any form of written material that is aimed for reading comprehension.¹⁰ The statement quite enough information, reading text is the written material presented for reader while reading itself the process to read the text.

From the definitions above, it can be conclude reading is a process to understand about meanings of the text conveys. Sometimes reading and reading text are most similar. Therefore, it will be worthwhile to explain about reading text in different place to distinguish or avoid misinterpretation both them.

2. Criteria of Good Reading Text

Numerous factors that contribute in comprehend the texts. Berardo said, there are four criteria of a good text for students, they are: (1) Suitability of content, it means that the achievement the materials for the students are interesting, enjoyable, challenging, and appropriate for their goal in learning English, (2) Exploitability, is a text that facilities the achievement in certain language and content goals which is exploitable for instructional task and techniques; and it's interpretable with other skills (listening, reading,

¹⁰ A. S. Hornby, Page. 1234

speaking and writing), (3) readability, the text with lexical and structure difficulty that will challenge the students, (4) Presentation, it is about the content, does it look authentic, attractive, grab the students' attention and it make him want to read more.¹¹

The criteria above are the good reading material that will help the students to promote their skill, because they find the book that relevant to them, clear goal, the structure challenging, then the material complete which mean covered four skills of English. Without giving attention to the some criteria that mentioned, the student will be hard to understand. So that, in using textbook should be consider many things in order to the process of transferring information and knowledge are really come to the goal.

D. Syllabus

1. Nature of Syllabus

A syllabus is an official “map” on a school subject. It provides teachers with:

- a rational and outline of the school subject
- an overview and specification of what should be taught and learned
- guidance on applying centralized standards to assess students to ensure that classroom and school-level assessment aligns with systemic practice.

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¹¹ Sacha Anthony Berardo, *The Use of Authentic Materials in The Teaching of Reading*, The reading Matrix, 2006, page. 63

¹² The government of Queensland studies authority *Partnership and innovation*, page. 1

The explanation above indicates if then syllabus is the guideline and standard role for the teacher to find out the material, topic and specific contents to teach the students and it should be match with the students need.

2. The Syllabus of Reading in Senior High School

a. Core of competency

- 4) Processing, reasoning, and serve in the realm of concrete and abstract domains associated with the development of the learned in school independently, act effectively and creatively, and be able to use the method according to the rules of science

b. Standard of competency

- 1.1 Catch the main idea of a discussion text and propose solutions to overcome the problems associated with the natural environment in the form of discussion text

c. Indicators

1. Student are able to offer based on context properly
2. Student are able to respond an offer properly
3. Student are able to give a suggest based on context properly
4. Student are able to respond a suggestion properly
5. Student are able to write offering expression correctly
6. Student are able to write suggestion correctly.

E. Readability

1. Nature of Readability

Readability is the ease of understanding or comprehension the text. There are some definition of readability base on the experts that are taken from many resources. Dubay state that readability is what makes some texts easier to read than others do. It is often confused with legibility, which is a concern with typeface and layout.¹³

Readability as it is applied to language is concerned with the comprehensibility or understandability of a piece of written text.

“...the efficiency with a which a text can be comprehended by a reader, as measured by reading time, amount recalled, questions answered, or some other quantifiable measure of a reader’s ability to process a text...”¹⁴

The creator of the SMOG readability formula G. Harry McLaughlin defines readability as: “the degree to which a given class of people find certain reading matter compelling and comprehensible.”¹⁵ This definition stresses the interaction between the text and a class of readers of known characteristics such as reading skill, prior knowledge, and motivation.

In line with this Richards and Schmidt said readability is how easily written materials can be read and understood. Readability depends on many factors, including (a) the average length of sentences in a passage, (b) the number of new words a passage contains, (c) the grammatical complexity of

¹³ Dubay, H, William. *The Principle of Readability*. P.3

¹⁴ Ibid. p.4

¹⁵ Ibid

the language used.¹⁶ Based on some definitions, readability is influenced by complex factors because it involves reader interest, typical of text, levels of reader, easy word, the short of sentences and simple grammatical. In other words, readability means how much of the idea and the language presented in the text are comprehended by the reader, that determines of success in reading.

2. Approach to Measure Readability

The concept of readability commonly is the text comprehensibility and makes the ideas to a particular audience. Therefore Oakland and Lane state the method that used to measure readability,

“Readability methods that consider both quantitative and qualitative variables are performed by seasoned professionals are recommended. Research examining the use of readability formulas applied to test content is needed.”¹⁷

From the statement above indicate to measure readability, the method is about quantitative and qualitative, because both factors are very essential and always make relationship, especially in measuring readability.

