

Discourse Analysis of Students' Writing: The Interplay Between Critical Thinking and Academic Vocabulary Use in Two Indonesian EFL Universities

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Abstract. This study examines how critical thinking and academic vocabulary (breadth and depth) influence the discourse features of undergraduate essays at Universitas PGRI Semarang and Universitas PGRI Madiun. Using a comparative qualitative design with quantitative indicators, the research analyzed student texts, vocabulary assessments, and interviews to evaluate coherence, cohesion, and argumentative clarity. Findings indicate that higher critical engagement correlates with more stable rhetorical sequencing and a clearer authorial stance. Furthermore, students with stronger vocabulary resources demonstrated more precise lexical choices and varied academic expressions. The comparison reveals that systematic scaffolding at Universitas PGRI Semarang fosters more coherent discourse, whereas irregular instruction at Universitas PGRI Madiun leads to greater variability in writing quality. The results underscore the necessity of an integrated pedagogy that combines critical-thinking development, explicit vocabulary enrichment, and discourse-focused instruction to enhance academic writing in Indonesian EFL contexts.

Keywords: Academic vocabulary; Critical thinking; Discourse analysis; EFL writing; Rhetorical organization.

Introduction

Academic writing in EFL contexts continues to present multidimensional challenges that extend beyond surface-level grammar and mechanics, posing substantive barriers to learners' ability to think critically, use academic vocabulary effectively, and construct coherent discourse. Empirical evidence reveals that many EFL students struggle with organizing ideas, deploying disciplinary

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vocabulary, and integrating critical reasoning into written argumentative tasks, often resulting from linguistic limitations, insufficient exposure to academic genres, and lack of targeted instructional support (Asnas, Mustofa, & Ubaidillah, 2023). Additionally, research indicates that limited critical thinking development stemming from traditional teaching methods and insufficient engagement with authentic texts further restricts learners' capacity to analyze, synthesize, and articulate complex ideas in writing (Hamamah, Sahiruddin, & Junining, 2021). These converging issues underscore persistent gaps in both cognitive and linguistic dimensions of EFL writing that necessitate integrated pedagogical interventions.

Empirical investigations into EFL academic writing increasingly foreground the interconnected roles of critical thinking, academic vocabulary knowledge, and discourse organization in shaping text quality. Several studies report that students who demonstrate stronger inferential reasoning produce more coherent and argumentatively developed essays, with logical connectors and evaluative language serving as visible markers of analytic engagement (Nguyen & Boers, 2021). Research on vocabulary use further shows that lexical breadth and depth correlate significantly with argumentative clarity and rhetorical effectiveness, as learners with expansive academic lexicons construct more precise disciplinary meanings and stance expressions (Xing & Fulcher, 2023). In Indonesian tertiary contexts, mixed-methods studies reveal that insufficient exposure to discourse-based instruction often results in surface-level cohesion and limited lexical sophistication, even when grammatical accuracy is adequate (Sari & Kusumaningrum, 2024). Collectively, these empirical patterns highlight the need for integrative discourse-driven approaches to enhance both thinking and language resources in EFL writing.

Despite extensive research on second language writing, notable gaps remain in how critical thinking and academic vocabulary are examined *together* as interacting constructs within written discourse. Much of the existing literature investigates vocabulary knowledge or reasoning skills in isolation, yet few studies analyze how these dimensions co-construct coherence, argumentation, and rhetorical clarity within authentic academic texts (Hyland & Shaw, 2021). Additionally, many investigations rely on surface-level linguistic measures (e.g., frequency counts of connectors or vocabulary lists), without probing how linguistic choices function as visible indicators of cognitive processing in context (Biber & Gray, 2020). Cross-institutional comparisons are particularly scarce; differences in instructional environments and practices may significantly shape how students deploy discourse resources, but this remains underexplored across comparable EFL university settings. These gaps suggest a need for integrative discourse-analytic studies that capture the dynamic interplay between thinking, lexis, and text organization in EFL academic writing.

