

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter provides the methodology used in the study. The elaboration focuses on research design, data collection, data analysis and procedures. The methodology chapter aims to provide a clear and comprehensive understanding of the research process conducted and how the data were collected and analyzed to answer the research questions.

#### **3.1. Research Design**

This study employed a case study research design to address two distinct research questions. Firstly, the research aimed to investigate the text complexity levels of EFL textbooks from different publishers. This approach allowed for an in-depth examination of how text complexity is manifested in instructional materials produced by diverse publishers regarding lexical density aspect and grammatical intricacy aspect as core components of text complexity. The design enabled an examination of how EFL textbooks are diverse in specific linguistic aspects of text complexity like the proportion lexical items, grammatical items, taxis and logico semantics and discussed how these aspects influenced the EFL students' language development and material development. Secondly, the study sought to investigate the awareness levels of EFL teachers regarding text complexity. Through a case study approach, this research delved into the practical implications of text complexity awareness on language teaching practices. The method enabled an examination of how EFL teachers perceived and understood text complexity and discussed how this awareness influenced their teaching practice.

The case study design was aptly chosen to address these research questions due to its capacity for in-depth exploration within a specific context. Yin (2018) stated that the case study is a research design that focuses on an in-depth examination of a specific phenomenon or event within its real-life context. The case study enables the researcher to provide a detailed description of aspects of text complexity such as lexical density (LD) and grammatical intricacy (GI) levels of the selected textbooks. Moreover, the case study also enabled the researcher to

know teachers' awareness level of text complexity from their responses in order to provide a comprehensive view of text complexity in this recent study. Overall, the case study method facilitated a comprehensive analysis of both text complexity levels of two EFL textbooks and teacher awareness in answering and achieving the research objectives.

### 3.2. Data Collection

For the first research question, a total of 20 texts were selected from two EFL textbooks. To ensure representativeness and comprehensiveness, the texts were chosen based on specific criteria. Two Textbooks were selected to represent the criteria of two different publishers. One was published by the government, Ministry of Education and Culture and another was published by a private publisher, Erlangga. Since it focused on Grade X, these criteria included three genres analyzed mandated by the curriculum at this level, such as descriptive, recount, and narrative, which are integral to the Indonesian K13 curriculum for Grade X. In the process of obtaining these texts, 10 texts were selected as found in overall chapters in each textbook summing up to 20 texts in total classified into three genres.

Table. 3.2. Table of Analyzed Texts in this study

No	Genre	Text Title	Textbook
1	Descriptive	Text 1: Tanjung Puting National Park	Bahasa Inggris Year X
2		Text 2: Taj Mahal	
3		Text 3: Niagara Falls	
4		Text 1: Soeharto	
5		Text 2: Semarang City	
6		Text 3: Bali	
7	Recount	Text 1: Meeting My Idol	Bahasa Inggris Year X
8		Text 2: Heroes Day	
9		Text 3: B.J Habibie	
10		Text 4: Cut Nyak Dhien	
11		Text 1: Peace Treaty and Mou	
12		Text 2: The Apollo Mission	
13		Text 3: The Invention of Penicillin	
14		Text 4: The Invention of Telephone	
15	Narrative	Text 1: Issumboshi	Bahasa Inggris Year X
16		Text 2: The Legend of Malin Kundang	
17		Text 3: Strong Winds	
18		Text 1: Miller and His son	
19		Text 2: Si Pahit Lidah (south sumatra)	
20		Text 3: The Green Knight	

For the second research question, data was collected through questionnaires administered to 43 EFL teachers. The sampling method employed was snowball sampling. Snowball sampling is an appropriate sampling technique to recruit participants for this study because it allows for a wide range of participants to be included in the study. To ensure representativeness and comprehensiveness, the participants were chosen based on specific criteria. The initial participants were selected based on specific criteria, such as the EFL teacher at the senior high school level in Indonesia and the familiarity with these EFL textbooks in their teaching practices.

In collecting data, the content analysis was applied for the first research question in investigating lexical density score, lexical items appearances, grammatical intricacy score, taxis-logicosmemantics and their specific types. Neuendorf (2016) stated that content analysis is a way of summarizing and studying messages using a scientific approach. It involves counting and analyzing different aspects of the messages to gain insights. In this case, content analysis is a way of analyzing the selected texts by quantifying various features and categories, such as word frequency, types of words, clauses, and sentence structure, and provides a way to compare and contrast the texts systematically. Therefore, the result of descriptive data can show the level of text complexity in both textbooks and know which textbook has higher complexity in this case.