Ainiyah in Fahrudin states there are five variables to predict readability. They are (1) the number of different word, (2) the percentage of uncommon words, (3) the relative of personal pronouns, (4) the relative number of prepositional phrases, and (5) the average length sentence. Similarly with Sutaria mentions five factors that influence readability, namely: (1) content, (2) vocabulary, (3) structure, (4) typography, and (5) illustration. They try to

¹⁶ Jack. C Richards and Richards Schmidt, P. 442.

¹⁷ Thomas Oakland and Holly B. Land, *Language, Reading and Readability Formulas: Implication for Developing and Adapting tests*, International Journal Of Testing, page. 2

illustrate that unfamiliar vocabulary or words made the reader difficult to understand and conclude the meaning.

Besides that, Nancy Padak state the concept of readability is complex. There are seven factors that can be influence text difficulty or unreadable, (1) Reader's interest or background knowledge. It is depend on background of background of knowledge the reader if the reader less information it will find hard to interpret the meaning, (2) Words. Unfamiliar and abstract make difficult to understand, (3) Syntax or language pattern. Long complex sentence and sentences in passive voice are more difficult to read, (4) Internal organization. The lack of presentation ideas can influence the readability, (5) contextual support. Textbook-like texts lack features such as headings, graphics, illustrations, etc that can influence the readers, (6) Format. Font size, length and even in appearance of the text on a page can cause more difficult to read. Padak illustrate many things should consider to determine the readability of book contents.

Fry suggests that an objective measured like readability formula is used when it is important to determine the difficulty level of passages, although subjective judgment and try out should not be abandoned.¹⁸

Schuldz in Ainiyah gives three ways to measure the readability of reading materials: instructors' judgment, comprehension testing by cloze procedure, and statistical readability formula.¹⁹ From the explanation above, it can conclude that the approaches to assess readability minimal use two ways:

¹⁸ Dubay. page. 12

¹⁹ Ainiyah, P.12

a judgment and readability formula. The elaboration of each approaches is presented below:

a. Judgment

Some studies explain that judgment may or may not be reliable. This procedure of determine the readability depends on the subjectively on the evaluator and also without involving any formulas or tests.

Griese explain that in this procedure only the instructor, subjectively, is involved in determining the difficulty level of text without formula. The instructor should decide whether the difficult text is appropriate for the students or not. If the text judged by several teachers individually, the result of interpretation will vary from one to another, and the readability is questionable.²⁰

Schuldz in Ainiyah, then, gives principle on judging the text readability as follows:

- 1) The text simplicity, it is in term of vocabulary and structure
- 2) The structure and the sequence of the text, should be from the easy one to the more difficult,
- 3) The length of text, the longer text, the more difficult is, and;
- 4) The presence of interest stimulator such as exclamation, direct speech and rethorical questions.²¹

²⁰ Arnold, A. Griese. *Do You Read Me? Practical Approaches to Teaching Reading Comprehension*, (California: Goodyear Publishing Company, 1977)., p. 168

²¹ Ainiyah, p. 15

b. Cloze Procedure

Cloze procedure was introduced by Taylor in 1953. Vacca and Vacca state in Mustafa Ulusoy, this procedure is based on the persons' ability to complete the incomplete words, images or thoughts. This technique is used to determine the readability of written material, an individual's reading level on specific material, an individual's vocabulary level in a specific subject or topic area, an individual's language skills, and estimate of an individual general comprehension level.²²

The procedures to use cloze test are:

- 1) The teacher first select a passage of 275-300 words and type the passage in double-space. The first and the last sentence are left intact.
- 2) Then, every fifth word of the other sentences are deleted.
- 3) Words are eliminated until there are a total of 50 deletions.
- 4) Evaluators determine the correct replacements and multiply them by two.

About the levels of difficulty identify with the score below:

- 1) Scores of 60 per cent and higher indicate that the passage can be read independently by the students.
- 2) Scores between 40 and 60 per cent mean that the students can read the passage with instruction.

²² Mustafa Ulusoy. *Readability approaches: Implication for Turkey*. International Education Journal, page 326.

