The Use of Academic Vocabulary in Problem-Solving Essay By Indonesian Efl University Students

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Abstract. For EFL university students, mastering academic vocabulary could be quite challenging as the vocabulary used in academic setting has different equivalents to the vocabulary used in everyday life. Spesific lexicon enables them to navigate the demands of higher education, especially when articulating solutions to multifaced problems. By understanding how EFL university students uses and apply it in actual academic essay writing is crucial to improvement in assessment. This study aims to exploring the usage and application of academic vocabulary in problem-solving essay by Final-year EFL university students using vocabulary profiling tools, rubric scoring, and Pearson Correlation with qualitative interview data. This study has provided comprehensive insights into the use of academic vocabulary by students and their perceptions of its role in academic writing. Research has found that there is a positive correlation between frequency of AWL use dan quality of writing, and this means the result of this positive correlation shows how the use of academic vocabulary and writing quality influence the impact of their assessment.

Keyword: *Application, Usage, Academic, Writing, Vocabulary*

INTRODUCTION

This section could also provide the expected results. The introduction must be written in *Academic writing is one of the most essential skills for university students' success during and beyond their study* (Muhammad, et al. 2023: 7). As writing in academic is required to effective learning in universities, it is needed by students to understand specialized vocabulary for conveying information and discussion (AEUK, 2017). Academic writing generally quite formal, objective, and technical. It means the concept involved how writing is tend to avoiding casual or conversational language, emphasizes objects, facts, and ideas with the sense that is uses spesific vocabulary to the disciplines (University of Sydney, 2025). Academic writing, where students expected to demonstrate clarity and accurate use of vocabulary to convey effectively in writing, plays a crucial role as in a Final-year students who are in their fourth year of study expected to produce more academic English writing as their one of the main academic communications. (Smith, 2025).

For EFL university students, mastering academic vocabulary could be quite challenging as the vocabulary used in academic setting has different equivalents to the vocabulary

used in everyday life. In research conducted by Aldabbus (2022) it was found that graduate and undergraduate students had difficulties choosing appropriate academic words. Mastering spesific lexicon enables them to navigate the demands of higher education, especially when articulating solutions to multifaced problems.

In the writing of problem-solutions essay, the effective deployment of academic vocabulary allows students not only to present logical arguments but also to demonstrate a nuanced understanding of the subject matter, critically analyze issues, and propose well-reasoned solutions (Germanna, 2023). Therefore, examining how indonesian EFL university students utilize academic vocabulary in their problem – solving essays is essential for identifying areas of linguistics challenge and informing more effective pedagogical approaches to enhance their academic writing and ultimately their assesement outcomes. This study aims to exploring the usage and application of academic vocabulary in problem-solving essay by Final-year EFL university students using vocabulary profiling tools, rubric scoring, and Pearson Correlation with qualitative interview data. This study has provided comprehensive insights into the use of academic vocabulary by students and their perceptions of its role in academic writing.

LITERATURE REVIEW

Based on the book written by Flower and Hayes (2007) entitled a cognitive process theory of writing. Writing is a process of a set of distinctive thinking processes which writers has organize during the act of composing. A cognitive process model, represents a major of stages in writing. In writing process, the initial stages is to build a model what the writer wants to see. As model is a metaphor for a process, they are a way to describe something and these describing parts, thinking how ideas could work together.

For universities purposes, the distinction in the process is how writing for academic generally formal, objective (Impersonal), and technical. Formal by avoiding casual language, objective by avoiding direct reference to people or feelings, and technical by using vocabulary specific to the discipline (University of Sydney, 2025). This structural approach aims to understand the application of academic vocabulary in academic writing, especially in problem-solving essay, that required to focuses on identifying specific problems and proposing one or more solutions to those problem (Cerritos College, n.d). needs a specialized set of words to to present logical arguments and demonstrate a nuanced understanding of the subject matter, critically analyze issues, and propose well-reasoned solutions (Germanna, 2023).

