

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **A. Form of Research**

The researcher used a systematic review (SR) in this study. A systematic review is a research method to identify, evaluate, and interpret all relevant research results that related to certain research questions, certain topics, or phenomena of concern (Kitchenham, 2004). The systematic review is a synthesis of primary research studies that present a particular topic with specific and clear question formulations, explicit and reproducible search methods, involve critical study in study selection, and can communicate results and implications (Rother, 2007). A systematic review is a method of writing articles based on previous articles. Torgerson (2003) said that the purpose of a systematic review is to minimize bias from a review, to find research results obtained, to synthesize results, and to identify gaps from existing research.

Systematic review is also a secondary study that provided a separate way to assess the quality of existing studies by looking at research questions or topics of interest. Systematic reviews useful for synthesizing various relevant research results so that the facts presented to policymakers become more comprehensive and balanced. Systematic review provided a broader and more accurate level of understanding than traditional literature reviews (Delgado-Rodríguez and Sillero-Arenas, 2018). The systematic review method is carried out systematically by following stages and protocols that allow the article writing process to avoid bias and subjective understanding of the researchers. Therefore, the researcher concluded that systematic review is a method in carrying out article reviews with certain standard criteria, structured, and planned before synthesizing (summarizing) articles.

There are two types in the systematic review namely, meta-analysis and meta-synthesis. According to Siswanto (2010) in Perry & Hammond (2002), meta-analysis is a technique of aggregating data to obtain statistical power in

identifying a causal relationship between a risk factor or treatment with an effect (outcome). In other words, meta-analysis is one way to synthesize results statistically or quantitatively. Meanwhile, meta-synthesis is a technique of integrating data to obtain new theories or concepts or a deeper and more thorough level of understanding (Perry & Hammond, 2002). Meta-synthesis is done by using qualitative techniques. To analyze the relevant studies, the researcher focused on meta-synthesis. Because, meta-synthesis helped the researcher concluded the information from many studies related to the same media, and brought together qualitative data to form new interpretation of the researcher, and it helped build new theories.

In conducted a systematic review, the researcher should know the processes should be conducted. Wahono (2016) stated the stages of conducting a systematic review consists of three major parts, there were: planning, by identifying what is a requirement for a systematic review, conducted by developing a protocol from which the review designed to direct the implementation of the review, and reporting, where the researcher wrote the results of the SR in written form.

The following is a more specific explanation of the step of systematic review by Perry and Hammond (2002), namely:

1. Formulating the Research Question

The research question was the basic part of a systematic review that could be used as a guide in determining research. Research question was used to guide the literature search and extraction process. That meant, research question obtained key decisions about what types of studies to include. After doing this stage, the researcher got the results of a systematic literature review in the form of data analysis and synthesis. Wahono (2016) stated the criteria for good research questions are those that are measurable, useful, and lead to an understanding of state-of-the-art research on a research topic. The review question usually contained four important elements, there were the population of participants, the intervention, the outcomes, and the study design (Perry and Hammond,

2002). Therefore, the researcher determined the research question was: “how do the pen pal contribute to teaching writing skills for students?”

2. Develop the Protocol of Systematic Review

The next step that researcher did develop a review protocol. The review protocol used as a framework in the preparation of the review which contained the plans, procedures, and methods that the researcher chose in conducting the review to minimize bias. To simplify this process, the researcher required to create criteria that serve as filters in the selection and rejection of literature (inclusion and exclusion criteria) Nursalam *et al.*, (2020;13) in Zhu, Sari, & Lee (2018). So, that the final result of a systematic review produced quality and unbiased research results. Patino, *et al.*, (2018; 84) showed inclusion criteria defined as the key features of the target population that the investigators will use to answer their research question.

The inclusion criteria aimed made it easier for researcher to screen relevant and relevant studies. Exclusion criteria was eliminating or removing subjects who meet the inclusion criteria from the study for various reasons. Meanwhile, exclusion criteria were those characteristics that disqualify prospective subjects from inclusion in the study (Nursalam, 2020). Be considered appropriate for this review, there were the table for specific inclusion and exclusion criteria:

**Table 3.1 The Inclusion Criteria**

Inclusion Criteria
The studies are published between 2010-2022
The studies must be written in English language
The studies reported the result of pen pal
Publish journal
Focused on pen pal
Focused on writing skill
The studied must have an abstract.

Experimental, descriptive, qualitative, mix-method research design that related to pen pal project
All region that related the topic of using pen pal strategy
All students level that related of using pen pal strategy
The journal focused on electronic mail or e-pal
The strategy focuses on English subjects

**Table 3.2 The Exclusion Criteria**

Exclusion Criteria
The studies are published under 2010-2022
The studies are written in another language except English
The studies were not report the result of pen pal
The studies were not published journal
Were not focused on pen pal
Were not focused on writing skill
The studies have no abstract.
The research articles that cannot be accessed in full
All studies were not focused on pen pal strategy
The strategy were not focused on English subjects

*Adopted from Wulandari and Hendriani (2021)*

3. Determine the Location of the Data to be Analyzed

Steps to search for literature used data-based electronic devices and computers. The references specified in the search are online academic journals and websites with open access that have been published from the year 2010-2020 such as google scholar, SAGE Journal, OntarioTech Library, CESS (Journal of Computer Engineering System and Science), SciELO Scientific Electronic Library Online. The researcher also used a search strategy manually by entering keywords into the journal (“web-

based pen pal, “pen pal”, “writing skill”, “systematic literature review, “literature review, electronic mail”).