3) A score below the 40 per cent indicates that the passage is too difficult for students.²³

The original Bormuth Mean Cloze formula is:

$$R = .886593 - .083640 (LET/W) + .161911 (DLL/W) - 0.021401 (W/SEN) + .000577 (W/SEN) - 0.000005 (W/SEN)$$

$$DRP = (1-R) \times 100$$

Where: **R** = mean Cloze score

LET = letters in passage X

W = words in passage X

DLL = Number of words in the original Dale-Chall list in passage X

SEN = Sentences in passage X

DRP = Degrees of Reading Power, on a 0-100 scale with 30 (very easy)

The cloze test can give evaluators more information more than readability formulas because this estimates how well each student functions when they interact with the text. In spite of these advantages, cloze procedure has one big disadvantage. Asloystate in Mariotti and Homa, Ruddel, Vacca and Vacca, students generally do not like to do cloze tests because those are difficult for them. Evaluators should provide students five to ten practice sentences before administering the test. They should not expect a valid score when they first administer the test.²⁴

From the explanation above, the writer concluded that cloze test is a kind of fill-in-the blank test. It is constructed by deleting words from a

²³ William H. Dubay, *The Principles of Readability* research, page 43, 44.

²⁴ Mustafa Ulusoy. *Readability approaches: Implication for Turkey*. International Education Journal, page 326.

continuous text and replacing them with blanks to be filled by the testers with appropriate words.

c. Readability Formula

Generally, readability formulas give a rough estimate of text readability. According to Ulusoy in Bean and Baldwin over 30 different readability formulas and graphs have been developed.²⁵ The writer noted that many readability formulas used in many different ways and procedures to measure the readability.

Zamanian and Heydari state at least seven formulas that still exist in this time, they are:²⁶

- 1) The Dale-Chall Formula
- 2) The Fry Graph Readability Formula
- 3) SMOG Reading
- 4) Gunning Fox Index
- 5) Flesch-Kincaid
- 6) Coh-Matrix, and
- 7) Reading Ease Formula (Flesch Readability Formula).

1) The Dale-Chall Formula

The Dale-Chall formula is the result of the collaboration of two researchers who had been working on the problem of the readability for several years prior to their successful join venture; they are Edgar Dale and Jeane Chall. This formula utilizes a number of

²⁵ Ibid

²⁶ Ibid, page 324

specific rulers but it is based on just two counts; (1) average sentence length, and (2) percentage of unfamiliar words.²⁷

According to Zamanian and Heydari, the pattern of the Dale-Chall formula is follows:

$$\text{Raw Score} = 0.1579 \text{ PDW} + 0.0496 \text{ ASL} + 3.6365$$

Raw Score = Reading grade of reader who can answer one-half of the test questions on the passage

PDW = Percentage of Difficult Words

ASL = Average Sentence Length in Words

The Dale-Chall raw score can be converted into corrected grade level score which range from approximately fourth.

To interpret the score, it's presented in the following table below grade to sixteenth grade (college graduate):

Table 2.1 Table of Dale-Chall Score

RAW SCORE	ADJUSTED SCORE
4.9 and below	Grade 4 and below
5.0 to 5.9	Grade 5-6
6.0 to 6.9	Grade 7-8
7.0 to 7.9	Grade 9-10
8.0 to 8.9	Grade 11-12
9.0 to 9.9	Grade 13-15 (College)
10 and above	Grade 16 and above (College Graduate)

²⁷ Ibid

2) The Fry Graph Readability Formula

The Fry Graph Readability Formula is one of the most popular reading formulas. It is developed by Edward Fry. Fry developed readability test based on graph. The graph-based test determined readability through high school; it was validated with materials from primary and secondary school and with results of other readability formulas.

Directions for use fry graph readability formula are:

- a. Randomly select three 100-word segments of your text.
- b. Count the number of syllables in each 100-word segment and calculate the average.
- c. Count the number of sentences in each 100-word segment and calculate the average.
- d. Plot the average number of sentences and the average number syllables on the graph.
- e. The area in which the average number of sentences and syllables cross is the grade reading level of the text.²⁸

The way to counting readability level of reading texts by using Fry formulation is follow:

$$G = 669 I + 4981 LD - 2.0625$$

G = Reading Grade Level

I = Average idea unit length

²⁸ U.S Department of Health and Human Services, *Simple Put A Guide for Creating Easy-to-Understand Materials*, Atalanta 2010, page 32.

LD = The average number of words

To estimate reading ages by Fry graph and the average of words, sentences, and syllables, see the figure below:

