



A Cross-Linguistic Comparison of Hedging Density Across Sections in Academic Research Articles

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Abstract

In academic writing, hedging is a key rhetorical strategy that allows researchers to express caution and manage claims with appropriate nuance. This study investigates hedging practices in Applied Linguistics research articles written by Indonesian and Native English authors. Using a corpus of 20 articles (10 per group) totaling approximately 100,000 words, the analysis focuses on hedging density, distribution across Introduction, Methods, Results, and Discussion sections, and types of hedging devices used. Native English authors employ significantly more hedging devices (859 total) than Indonesian authors (365 total), especially modal and epistemic verbs. Both groups hedge most in the Introduction and Discussion sections, with statistically significant higher hedging densities among Native English writers in these parts, while the Methods section exhibits the least hedging for both. Indonesian authors favor approximators as hedging devices, indicating cultural preference for indirect lexical softening, contrasted with the more explicit grammatical hedging by Native English authors. These results highlight distinct cultural rhetorical preferences and suggest that academic writing pedagogy for Indonesian scholars should incorporate modal and epistemic verb strategies to better align with international norms.

Keywords: Hedging, Academic Writing, Cross-Linguistic Comparison, IMRD Structure, Applied Linguistics

Introduction

Academic writing is not merely a neutral reporting of facts; it is a complex rhetorical act of constructing knowledge, negotiating claims, and persuading an expert audience. A fundamental strategy in this process is hedging—a suite of linguistic devices that writers use to express uncertainty, caution, and openness to alternative viewpoints (Hyland, 1998; Lakoff, 1973). For example, writers often use modal verbs like *may*, *might*, *could* or verbs such as *suggest*, *indicate* to soften claims. By mitigating the force of statements, hedges allow researchers to present

propositions as opinions rather than unequivocal facts, thereby protecting themselves from potential criticism and aligning with scientific norms that value precision, humility, and collegiality (Myers, 1989). The strategic use of hedges is thus a marker of sophisticated communicative competence and plays a crucial role in gaining acceptance within disciplinary communities (Hyland, 2005).

While the importance of hedging is well recognized, its use varies considerably across disciplines and cultural backgrounds (Hyland, 1998; Varttala, 2001; Clyne, 1987; Mauranen, 1993). Contrastive rhetoric research has shown that writers from different linguistic and cultural backgrounds, especially those writing in English as an Additional Language (EAL), may employ hedging differently, sometimes leading to perceptions of overconfidence or directness in international publications (Blagojević, 2004; Hu & Cao, 2011).

A notable limitation in much prior research is the treatment of the research article (RA) as a monolithic genre. It is now widely accepted that RAs are structured into distinct sections (IMRD: Introduction, Methods, Results, Discussion), each serving unique rhetorical functions (Swales, 1990, 2004). The rhetorical necessity for hedging fluctuates across these sections: hedging tends to be dense in the Discussion, where claims are interpreted, but sparse in the Methods, which describe procedures factually (Liu & Tseng, 2021). Many studies analyze either isolated sections or aggregate entire articles, overlooking section-specific hedging patterns. This methodological shortfall represents a significant gap in the field.

In addition, cross-cultural research focusing specifically on Indonesian academic writing in applied linguistics remains limited. Indonesian academic discourse, shaped by unique rhetorical traditions and a growing scholarly community, offers valuable insights into how local linguistic-cultural norms interact with global academic English practices. This study addresses these gaps using a detailed, section-sensitive comparison of hedging across a corpus of 20 applied linguistics research articles (10 Indonesian, 10 Native English), covering all major RA sections. This fine-grained approach moves beyond broad comparisons to examine hedging density and device types within each section, uncovering nuanced linguistic and rhetorical patterns.

The research addresses three questions: (1) What is the overall hedging density in Indonesian versus Native English applied linguistics articles? (2) How does hedging vary across RA sections in each group? (3) What are the similarities and differences in hedging device preferences? By contextualizing hedging as a situated rhetorical strategy, this study provides a nuanced understanding of cultural variation in academic writing. Its findings offer valuable pedagogical guidance for English for Academic Purposes (EAP), particularly for Indonesian scholars pursuing international publication, and contribute a refined analytic framework for sectional and cross-cultural rhetoric research.

Literature Review

The theoretical foundation of hedging was laid by (Lakoff, 1973), who initially

defined hedges as "words whose job is to make things fuzzier." This concept was swiftly recognized as crucial for academic discourse. Hyland (1998, 2005), now a central figure in the field, expanded this definition significantly by framing hedging not just as a lexical phenomenon but as a vital rhetorical strategy. He argued that writers use hedges to withhold complete commitment to a proposition, allowing them to present claims with the necessary precision, humility, and diplomatic caution required within scholarly communities.

The primary functions of this strategic tentativeness are now well-established. First, hedging serves an epistemic function by expressing uncertainty and acknowledging the limitations of knowledge, thereby reflecting the inherent tentativeness of scientific inquiry (Hyland, 1998; Varttala, 2001). Second, it performs a critical interpersonal function by mitigating the force of statements; this protects the writer's face by avoiding dogmatism and shows respect for the reader's potential opposing views, making it a key tool for building a persuasive and collegial relationship (Myers, 1989). Finally, hedging fulfills a strategic function by enabling writers to conform to the discursive conventions of their specific discipline, which dictate how knowledge claims must be packaged to be accepted (Salager-Meyer, 1994).