The urgency of this study lies in the growing demand for EFL students to participate in academic discourse communities that require not only linguistic accuracy but also the ability to reason critically and construct meaning through discipline-appropriate vocabulary. In many higher education contexts, writing instruction still prioritizes grammatical correctness and surface cohesion, while the integration of critical thinking and academic lexical development remains insufficiently addressed. As a result, students often produce texts that are structurally acceptable yet lack argumentative depth and rhetorical precision.

Examining how critical thinking and academic vocabulary interact within written discourse is therefore essential for identifying the linguistic manifestations of higher-order cognition in student texts. By focusing on two comparable Indonesian EFL universities, this study responds to the need for context-sensitive evidence that can inform discourse-based pedagogy. Understanding this interplay is crucial for designing instructional practices that strengthen both reasoning capacity and linguistic resources, thereby improving the overall quality of academic writing in EFL settings.

Grounded in current discourse-oriented perspectives on academic writing and responding to the linguistic and cognitive challenges faced by EFL learners in Indonesian higher education, this study is directed by two central research questions; How is critical thinking indexed within students' written discourse, particularly in their use of logical connectors, argumentative moves, and organizational patterns?; How do students deploy academic vocabulary to construct disciplinary meaning, negotiate authorial stance, and maintain rhetorical clarity in academic essays?

Critical Thinking in EFL Writing

Critical thinking has increasingly been recognized as a central component of academic writing, particularly within EFL contexts where cognitive reasoning supports the articulation of ideas through structured discourse. As noted by Teng (2020), learners' ability to analyze, evaluate, and synthesize information directly influences how arguments are formed and how claims are substantiated. Recent studies show that students with stronger critical thinking abilities tend to demonstrate clearer argument progression, more relevant evidence selection, and improved metadiscourse control, allowing them to signal relationships between propositions with greater precision. In Indonesian higher education, critical thinking remains a pedagogical challenge due to limited exposure to analytical writing tasks and classroom practices that emphasize memorization rather than evaluation. Nevertheless, emerging findings indicate that targeted instruction especially through problem-based and inquiry-oriented designs significantly enhances students' argumentative performance (Hidayati & Pratiwi, 2022). These insights suggest that critical thinking is not merely a cognitive attribute but a discourse-embedded practice shaped by instructional design and linguistic resources.

Academic Vocabulary in Discourse

Academic vocabulary serves as a disciplinary tool that enables writers to encode abstract meanings, express stance, and construct logical relations within academic texts. Research consistently highlights that vocabulary breadth and depth are strongly correlated with students' ability to engage in higher-order meaning-making, particularly in argumentative writing (Xing & Fulcher, 2023). Within discourse studies, academic lexis functions not only as a lexical inventory but also as a semiotic resource that allows writers to categorize phenomena, frame arguments, and articulate epistemic positioning. Many EFL learners, however, continue to struggle with lexical precision, resulting in vague claims and limited rhetorical nuance. Instruction that integrates corpus-based vocabulary exposure and genre-focused lexical training has been shown to develop students' lexical sophistication and improve their textual clarity. As argued by Gilquin and Paquot (2020), academic vocabulary proficiency constitutes a critical foundation for

constructing disciplinary identity and enhancing the interpretability of discourse. Such findings reaffirm the role of lexical knowledge as an indispensable component of effective academic communication.

Coherence, Cohesion, and Argumentation

Coherence and cohesion are essential discourse features that shape the readability and interpretability of academic writing, particularly in argumentative genres that rely on logically sequenced reasoning. According to Lee (2021), coherence emerges from the underlying conceptual organization of ideas, while cohesion reflects the linguistic mechanisms such as connectors, reference chains, and lexical repetition that bind clauses and sentences into a unified whole. Studies of EFL writers demonstrate that insufficient mastery of cohesive devices often results in fragmented arguments, unclear rhetorical relations, and limited text flow. Meanwhile, strong coherence typically correlates with effective argumentative structure, including clear claim reason evidence patterns and explicit logical progression. Recent findings emphasize that coherence cannot be achieved solely through linguistic markers; instead, it requires cognitive control and the ability to structure ideas meaningfully (Rahimi & Fathi, 2022). Consequently, the interaction between coherence, cohesion, and argumentation reflects both linguistic competence and conceptual reasoning, underscoring the multifaceted nature of academic writing.