For the second research question, the questionnaire was designed to gauge EFL teachers' awareness levels regarding text complexity. It included questions that assessed their understanding of lexical density and grammatical intricacy, the core components of text complexity. The questionnaire was divided into two main sections: the first section contains 18 questions that focus on lexical and grammatical items related to the LD aspect, while the second section contains 12 questions that focus on taxis and logicosemantics related to the GI aspect. The remaining four questions are open-ended form and asked about genre complexity and factors that affect text complexity. The questionnaire consisted of a Likert scale, including several open-ended questions. The questionnaires were delivered online through Google Forms. The questionnaire for this study consists of a total

of 34 questions. The first 30 questions are closed-ended and use a 5-point Likert scale, ranging from 1, which is "strongly disagree", to 5, which is "strongly agree". Overall, this questionnaire was designed to collect data on EFL teachers to get a comprehensive understanding of how they view text complexity. The use of a Likert scale allowed the researcher to make easy quantification and analysis of participants' responses by categorizing them, while the open-ended questions provided opportunities for more in-depth insights from participants' thoughts and opinions. Therefore, the result of descriptive data derived from teachers' responses, can show the current level of text complexity understanding of EFL Indonesian teachers in this case.

### **3.3. Data Analysis and Procedures**

The data analysis process encompassed several key steps to thoroughly explore the text complexity levels in the chosen EFL textbooks. It involved specific steps in analyzing two aspects of measurement, the lexical density and grammatical intricacy. For the lexical density aspect, it included the analysis of lexical density score and lexical items distributions. The analysis process entails investigating the general analysis of lexical items measured by the use of Halliday's lexical density score to know its complexity level. Moreover, the study examined the specific analysis of lexical items, including the proportion of common nouns, proper nouns, adjectives, verbs, and adverbs found in the texts. Furthermore, the grammatical intricacy aspect included the analysis of the general proportion of clause complex, known as the grammatical intricacy index, and also the proportion of taxis and logicosemantics as the specific analysis of clause complex.

#### **3.3.1. Lexical density score analysis**

According to Halliday (1985), lexical density refers to the ratio of lexical words divided total number of ranking clauses found in a text.

$$\text{Halliday's LD} = \frac{\text{total number of lexical items}}{\text{total number of ranking clause}}$$

Halliday (1985) suggested that a typical or average range for lexical density in written texts is between 3 and 6. Texts with higher lexical density are considered more difficult because they require greater knowledge and understanding of vocabulary. On the other hand, texts with lower lexical density are considered easier because they contain fewer content words and therefore require less vocabulary knowledge. Specifically, the LD index and Lexical Items become the main focus of analysis.

Table. 3.1. Classification Lexical Density Level

LD Level	LD Score
High	> 6
Medium/Average	3-6
Low	0-2

There were several detailed steps used in Lexical Density Score analysis:

1. The researcher began by grouping the 20 texts, including 10 from the government and 10 from private publishers. The initial focus was on the government's *Bahasa Inggris year X* textbook as the first textbook to be analyzed and then followed by the *Pathway to English X* textbook.
2. Following this, the texts were categorized into distinct types or genres, such as descriptive, recount, and narrative.
3. Quantitative measures were conducted to get descriptive data involving counting the total number of sentences, the total number of raking clauses, and the total number of lexical items within each text.
4. To make future calculations easier, the Microsoft Excel application was used to tabulate and calculate the lexical density index.
5. By employing Halliday's formula, then, the researcher calculated the lexical density score for each text.
6. The collected data was systematically organized and presented in tables and charts, allowing for the identification of trends in lexical density across different text types or genres analyzed in this study.
7. Conclusions were drawn from the data, enabling the researcher to categorize the scores in both textbooks as low, high, or moderate.

Moreover, the researcher identified which textbook achieved the higher score in terms of this aspect.

### 3.3.2. Lexical items distribution analysis

There were several detailed steps conducted in lexical items distribution analysis.

1. Similar to prior steps, the texts were divided into categories: government and private publishers. The first analysis began with the government's *Bahasa Inggris year X* textbook and then followed by the *Pathway to English X* textbook.
2. The researcher categorized the texts based on genres, such as descriptive, recount, and narrative.
3. Each sentence from the texts was systematically recorded in the table of lexical items analysis in the Microsoft Excel application.
4. The researcher, then, meticulously marked the content words or lexical items, including common nouns, proper nouns, adjectives, verbs, and adverbs of manner, marking their presence in each text by using the “bold” menu in Microsoft Excel.
5. Subsequently, the calculation of the proportion and percentage of these important words within the texts was executed by using formulas in Microsoft Excel.
6. The findings were presented comprehensively either in charts or tables, breaking down the data by classifying the genres in both textbooks.
7. By closely examining the data, the researcher summarized which content words were more prevalent and which were less frequent, and subsequently discussed potential reasons for these patterns.

### 3.3.3. Grammatical intricacy score analysis

Moreover, in this current study, Halliday's Systemic Functional Linguistics (SFL) is also used as the framework for analyzing grammatical intricacy in written text. Specifically, several aspects of Halliday's Grammatical Intricacy become the main focus of analysis in this study, including the GI Index, Taxis and Logicosemantics analysis. Castello (2008) stated that grammatical

intricacy is captured in terms of how many clauses are connected to form a clause complex and that the higher the index, the more sophisticated the text. In other words, the higher the appearance of complex clauses than simple clauses in a text, the more intricate the text is. Below is Halliday's formula for measuring the GI Index.

$$\text{Halliday's GI} = \frac{\text{Total Number of ranking clauses}}{\text{Total Number of sentences}}$$

There were several detailed steps conducted in the Grammatical Intricacy Index analysis.