In analyzing the usage and application of academic vocabulary, this study analyzed through vocabulary profiling, rubric, and correlation coefficient (pearson's r). Vocabulary profiling is a technique used in linguistics and language education to analyze a text or a body of spoken or written language (a corpus) based on the frequency levels and types of vocabulary (Ahmad, et.al. 2020). Rubric to assess perfomance, as according to the research conduct by Taylor, et al (2024) the use of rubric in higher educational context is vary widely in design and structure, as their intended function and the perception of their use by engaging with them. And correlation, a measure of monotoric association between 2 variables (Schober, et al. 2018). The designed number would tell the strength and direction of a relationship.

METHOD

This study design taken into descriptive correlational mixed-method, encompassing quantified vocabulary use (AntWordProfiler), assessed quality (Rubric), correlation coefficient (pearson's r) and explored perceptions (Interview). This design ways to integrate quantitative and qualitative data of how one database could be used to check accuracy of the other data, could help explain the other database, and could explore to one another (Creswell, 2018). Quantified vocabulary use data is required to gain the frequency of academic vocabulary, in asessed of rubric to scoring the quality of the writing, Correlational, to see the relationship between database, and explore the perceptions of participants to build up the instruments.

This study identified 20 of essay writing samples using the topic about the problematic use of AI at the university level and look at appropriate solutions to overcome these problems with average writing over 200 of words. These samples were taken from final-year students or calculated as a fourth-year, majoring in English Literature at University of 17 August 1945 Surabaya who were writing their thesis drafts as their final project for the course in about 50 minutes.

The texts address This minimum number provides coverage and generalization of the findings. The results of this study provide valuable insights into the academic vocabulary use and academic context of this group at any given time. The results of this study are seen as illustrations of potential trends rather than definitive conclusions about all final year EFL students at the university. This means that this study does not represent all results from all populations of all final year students at Universitas 17 Agustus 1945 Surabaya.

RESULT AND DISCUSSION

This study analyzing the usage and application of academic vocabulary through vocabulary profiling, rubric, and correlation coefficient (pearson's r). It focuses types of words are frequent or categorizing words used in text, asessed of rubric to scoring the quality of the writing, measure relationship between database, and explore the pattern as well as perceptions of participants to build up the instruments.

Vocabulary Profiling

Data taken from 20 students were analyzed using AntWordProfiler. Table 2 shows the percentage of each token coverage of vocabulary of the participants. The analysis of data will be displayed with representative data.

Table 1. Percentage Level of Vocabulary Coverage

	Vocabulary Coverage					
	Total Words	*GSL 1*	*GSL 2*	*AWL*	*Off List*	*Token Coverage*
Student 1	260	83,46%	3,46%	5,77%	7,31%	92,69%
Student 2	305	65,90%	6,56%	18,36%	9,18%	90,82%
Student 3	208	67,79%	11,54%	11,06%	9,62%	90,39%
Student 4	204	75,00%	5,88%	10,29%	8,82%	91,17%
Student 5	204	80,88%	5,39%	6,37%	7,35%	92,64%
Student 6	223	81,61%	6,73%	4,93%	6,73%	93,27%

	Vocabulary Coverage					
	Total Words	GSL 1	GSL 2	AWL	Off List	Token Coverage
Student 7	307	87,62%	4,56%	1,30%	6,51%	93,48%
Student 8	215	68,84%	9,77%	13,44%	7,91%	92,10%
Student 9	217	83,87%	4,61%	3,23%	8,29%	91,71%
Student 10	295	82,03%	7,80%	4,41%	5,76%	94,24%
Student 11	253	79,45%	7,11%	4,74%	8,70%	91,30%
Student 12	256	57,03%	10,16%	19,92%	12,89%	87,11%
Student 13	206	81,07%	5,34%	6,31%	7,20%	92,72%
Student 14	256	79,30%	7,81%	8,20%	4,69%	95,31%
Student 15	200	83,00%	3,00%	5,50%	8,50%	91,50%
Student 16	223	74,89%	9,87%	8,52%	6,73%	93,28%
Student 17	247	81,78%	3,24%	1,62%	13,36%	86,64%
Student 18	190	74,74%	5,79%	8,42%	11,05%	88,95%
Student 19	216	80,56%	6,98%	4,63%	8,33%	91,67%
Student 20	283	79,86%	7,77%	9,54%	2,83%	97,17%