4. Screening and Selection of the Relevant Studies

Screening was the filtering of data or journals that aims to obtain the suitability of the topic being researched. The selection process for this study was done manually by taking into account the title and the related abstract. And for select the journals the researcher uses PRISMA Flow Diagram 2009 (APPENDIX).

5. Choose the Studies with Good Qualities

One of the terms for the selected study to be said to be of high quality was an article must be original research and had the criteria described in tables 3.1 and 3.2. These criteria was useful for eliminating journals that have been obtained for further analysis.

6. Data Extraction

This study could be done if the journals used are suited to the specified criteria. To extract data, the researcher had summarized important points in related previous studies. Starting from the abstract, research design methods, population, sample, and sampling in table 3.3.

**Table 3.3 The Description of Included Studies**

Research Title	Authors	Participants	Research Design	Year
The implementation of web-based pen pal in learning writing of recount text	Gita Orchidea Nadira	SMPN 1 wonoayu, grade 8	Descriptive Qualitative	2020
The use of pen pal project to teach writing	Dewi Sri Hastuti	SMAN 1 Trenggalek, grade 10	Descriptive Qualitative	2016

skill of recount text				
The implementation of pen pal project to teach writing skill of recount text	Daniel Fransihar Sibagariang, Eka Lestari Sitompul, Ana Maria Togatorop, Isni Salamah Tarigan, Irma Khoirot Daulay	SMP Nasrani 1 Medan, grade 8	Descriptive Qualitative	2020
Pen-pal are now in your finger tips: a global collaboration online project to develop writing skills	Woon Wern Lie, Melor Md Yunus	Primary school students from cheras, Selangor	Mix Method	2018
The effectiveness of pen pal project in writing recount text	Kardo Sihaloho, Sadariah Ujung, Fitri Dairina Berutu	Seventh grade students in SMP Bakti Medan	Descriptive qualitative	2021

## 7. Synthesis Result

The researcher analyzed each data to find out the findings the importance of using an analysis table that has been compiled according to literacy. The studies should be grouped according to their methodological similarities (Enferm, 2007). In this stage, important data was grouped, then studied in-depth with facts and information obtained from the research article. So, that further conclusions could be drawn to answer the research objectives. The main purpose of data synthesis was to analyze and evaluate various research results from various literature, to choose the most appropriate method in the process of integrating explanations and interpretations of these findings (Nursalam, 2020:12). The synthesis that the researcher did in the form is a narrative (meta-synthesis).

## 8. Presenting Result

Reporting was the stage of writing the results of a review in written form to be published in the form of a paper to a scientific journal. The writing structure of a review usually consists of three parts, consists of: introduction, main body, conclusion. The introduction section contained the background and basis for why a review on a topic is important to study. Then, the main section contained the review protocol, analysis results, and synthesis of findings, and ends with a discussion discussing the implications of the review results. The conclusion section contained a summary of the findings that we got, according to the research questions that have been set before (Triandini *et all*, 2019).

## **B. Population, Sample, and Sample Technique**

### 1. Population

The population defined as a group of individuals having the same characteristic. Danuri and Maisaroh (2019; 67), population is the whole of the characteristics of units of measurement results that become the object or subject of research. The population in this research was national

or international journals and articles that have been collected by the researcher and relate to this topic of research.

## 2. Sample and Sampling

The sample is part of the population to be studied. It meant that the population is in the form of miniature population (Danuri and Maisaroh, 2019; 80) Danuri and Maisaroh (2019; 81) in Arikunto (2010) sampling is the process of taking or selecting elements, objects, and elements from the population that represent the entire population. In this research, the researcher used purposeful sampling. According to Paton (2002), purposeful sampling is a technique for identifying and selecting information-rich cases that are most effective in limited resources. In this process, the sampling technique has been determined to obtain accurate and relevant documents. From thirteen literature that has been collected, it screened based on exclusion and inclusion criteria. As a result of screening, the researcher found five literatures as the sample.

## C. Technique and Tools of Data Collection

### 1. Technique of Data Collection

Data collection techniques are the most strategic steps in research, because the main purpose of research is to obtain data (Sugiyono, 2009; 224). Researchers used observation techniques in collecting data. According to Widoyoko (2014; 46) observation is systematic observation and recording of the elements that appear in a symptom in the object of research. In this study, the researcher used indirect observation. Indirect observation is a recent concept in systematic observation (Anguera, *et al.*, 2018). Indirect observation occurred when the recording was done by mechanical, photographic, videotape, cameras, or other electronic means. Where the researcher looked for the required data sources through the website and Google Scholar.



