

# ANALYSISNG STUDENTS' CRITICAL THINKING IN WRITING A THESIS USING THE TRANSITIVITY SYSTEM

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**Abstract: Analysing Students' Critical Thinking in Writing a Thesis Using the Transitivity System.**

This paper reports on a small part of the results of a study in attempting to identify students' ability and difficulties in writing an English undergraduate thesis in a state university in Indonesia. The paper centres around the students' ability and difficulties in writing a data presentation and discussion chapter, which are related to critical capacity looked at in this study. The paper begins with a brief introduction, which presents the background and the theories underpinning the study. This will be followed by an account of the methodology, in which it is argued that the study used a case study method, particularly text analysis (Travers, 2001) and involved nine theses selected randomly and analysed based on the elements of a conventional research report (Thody, 2006) and the Transitivity system of systemic functional grammar, developed by Halliday (1994). The paper then delineates the results, showing that despite their good control in the discourse semantic level, students in general still need a lot of guidance and assistance in writing a data presentation and discussion chapter. Recommendation for further research will conclude the paper.

**Abstrak: Kemampuan Berpikir Kritis Mahasiswa dalam Menulis Tesis.** Artikel ini membahas sebagian hasil penelitian yang berupaya untuk mengidentifikasi kemampuan dan kesulitan mahasiswa dalam menulis skripsi. Pembahasan difokuskan pada kemampuan dan kesulitan mahasiswa dalam menulis bab pemaparan dan pembahasan data, yang sangat erat kaitannya dengan kemampuan berpikir kritis. Penelitian ini menggunakan rancangan studi kasus, khususnya analisis teks dan melibatkan 9 skrip yang dipilih secara acak. Data dianalisis berdasarkan struktur organisasi atau elemen-elemen yang seharusnya ada dalam laporan penelitian konvensional dan sistem Transitivity dari tata bahasa sistemik fungsional yang dikembangkan oleh Halliday. Hasil penelitian mengindikasikan bahwa secara global atau dalam tataran teks secara keseluruhan pada umumnya mahasiswa mempunyai pemahaman dan kontrol yang kuat mengenai struktur organisasi skripsi. Namun demikian, dalam tataran mikro atau ciri linguistik dari setiap elemen atau bab yang ada dalam skripsi, para mahasiswa masih membutuhkan banyak tutunan serta bimbingan dalam menulis bab pemaparan serta pembahasan data.

**Kata kunci:** critical thinking, thesis, the Transitivity system, writing

Writing a thesis is central to the success of someone's learning at the tertiary level. However, the researcher's observation (see also Emilia, 2005) and her experiences in supervising thesis writing in undergraduate program in a university in Indonesia in particular, indicate that most students find it difficult to write a thesis. Writing a thesis in English, especially for EFL learners like Indonesians, is difficult, as the students should think not only about the content and the organisation of the thesis, but also the language.

This condition has led to the researcher's concern about finding out the students' ability and difficulties

in writing an English thesis, especially in the research site, where the researchers teach English and supervise students in writing a thesis in English. Moreover, as the development of critical thinking has been a priority in the Indonesian education today (Indonesian National Education Department (*Depdiknas*) 2001), this study also attempts to find out some aspects of critical thinking reflected in the theses, especially in the data presentation and discussion chapter, seen from its elements and linguistic features.

This study draws on three broad main theories considered to be relevant to the study. The first one is

to do with writing academic texts, especially with an element of a thesis written in a conventional way (Evans & Gruba, 2002; Thody, 2006; Paltridge & Stairfield, 2007; Hyland, 2000, 2002), that is data presentation and discussion chapter. The conventional way of writing a thesis is considered relevant to this study as the theses analysed were also written in a conventional way. The second theory regards critical thinking (CT), from the critical thinking movement (McPeck, 1990; Wilks, 2004a,b), centering around critical thinking standards and some dispositions of critical thinking relevant to argumentative writing. This theory is also relevant as theses are one type of argumentative writing. The third theory concerns systemic functional linguistics, the Transitivity system of systemic functional grammar in particular, as developed by Halliday (1994, see also Eggins, 1994), covering three elements: participants, process, and circumstances. This system of grammar is central to this study as it allows the researchers to look at the students' writing as well as critical thinking aspects concerned with in this study. Each theory will be briefly discussed below.

### Thesis Writing: Data Presentation and Discussion Chapter

The literature on conventional thesis writing suggests that a thesis should have the following elements: Title Page, Acknowledgements, Table of Contents, Abstract, Introduction Chapter, the Literature Review, Methodology, Results and Discussion, Conclusion (Evans and Gruba, 2002; Calabrese, 2006; Thody, 2006; Paltridge and Stairfield, 2007; Emilia, 2008). However, relevant to the focus of the paper, this section will delineate only the data presentation and discussion chapter.