Students showed AWL coverage ranging from 1,3% to 19,92%, with most falling between 5–10%. This suggests varying levels of academic vocabulary use even among final-year students. Further explanation from representative data below:

1) Student 1

The sample includes 260 words, with academic vocabulary use at 5,77%, mainly from AWL (Academic Word List) sublists 4 to 8. This result means that in the 260 words produced in the essay, the students' use of academic vocabulary reached a percentage of 5,77% with sublist levels 4 to 8 from the academic word list.

Academic Writing Quality

Academic writing quality will be analyzed through scoring rubric.

Table 2. Rubric Scoring

	Vocabulary Coverage					
	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6
Student 1	3	2	4	3	2	3
Student 2	3	3	2	2	2	3
Student 3	3	3	3	3	4	4
Student 4	3	3	3	3	3	4
Student 5	2	2	3	3	2	2
Student 6	3	3	4	4	4	4
Student 7	1	1	2	1	2	2
Student 8	4	4	4	4	4	4
Student 9	2	1	3	1	2	3
Student 10	4	4	4	4	4	3
Student 11	4	3	3	3	2	4
Student 12	4	4	4	3	4	3
Student 13	1	3	4	1	2	4

	Vocabulary Coverage					
	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6
Student 14	4	3	3	3	3	4
Student 15	3	2	2	3	2	3
Student 16	3	3	3	2	2	3
Student 17	2	3	2	2	2	2
Student 18	3	3	3	2	2	3
Student 19	3	3	3	3	3	3
Student 20	3	3	3	3	3	3

The results of the criteria above reveal the first results in terms of writing quality; the grading assessment has six criterions with one to four grading categories (poor to excellent). These results will be followed by the weighting of the scores.

1) Student 1

Criteria	Score (1–4)	Score	Weight	Weighted Score
Range of Academic Vocabulary	3	75	25%	75 × 0,25 = 18,75
Accuracy of Vocabulary Usage	2	50	20%	50 × 0,20 = 10,00
Relevance to Topic	4	100	15%	100 × 0,15 = 15,00
Word Choice and Collocation	3	75	15%	75 × 0,15 = 11,25
Integration and Fluency	2	50	15%	50 × 0,15 = 7,50
Mechanics and Spelling	3	75	10%	75 × 0,10 = 7,50

Total Weighted Score = 18,75 + 10,00 + 15,00 + 11,25 + 7,50 + 7,50 = **70.00**

Quality = Fair

Each criterion has a different point scale, which is multiplied by the weight score. The multiplied weight score is added together, and the total result gives the quality score for the writing. A score of 70 is considered as fair quality. The highlights of quality writing performance provide a foundation for analyzing how vocabulary use correlates with writing quality. This step shifting to categorization based on achievement levels. achievement levels is selected as a variable that developed by a broadly representative panel of teachers, education specialist, and members of the general public. The policy definitions are; Basic, proficient, and advanced (NCES, n.d).

Table 3. Achievement Levels Categorization

	Vocabulary Coverage		
	Student ID	Frequency of AWL	Rubric Score
	S02	18,36%	63,75
	S03	11,06%	81,25
	S04	10,29%	77,50
	S08	13,44%	100,00
	S12	19,92%	93,75
	S01	5,77%	70,00
	S05	6,37%	63,75
	S13	6,31%	57,50
	S14	8,20%	83,75
	S15	5,50%	62,50

	Vocabulary Coverage	
Student ID	*Frequency of AWL*	*Rubric Score*
S16	8,52%	67,50
S18	8,42%	67,50
S18	8,42%	67,50
S20	9,54%	75,00
S06	4,93%	88,75
S07	1,30%	42,50
S09	3,23%	47,50
S10	4,41%	97,50
S11	4,74%	80,00

Based on this rubric, and consistent with the qualitative descriptors for each score level, writing samples were categorized as 'Poor quality' (Below 60), 'Fair Quality' (60 – 74), 'Good Quality' (75 – 89), and 'Excellent Quality' (90 – 100). These ranges align with comprehensive assessment of various writing attributes, including range of academic vocabulary, accuracy of vocabulary usage, relevance to topic, word choice and collocations, integration and fluency, mechanics and spelling. As a representative analysis, samples were taken from the sixth student with Academic Word List Coverage of 4.93% and a rubric score of 88.75. This falls into the basic level of vocabulary, as the use of academic words was only around 4.93% despite the good quality of the writing. The analysis looked at and measured their use of vocabulary.