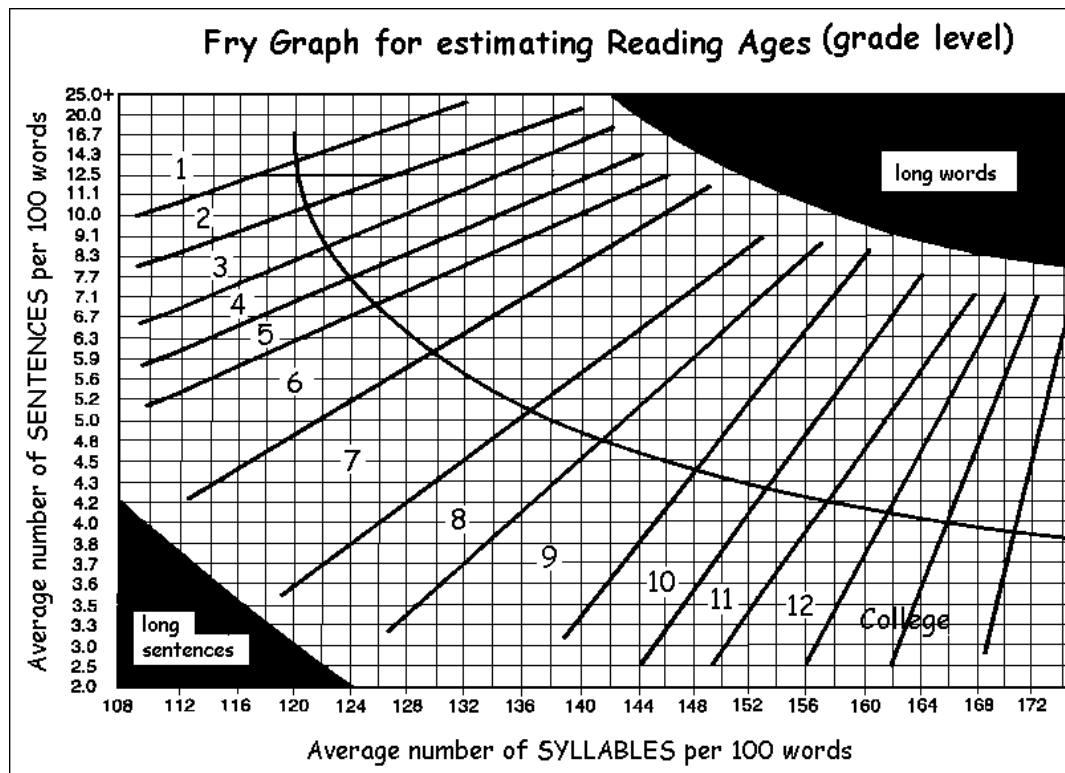


Figure 2.2 Fry, Edward. *Elementary Reading Instruction*. McGraw-Hill, 1977.

3) SMOG Readability Formula

Another formula delivering a general estimated of readability is SMOG Grading. It is created by Harry McLaughlin. This formula is created as an improvement over other readability formulas. SMOG is an acronym for Simple Measure of Gobbledygook. Like other formulas, it samples words and sentences length. The SMOG formula is considered appropriate for secondary age (4th grade to college level) readers, and the pattern is:

SMOG Grade = 3 + Square Root of Polysyllable Count

SMOG (Simple Measure of Gobbledygook) is much quicker and easier to used.

Directions to use are:²⁹

1. Select a text
2. Count 10 sentences
3. Count the number of words that have three or more syllables
4. Multiply this by 3
5. Circle the number closest to your answer
6. Find the square root of the number you circled
7. Add 8 readability level.

To gain the most accurate readability levels on longer texts the beginning, the middle and the end, and take the average of the three scores. The calculating the SMOG level of a text:

1 4 9 16 25 36 49 64 81 100 121 144 169

1 4 9 16 25 36 49 64 81 100 121 144 169

2 3 4 5 6 7 8 9 10 11 12 13

4) Gunning Fox-Index

The Gunning Fox-Index use two variables, average sentence length and the number of word with more than two syllables for each 100 words.³⁰

The formula of Gunning-Fox Index looks below:

²⁹ Niace Promoting Adult Learner, *Produce Clear Written Materials for A Range of Reader*. 2009. Page 10-11.

³⁰ Dubay, page 42.

Grade Level = 4 (average sentence length = hards word)

Hards word = Number of words more than 2 syllables

Grade Level = 3.06080 = 0877 (average sentence length) + 0.984
(percentage of monosyllables)

A hard word is defined as a word that is more than two syllables long as shown the table below:

Table 2.2 Fox-Index Score

Fox-Index	Estimated Reading Grades
17	College Graduates
16	College Senior
15	College Junior
14	College Sophomore
Danger Line 13	College Freshman
12	High School Senior
11	High School Junior
10	High School Sophomore
Easy 9	High School Freshman
Reading 8	Eight Grade
Range 7	Seventh Grade
6	Sixth Grade

5) Flesch Kincaid

Flesch-Kincaid Grade Level based on formula reported by Kincaid et al,. The formula is based on the number of words per sentence (sentence length) and the number of syllables per word (word length).