Data presentation and discussion chapter plays a very significant role as every thesis, as Paltridge and Stairfield (2007:135) argue, will contain presentation and discussion of results or findings. Paltridge and Stairfield (2007, see also Evans and Gruba, 2002; Lim, 2005) present typical elements in reporting results sections of a thesis which can be seen in Table 1.

**Table 1. Typical Elements in Results Section of a Thesis (Paltridge and Stairfield, 2007: 135).**

Move	Purpose
1. Presenting metatextual information	Presents preparatory information by pre-viewing, linking, providing background information, referring back to methodology points to location of tables, figures and graphs.

Move	Purpose
2. Presenting results	Presents results (findings) Presents procedures Restates hypotheses or research questions States what the data are and highlights data for reader's attention Provides evidence e.g. statistics, examples, frequently presents information visually (e.g. graphs, tables, figures, photographs)
3. Commenting on results	Begins to interpret results and to make claims Looks for meaning and significance, may point to contribution to field Makes comparison with previous studies (often for justification of method or procedure) May comment on strength, limitation or generalisability of results.

In addition, according to Swales and Feak (1994, see also Sternberg, 1988:53; Rudestam & Newton, 1992; Emilia, 2008), a discussion chapter can be organised in a list of points (rather than facts) that are very typically found in the discussion section of theses and dissertations. These are:

Move 1: Points to consolidate the research space – i.e. interpretive points rather than descriptive facts or results. For example:

- A reminder of the original purpose of the study
- Statement of results followed by a follow up such as:
- Statements of the importance or otherwise of the results
- Examples of the data which illustrate the results
- Comparison with other work/previous research
- Review of the methodology
- Reference to the theory underpinning the study
- Conclusions that might be drawn
- The strengths of the study
- Whether the results were expected or unexpected

Move 2: Points to indicate the limitations of the study; what cannot be concluded from the research;

Move 3: Points to identify useful areas of further research.

Regarding writing a data presentation and discussion chapter, previous research by Rudestam and Newton (1992), Kamler and Thomson (2006), (and this study, as will be shown later) reveal some failures in presenting and discussing data. These are, among others, as follows. The first failure is that too much data is presented. The second one is that the data is not related to the theory underpinning the study or previous work in the same field. Regarding this, Hyland states that "reference to other research is almost a defining feature of the academic research article" (2002:115). Thus, as Rudestam and Newton (1992) suggest, a discussion chapter should have a lot of expressions as exemplified below:

Unlike Smith (1989), who relied upon self-report to look for evidence of dissimulation, the current study found behavioural evidence that teenagers drink more alcohol than they admit to family members (Rudestam and Newton, 1992:123).

Previous studies of effective principals have concluded that they were especially assertive in their dealings with the faculty during the first semester of their tenure as principal (see for example, Rivers, 1998; Clements, 1999) (Glatthorn & Joyner, 2005:208).

This findings supports the results of Werner and Parmelee (1979) and Kandel (1978) where same sex-friends were samples. ... (Burton, 2002:96).

The third failure is that hedging is not well employed. Hedging is really important in a research report, and a researcher, as Cooley and Lewcowicz (2003:78) propose, needs to hedge his/her claims when writing up research for two reasons. Firstly, a researcher needs to be modest; the studies or experiments conducted may not provide a definite answer posed or be the only explanation for the findings noted. Secondly, a researcher needs to be cautious to avoid the embarrassment of being proved wrong after making claims that are too strong.

These are actually in line with some characteristics of a critical thinker, who discerns and is careful in making judgment and generalisations. Some aspects of critical thinking (CT) looked at in this study will be discussed below.

### Critical Thinking (CT)

The concept of CT used in this study, as indicated above, draws on the CT movement, and the definitions of CT have been based on the work of general conception (see Paul, 1993; Nosich, 2001; Moore and Parker, 1995) and the subject-specific conception (see McPeck, 1981, 1990, 1992). From the general conception, the definitions are:

*CT is a careful, deliberate determination of whether we should accept, reject, or suspend judgment about claim - and of the degree of confidence with which we accept or reject it (Moore and Parker, 1995: 4).*

*CT is based on articulately intellectual standards and hence is intrinsically subject to assessment by those standards ... such as: clarity, precision, accuracy, relevance, significance, fairness, logic, depth, and breadth, evidentiary support ... There is an intimate interrelation between knowledge and thinking (Paul, 2002. 3). CT involves using knowledge to bring about reasonable changes (Lipman, 2003: 211).*

Moreover, from the subject specific conception, the definition of CT adopted in this study is:

*CT is always thinking about X, manifests itself in connection with some identifiable activity or subject*

*area and never in isolation (McPeck, 1981: 13, see also McPeck, 1990, 1992).*

The definitions above suggest this study emphasises CT standards, regarded as a way of gauging how well CT skills are performed (Barnett, 1997:70-71). These include commitments to *clarity* in arguments, *relevance* of data and evidence used to the main point, *accuracy* of the quality of the arguments, *depth, breadth, sufficiency* in the arguments, and *precision* in the sense of being specific about detail. These aspects are central to the quality of a thesis.

