

CHAPTER III

RESEARCH METHODOLOGY

This chapter elaborates the methodology used in this study. It covers research design, data collection, and data analysis.

3.1 Research Design

This study is designed as move analysis by using descriptive comparative qualitative approach for move analysis has become a framework for examining cross-disciplinary (Basturkmen, 2012; Cotos, Huffman, & Link, 2017; Holmes, 1997) and cross-cultural variation (Amnuai, 2012; ElMalik & Nesi, 2008; Loi & Evans, 2010; Yakhontova, 2006) in in the various generic structure of RA sections. The aim of this study is to identify and the manifestation of the rhetorical move and linguistic features in the undergraduate thesis abstracts of Natural Science (Mathematics, Chemistry, and Physics) and Social Science (Geography, History, and Sociology) from Universitas Pendidikan Indonesia. The comparison of linguistic manifestations included tense and voice of each move. After doing the comparative analysis, the results were displayed in the forms of tables and figures.

3.2 The Corpus

The corpus for this study was selected from Universitas Pendidikan Indonesia repository website. The corpus consisted of 120 abstracts (20 from each) which taken from the field of Natural Science (Mathematics, Chemistry, and Physics) and Social Science (Geography, History, Sociology). This study used Durrant's (2017) disciplines categorization to select the disciplines based on their tendency toward either Natural Science or Social Science. Since the 2020 thesis had not uploaded yet, a four year range from 2016-2019 was taken into consideration in order to follow the current trend of rhetorical organization and linguistic realizations of the abstracts. This study used random sampling to collect the data by prioritizing the abstract from the recent year to the old one.

For the analysis, AntMover software was used to analyze the structure of the text (Anthony, 2003). However, the software needs some training data to aid

the labelling sentence process so a corpus consisted of 30 abstracts were selected and inputted as the database for the program. Two highly regarded university online repositories were selected, namely: (1) The University of Michigan Corpus of Upper Level Paper (MICUSP), and (2) Stanford Online Library. These two libraries were chosen because both of them are known as one of the leading universities in the world and listed in the top 200 universities in World University Ranking (“QS World University Rankings”, 2020.). The available papers were also originated from upper level students and had gone through a thorough review process. The range of publication was from 2016-2020 so that the selected data produced similar reliable variety of rhetorical moves to the main data. Seeing that the move analysis was conducted by using AntMover 1.10, all abstracts were converted into .txt files as it is the only allowed format.

3.3 Data Analysis

Hyland’s (2000) model was used as the guideline for this research. In the model, Move 1 - *Introduction* establishes context of the paper and motives for the research or discussion; Move 2 – *Purpose* indicates purpose and outline the intention behind the paper; Move 3 - *Method* provides information on design, procedures, assumption, approach, and data; Move 4 - *Product* states the main findings and the arguments; and Move 5 - *Conclusion* interprets or extends results beyond scope of the paper, draws inferences, points to applications or wider implications (p. 67). The procedure started by converting all of the abstracts into.txt format/Notepad-version document (Lubis, 2018) because it is the only eligible format for the AntMover software. After completing the training data, the researcher inputted the main data for analysis into AntMover 1.10. The software would automatically process and mark the step or class for each sentence from the text which had been segmented by the software as well. However, the researcher needed to re-verify the result of the process and ensure that the sentence was marked with the corresponding steps or class. The following table represent an example of data analysis process.

TABLE 3.1 A sample of data analysis

UTA No.1 (Chemistry)	Move	Step	Linguistic Features		
			Verb	Tense	Voice
This study aims to synthesize and characterize the Chitosan-PVA-PEG composite filtration membrane with the addition of SWCNT filler.	2	1	RV	Present	Active
Preparation of Chitosan- PVA-PEG-SWCNT composite filtration membrane was performed by phase inversion method.	3	3	AV	Past	Passive
The determination of the optimum composition of SWCNT addition on the composite membrane was determined by the measurement of flux (permeability).	3	3	AV	Past	Passive
Membrane characterization was performed by using FTIR instrumentation, SEM instrumentation, and tensile strength test.	3	2	AV	Past	Passive
The synthesis results showed that the optimum composition of the Chitosan-PVA-PEG-SWCNT composite membrane used a flux measurement at total volume of 40 ml is 13,33% with a ratio of 6:2:5:2.	4	1	RV	Past	Active
FTIR spectra showed an interaction between Chitosan, PVA, PEG, and SWCNT that predominantly progress through of intermolecular hydrogen bonding.	4	1	RV	Past	Active
The SEM images shows that the Chitosan-PVA-PEG-SWCNT membrane is a porous material, with asymmetric pore size and heterogeneous pore distribution.	4	1	RV	Present	Active
The result of tensile strength measurement on the Chitosan-PVA-PEG-SWCNT composite membrane showed an increase in the strength of mechanical properties and increase membrane permeability values with the addition of SWCNT.	4	1	RV	Past	Active
The addition of SWCNT to the composite membrane can increase the flux value from 4,38 L/m ² .h to 34,96 L/m ² .h.	4	1	AV	Present	Active
The Chitosan-PVA-PEG-SWCNT composite filtration membrane has the potential to be applied in water treatment process.	5	1	RV	Present	Active

UTA=Undergraduate Thesis Abstract

As there was a possibility of embedded moves in the abstracts, the unit analysis also included the clauses and phrases of the sentence (Chalak & Norouzi, 2013; Kafes, 2012, as cited in Kurniawan, et al., 2019) to acquire a more thorough results of move appearances. After analyzing the rhetorical moves, the data were inputted into Microsoft Excel to tabulate the occurrences of rhetorical moves. Then, the tabulated data sorted based on each move and its constituent step. After that, I examined the linguistic features i.e. tense, voice, and verbs using Knapp and

Watkins (2005) classifications. Lastly, I wrote the conclusion and discussion from the findings of the study.