

LEXICAL DENSITY V.S. GRAMMATICAL INTRICACY: How Are They Related?

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Abstract

Lexical density and grammatical intricacy are the two devices that should be taken into account in academic writing. The paper aims at explaining how lexical density (LD) and grammatical intricacy (GI) shown in students' academic writing. The data were taken from the introduction section of thesis proposals written by graduate students of *Universitas Negeri Padang*. Based on the data analysis, the level of lexical density was found adequate enough and the level of grammatical intricacy was high. It is slightly different from theories, saying that the lower grammatical intricacy of a text, the higher its lexical density. However, it shows that the level of lexical density decreased because of the number of clause complexes found in the introduction section of the thesis. Moreover, the result of data analysis also showed that there was a significant correlation between lexical density and grammatical intricacy.

Keywords: Lexical density, grammatical intricacy, academic text, introduction section, thesis proposal

Introduction

Writing a well-organised introduction section of a proposal needs the characteristics of written language as well as the knowledge of organizing message. Unlike spoken text, written text has its own complexity revealed from the devices of lexical density (LD) and grammatical intricacy (GI). Halliday and Matthiessen (2004) affirm that written language is normally complex when it has high lexical density. It stores a large amount of lexical items into each clause. On the other hand, spoken language becomes complex by being grammatically intricate. For written text, they further claim that more lexical items need fewer clauses to accommodate, yet they are still part of the whole grammatical structure. Shortly, in writing the first part of the research proposal, the language lexicon is naturally dense with low grammatical intricacy.

The feature of grammatical simplicity characterizes that written language tend to use few clauses per sentence (Halliday 1994). Writing can be more difficult in a language, even in our own language when it has lots of complex clauses. The use of more clause complexes leads to having higher grammatical intricacy text. Then, written texts hav higher lexical density than spoken texts because they have a higher proportion of content words than spoken texts (Stubbs, 2002; Johansson, 2008; To, 2013, and Ure, 1971 in Johansson, 2008). Thus, written texts can be more tightly packed with information.

Many studies about lexicial density and grammatical intricacy in written language have been shown up by applied linguistics researchers. Soepriatmadji (2011) and Vinh To (2017) revealed the result of their studies on textbooks lexical density and grammatical intricacy. The language used in English textbooks for elementary school students of grade 1 to grade 6 indicates appropriate for each level. It means the harmony of LD and IG can be tolerated. While Choudron (2003); Vinh To, et al (2013); Refnaldi (2015) showed that EFL students' writing (paper, abstract) was lexically sparse and grammatically intricate. There seem the use of few numbers of content words per clause, limited number of nominalization, more grammatical complexity with spoken mode. As the result, they are difficult to be understood.

Research proposal as a kind of written text should also be characterized by its LD and GI. To see deeply the LD and GI of students writing of introduction of their proposal is necessary to discuss. How LD and GI related in their English writing may affect the readability of writing.

Literature Review

Thesis proposal as a type of academic text is required higher education students as a guide to

conduct the research. And it is a formal description of a plan to investigate the research problems (Creswell, 2009: 274). Besides, a researcher can visibly state the planned goal of the research (Arikunto (2009: 7). Writing a thesis proposal is, then, obliged to students before they go to the field to conduct a research. As the first step, writing a proposal is required in order to demonstrate that they have a reasonable research plan before being allowed to begin the research. Therefore, a thesis proposal has a significant role. It is a written plan to describe a proposed research by providing clear information about the reasons to conduct the research, what to be researched and how to research.

Meanwhile, the language in academic writing should be concise, clear and straight forward (Soles, 2010: 96; Swales and Feak, 2012: 25). A good writer will avoid using unnecessary words and choose the exact words to deliver the meaning of the writing. Using only sufficient words is very important to express the points. This implies that students should select more precise words to sharpen the ideas instead of using many words and write it in complex way. Then, students need to notice the choice of words they use to produce a good writing.

Grammatical intricacy refers to how often a clause complex appears in a text in comparison with simple clauses. It is accepted that any text has a different level of intricacy (complexity). This is all related to how much information is introduced in a clause complex which can contain more than one simple clause. Classification of clauses (sentences) is applicable to the determination of grammatical intricacy (complexity) of a text. If in a text there are more clause complexes than simple clauses, it can be said that the text is more complex in the sense that it presents more information in a condensed way. Consequently, the learners are potential to encounter problems.