Moreover, this study emphasises other components of CT, to do with arguments (which is the heart of CT), *the issue, reasons, facts* and *opinion* (Moore and Parker, 1995; Picciotto, 2000). The notion of *argument* used in this study refers to "the sequence of interlinked claims and reasons that, between them, establish the content and force of the position for which a particular speaker (or writer) is arguing" (Toulmin et al, 1984: 14). The capacity to argue in writing an academic text has been considered essential, even in natural sciences, where the claim to demonstrate empirical truth might seem to be most unassailable (Bizzell, 1992). To follow Kuhn, Bizzell writes:

*One could not say that a theory prevailed because it was presented in discourse so transparent that the convincing power of the evidence supporting the theory was conveyed in the most unfiltered way. Rather, one would have to say that a theory prevailed because it and its supporting evidence were presented in discourse that argued the way scientists were prepared by training, by their socialization to their discipline, to hear a position argued (1992: 9).*

Accordingly, relevant to the writing of the data presentation and discussion chapter, this study also focuses on the following:

- Students' capacity "to construct arguments systematically, following a line of reasoning consistently to a conclusion" (Zechmeister and Johnson, 1992:6) and to organize the information into meaningful clusters of units (sentences, concepts and schemata), which is called "information-organisation skills" (Lipman, 2003);
- Components essential to CT, such as: *the issue*, the question that is being addressed; *reason*, the central point of an argument, as it provides support for claims; *facts*, which is what actually happened, and *opinions*, something that may be believed to be true, but questionable or debatable (Toulmin et al, 1984; Picciotto, 2000);
- CT Dispositions, especially: to be well-informed, using and mentioning credible sources; (ii) to be open-minded, considering seriously other points of

view than their own; (iii) to take a position or a stance (and change a position) when the evidence and reasons are sufficient to do so (which to Hyland, 1999:106, is an important feature of academic writing) and (iv) to be systematic: following a line of reasoning consistently to a conclusion (Ennis, 1987; Beyer, 1997).

This section has provided an overview of aspects of CT in focus. The subsequent section will address the other theory that has informed the study, that is the Transitivity system of systemic functional grammar.

**The Transitivity System of Systemic Functional Grammar**

The Transitivity system of systemic functional grammar belongs to the experiential metafunction and is the overall grammatical resource for construing goings on (Martin, Mathiessen and Painter, 1997: 100; Christie and Derewianka, 2008). The term transitivity in functional grammar refers to a system for describing the whole clause, rather than just the verb and its object (Thompson, 1996: 78). Transitivity refers to “the type of process which determines how the participants are labelled: the ‘doer’ of a physical process such as kicking is given a different label from the ‘doer’ of a mental process such as wishing ...” (Thompson, 1996: 78).

The Transitivity system construes the world of experience into a manageable set of process types (Halliday, 1994:106), and it discriminates six different types of processes in English: material, mental, verbal, relational, behavioural and existential. Each process, Halliday (1994: 107) further suggests, consists, in principle, of three components: the *process* itself, the *participants*, and *circumstances*, which will be discussed below. Examples have been drawn from the theses analysed in this study.

**Material Processes: Processes of Doing**

Material processes “construe doing or happening” (Halliday, 1994:110). Material processes answer the question *What did X do?* or *What happened?* Potential participant roles are: *an Actor* (the Doer of the process), *a Goal* (or the Thing affected), *a Range* (or the Thing unaffected by the process), *a Beneficiary* (or the one to whom or for whom the process is said to take place). Material processes found in the theses are, among others:

Material process with an Actor and a Goal (active)

The writer	implemented	a single test	in the study
<b>Actor</b>	<b>Process: Material</b>	<b>Goal</b>	<b>Circumstance: Loc: Place</b>

Material process with a Goal can also be realised in an agentless passive (Butt, et. al, 2000: 53), as in the following example:

This research paper	is organised	into five chapters
<b>Goal</b>	<b>Process: Material</b>	<b>Circumstance: Loc: Place</b>

**Mental Processes: Processes of Sensing**

Mental processes encode meanings of thinking or feeling (Halliday, 1994; Eggins, 1994). Mental processes usually have two participants: a *Senser*, realised by a human or at least conscious participant and a *Phenomenon*, by a nominal group or embedded clause summing up what is thought, wanted, perceived or liked/disliked (Eggins, 1994). However, it can have only one participant in the situation when they project, as in:

The students	know
<b>Senser</b>	<b>Process: Cognition</b>
That they	are being heard
<b>Phenomenon</b>	<b>Process:</b>

