

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the methodology used in conducting the research covering the research design, sources of the data, data collection technique, and data analysis.

3.1 Research Design

This research used a mixed-method design where the researcher mixed or combined quantitative and qualitative research methods in one study (Johnson & Christensen, 2013). As this research aimed to analyze the readability level of reading materials used in the textbook and teacher's teaching strategies for developing HOTS in reading skills, qualitative and quantitative approaches were used in the data collection and analysis. The quantitative approach is applied to survey participants using random samples and generalized population statistics (Johnson & Christensen, 2013). On the other hand, using a qualitative approach provides rich and in-depth data on the personal significance of the participants (Bogdan & Biklen, 2007).

The researcher analyzed the readability level of reading materials used by the teacher from the "Bahasa Inggris" textbook and the teacher's strategies in developing students' HOTS in reading. To analyze the readability level of the texts, the researcher used a descriptive quantitative design. The researcher used this method because the descriptive method helps investigate the readability level (Gay & Airasian, 2000). According to them, the descriptive way is practical for exploring various educational problems and issues. Descriptive studies are essential in academic research because they dramatically increase people's knowledge about what happens in the learning process by describing the results in a specific way and using several scores and tables (Gay & Airasian, 2000). This research analyzes the readability level of texts in the textbook "Bahasa Inggris" for Eleventh Grade, written by Makhruk Bashir, using a readability formula and cloze test as proof of students' understanding. It means that descriptive quantitative research is in line with the purpose of the research to find out the readability scores of the texts and analyze the levels of readability based on their characteristics. However, the researcher used qualitative and

quantitative methods to analyze teachers' strategies for developing students' HOTS. In this part of survey, the researcher implements a questionnaire and interview.

The object for the readability is the reading materials in an English textbook used in eleventh grade. The book is “Bahasa Inggris,” a Textbook written by Makhruk Bashir and published by the Curriculum and Books Center, Research and Development Agency, Indonesian Ministry of Education and Culture. This textbook is claimed to be appropriate for the 2013 curriculum standard. To analyze the text's readability, the researcher used the Flesch Reading Ease Readability Formula to count the readability scores and analyze the texts. The researcher used descriptive statistics to analyze the questionnaire for the teacher's HOTS teaching strategies. The researcher also conducted an observation to observe the teacher in their teaching activities in the classroom, coupled with an interview with selected students. Furthermore, the researcher also observed all relevant situations and took extensive field notes (Johnson, R. Buke & Christensen, 2014).

3.2 Source of Data

3.2.1 The “Bahasa Inggris” Textbook

The “Bahasa Inggris” Textbook for eleventh-grade students is the data source for analyzing the readability level. The publisher of this book is Curriculum and Books Center, Research and Development Agency, Indonesian Ministry of Education and Culture. The second edition was published in 2017. The researcher chooses this book is that this book has met the requirements of an excellent English textbook, according to Greene and Petty (1971) and Cunningsworth (1995.). This book is used in the two semesters of the teaching-learning process. The reading materials in the textbook are arranged and separated between genres. The reading texts in this book are primarily designed with pictures which can make students less saturated and give a little depiction of what is written. Some texts are written with a clear discussion or explanation of a particular genre that can help students learn the texts' social purpose, generic structure, and language features. The exercises of the reading texts are given in various kinds. The students are asked to answer some questions related to the text and determine the generic structure of the text. The designers arrange the questions interestingly, which can facilitate the students to understand the text.

In Senior High School, there are some kinds of genres. They are narration, recount, procedure, description, news item, exposition, explanation, discussion, and review. Nevertheless, narration, explanation, discussion, and review are texts discussed in the twelfth grade of senior high school. Those are the genre with the most complex words, especially the lexical items. However, in this research, the researcher only used the explanation texts to analyze. The reason is that only three explanation texts were used during the research period titled ' Earthquakes,' 'Bullying: A Cancer That Must Be Eradicated' and 'Life and Times of Ki Hajar Dewantara.'

The English Textbook consists of 170 pages consists of 8 chapters and an enrichment. Each chapter has Pre-Activity, Building Blocks, Let's Practice, Active Conversation, Writing Connection, Let's Create/Contribute, and Formative Assessment. The Pre-Activity sub-section in all chapters contains at least one text. The researcher made three texts as a source of data: ' Earthquakes' from chapter 8, 'Bullying: A Cancer That Must Be Eradicated' and 'Life and Times of Ki Hajar Dewantara,' both texts are in the Enrichment sub-section. In this part, the researcher only focuses on analyzing the readability level of reading materials. There is no population on this part because all the reading texts in the textbook were used as the research subject. In this research, the researcher used the Flesh Readability Formula to measure the readability level of the texts and used cloze text to measure students' accuracy.