## 2. Tools of Data Collection

The researcher gathered the data by collecting the references that suited to the researcher's titles. In this research, the researcher used document analysis as a tool for collecting data. Document analysis is a systematic procedure for reviewing or evaluating document both printed and electronic (computer-based and internet transmitted) material (Bowen, 2009). He said document analysis includes advertisements, agendas, background papers, books and brochures, diaries and journals, event programs (i.e., printed outlines), letters and memoranda, maps and charts.

There are some advantages of using document analysis, as clarify by Bowen (2009), as follow:

### a. Efficient method

Document analysis is less time-consuming and therefore more efficient than other research methods. It requires data selection, instead of data collection.

### b. Availability

Many documents are in the public domain, especially since the advent of the Internet, and are obtainable without the authors' permission. This makes document analysis an attractive option for qualitative researchers. As Merriam (1988) argued, locating public records is limited only by one's imagination and industriousness. An important maxim to keep in mind is that if a public event happened, some official record of it most likely exists.

### c. Cost-effectiveness

Document analysis is less costly than other research methods. The data (contained in documents) have already been gathered; what remains is for the content and quality of the documents to be evaluated.

d. Stability

As a corollary to being non-reactive, documents are stable. The investigator's presence does not alter what is being studied (Merriam, 1988). Documents, then, are suitable for repeated reviews.

e. Exactness

The inclusion of exact names, references, and details of events makes documents advantageous in the research process.

#### **D. Technique of Data Analysis**

Data analysis defined a process of converting data from previous research into new information that can be used in making conclusions. In this process, the researcher used qualitative analysis and the technique for analyzing the data the researcher used is thematic analysis. According to Braun & Clarke (2006), thematic analysis is a method for identifying and analyzing patterns of meaning in a dataset (it illustrates which themes are important in the description of the phenomenon under study (Daly et al. 1997). So, the research to be carried out must be based on a certain theme and should not be out of a predetermined theme. The purpose of thematic analysis it helped the researcher to come up with different themes on the given text that are subjected to research, to find out in more detail and proved something related to a particular theme. The result of a thematic analysis should highlight the most salient constellations of meanings present in the dataset.

Therefore, thematic research analysis defined the way to understand something through an investigation or an effort to find evidence that appears in connection with a problem that contains a theme. There were steps of thematic analysis, as follow:

1. Familiarizing the Data

When the researcher has gotten the data, the researcher had to familiarize the data by reading it many times or it is called "repeated reading". The researcher had to actively read the data, search for

meanings, patterns, and so on. The important thing about this step was the researcher have to understand the data. Braun & Clarke (2006;17) suggested that during this step, it was a good idea to start taking notes or marking ideas for coding that the researcher would like to, then continue to the next step. This note was done to mark important points. Besides it, the researcher not only understands data from what appears on the surface but to know how extended the researcher could find the meaning that contains in the data.

After doing this step, the researcher ready to begin the more formal coding process. The main point in this step was the researcher did “repeated reading” because it was an effective way to understand the data that have been gathered. Therefore, at this stage, the researcher expected to be able to read actively, critically, and begin to think about what meaning might be found in the data that has been read. The purpose of this step was for understanding the data step by step. The notes made by the researcher manually, it aimed to help to explore the depth of data. The purpose of this note was not only to underline some things that have the potential for coding later, also as a reminder for researchers to observe the data. The researcher read the data many times and marked important things. It was like giving the underlined sentence. It was done for five studies that want to review.

## 2. Generating Initial Codes

The second step was the researcher began to give the initial code in the data. This code could also be in the form of labels or features contained in the data related to the research question. The code could be written semantically, meaning that it describes directly what the data looks like. The researcher wrote the code (label) according to what appears on the surface by writing the code according to the words used in the journal. In the use of this coding method, it was also known as *in vivo* coding. Where writing the code must be clear, it does not have to be

descriptive or long explanations. This coding stage only be said to be complete if all the data has been coded and all codes that have the same meaning or meaning are put into one group or group. The researcher then gave the name of this group according to the content (code) in the group. (APPENDIX II).

### 3. Searching for Themes

The third step was finding out the themes. Themes that fitted the purpose of study. This meant the theme described something important in the data related to the formulation of the research problem. At this stage, the researcher reviewed all the codes and groups that had been formed. Then, re-check all the codes, this must be done to ensure that the codes in each group have the same meaning.

### 3. Reviewing Themes

The fourth step was reviewing the theme. Reviewing meant the researcher must re-read all data extracts that fitted into each theme to ensure that all of the data forms a coherent pattern. If data fit into each theme coherently, it can move on to the next level.

### 5. Defining and Naming Themes

At this point, the researcher defined and further refine the themes that will be present for the analysis and analyze the data within them. By identifying the essence of each theme as a whole and determining what aspects of the data are captured by each theme.

### 6. Write- up

The last step is when the researcher had a set of themes that have been completed, the last stage is report writing.