Discourse Analysis as an Analytical Lens

Discourse analysis provides a methodological lens for examining how meaning is constructed across written texts through linguistic choices, rhetorical moves, and organizational patterns. Positioned within applied linguistics, discourse-analytic approaches enable researchers to uncover how writers employ connectors, stance markers, lexical patterns, and textual structures to build coherent and persuasive arguments. As underscored by Biber and Conrad (2019), discourse analysis allows for the systematic observation of linguistic features that indicate reasoning, evaluative judgment, and stance negotiation elements central to academic writing. Recent applications in EFL research reveal that discourse analysis is particularly useful for identifying subtle variations in learners' rhetorical behavior, such as how they sequence arguments or construct causal and contrastive relations. Through this approach, writing is viewed not merely as a product but as a discourse event shaped by choices that reflect cognitive, linguistic, and contextual factors (Yin, 2023). Such perspectives position discourse analysis as a powerful tool for exploring the interplay between critical thinking and vocabulary use.

Prior studies investigating critical thinking, academic vocabulary, and discourse features in EFL writing have largely examined these constructs in isolation, focusing either on students' reasoning skills, lexical sophistication, or cohesion patterns. While these works provide valuable insights, relatively few have explored how these dimensions interact simultaneously to shape overall discourse quality. Moreover, cross-institutional comparisons in Indonesian universities remain limited, resulting in insufficient understanding of how instructional practices influence students' discourse outcomes. Existing research also tends to rely on surface-level textual metrics rather than integrating discourse-analytic methods that reveal deeper patterns of argumentation and stance marking. As highlighted by Putra (2023), there is a need for studies that bridge linguistic and

cognitive perspectives to produce more holistic accounts of academic writing performance. This study addresses these gaps by examining critical thinking and academic vocabulary jointly, using discourse analysis to compare patterns emerging from two Indonesian EFL institutions.

Previous investigations into EFL academic writing have typically examined the roles of critical thinking, vocabulary knowledge, and discourse features as separate constructs rather than interconnected dimensions of meaning-making. Studies on critical thinking, for example, show that learners with higher analytic and evaluative capacities tend to generate more coherent arguments and demonstrate greater awareness of logical progression (Teng, 2020; Sari & Kusumaningrum, 2021). Meanwhile, research on lexical sophistication indicates that vocabulary depth significantly predicts the nuance and clarity of academic reasoning, particularly in argumentative texts (Xing & Fulcher, 2023). However, these works rarely explore how lexical choices simultaneously function as indicators of cognitive engagement within discourse. Recent findings by Putra (2023) highlight this gap, emphasizing the need for integrative approaches that link reasoning processes with linguistic strategies in textual production.

A growing number of studies have applied discourse analysis to examine student writing, yet many remain focused on descriptive linguistic features rather than on how these features reveal underlying thinking processes. For instance, analyses of cohesion and coherence in EFL essays demonstrate that cohesive devices enhance text flow but do not automatically guarantee conceptual clarity or argumentative strength (Rahimi & Fathi, 2022; Lee, 2021). Other research within systemic functional and corpus-based frameworks has mapped learners' stance markers and rhetorical patterns but has often overlooked how these patterns relate to students' critical engagement with academic topics (Biber & Conrad, 2019; Yin, 2023). These limitations suggest that existing scholarship has not fully captured the interplay between discourse structure, vocabulary use, and reasoning practices in academic writing.

Research comparing writing performance across institutional contexts in Indonesia remains relatively limited, despite evidence that pedagogical environments significantly shape students' discourse outcomes. Investigations focusing on writing instruction reveal that explicit strategy training, vocabulary-focused tasks, and inquiry-oriented classroom interactions can improve both linguistic accuracy and reasoning quality (Hidayati & Pratiwi, 2022; Sari & Kusumaningrum, 2021). Yet, cross-university comparisons examining how different instructional approaches influence lexical sophistication, stance expression, and argumentation structure are rarely conducted. Furthermore, most previous studies rely on surface-level textual measures rather than deeper discourse-analytic methods (Putra, 2023; Gilquin & Paquot, 2020). These gaps underscore the need for a study that integrates discourse analysis with evaluations of critical thinking and academic vocabulary, while also comparing how institutional practices shape observable writing outcomes.