To apply this formula, the researcher utilized a web page. The address of the web page is <https://readabilityformulas.com/>. ReadabilityFormulas.com is a non-commercial platform created by writer Brian Scott. The researcher chooses the website because, since 2003, ReadabilityFormulas.com has provided free readability tools and resources to help writers and non-writers to identify their reading or grade level.

3.2.2 Participants

Eleventh graders and an English teacher in a public high school are the data source for this research. An English teacher was needed to teach the teaching strategies and activities. The students involved were 140 eleventh grade students from the Science and Social programs. Four classes consist of two social and two science classes for students participating in the research. The

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reasons why the researcher chose these classes was because of the accessibility. During that time, the researcher was also the co-teacher of the English teacher.

3.3 Data Collection Technique

Two data sets gathered in this research are the analysis of the readability of texts and the teacher's teaching strategies. The data are further elaborated below.

3.3.1 Readability

The data for the readability in this study were obtained from the "Bahasa Inggris" textbook. This technique of collecting data suits the research design as descriptive research. Regarding this, Sukardi (2009) states that the descriptive method's objective is to describe the facts about the object being analyzed systematically. This research is also supported by the library research method to discover the theories related to this research topic, such as the theories of textbooks, readability, cloze test, and the Flesch Reading Ease. Furthermore, the researcher also found theories from other sources such as websites, articles, and journals.

Related to that, Hopkins (1993: 140) stated that documents surrounding curriculum or other educational concerns could illuminate rationale and purpose in exciting ways. Using such material can provide background information and understanding of otherwise unavailable issues. The documentary data is from an eleventh-grade English textbook, Bahasa Inggris. In this research, the researcher uses documentation content analysis to analyze the contents of reading texts in the English Textbook eleventh grade. The data needed in this research is from analyzing the reading texts by the Flesch Reading Ease Readability Formula. The data in documents were taken from the eleventh-grade student's textbook entitled "Bahasa Inggris." The data will be collected by analyzing the texts and then calculating them using the Flesch Reading Ease Readability Formula.

To collect the readability level data, some steps were taken. The procedures are presented below:

1. Determine the English textbook used as a reference for the eleventh grade of High School.
2. Identify the texts of the reading material in the Bahasa Inggris textbook by Makhrugh Bashir published by the Curriculum and Books Center, Research and Development Agency, Ministry of Education and Culture.

3. Read the reading materials in Bahasa Inggris Textbook by Makhrukh Bashir published by Curriculum and Books Center, Research and Development Agency, Ministry of Education and Culture.
4. Count the number of sentences, words, and syllables in each text in readabilityformula.com

In this study, the writer used the Flesch readability formula because the formula is easier to analyze English texts. The writer conducted four steps in analyzing the data as follows:

1. The writer selected the text in the textbooks at least 100 words long, then input them into a computer in the Microsoft Word
2. After that, the researcher analyzed and counted the sentences, words, and syllables in each text of reading texts.
3. Measure the readability of each text based on the Flesch readability formula.
4. Describe and give further explanation related to the readability
5. Determined the grade of each reading text by comparing the result of the score to the other criteria shown in the readability table, which are relevant to the high school level.

In addition, there is a simple way to measure the readability level using a website of readability formula, namely www.readabilityformula.com. There are steps to be followed in using this facility. First is to choose one of the readability formulas. There are six readability formulas available: the Flesch Reading Ease formula, the Flesch-Kincaid Grade Level, Fog Scale (Gunning FOG Formula), the SMOG index, the Coleman-Liau Index, Automated Readability Index, and Linear Write Formula. Then, click the calculator of each formula. After clicking the area, there is a direction to copy-paste the text. After copying paste the text, click check the readability, and the formula will work and also show the text readability automatically, including the number of sentences, words, syllables, and characters. Finally, analyze the readability level of texts based on The Grade-level Scores and The Flesch Reading Ease Score

The researcher chose this formula because the Flesch Reading Ease Formula works best on texts for a secondary school textbook, which aligns with the research objectives, examining the readability of eleventh-grade textbooks.