1. Similar to prior steps, the texts were divided into categories: government and private publishers. The first analysis began with 10 texts in the government's *Bahasa Inggris year X* textbook and then followed by the other 10 texts analysis of *Pathway to English X* textbook.
2. The researcher categorized the texts based on genres, such as descriptive, recount, and narrative.
3. The total number of clause complexes was calculated manually for each text. Butt et al. (2000, p.30) described clause complex as "a language structure that consists of one clause acting alone, or a set of clauses working together through some form of the logical link". In other phrases, the clause complex discovered in this study is linked to a sentence unit that finishes with a full stop.
4. Ranking clauses were also determined
5. After determining the total ranking clauses and all clause complexes in the text, Halliday's Grammatical Intricacy formula was used to calculate the grammatical intricacy index of each text.
6. The collected data was systematically organized and presented in tables and charts, allowing for the identification of trends in grammatical intricacy scores in different text types or genres analyzed in this study.
7. Conclusions were drawn from the data, enabling the researcher to categorize the scores in both textbooks as low, high, or intermediate.

Moreover, the researcher identified which textbook achieved the higher scores.

#### **3.3.4. Taxis; Patataxis and Hypotaxis analysis**

There were several detailed steps conducted in the parataxis and hypotaxis analysis.

1. Following similar steps, the texts were grouped into two categories: those from government and private publishers. The initial examination began with the government's *Bahasa Inggris year X* textbook, followed by the *Pathway to English X* textbook.
2. The researcher sorted the texts based on their genres, such as descriptive, recount, and narrative.
3. The ranking clauses in each text were listed in a dedicated table for the clause complex analysis in Microsoft Excel.
4. An in-depth analysis was then conducted to determine whether the ranking clauses indicated parataxis or hypotaxis, and the various types within these categories, such as primary parataxis/hypotaxis or secondary taxis/hypotaxis by using Microsoft Excel.
5. The collected data was meticulously arranged and presented in graph format, which made it easier to understand the distribution of taxis in the analyzed texts and genres. This analysis covered both the general overview of taxis found in both textbooks and the specific genre analysis of taxis that appeared in the textbooks.
6. Based on the data, conclusions were drawn that enabled the researcher to delve into the reasons why certain genres tend to use hypotaxis more, while others predominantly use parataxis.

#### **3.3.5. Logicosemantics; Expansion and Projection analysis**

There were several detailed steps conducted in Logicosemantics Analysis.

1. At first, the texts were grouped into two categories: those from government and private publishers. The first analysis began with the government's *Bahasa Inggris year X* textbook, followed by the *Pathway to English X* textbook.



2. The researcher sorted the texts based on their genres, such as descriptive, recount, and narrative.
3. The ranking clauses in each text were listed in a dedicated table for the clause complex analysis in Microsoft Excel.
4. A meticulous analysis was then conducted to determine whether the ranking clauses indicated expansion or projection, and the various types within these categories, such as elaboration, extension, enhancement, idea, and locution by using Microsoft Excel.
5. The collected data was then arranged and presented in graph format, which made it easier to understand the distribution of logicosemantics in the analyzed texts. This analysis covered both the general overview of logicosemantics and the specific genre analysis of logicosemantics that appeared in the textbooks.
6. Based on the descriptive data, conclusions were drawn that enabled the researcher to delve into the reasons why certain genres tend to use expansion more; elaboration, extension, and enhancement, while others use projection; locution, and idea.

### **3.3.6. Teachers' Awareness Level of LD aspect and GI aspect analysis**

Several specific steps were undertaken to determine the level of teachers' awareness regarding the Lexical Density aspect and Grammatical Intricacy aspect. Data collection was carried out through a Likert scale questionnaire with a range of responses from 1 to 5.

1. The participants were provided with a questionnaire to complete.
2. The raw data was then tabulated in Microsoft Excel.
3. Then, the gathered data underwent quantitative analysis using SPSS 25 software to reveal the descriptive statistical data, including mean, frequency, and percentages.
4. The collected data was then arranged and presented in detail in a table format, which made it easier to understand the teacher awareness's level of sub-analysis such as lexical items, grammatical items, taxis, and logicosemantics.

5. The open-ended question responses in the questionnaire were also analyzed through thematic analysis.
6. The descriptive data from the teachers' responses, were then analyzed to ascertain the participants' level of awareness of the lexical density aspect and grammatical intricacy aspect.
7. Based on the descriptive data, conclusions were drawn that enabled the researcher to discuss the reasons behind these findings.

In conclusion, the research design chosen, the data collection, and followed by the specific steps of analysis can greatly answer research questions and reach the objectives of this study.