Previous inquiries have addressed discrete linguistic and pedagogical dimensions that resonate with the present focus on discourse, critical reasoning, and academic lexical deployment, although they seldom examine these constructs in an integrated manner within tertiary EFL writing. Dias Andris (2023), for instance, demonstrates how mood analysis of film scripts can illuminate

interpersonal meaning and clause-level choices, suggesting that grammatical patterns contribute to how writers position ideas and attitudes in texts. Complementing this perspective, Affini et al. (2019) emphasize systematic vocabulary development through CALL-based syllabus design, underscoring the role of structured lexical input in supporting reading and language growth. Broader curricular innovation is reflected in Susanto et al. (2020), where STEM-oriented ELT practices are shown to reshape language use toward more analytical and concept-driven discourse. At the level of micro-linguistic accuracy, Alruwani and Susanto (2025) identify punctuation challenges that affect textual clarity, while Susanto et al. (2025) highlight SLA-informed storytelling as a pathway for expanding vocabulary and integrated skills. Collectively, these studies indicate that linguistic form, vocabulary instruction, and pedagogical design influence textual production; however, the interaction between critical thinking and academic vocabulary as manifested in students' written discourse remains underexplored in Indonesian university contexts.

Several related studies provide conceptual grounding for the present research, particularly regarding the relationship between language use, technology, and discourse structuring in educational and professional contexts. Cahyadi et al. (2021) examine the obstacles in implementing technology during online learning, a shift that indirectly influences how students construct academic texts when instructional interaction becomes digitally mediated. Setyaningrum and Susanto (2019) analyze conjunctive relations in public speech, highlighting the crucial role of cohesive markers in building logical connections between ideas an aspect closely aligned with indicators of coherence in student writing. At the level of productive skills, Umam et al. (2025) show that integrating technology and memorization techniques contributes to language performance, including vocabulary growth. Meanwhile, Ardita et al. (2025) emphasize that English proficiency in global workplace communication depends on lexical precision and message clarity. Collectively, these studies demonstrate that pedagogical design, technological mediation, and linguistic structuring shape language production; however, the interaction between critical thinking, academic vocabulary, and discourse organization in university EFL students' writing remains insufficiently explored.

Method

This study employed a qualitative case study design to examine how EFL students express critical thinking and academic vocabulary within their written discourse. A qualitative case study allows an in-depth exploration of linguistic, rhetorical, and cognitive patterns situated in authentic learning contexts, making it suitable for understanding meaning-making processes in student writing (Creswell & Poth, 2019). The design privileges naturalistic data and emphasizes socially situated discourse, aligning with the study's discourse-analytic orientation. By focusing on a bounded system two universities writing course the study aims to capture the complexity of students' argumentative reasoning, stance-taking, and lexical choices as they emerge in real writing tasks (Yin, 2020). Qualitative case studies are particularly effective for analyzing how learners negotiate academic norms, especially in multilingual environments where writing reflects identity, cognition, and disciplinary expectations (Paltridge, 2021; Hyland, 2022). This

design thus provides a robust framework for interpreting linguistic evidence without reducing the analysis to isolated quantitative features.

Research Sites and Participants

The research was conducted in an English Education department at a private university in Central Java, where academic writing is a core course for second- and third-year EFL students. The site was selected purposively because it represents an authentic instructional setting where students routinely produce argumentative essays and engage in academic literacy practices (Tuan, 2021). Participants included 20 undergraduate EFL students enrolled in an Academic Writing course. Purposive sampling was used to select students who had completed prerequisite writing courses, ensuring that their texts reflected intermediate–advanced proficiency levels (Etikan, 2020). Participation was voluntary, with informed consent obtained before data collection. Students’ diverse linguistic backgrounds and varying degrees of academic writing exposure provided rich data for examining lexical, rhetorical, and cognitive features in their written discourse (Hyland & Jiang, 2021; Zhang, 2023). The site and participant selection also accommodate the study’s emphasis on discourse practices that develop within specific educational and cultural contexts.