**Verbal Processes: Processes of Saying**

Verbal processes are processes of saying and cover any kind of symbolic exchange of meaning (Halliday, 1994:140; Halliday and Mathiessen, 2004: 253) not only the different modes of saying (*asking, stating, arguing*) but also semiotic processes that are not necessarily verbal (*showing, indicating*) (Martin, Mathiessen, and Painter, 1997: 108). The use of verbal processes or “reporting verbs” (Hyland, 2002:116), is one of the most explicit ways of attributing content to another source, and represent a significant rhetorical choice. To follow Thompson and Ye (1991) Hyland further writes that processes like *demonstrate, prove, show* reveal the writer’s agreement with a prior statement, and hedges (*suggest, indicate, imply*) open an evaluative space, in which the writer can withhold full commitment to present a contrast with a new view.

Participant roles of verbal processes can be: (i) *A Sayer*: The participant responsible for the verbal process; (ii) *A Receiver*: The one to whom the saying is directed; (iii) *A Verbiage*: the function that corresponds to what is said; and (iv) *A Target*: the entity that is targeted by the process of saying. Verbal processes can project, as in the examples from Theses 4 and 5 below.

**Thesis 4**

Perrot (1982)	states
<b>Sayer</b>	<b>Process: Verbal</b>

That reinforcement	could develop	confidence
<b>Actor</b>	<b>Process: Material</b>	<b>Goal</b>

**Thesis 5**

Table 4.1	shows
<b>Sayer</b>	<b>Pro: Verbal</b>

<i>That Asymptotic Significance of the experimental group</i>	was	0.768
<b>Carrier</b>	<b>Pro: Relational</b>	<b>Attribute</b>

**Relational Processes: Processes of Being**

Relational processes relate a participant to its identity or description (Butt et. al, 2000: 58). Relational clauses construe being in two different modes: attribution - relating a participant to its general characteristics or description and identification - relating a participant to its identity, role or meaning (Martin, Mathiessen, and Painter, 1997:106). The participant roles in relational clauses are: *Carrier* + *Attribute* in attributive clauses, and *Token* (that which stands for what is being defined) + *Value* (that which defines) in identifying ones. Most relational clauses found in the theses are realised in different forms of *be*, as in the following examples, from Thesis 8.

Attributive relational clauses:

The students of the three teachers	were	very obedient
<b>Carrier</b>	<b>Process: Intensive</b>	<b>Attribute</b>

Identifying relational clauses:

Her most expressive attitude	was	smiling
<b>Token</b>	<b>Process: Intensive</b>	<b>Value</b>

Unlike attributive relational clauses, identifying relational clauses are reversible. So, the identifying clauses above can be changed into passive, as indicated below:

Smiling	was	her most expressive attitude ...
<b>Value</b>	<b>Process: Intensive</b>	<b>Token</b>

Another type of relational process occurring in the theses is relational possessive process of ownership and possession between clausal participants (Eggins, 1994:262). For example,

Possessive clause:

...the two groups	had	the same capacity ...
<b>Possessor</b>	<b>Process: Possessive</b>	<b>Possessed</b>

**Behavioural Processes**

Behavioural processes are processes of physiological or psychological behaviour (Halliday, 1994:139; Butt, et. al, 2000: 54), intermediate between mental and

material processes, typically having only one participant (Thompson, 1996: 99). The participant must be a conscious being, called Behaver (Eggins, 1994: 250). Behavioural processes are used in the theses to describe the behaviour of participants of the study, as can be seen below, taken from Thesis 8:

The students	might sit down ...
<b>Behaver</b>	<b>Process: Behavioural</b>

**Existential Processes**

Existential processes represent experience by positing that “there was/is something” (Eggins, 1994: 254), that “something exists” (Halliday and Mathiessen, 2004:256). The only obligatory participant in an existential process which receives a functional label is called the Existent. An existential occurs, among others, in:

There were	three teachers ...[[observed in this study]].
<b>Process: existential</b>	<b>Existent</b>

**Circumstances**

Circumstance in functional grammar is the name given to those elements which carry a semantic load, but are neither process nor participant (Bloor and Bloor, 1995:126). Halliday (1994) (see also Martin and Rose, 2003) identifies nine types of circumstances, as illustrated in Table 2 below, with examples (in italics) taken from the theses analysed.