Direction to use this formula:³¹

1. Calculate L, average sentence length (number of word divide number of sentence)

³¹ Keith Johnson, *Readability articleoutline*, page 6.

2. Calculate N, average number of syllables per word (number of syllable divide number of word)

$$\text{Reading Age} = (L \times 0.39) - 10.59 \text{ years}$$

L = Average sentence length

N = Average number of syllables per word

$$\text{Grade Level} = (L \times 11.8) - 15.59$$

6) Coh-Metrix

The Coh-Metrix L2 Reading Index is calculated using three linguistic indices reported by the Coh-Metrix tool. These three indices are CELEX Word are, text readability and intuitive simplification frequency (logarith mean for content words), sentence syntax similarity (sentence to sentence adjacent mean), and content word overlap (proportional adjacent sentence unweighted).³²

These indices and their relation to text processing are discussed below. The Coh-Metrix formula is below:

$$\begin{aligned} & -45.032 + (52.230 \times \text{Content Word Overlap Value}) + (61.306 \times \\ & \text{Sentence Syntax Similarities Value}) + (22.205 \times \text{CELEX} \\ & \text{Frequency Value}) \end{aligned}$$

³² Scott. A. Crossley et al., page 91

7) Flesch Reading Ease Formula (Flesch Readability Formula)

Here one of the readability formula which most used to test the readability of the text. And this formula will use in this study. The formula is Reading Ease formula by Rudolph Flesch.

Flesch readability formula is considered as one of the oldest formula which can survive among of the new formula appear. Flesch formula is most accurate to measure readability of the text. Flesch was developed it in 1948. This formula is a simple approach to assess the grade level of the reader.

According to Dubay, the formula is considered easier to use, requiring no comparison with word lists. The comparison involves only the counting of syllables, words and sentences. The formula is the best combination of simplicity and meaningfulness. Moreover, Flesch readability is the best used and appropriate on school text (to assess the difficulty of a reading passage written in English), whereas the other formulas are practical and can be used for other written form, for example newspaper, articles and journalism.³³

Flesch readability formula measures length: longer the words and sentences, the harder the passage to read. Like most readability formulas, it involves sampling of 100-word sample. Based in the Flesch, there are three directions to measure the readability. The first is count the sentences. The second step is count the words,

³³ Ibid, page., 22

hyphenated words, abbreviations, figure, symbols, and either combination are count as single words. The third step is count the syllables. Then measure with Flesch readability formula and find readability level.

The specific mathematical pattern for the formula is:

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

RE = Readability Ease

ASL = Average Sentence Length (the number of words divided by the number of words)

ASW = Average Number of syllables per word (the number of syllables divided by the number of words)

Procedural to count the readability using Reading Ease Formula, those are four steps that explain below:

a. Step 1

Count a sentence of full units of speech marked by period, colon, semicolon, dash, question mark, or exclamation point as one sentence. Sometimes a 100-word mark falls in the middle of a sentence. Count such as a sentence as one of those in the sample if the 100-word mark falls after more than half of words in it; otherwise discarded.

b. Step 2

Count the words; count each word in the up to 100. After the 100th word, put a mark. Count as one word for numbers,

symbols, constructions, hyphenated words abbreviations, figures and their combination that are surrounded by one space.

c. Step 3

Count the number of syllables. Count the syllables as they are pronounced, for example: *here* has one syllable, *number* consists of two, and *combination* consists of four syllables. If a word has two accepted pronunciations, use the one with fewer syllables. For example: the word *beloved* has two kinds of pronunciation (*bilavd* and *bilavId*), choose the fewer one.

d. Step 4

Find the readability score. Then, find the average number of score and word length of the text in the readability table. The instruction of readability score shows on the reading ease score (see table 2.1)

The Flesch Reading Ease formula is a number from 0 to 100, with higher score indicating easier reading. If we were to draw a conclusion from the formula, then the best text should contain shorter sentences and words. The score between 60 to 70 is large considered acceptable, it has standard as the description of style and the estimated reading grade is eighth to

ninth grade. If we find a result of readability with other score, we can compare it with other criteria in the table.

The following table is helpful to assess the ease of readability in a reading text:

Table 2.3 Flesch Reading Ease Score table

Flesch Reading Ease Score	Readability Level/ Category	Estimated Reading Grade
0-29	Very Difficult	College graduate
30-49	Difficult	13 th to 16 th Grade (College)
50-59	Fairly difficult	10 th to 12 th
60-69	Standard	(8 th or 9 th graders)
70-79	Fairly easy	(7 th graders)
80-89	Easy	(6 th graders)
90-100	Very Easy	(5 th graders)