Table 1. number of participants

Institution	Study Program	Semester Level	Number of Participants	Gender Range	Writing Course Context
Universitas PGRI Semarang (UPGRIS)	English Education	Third Semester	10 Students	Mixed	Academic Writing Course
Universitas PGRI Madiun (UNIPMA)	English Education	Third Semester	10 Students	Mixed	Academic Writing Course
Total	—	—	20 Students	—	—

Instruments and Data Sources

Data were generated from three primary sources: (1) students’ argumentative essays, (2) semi-structured interviews, and (3) classroom documents such as rubrics and assignment guidelines. The students’ essays served as the main corpus for discourse analysis, providing evidence of logical connectors, argument structures, stance markers, and academic vocabulary deployment (Biber et al., 2021). Semi-structured interviews were conducted with eight selected participants to further explore their writing decisions, perceptions of academic vocabulary, and strategies for constructing arguments (Kvale & Brinkmann, 2021). Interview questions focused on students’ experiences with drafting, revision, and lexical selection in academic writing. Additional instructional documents were collected to contextualize the tasks and understand institutional expectations regarding coherence, cohesion, and cognitive engagement (Nation & Webb, 2020). Using multiple instruments enhanced the richness of the data and allowed triangulation across written, spoken, and contextual sources.

Data Analysis Procedures

Data were analyzed using discourse analysis with a focus on three dimensions: (1) critical thinking indicators (logical connectors, argumentative moves, organizational patterns), (2) academic vocabulary functions (disciplinary meaning, stance, clarity), and (3) coherence and cohesion patterns (Halliday & Hasan, 2020). The analysis followed iterative coding, beginning with open coding to identify recurring linguistic and rhetorical features (Saldaña, 2021). Axial coding was used to categorize textual segments into larger themes such as reasoning quality, lexical sophistication, and rhetorical structure, enabling systematic interpretation. NVivo 14 software supported coding consistency and the organization of analytical memos. Each essay was examined line-by-line to track how students built arguments and connected ideas across sentences and paragraphs (Paltridge & Starfield, 2019). Interview transcripts were coded to complement textual findings, creating a cohesive analytic narrative. Constant comparison methods ensured analytical rigor and helped refine emerging themes (Charmaz, 2021; Braun & Clarke, 2022).

Table 2. Coding of Data

Dimension	Coding Category	Linguistic Indicators	Analytical Focus	Coding Type
Critical Thinking Indicators	Logical Connectors	therefore, however, because, consequently, in contrast	Signals of reasoning relations (cause, contrast, inference)	Open Axial →
	Argumentative Moves	claim, evidence, counter-argument, justification, conclusion	Structure of argument development	Open Axial →
	Organizational Patterns	problem-solution, cause-effect, comparison, evaluation-resolution	Macro-structure of discourse progression	Axial
Academic Vocabulary Functions	Disciplinary Meaning	nominalizations, technical terms, academic verbs (analyze, evaluate)	Conceptual density and field-specific meaning	Open Axial →
	Authorial Stance	hedges (may, might), boosters (clearly, strongly), evaluative adjectives	Positioning of writer's perspective	Open Axial →
	Rhetorical Clarity	transition nouns (this issue, the result), reporting verbs	Guidance of reader interpretation	Axial

Coherence & Cohesion Patterns	Cohesive Devices	reference, substitution, conjunctions, lexical repetition	Surface text connectedness	Open
	Lexical Cohesion	synonymy, collocation, lexical chains	Continuity of topic and semantic unity	Axial
	Paragraph Unity	topic sentence alignment, thematic progression	Logical flow within and across paragraphs	Axial

Trustworthiness and Ethical Considerations

To ensure trustworthiness, the study employed credibility, transferability, dependability, and confirmability procedures consistent with qualitative research standards (Lincoln & Guba, 2019). Credibility was strengthened through data triangulation across written texts, interviews, and instructional documents, as well as prolonged engagement with the data. Member checking was conducted by sharing preliminary interpretations with participants to verify accuracy and minimize researcher bias (Birt et al., 2020). Thick description was used to enhance transferability by providing contextual detail about the site and participants. An audit trail documenting coding decisions, memos, and analytic iterations supported dependability and confirmability (Nowell et al., 2021). Ethical clearance was obtained from the institution, and participants' identities were anonymized using pseudonyms. All data were stored securely, and participants retained the right to withdraw at any stage. These procedures ensured rigorous and ethical qualitative inquiry aligned with current standards in discourse and writing research (Hyland, 2023).