3.3.2 Teacher's Teaching Strategies

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As this study aimed to describe the teachers' strategies in developing HOTS in teaching reading skills and the teachers' challenges in developing the strategies in teaching reading skills using HOTS. To collect data on participants' understanding of utilizing HOTS in class, teachers' strategies for utilizing HOTS, and students' experience taught using the HOTS teaching style. The researcher requested them to complete a questionnaire via Google Form. A questionnaire, is a self-report data collecting instrument used to gather information about participants' thoughts, feelings, attitudes, beliefs, perceptions, personalities, and behavioral intentions (Buke, and Christensen, 2014). The questionnaire design was divided into two parts. In the first part, the questionnaire consisted of 18 items in the form of a Likert Scale question. The purpose of this questionnaire was to determine whether the teacher employs the Marina et al. (2015) teaching strategies or not and how the teaching strategies support them in reading explanation texts. In the second part, the questionnaire consisted of two questions in the form of open-ended questions. The purpose was to describe their feelings regarding the teaching strategies' utilization.

Further, the and students were interviewed utilizing semi-interview asking questions regarding their experience with the teaching strategies. According to Ary et al. (2010), an interview is used to "collect data on people's thoughts, beliefs, and feelings regarding conditions in their own words" (p. 438). These four people were purposely selected, meaning the researcher must identify and locate the characteristics of participants of interest. In this study, the researcher selected individuals whose experiences are interesting to investigate and correspond with the objective and emphasis of this study. The researcher chose the chair of the classes as a correspondent as the teacher has constantly been communicating more with them. Another reason for choosing chairs of classes is due to their understanding of the class situation. The researcher observed all pertinent incidents and recorded copious field notes (Johnson & Christensen, 2013).

3.4 Data Analysis Technique

3.4.1 Readability

In this research, the researcher used Flesch Reading Ease Readability Formula (Flesch, 1948) because it is considered one of the oldest and most accurate readability formulas. This formula is a simple approach to assessing the reader's grade level, and the formula is also considered easier to use. This formula calculates only by counting syllables, words, and sentences. Moreover, Flesch

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Reading Ease Readability Formula is the best used and appropriate in school texts to assess the difficulty of a reading passage written in English. In contrast, the other formulas are practical and can be used for other written forms like newspapers, articles, and journals (Harris and Jacobson, 1980: 5). To make it easier to analyze the reading materials, four steps were conducted to investigate the data as in the following:

For analyzing the data, the researcher used:

1. Flesch Reading Ease Formula

The Procedures are:

- 1) -Count the syllables, words, and sentences of the text
- 2) Find the average sentence length (ASL) and average number of syllables per word (ASW)
- 3) Find the readability score formula by using:

Reading Ease score : $206.835 - (1.105 \times ASL) - (84.6 \times ASW)$

- 4) Determine the difficulty level and reading grade by the reading ease scale of the Flesch Formula:

Table 3.1

Difficulty Level and Reading Grade by Reading Ease Scale

Score	Difficulty Level	Reading Grade
0-30	Very Difficult	College Graduate
30-40	Difficult	13 th to 16 th grade (college student)
50-60	Fairly Difficult	10 th to 12 th grade
60-70	Standard	8 th and 9 th grade
70-80	Fairly Easy	7 th grade
80-90	Easy	6 th grade
90-100	Very Easy	5 th grade

2. Cloze Test Procedure (Taylor, 1953;Bormouth, 1963)

The procedure:

- 1) Correct the students' answer

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2) Find the percentage by using the formula, where:

$$P = F/N \times 100\%$$

where, P: percentage

F: frequency of the right

N: Number of items

3) Find the average of the score:

The average score is over 53% = independent level

The average score is between 44% - 53% = instructional level

The average score is below 44% = frustrational level

3.4.2 Teacher's Teaching Strategies

The data collected via surveys were examined and defined for more profound data collection in the second phase. The researcher picked four people to enter the next phase of the study after reviewing the data depending on the participants. The researcher did a semi-structured interview with selected students from two science and two social classes.

The researcher analyzed the data using descriptive statistics on the questionnaire. According to Johnson, R. Buke, and Christensen (2014), descriptive statistics enable researchers to commence with a collection of data and transfer the relevant data characteristics into a more interpretable format. The researcher then used the coding analysis technique for the qualitative approach to assessing the interviews and observation results. The researcher integrated and coded the results of the interviews and field notes to create the label. According to Johnson, Buke, and Christensen (2014), coding is the process of creating text data using descriptive terms (p. 534).