Correlation between Academic Vocabulary Application and Writing Quality

Pearson's Correlations

Variable		Frequency of AWL	Rubric Score
1. Frequency of AWL	Pearson's r	—	
	p-value	—	
2. Rubric Score	Pearson's r	0.458*	—
	p-value	0.042	—

* p < .05, ** p < .01, *** p < .001

Figure 1 Correlation of Variable

Table structured shows colums of variable, frequency of AWL, and rubric score. The first variable (Frequency of Academic Word List) and second variable (Rubric Score). Pearson's r = 0,458* the value is positive (+0,458), which means there is positive relationship. This indicates that as the "frequency of Academic Word List" (academic vocabulary usage) increases, as the rubric score (writing quality) increases. A value 0,458 is generally considered a moderate to moderately strong positive correlation. p-value = 0,042 means there is 4,2% chance of observing a correlation, this correlation is considered stastistically significant.

Academic Vocabulary pattern and Perceptions

This section explores how, where, and why the pattern of academic vocabualry is used across essay with final-year EFL students' perception to have an understanding of their comprehension of academic vocabulary. Drawing primarily from interview, this section will unveil the thematic patterns related to students' understanding of and retention of academic vocabulary.

The classification of patterns in student essay data shows significant distinction. Patterns in students at the basic achievement level certainly have a much greater dominance of informal language, even though they have equivalent exposure to academic vocabulary, but their usage differs. Advance ability students perceive academic vocabulary as a tool for clearer and more formal expression, while basic ability readers may perceive such language as an adaptation to the application depending on their adjustment to the needs. Academic writing to fulfill a relevant academic context requires broaden range of academic vocabulary, therefore could conveying complex ideas with precision and formality. Their views on the role of academic vocabulary delve deeper to how advanced proficiency level concieve. The cause is while adaptation is needed, academic writing require student to expressing the formality and write down the argumentative clearer. Active exposure to academic vocabulary also influences students' ability to use it. students with advanced abilities have a broad academic vocabulary because they are exposed to it more often in class and in formal assignments, *"I don't actively learn outside the class, but I tend to learn academic vocabulary through my readings and assignments."* This enables students with advanced abilities to actively learn on educational scale, allowing them to gain new academic vocabulary by studying its meaning and usage.

CONCLUSION

This study aims to exploring the usage and application of academic vocabulary in problem-solving essay by Final – year EFL university students, using vocabulary profiling tools, rubric scoring, and pearson correlation with qualitative interview data. Research found through frequency and quality some final-year students demonstrate a strong grasp of academic vocabulary; others still struggle to integrate formal lexical consistently across essay section. The varying extent of academic word list use reflects differences not only in vocabulary knowledge but also in awareness of academic discourse conventions. In addition, there is a positive correlation between frequency of academic word list use dan quality of writing, and this means the result of this positive correlation shows how the use of academic vocabulary and writing quality influence the impact of their assessment. Pattern and perceptions of students reveal distinction and this show how their exposure to academic vocabulary could result in different assessment of their essay writing.

Suggestions

This study only covers the measurement of academic vocabulary usage among Final-year university students. The pattern and perceptions of students in the existing analysis do not fully cover the shortcomings. In the future studies, researcher can further investigate the patterns essay pattern on specific genre of EFL university students to gain a deeper understanding of how their essay writing pattern can have a further impact on their writing assessment results. Perceptions and strategies in essay writing are also needed in future

research with long-term observation to see the significant influence and specific methods on each student could bring different results in their assessment.

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