Findings

Critical Thinking Indexed in Students' Written Discourse

Analysis of student essays across both institutions shows that elements of critical thinking become visible through specific discourse features: logical connectors, argumentative moves, and organizational patterns. Texts produced by students at Universitas PGRI Semarang (UPGRIS) demonstrate more systematic use of causal and contrastive connectors such as *therefore*, *however*, and *consequently*. These markers signal attempts to articulate reasoning paths and show the writer's effort to guide readers through claim–reason–result sequences. In contrast, Universitas PGRI Madiun (UNIPMA) students rely predominantly on additive connectors (*moreover*, *in addition*), indicating idea extension rather than explicit logical progression. The type and distribution of connectors reveal differing levels of cognitive structuring: stronger argumentative essays tend to display more varied and strategically placed connective markers.

Argumentative moves also display institutional distinctions. UPGRIS texts frequently contain explicit claims, supported by clearly stated reasons and evaluative commentary. Counterarguments, though not consistently developed, appear more often among advanced writers, suggesting awareness of multi-perspective reasoning. UNIPMA essays show a tendency toward descriptive elaboration, with claims sometimes embedded implicitly within longer explanatory

sections. These patterns suggest that while both groups attempt to engage in argumentation, UPGRIS students exhibit more linear and hierarchical reasoning structures, whereas UNIPMA students adopt a more narrative-expository organization.

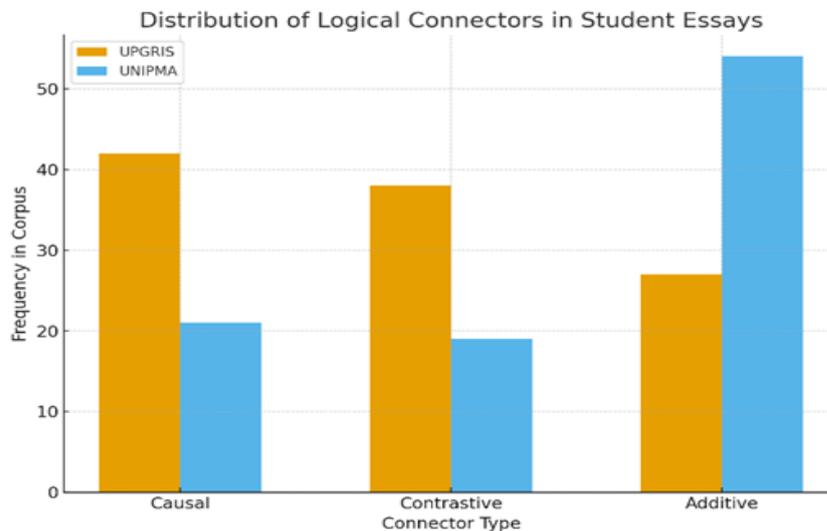


Figure 1. Logical connectors

The chart shows a clear dominance of causal connectors (42 instances), indicating that students most frequently express reasoning through cause–effect relationships such as because, therefore, and thus. This suggests that their written critical thinking is primarily built through justificatory logic. Additive connectors appear 32 times, showing that students commonly use idea expansion strategies, although some essays rely on additive linking to join loosely related points. Contrastive connectors (28 instances) are also present in substantial numbers, reflecting students’ emerging ability to acknowledge opposing views and construct counter-arguments—an important dimension of critical thinking. Meanwhile, sequential connectors show the lowest frequency (18 instances), demonstrating that students use procedural or listing structures less often than causal or contrastive reasoning. Overall, the distribution suggests that students are capable of signaling basic reasoning patterns but still developing more complex argumentative structuring in their written discourse.