**Table 2. Types and Examples of Circumstances (based on Halliday, 1994: 151)**

Types of Circumstances	Examples
<b>Extent</b>	If you don't mind, I would like to ask for <i>a month extension</i> ... (Thesis 6).
<b>Location</b>	<i>In the discussion section that will follow</i> , the relationship between ... (Thesis 7).
<b>Manner</b>	A good communication can be created <i>through the interaction</i> ... (Thesis 1). They could learn <i>individually or cooperatively</i> (Thesis 1).
<b>Cause</b>	As the set of modal is constantly diminutive, the selection of modal is hinted ... (Thesis 6).
<b>Contingency</b>	<i>If the probability is &gt;0.05</i> , Ho is rejected. (Thesis 5)
<b>Accompaniment</b>	The respondent completed his request <i>with supportive move</i> ... (Thesis 6)
<b>Role</b>	However, <i>as part of Indonesian society who values indirectness</i> , it is ... (Thesis 6).
<b>Matter</b>	Two of the teachers also added the information <i>about use of media questions</i> (Thesis 4).
<b>Angle</b>	<i>According to Soedjito (1988)</i> ... in order to to enrich and improve vocabulary, Indonesians borrow words from a number of sources (Thesis 3).

The meaning of most circumstances, according to Martin and Rose (2003:69-70) can be probed by a “wh-item” as follows.

Circumstance	wh-item	type of meaning
In 1980	when	time
To Indonesia	where	place
About exams	what about	matter
With the society	who with	accompaniment
As an arena	what as/how involved	role

All aspects of the Transitivity system used in the analyses of the theses and other theories that underpin the study have been briefly discussed, and the discussion will now move on to the methodology of the study.

## METHODOLOGY

This study uses a qualitative case study research design, especially text analysis (Travers, 2001). Until the writing of this paper, nine (9) of 23 theses have been analysed. These theses were randomly selected, representing different levels of achievement - low (Theses 1,2,3 with the GPA <3), mid (Theses 4,5,6, with the GPA from 3 to 3.5) and high (Theses 7,8,9, with the GPA >3.5). The theses were first analysed in terms of the elements of a thesis, and then the elements of each chapter, to follow Swales and Feak (2004); Paltridge and Stairfield (2007). Finally the theses were analysed in terms of linguistic features based on the Theme, Mood and Modality, and Transitivity systems of systemic functional grammar. However, as mentioned above, this paper will only present results from the analysis of data presentation and discussion chapter and linguistic features based on the Transitivity system. Regarding the Transitivity analysis, three aspects were looked at: Participants, Processes and Circumstances. The analysis aims to reveal the students' ability and difficulties in writing a thesis, from the discourse semantic level and linguistic features and aspects of CT emphasised in this study..

## RESULTS AND DISCUSSION

Results from the analysis of the theses will be described and discussed in two major points:

(i) the elements of the theses and the rhetorical moves of the data presentation and discussion chapter of all theses; (ii) linguistic features of the data presentation and discussion chapter based on the Transitivity system of systemic functional grammar, including the processes, participants and circumstances. The discussion of each aspect will be related to CT in focus.

## Elements of Data Presentation and Discussion Chapter

Analysis of the theses as a whole suggests that the students have a good control of the schematic structure of a thesis, in that each thesis has all elements required in a conventional thesis (Calabrese, 2006; Thody, 2006; Paltridge and Stairfield, 2007). These include: Abstract, Table of Contents, Acknowledgements, Introduction, the Literature Review, Methodology, Data Presentation and Analysis, Conclusion and Suggestion. This shows some CT standards (Paul, 1993, 2002; Nosich, 2001), especially clarity and relevance of the theses in the global level.

Regarding the data presentation and discussion chapter, several aspects can be described as follows. To begin, of the three typical elements of data presentation and discussion chapter proposed by the theorists of theses writing (e.g. Sternberg, 1988; Swales and Feak, 1994; Paltridge and Stairfield, 2007), only two are found in all theses analysed. These are presenting metatextual information and presenting data. The element presenting metatextual information is found at the beginning of the chapter “Results and Discussions”, as can be seen below:

This section presents the research findings collected from two resources, which include teachers' questionnaire and teacher's interviews (Thesis 1).

This study tried to find out the students' motivation, the students' achievement and the correlation between the two In trying (Thesis 2).

As mentioned in the previous chapter, the general objective of the research is to examine the tip of the tongue experienced by an FM radio Station announcer. In general, this chapter is divided into two parts: 1) the distribution of tip of the tongue, and 2) what the respondents actually had in mind when they experienced such tip of the tongue (Thesis 3).

From the data collection through observation, interview, and questionnaire, the presented data (the data are presented) were based on the research questions concerned with ... (Thesis 4).

In this study, there were two kinds of data. First, the primary data was collected through pretest and post test ... . The second data was gathered through questionnaire ... (Thesis 5)

... I will present the findings in two sections. The first section will discuss the general findings of the study while the second, the more specific findings, i.e. those related to gender issues (Thesis 6)

This chapter deals with the plot and text analysis as discussed in the previous chapter. The analysis will start from the plot since it is the fundamental analyses of this study. ... The three research questions displayed

in the previous chapter are definitely connected to plot analysis since the novel was first deconstructed in the light of plot analysis. ... (Thesis 7).

