

CHAPTER III

RESEARCH METHODOLOGY

This chapter explains the research methodology used in the study which consists of research design, data collection, and data analysis.

3.1 Research Design

This study used a qualitative method to identify rhetorical move analysis in research article abstracts of Sinta-indexed Computer Science journals. Using a qualitative approach to find out the differences in each Sinta level would be appropriate, considering the interpretative procedure. According to Cresswell (2014), qualitative research has objectives to explore and understand social or human problem whether it is individuals or groups. To be specific, qualitative comparative descriptive method was used in both rhetorical move analysis and linguistic features analysis of the abstracts. The method was used to examine and find out the meaning of occurrences in moves, steps, voices, and tenses. Also, to determine the link between Sinta levels and abstracts moves, hence, there was a comparison in between Sinta levels.

Not only qualitative method, this study also used a simple quantitative descriptive method based on Creswell (2014). In simple quantitative descriptive method, it systematically collects and organizes data to summarize and describe a phenomenon, group, or variable. It is a way to provide a clear and concise picture of the characteristics and dominance of moves, voices, and tenses in the research article abstracts.

3.2 Data Collection

This research took 120 abstracts from Sinta-indexed Computer Science journals, from level 1 to 6. Each level of Sinta journal was represented by one journal which was taken 20 abstracts as data. From one journal, the samples were collected based on its year in the range of 2017 – 2022 publishing.

Sinta level	Journal name	Institution	Year of publication	Total abstracts
Sinta 1	International Journal on Electrical Engineering and Informatics	Bandung Institute of Technology	2017 - 2022	20
Sinta 2	Jurnal Ilmu Komputer dan Informasi	University of Indonesia	2017 - 2022	20
Sinta 3	Journal of Information Technology and Computer Science	Brawijaya University	2017 - 2022	20
Sinta 4	MATICS : Jurnal Ilmu Komputer dan Teknologi Informasi (Journal of Computer Science and Information Technology)	Maulana Malik Ibrahim Islamic State University Malang	2017 - 2022	20
Sinta 5	Computatio: Journal of Computer Science and Information Systems	Tarumanegara University	2017 - 2022	20
Sinta 6	Jurnal Teknologi Informasi dan Komputer	Dhyana Putra University	2017 - 2022	20

Table 3.1 *Data source*

The justifications of choosing 120 abstracts as the sample are based on previous study and trial of documents examination. Previous study from Nurhayati et al. (2022) only used 60 abstracts and did not cover all of Sinta levels. This study used more samples which expected the results to be more accurate. At first, this study tried to examine 10 abstracts in each journal, however the patterns were still vague. Through the trial of examination in this study, it increased the sample to 20 abstracts and the patterns of rhetorical move analysis already could be seen.

Based on Creswell (2014), to collect the data, there are some steps that can be done, observation and interviews, documents, recording, and visual materials. This study used documents examination technique with purposive sampling method. Purposive sampling method was used for filtering the samples, to determine the boundaries. The researcher filtered the Sinta search into Computer Science field only. The journal names based on Sinta levels were listed and checked one-by-one in GARUDA (*Garba Rujukan Digital*) to find the articles in each year. If the journal met the criteria of having articles published in 2017 – 2022, the journal was chosen. Then, the researcher visited each journal website or GARUDA's site to check for further choices of articles. The last filter is author of the research article should be Indonesian. Hence, all of the authors of the data in this study were Indonesian in national-based journals. Documents examination were conducted to analyze the data deeply by reading the research article abstracts.

3.3 Data Analysis

Hyland's (2000) theory was used as the main pillar of move and steps analysis in research article abstracts. The theory has five moves to construct well-structured abstract, Move 1 – *Introduction*, Move 2 – *Purpose*, Move 3 – *Method*, Move 4 – *Findings or Product*, and Move 5 – *Conclusion*.

Move	Step
Move 1 – <i>Introduction</i>	Step 1 – Arguing for topic significance Step 2 – Making topic generalization Step 3 - Defining key term(s) Step 4 - Identifying gap
Move 2 – <i>Purpose</i>	Research purpose
Move 3 – <i>Method</i>	Step 5 - Describing participants/data sources Step 6 – Describing instrument(s) Step 7 - Describing procedure and context
Move 4 – <i>Findings or Product</i>	Main results of research
Move 5 – <i>Conclusion</i>	Step 8 – Deducing conclusion Step 9 – Evaluating significance of the research Step 10 – Stating limitation Step 11 - Presenting recommendation or implication

Table 3.2 *Move analysis based on Hyland (2000)*

The moves, steps, and linguistic features analysis were manually analyzed by the researcher. One abstract paragraph was divided into each sentence to conduct more detailed and accurate analysis. It was also supported by Chalak and Norouzi (2013); Kafes (2012), the possibility of embedded moves makes the analysis better be conducted by breaking down small units to clauses and phrases of sentences. The following table illustrates the analysis process.

Sinta 1 No. 17	Move	Steps	Tenses	Voice
In this study, we attempt to use a convolutional neural network (CNN) to identify cats' different sounds.	M2		Simple Present	Active
CNN is proven to classify different patterns from the spectro-temporal features	M1	S-1	Simple Present	Passive

of a sound and thus well suited for sound classification.

We will perform data transformation using mel-frequency cepstral coefficients (MFCCs) to extract the sound frequency to apply this method. M3 S-7 Simple Future Active

In MFCCs, each frequency bin is quasi-logarithmically spaced so that it resembles the resolution of the human auditory system compared to the spectrogram. M3 S-6 Simple Present Active

We will be using four convolutional layers of CNN architecture with a pooling layer and dense layer as the output layer in our model. M3 S-6 Future Continuous Active

From the sound ontology Audio set, we can collect 595 different sound data classified into five categories of cat sounds, which we used to train our model. M3 S-5 Simple Present Active

From our training process, our model can achieve a classification accuracy of 88.473254% M4 Simple Present Active

In the future, we look forward to improving our model accuracy by adding more data and even out each label to reduce overfitting. M5 S-11 Simple Present Active

We would also like to implement a data augmentation method on our dataset to improve our model accuracy. M5 S-11 Simple Past Active

Table 3.3 *Sample of data analysis from Sinta 1*

There were two types of move-step analysis, occurrence and salience. Occurrence was defined as the total number of moves or steps in each Sinta level. Meanwhile, salience counted the frequency of each representative moves or steps which used Kanoksilapatham's (2005) model. It was divided into obligatory, conventional, and optional based on the percentage in each abstract. To find the occurrence and salience, researcher used *Google Spreadsheet* to collect the information regarding move-step occurrences and saliences, patterns and

configurations, and linguistic features. After the completion of extracting data, researcher found the results and discussions which lead to conclusions of this study.