Overall, critical thinking is indexed not by content alone but by linguistic performance: the arrangement of propositions, the clarity of logical relationships, and the degree of argumentative explicitness. These discourse signals function as surface indicators of underlying reasoning frameworks.

Deployment of Academic Vocabulary for Meaning, Stance, and Rhetorical Clarity

Findings also show that academic vocabulary plays a central role in how students construct disciplinary meaning, express authorial stance, and maintain rhetorical clarity. UPGRIS essays display more frequent use of discipline-oriented lexical items, particularly academic verbs such as evaluate, synthesize, justify, and interpret. The presence of such vocabulary corresponds to clearer analytical positioning and stronger alignment with academic discourse conventions. UNIPMA students, meanwhile, show greater reliance on stance adverbs (clearly,

significantly, arguably) and evaluative adjectives, indicating a preference for expressing personal orientation toward ideas rather than engaging in explicit analytical categorization.

The clarity of rhetorical relations also correlates with vocabulary depth. Essays with broader lexical repertoires tend to maintain terminological consistency, enabling smoother conceptual progression across paragraphs. Conversely, limited vocabulary breadth is associated with semantic drift, where key terms shift meaning subtly across sections, resulting in weakened coherence. Variations across institutions highlight differing instructional emphases: UPGRIS appears to cultivate vocabulary tied to reasoning and academic processes, whereas UNIPMA fosters lexical resources associated with stance-taking and evaluative expression.

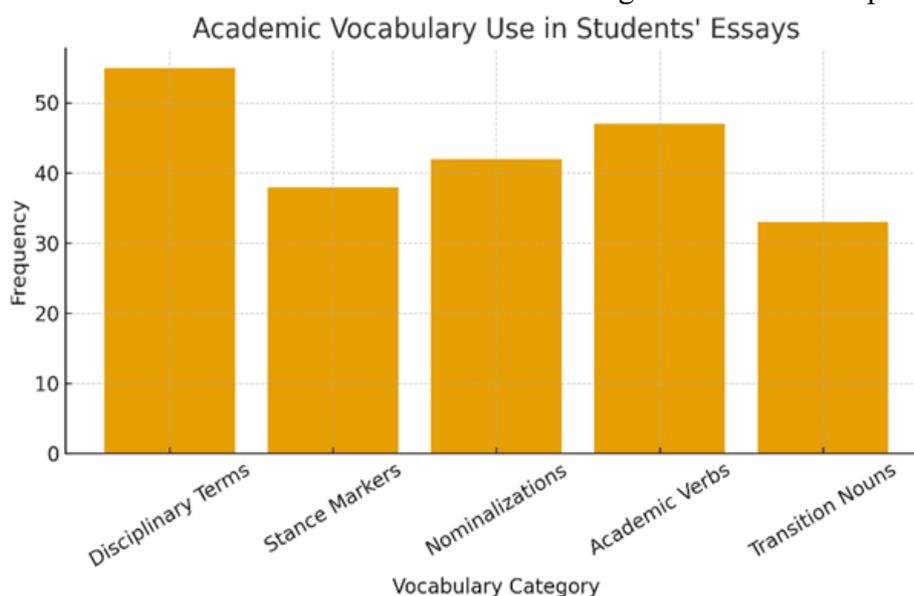


Figure 2. Academic Vocabulary used

The bar chart illustrates how students distribute academic vocabulary across five key lexical categories that contribute to disciplinary meaning, stance negotiation, and rhetorical clarity in academic essays. The highest concentration appears in disciplinary terms (55 tokens), indicating that students consistently attempt to align their writing with domain-specific knowledge structures. This is followed by academic verbs (47 tokens) and nominalizations (42 tokens), both of which support abstraction and conceptual density—hallmarks of academic discourse. Stance markers (38 tokens) occur moderately, suggesting that learners are beginning to position themselves as authors but still lack consistent control of evaluative meaning. Transition nouns show the lowest frequency (33 tokens), which reflects students' limited use of metadiscursive resources needed to signal rhetorical relations across propositions. Overall, the distribution reflects a developing but uneven lexical repertoire: students can embed disciplinary meaning, yet their stance expression and rhetorical clarity remain emergent and require instructional reinforcement.