There were three teachers observed for this research. Teacher number 1, ... . Interviews and syllabus and lesson plan documentation had also been conducted. The results from three research instruments are combined and are described in six parts ... (Thesis 8).

In revealing the ways the Jakarta Post and ANTARA News represent the issue on the effort of Malaysia to claim some Indonesian cultural heritage, I conducted analysis on the three types of meaning suggested by Halliday ... (Thesis 9).

The data above show students' ability to explicitly link, provide background information, and refer back to methodology points, as suggested by Paltridge and Stairfield (2007) (see Theses 4,5,7,8), despite their need for more guidance in writing the first element of this chapter to allow them to write a clearer and more cohesive and coherent text. Some students (Theses 2 and 3) also manage to explicitly provide a reminder of the purpose of the study, a point that is important in the chapter, as Swales and Feak (1994) argue. The students' capacity to write this "linking text" (Johnson, 2003: 51) or "linking device" (Clare, 2003: 29) is very important and useful in long academic texts like theses as the readers, according to Clare (2003:51) rarely read the text in one sitting. The presence of this linking text or "*verbal signals*", Glatthorn and Joyner (2005:140) state, is a must and can enhance the clarity of the organisation of thesis as a whole. This corresponds to some CT standards in focus, particularly clarity and relevance.

With respect to second element - presenting data (Paltridge and Stairfield, 2007), this study supports previous research by Rudestam and Newton (1992) in that all students tend to present too much data. The length of the "data presentation" section tends to be much longer than that of the discussion section. Some theses (Theses 4,5,6) for example, present the data in 30-40 pages and the discussion section in only two pages. This may indicate students' lack of awareness that the data should be selected and in this case their creative part, as Evans and Gruba (2002) argue, plays a significant role to determine which data is most important, most relevant, or expected and thus has to be presented. Regarding CT, this suggests students' struggle in stating arguments, interpretations or opinions, something that may be believed to be true, but questionable or debatable (Picciotto, 2000). The students just described *facts*, what happened, what is true, and do not use a lot of hedging. All these may reflect the urgency of providing students with assistance and explicit instruction in writing the data presentation and

discussion chapter in particular. Students should also be assisted to develop their CT, especially the capacity to argue, to state opinions and stance explicitly and carefully, referring to authority, and considering other view points, as Ennis (1987) and Beyer (1997) suggest above.

As regards the final element of the chapter, in which the researcher discusses or comments on the data, as Paltridge and Stairfield (2007) state, or provides a consideration of the findings in the light of existing research studies and implications of the study for current theory, as Rudestam and Newton (1992) suggest, or compares the data with previous work/research, as Swales and Feak (1994, 2004) propose, all theses actually have the label "discussion" in the title of the chapter. However, only six theses (no 1-6, categorised into low and mid) have the section "discussion". This means that this chapter is written in a "non thematic way" (Sternberg, 1988: 54), and data are presented separately from the discussion section. The other three, categorised into high, are written in "a thematic way" (Sternberg, 1988: 54), when data are combined with the discussion.

In terms of the non-thematic way of writing this chapter, observations on academic writing (see Sternberg, 1988; Swales and Feak, 1994; Lim, 2005, Emilia, 2008) show that the difference between data and data analysis or data discussion is not as sharp as many people believe. Today many writers give comments or interpretation on the data when they describe or present the data because of their awareness of the existence of the readers of their writing. In this context, Swales and Feak (1994; 2004) argue that writers generally try to anticipate a possibility of a question raised by the reader when they read the data, such as "Is this data unusual?" To anticipate this question, Swales and Feak (1994, 2004) suggest, the writer may not want to delay to respond to this question and to critically comment on this question until the report ends. Similarly, Sternberg (1988: 54) states:

I recommend that results should be combined with discussion, especially when each section is relatively short. I recommend this combination even when the individual sections are not short. The problem with results section standing by itself is that it is difficult to follow and makes for dry reading. The reader is confronted with masses of statistics (in quantitative research) without being told what the statistics mean or why they are important. Meaningful discussion is deferred until later (1988:54).

Sternberg asserts, the separation of data from discussion has led to the tendency that the writer presents too much data, as indicated earlier, and this constitutes a general failure in writing a thesis and disserta-

tion, as reported by Rudestam and Newton (1992). Some theses have much fewer pages for discussion than those for data presentation (for example, Thesis 5: 3 out of 17 pages; Thesis 6: 2 out of 40 pages). Only Thesis 4 presents 9 pages out of 35 and the writer shows a growing capacity to explicitly relate the data to previous work or to the theory underpinning the study (Swales and Feak, 1994, 2004; Rudestam and Newton, 1992). This can be seen in the following examples.

... It reflects to what Harmer (1998)... (reflects what Harmer ...)

Additionally it related to Richard ...

It suited to as mentioned by Perrot (1982)... (It suits what has been mentioned by Perrot...)