Grammatical intricacy is important to be uncovered because a text is said to be difficult because of the intricacy of information. A simple clause is easier to understand in the sense that the amount of information presented is less than that of a clause complex. In other words, a clause complex as indicated in functional grammar contains more information than a simple clause. To understand the total meaning of a text, the types of clauses in English must be familiar to the students.

It often occurs that students cannot understand a clause complex as they cannot identify the subject and predicate. In fact, no matter how long a clause is, they should be able to recognize the subject and predicate because there two elements of grammar which create certain meanings.

It is commonly known that a clause is actually composed of a proposition. The proposition contains the concepts of relation, events, attributes and things. It means that every clause must have a subject (what is being explained) which is described by showing its relation to other things or events. A person, for instance, can learn English because the language is very important. He then studies it at a course and reads many books to get information. This man as the subject of the sentence should be described in details, which means that there is intricacy of information.

In this case the levels of GI counted by analyzing High and Low level of grammatical intricacy (complexity) of a text. If the number of clause complex is more dominant than simple sentence in a text, it means that the text has high level of GI, and contrary if the number of clause complex is lower than simple sentence, it means that the text has low GI.

The level of intricacy can be found by finding the ratio between the simple clauses and clause complexes in the real analysis, a simple clause may be regarded as consisting subject and predicate. Every type of clauses has a different level of difficulty. This is true of the clauses which contain a different amount of information. Various studies showed that clause complexes, for instance, clause complexes are more difficult to process than simple clauses, reflecting their relatively greater intricacy as defined by (Slobin, 1979: 5). In relation to understanding clauses in a reading text, the levels of knowledge and skill must constantly be called upon in apparently simple and effortless course of understanding the message. Simply, a brief comparison will give more comprehension in analyzing the levels of GI. The texts are taken from different sources.

Theories

Meanwhile, Hanifah and Yusuf (2016), and Vinh To (2017) got different result from their studies on textbooks lexical density and grammatical intricacy. The language used in textbooks shows was appropriate for each level EFL learners. Learners It means the language used is still some of them are difficult.

Academic Text

- narrowly defined set of specialisms and knowledges (Murray, 2005)
- organised patterns
- linguistic features (choice of verb tense and voice, adjectives, noun phrases). Bitchener (2010).
- introduction section of thesis functioning to introduce readers to the thesis

Ure (1971), Halliday (1985), Nunan (1993)

Thompson (1996) in Khamahani (2015), Stubbs (2002), Johansson (2008) in Alami et.al (2013) Richard and Schmidt (2010)

- The proportion of words in a text in order to see how the information in the text is packed.
- the important aspect in academic writing due to the style of language use.
- reflects the word choices and sentence structure in conveying the meaning
- Words: Content words (Nouns, Verbs, Adjectives, and Adverbs)
- Function words (Pronouns, Prepositions, Conjunctions and Determiners)

Grammatical Intricacy

complexity of language

- the proportion of ranking clauses per total number of clause complexes (Halliday, 2008).
- typical in written texts (having lower grammatical intricacy than spoken text (Stubbs, 2002).