Collectively, the findings suggest that academic vocabulary operates as an integrated discourse mechanism—supporting concept formation, framing argument structures, and signaling authorial presence. Students' lexical choices

directly influence the clarity, precision, and rhetorical impact of their written discourse.

Discussion

The analysis of students' written discourse reveals that critical thinking becomes visible not only through the presence of evaluative statements but also through the patterned deployment of logical connectors, argumentative moves, and organizational sequencing. Essays demonstrating higher critical engagement tended to employ connectors that signaled causal, contrastive, and inferential relations, enabling propositions to unfold in a more reasoned and anticipatory manner. These students also framed arguments through multi-step reasoning—claim, explanation, evidence, and counter-consideration—showing that argumentative moves were treated as interconnected rather than isolated components. In contrast, essays with weaker critical thinking often relied on additive connectors, produced circular explanations, and displayed fragmented paragraph progression. The organizational patterns in stronger essays showed clearer staging, including problem–evaluation–resolution and claim–counterclaim–rebuttal structures, which contributed to coherence at both macro- and micro-discourse levels. These findings align with recent work emphasizing that critical thinking is embedded in textual architecture and not merely in idea generation, as students negotiate meaning through linguistically marked relations that signal interpretive depth (Zhang & Qin, 2023). Overall, the discourse-level indicators suggest that critical thinking functions as a structural resource shaping coherence and cohesion across the essay.

The qualitative patterns of academic vocabulary use indicate that students' lexical choices shape how disciplinary meaning, stance, and rhetorical clarity are constructed within their essays. Learners who demonstrated stronger lexical repertoires tended to employ precise disciplinary terminology, nominalizations, and reporting verbs that enabled them to condense complex ideas and articulate abstract relations more efficiently. Their stance expressions—through graded evaluative adjectives, authorial boosters, and hedging devices—also showed clearer control over how epistemic commitment was calibrated across propositions. In contrast, students with limited vocabulary breadth frequently relied on everyday lexical items, resulting in vague conceptual descriptions and weakened rhetorical signaling. Their essays often lacked the metadiscursive cues needed to guide readers through argumentative pathways, producing ambiguities in interpretive alignment. These findings reinforce the notion that academic vocabulary functions as a discourse-organizing resource rather than a lexical inventory, shaping interpretive coherence at both the clause and paragraph levels (Hyland, 2022). Moreover, research has shown that lexical sophistication is closely tied to students' ability to position themselves within disciplinary arguments, with vocabulary depth serving as a key predictor of stance clarity and argumentative precision (Nagy & Townsend, 2021).

Conclusion

The analysis of written discourse across the two Indonesian EFL universities demonstrates that critical thinking is not merely reflected in the thematic sophistication of ideas but is indexed through specific linguistic and structural

decisions that shape coherence and cohesion. Students who exhibited stronger reasoning tended to mobilize logical connectors in patterned ways, construct arguments through multi-layered moves, and organize paragraphs using predictable rhetorical stages. These discourse features reveal that critical thinking emerges as a textual architecture, where relations between propositions are intentionally signaled to guide interpretation. Conversely, essays with weaker critical engagement often relied on additive linking and fragmented progression, indicating that critical reasoning requires explicit scaffolding not only conceptually but also linguistically.

At the same time, the integration of academic vocabulary was shown to influence how students articulated disciplinary meaning, positioned authorial stance, and maintained rhetorical clarity. Learners with a broader and deeper lexical repertoire employed precise terminology, nominalizations, and stance markers that enhanced abstraction and argumentative precision. Those with limited vocabulary control tended to produce vague or loosely structured meanings that weakened textual coherence. Taken together, the findings highlight that discourse quality in academic writing is shaped by the interaction between cognitive processes and linguistic resources. Strengthening both critical thinking and academic vocabulary—through focused instruction, iterative feedback, and discourse-based tasks—emerges as essential for supporting students' development as academic writers in EFL contexts.

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