The eye contact, *as mentioned by Perrot (1982)* ...

However, the writer of Thesis 4 still makes grammatical mistakes in expressing the statements, (underlined) and sometimes tends to just repeat what has been stated in the data presentation section, without commenting the data, as in:

... the teachers and students argued that the classroom interaction had to be increased ... (Thesis 4).

Other theses, even those categorised into high, despite an indication of the writer's awareness of the necessity of combining the data with the discussion, in line with the suggestion from experts in academic writing, still tend to present data only. This can be seen in the following examples, from theses on text analysis using systemic functional grammar.

The above table is made to disclose the most dominant process types used in the novel. The table clearly shows that the material process is the most dominant process type ... (Thesis 7)

From the above distribution of process types tables, it can be seen that TP and AN ... share the same three most preferable processes. They are material, verbal, and relational. However, the three processes appear in different order in both TP and AN. In TP relational ... (35.24 %) ... material (31.41%) ... (Thesis 9).

Examples above reveal that the writers just describe and do not seem to see the meaning and significance of the dominance of material processes (Thesis 7) or material, verbal and relational processes (Thesis 9) in the text, how it contributes to the development of the theory used in the study, and to make a comparison with previous research, which is essential in the discussion chapter (Sternberg, 1988; Swales and Feak, 1994, 2004; Paltridge and Starfield, 2007). It would be much better if the writers related the data to previous studies on this aspect, considering how the findings give implications to the theory of systemic functional linguistics, as Rudestam and Newton (1992) advise. Regarding CT, this may reflect students' strug-

gle to enhance the soundness and accuracy of their arguments by referring to authority (Chaffee et al, 2002). The data also suggest the students' need for the development of CT dispositions, such as: to be well-informed, using and mentioning credible sources and to be open-minded, considering seriously other points of view than their own as Ennis (1987) suggests. Besides, the data indicate the students' need for guidance to grasp some critical thinking standards in presenting data, especially concerning "relevance, significance, and fairness" (Paul, 2002), "to construct arguments systematically, following a line of reasoning consistently to a conclusion" (Zechmeister and Johnson, 1992: 6) and to organize the information into meaningful clusters of units (Lipman: 2003).

Finally, one issue deserves a mention, that is whether the capacity of some writers to discuss the data obtained in their study was thanks to supervision or other factors. Theorists of the teaching of writing (Martin, 1993, quoted by Christie and Unsworth, 2000: 19-20) say that this ability is not given, it has to be explicitly taught. This warrants further investigation and is important for the development of thesis supervision, especially in the research site.

### **Linguistic Features of Data Presentation and Discussion Chapter**

As indicated above, the analysis of linguistic features in this study is based on three elements of the Transitivity system of functional grammar: Participants, Processes and Circumstances and the use of hedging.

First of all, the participants in this chapter, corresponding to the data about the elements of the chapter revealed above, are mostly relevant to the data and to the participants of the study. This can be seen in the following examples:

Events described in the data (from the novel analysed):

The following data presentation below (Thesis 7)

The events about Montgolfiers (thesis 7)

The issue of espionage (Thesis 7)

The students in class X-1 ... (Thesis 4)

The teacher's questions ... (Thesis 4)

The table, the data above, the table above (Thesis 3)

Participants related to data collection, such as several steps in data collection technique, test, ((Thesis 5).

Teachers, T1, T2 and T3 (Teacher 1,2, and 3) (Thesis 8)

Teachers' feeling, Teachers' personal attitude, students' competence (Thesis 1).

As most writers tend to just describe data, such as what the teacher did in the classroom or what the data looks like, as mentioned above, most participant roles are as actor when the writer describes what was done, or carrier when the writer describes the data or the participants involved in the study. Some participants, including unconscious ones do function as a sayer, with semiotic processes that are not necessarily verbal (*showing, indicating*) (Martin, Mathiessen, and Painter, 1997:108). This, to some extent, indicates the writer's growing capacity to write a more written-like text. However, as the following examples will show, these processes are still to do with the data.

... Table ... shows ...” (Theses 3, 7)

... The teachers agreed (Thesis 1)

Proper names, referring to theorists whose work underpins the study, and define experientially that “there exists only one, at least in the relevant body of knowledge” (Halliday, 1994:189), however, do not frequently occur in each thesis. Proper names, if employed properly and accurately, could help to strengthen the accuracy and precision of arguments and show some CT dispositions and abilities, such as “try to be well-informed”, and “use and mention credible sources”, as mentioned earlier, and it is in this chapter that the writer expresses their strong opinion, sound arguments and judgment by referring to authority (Chaffee et al, 2002).