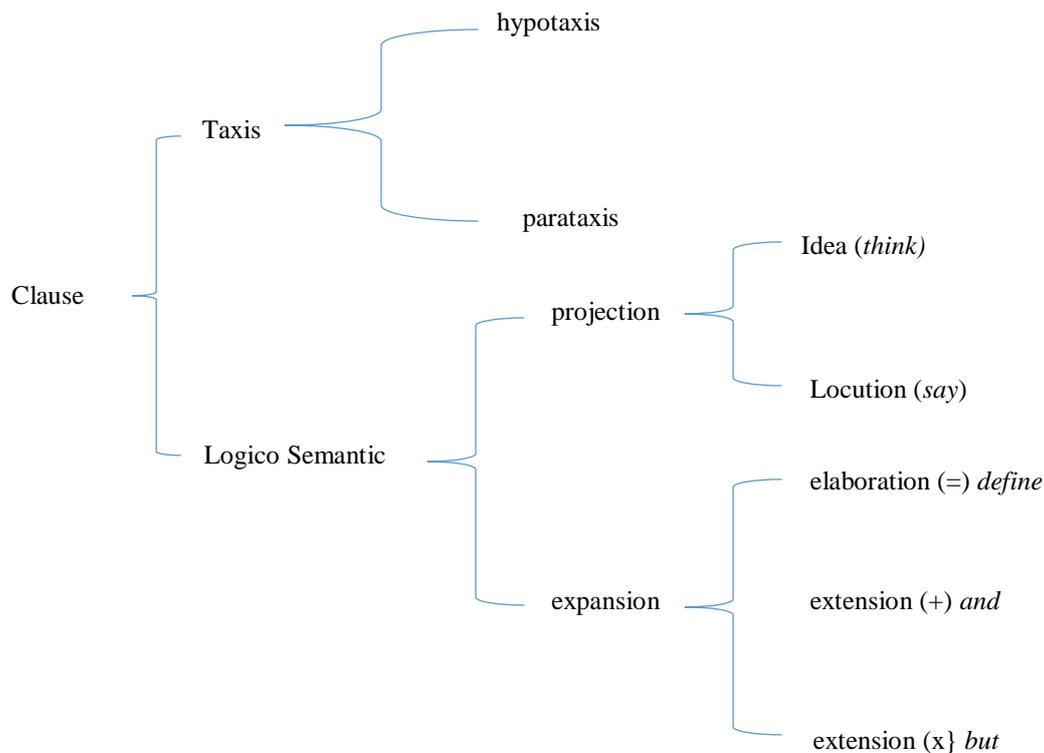


Figure 1. Types of relationship between clauses in the clause complex (based on Halliday and Mithissen, 2004)

Then, Eggins (2004, p. 97) holds that grammatical intricacy relates to the number of clauses per sentence or clause complexes and the means of calculating by expressing the number of clauses in a text as a proportion of the number of sentences in the text. To exemplify, *Andini was absent because she was sick* is more complex than *her absence was caused by her sickness*. The high ratio or level of GI is the indicator of a text to be categorized as a spoken language. It means that high ratio of GI can be used to characterize a text to be in spoken mode.

Method

The paper uses content analysis to seek lexical density and grammatical intricacy of The writer took 21 documents of English graduate students introduction section of the research proposal as the source of the data. They were analysed based on the steps of theory of LD and GI by Halliday (1995) and Ure (1971). The data of this study is the clause complex from the writings of the fourth semester students of English Department of UIN Walisongo. This analysis concentrates on measuring grammatical intricacy of texts as well as on studying the construction of the clauses complex.

Descriptive technique was used to seek lexical density (content words) and grammatical intricacy

(complexity) of the introduction section of thesis proposal written by English graduate students. There were 21 pieces of students' writing as document for analysis. Knowing the lexical density was by using the Ure's theory and grammatical intricacy by using

Measuring Lexical Density

Lexical Density	The number of lexical items	x 100%
	The total words	

Ure, 1971, Halliday, 1985

Eg: *They use monotoneous small group discussion.*

Lexical Density: 5

Measuring Grammatical Intricacy

Grammatical Intricacy	The number of ranking clauses
	The total number of clause complexes

Castello, 2008

Eg: *This kind of test is usually called as standardized test since it is designed by teachers who are qualified and chosen according to their educational background and experiences.*

Findings and Discussion

Table 1. Lexical Density of Students' Writing on Introduction Section of Research Proposal

Doc. No.	No. of Content Words	No. Of Function words	Lexical Density	Level Of Lexical Density
Doc. 1	431	799	53,94	Less Dense
Doc. 2	690	1341	51,45	Less Dense
Doc. 3	328	662	49,55	Not Dense
Doc. 4	711	1375	51,71	Less Dense
Doc. 5	715	1393	51,33	Less Dense
Doc. 6	636	1193	53,31	Less Dense
Doc. 7	458	881	51,99	Less Dense
Doc. 8	567	1154	49,13	Not Dense
Doc. 9	416	825	50,42	Not Dense
Doc. 10	322	598	53,85	Less Dense
Doc. 11	525	1029	51,02	Less Dense
Doc. 12	480	1001	47,95	Not Dense
Doc. 13	367	710	51,69	Less Dense
Doc. 14	607	1328	45,71	Not Dense
Doc. 15	517	1034	50	Not Dense
Doc. 16	697	1265	55,1	Less Dense
Doc. 17	385	786	48,98	Not Dense
Doc. 18	545	1119	48,7	Not Dense
Doc. 19	683	1359	50,26	Not Dense
Doc. 20	375	691	54,27	Less Dense
Doc. 21	844	1711	49,33	Not Dense
Total	11299	22254	1016,38	
Average	538,048	1059,71	48,399	Not Dense