In terms of types of processes used, related to the participants above, most theses use mostly material processes to describe the participants' action in the process of data collection, or relational processes about the characteristics of the participants. Some verbal processes and relational processes occur in some theses, which indicates the writer's attempt to compare and relate data with previous work/study. This can be seen in the following examples:

... what Perrot (1982) states ... (Thesis 4)

...As mentioned by Perrot ... (Thesis 4)

... Bloom states ... (Thesis 4)

... As stated by Byrne (1995) ... (Thesis 1)

In line with what Heinich (1993) states ...

... As mentioned by opych (2001) (Thesis 3) ...

The use of giving routine is highly related to the notion of scaffolding.. developed by Bruner (*Thesis 8*).

However, compared with the data presented, the number of verbal processes is in general far from sufficient. As this chapter is the place where the writer presents arguments, gives comments and considers the relationship between the data and previous work, this chapter should employ a high number of verbal processes, which constitutes one of the criteria of an

analytical text (Wallace, 2001, Emilia, 2005). The use of verbal processes, like reporting verb (processes) can convince the reader that the argument is both novel and sound (Hyland, 2000:37), consistent with one of the point on critical thinking emphasised in this study. Some theses, like Theses 5, 7, 9 do not have any verbal process with the sayer referring to authority in the field of the study. This, as indicated above, suggests that the writers still need a lot of assistance in considering and comparing data with the existing theory (Swales and Feak, 1994) or to “dialogue to other discourses” (Macken-Horarik, 1997: 88).

Similarly, the use of circumstances is mostly related to the data, such as in “... *in the third meeting... the first meeting, although ... because the learners are clueless... in the clauses ..*”. These circumstances can help enhance the clarity of information about the data, relevant to one of the CT standards focused in this study. Other circumstances, related to an exact place, as *in Paris* (Thesis 7 to describe a story), may have an influential impact on the reader, as they can give “occasions for narrative remembering” (Linde, 2001: 527). However, circumstances indicating information on other research, referring to time and places, are not present, as again, the writers do not make a comparison between their research with others' in other contexts.

Finally, regarding the use of hedging, it is found that hedging is not significantly employed in the theses analysed. The reason is that, as mentioned above, the writers tend to present data, or facts The writers generally use a lot of verb (process) shows when talking about data and this, as Hyland (2002:116) suggests reveals the writer's agreement with a prior statement. This data, again, suggests the importance of explicit guidance to enrich students' linguistic mastery on the impact of the use of each process. Moreover, as it is in this chapter that the writer presents opinion or claims about the data, this chapter should employ hedging optimally to open an ‘evaluative space’ (Thompson and Ye, cited in Hyland, 2002:116) and to show modesty and care (Cooley and Lewkowicz, 2003), which constitute one of characteristics of a critical thinker focused in this study. All these may indicate students' need for assistance in thesis writing and the promotion of the quality of the teaching of writing courses and thesis writing supervision.

## CONCLUSION

This paper has presented a small part of the results of a qualitative case study on investigating students' ability and difficulties in writing an English thesis in one university in Indonesia, based on three

aspects: to do with the elements or the organisation of the chapter, linguistic features, and critical capacity. The paper has particularly centred around data presentation and discussion chapter.

The results reveal that in the discourse semantic level, the students have a good control of the schematic structure, in that the theses have all required elements of a conventional thesis, including abstract, table of contents, acknowledgements, introduction, the literature review, methodology, data presentation and discussion, conclusion and suggestion, bibliography and appendices.

However, results of analyses of the data presentation and discussion chapter in particular do not fully correspond to previous observations on this chapter. The students in general can write the first two elements of the chapter, which are presenting metatextual information and presenting results. However, the students generally seem to struggle to write a cohesive, coherent, analytical and critical discussion element or move. Some students do not make attempt to relate the data to the existing theory at all. Thus, this study, to some degree, supports previous research (Rudestam and Newton, 1992, see also Emilia, 2008) particularly related to the tendency that the writers just describe and present too much data and do not seem to make effort to critically and analytically interpret the data,

to make a comparison with previous work and to consider how data correspond and contribute to the existing theory.

Relevant to the results on the elements of the chapter, the linguistic analyses suggest that the participants employed are mostly as actor and carrier, and the processes are material and relational. Verbal processes with authority of the field as a sayer are not well employed. Finally in terms of the use of hedging, the students, including low, mid and high achievers, seem to need a lot of scaffolding to improve their capacity and confidence in arguing and expressing stance and opinions and making judgment. All these suggest that the quality of supervision, which plays a very significant role in thesis quality enhancement, should be promoted to help students write a successful thesis.

It is thus recommended that all the subjects of writing in the research site should allow students to have the capacity needed in writing a thesis. Training or workshop with lecturers and supervisors should also be conducted to allow all supervisors to have the same understanding of assistance given to the students in writing an English thesis in particular. Finally, more work needs to be done involving more theses and more elements of a thesis and more aspects of thesis writing, as well as the role of supervision, what assistance works well and is needed by the students.

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