The results of lexical density were classified into several categories based on the classification proposed by the experts (Ure, 1971 in Johansson, 2008). The classifications are:

Table 2. Lexical Density of the Text in the Introduction Section of Students' Thesis Proposal

No.	Range of Lexical Density	Proportion	Percentage (%)
1.	>70%	0	0
2.	61-70 %	0	0
3.	51-60%	17	56.7%
4.	41-50%	13	43.3%
Total		30	100%
Average LD		51.19%	

Note: 41-50% : not dense
 51-60% : less dense
 61-70% : dense
 >70% : very dense

Table 3. Grammatical Intricacy of Students' Writing on Introduction Section of Research Proposal

Data	Total Clauses	Total Sentences	Gramm. Intricacy
Doc 1	75	34	2,21
Doc 2	121	64	1,89
Doc 3	67	28	2,39
Doc 4	107	53	2,02
Doc 5	154	72	2,14
Doc 6	104	50	2,08
Doc 7	97	39	2,49
Doc 8	121	52	2,33
Doc 9	84	43	1,95
Doc 10	57	27	2,11
Doc 11	85	47	1,81
Doc 12	91	48	1,90
Doc 13	76	38	2
Doc 14	107	53	2,02
Doc 15	101	40	2,53
Doc 16	121	49	2,26
Doc 17	122	57	2,14
Doc 18	117	38	3,07
Doc 19	154	54	2,85
Doc 20	110	37	2,97
Doc 21	172	84	2,05
Total	2243	1007	47,21
Average	106,81	47,95	2,25

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Lexical_Density	.088	21	.200*	.978	21	.889
Gramm_Intricacy	.191	21	.044	.879	21	.014

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Product Moment Correlation Analysis

		Lexical_Density	Gramm_Intricacy
LEXICAL_DENSITY	Pearson Correlation	1	.074
	Sig. (2-tailed)		.749
	N	21	21
GRAMMATICAL INTRICACY	Pearson Correlation	.074	1
	Sig. (2-tailed)	.749	
	N	21	21

Interpretasi Output: From the output, the correlation coefficient result is 0,074. Since it tends to be less than 1, it is concluded that the relationship between variable of *lexical density* and *grammatical intricacy* is categorized *weak*. In order to determine their significant relation, significant test. It shows that the result of sig. = 0,749 > 0,05. It can be concluded that no significant correlation between *lexical density* and *grammatical intricacy*.

Description:

- The introduction section of thesis proposal still contains many function words.
- Long and more complex sentences appear in their writing with
- unmatched logico grammar and projection)

Sample 1:

The difficulties of the students in reading can be minimized by the teacher quickly if the teachers use the strategy that appropriate with students' problem in learning process.

The text can be revised as

"Students' difficulties in reading can be minimized if the teachers use appropriate strategy in learning process."

- Repeated words are use instead of various ones, reflecting unsuccessful use of lexical variation.

Sample 2:

"It means that the students who have self regulated learning will take responsibility in improving their writing ability. In order to improve their writing ability, the students should have high self regulating in writing. With high self regulating, the students will be more focus on achieving their goal in learning." (repetition)

- Using common words instead of academic words, such as *thing*.
- students tend to write indirectly and implicitly.

Sample 3:

Even though the teacher did brainstorming technique, it had limited time which was not enough to support the students in writing analytical exposition text.

Conclusion and Recommendation

Lexical density of English graduate students academic writing is categorized *less dense* and its grammatical intricacy is *high*. Their writing is like for the spoken language. English graduate students still have limited knowledge about language use in writing academic text.

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