While numerous taxonomies exist to categorize hedging devices, this study adopts an integrated model primarily drawn from the work of Hyland (1998) and Salager-Meyer (1994), as it allows for a nuanced analysis of both grammatical form and pragmatic function. The main analytical categories utilized include: lexical verbs (e.g., *suggest, indicate, speculate, assume*); epistemic modal verbs (e.g., *may, might, could, would*); epistemic adjectives and adverbs (e.g., *possible, probable, likely, approximately, somewhat*); nominalizations (e.g., *assumption, possibility, tendency*); approximators (e.g., *generally, often, in most cases*); introductory phrases (e.g., *We believe that, It is our view that*); if-clauses (e.g., *If this is the case, ...*); and compound hedges, which are combinations of the above (e.g., *It may suggest that..., This could possibly mean...*).

A significant body of contrastive rhetoric has identified hedging as a major site of pragmatic difference between languages. Clyne (1987) and Mauranen (1993) were pioneers, showing that German and Finnish academics, respectively, often employed a more direct, less mitigated rhetorical style in English that could be misinterpreted by Anglo-American audiences.

Subsequent studies have reinforced this. Blagojević (2004) found that Serbian academics used significantly fewer hedges in their English RAs than native speakers. Conversely, Hu and Cao (2011), comparing Chinese and English RAs in applied linguistics, found that while Chinese writers used a similar overall number of hedges, they over-relied on a narrower range of devices (particularly modal verbs like *may* and *can*), leading to a less rhetorically sophisticated style. These studies point to a transfer of L1 rhetorical norms, where the cultural and linguistic conventions of a writer's first language influence their writing in a second language, even when grammatical accuracy is high.

The IMRD structure is not just an organizational template but a reflection of different rhetorical activities. Peacock's (2006) seminal study of 80 RAs across eight disciplines provided robust empirical evidence that hedging frequency varies systematically across sections. He found the highest density in Discussion sections, where writers interpret results and make claims, followed by Introductions, where they establish a niche for their research. Methods sections consistently showed the lowest hedging density, as they describe actions taken rather than interpret findings.

This sectional variation has been confirmed in numerous discipline-specific studies (e.g., Rahman, 2025; Liu & Tseng, 2021; Zare, 2015). However, a critical gap remains: few cross-linguistic studies have incorporated this sectional lens. They often compare "whole articles to whole articles" or focus on a single section (like the Discussion), thereby missing potential nuanced differences in how writers from different linguacultural backgrounds strategically deploy hedges to accomplish the specific rhetorical goals of each section.

Research on Indonesian academic rhetoric, particularly in applied linguistics, is limited. Preliminary studies and contrastive rhetoric theory (e.g., Connor, 1996) suggest that traditional Indonesian communication styles can value harmony, indirectness, and a collective orientation, which may influence rhetorical patterns. However, it is unclear how these norms translate into modern Indonesian academic writing, which is also shaped by global (often Anglo-American) academic conventions. This study posits that Indonesian academic writing may demonstrate a unique hedging profile, different from both direct and indirect stereotypes, shaped by the tension between local rhetorical traditions and the demands of international disciplinary discourse.

In summary, while hedging is a well-researched phenomenon, this study addresses a specific confluence of gaps, namely the lack of cross-linguistic studies that explicitly compare sectional variation in hedging and the scarcity of research focusing on Indonesian academic writing in this context; by investigating hedging density and device types across all four IMRD sections in both Indonesian and English research articles, this study aims to provide a more granular and accurate understanding of how linguacultural background influences this critical rhetorical strategy.

Method

This study employed a corpus-based, comparative quantitative design to investigate the differential use of hedging strategies across the IMRD sections of academic research articles written by Indonesian and native English-speaking authors in applied linguistics.

Corpus Construction

A specialized corpus of 20 research articles was compiled for this study according to stringent criteria to ensure comparability: all articles were empirical

research papers in Applied Linguistics employing a standard IMRD structure, sourced from reputable peer-reviewed journals. The Native English Corpus (NE) consisted of 10 articles from leading international journals (e.g., *Applied Linguistics*, *TESOL Quarterly*) published between 2021 and 2024, where all first authors had Anglophone affiliations and names. The Indonesian Corpus (ID) consisted of 10 articles from nationally accredited Indonesian journals (e.g., *Indonesian Journal of Applied Linguistics*, *TEFLIN Journal*) from the same time period, all written in English by authors with Indonesian affiliations. The articles were selected using stratified sampling to ensure representation of each IMRD section.

Table 1: Corpus Composition

Corpus	No. of RAs	Approx. Total Words	Time Frame	Language
Native English (NE)	10	49,570	2021-2024	English
Indonesian (ID)	10	49,000	2021-2024	English

Identification Procedure

For the text Preparation, the IMRD sections of each article were digitally separated into four plain text files (.txt) using a standardized naming convention (e.g., RA01_Intro.txt). Combined sections (e.g., Results & Discussion) were excluded from the analysis to maintain the integrity of the IMRD structure. The next step is analytical framework consisting The identification of hedging devices was guided by Hyland's (1998) taxonomy, which includes categories such as modal verbs (e.g., *may*, *could*), epistemic verbs (e.g., *suggest*, *indicate*), epistemic adjectives/adverbs (e.g., *possible*, *likely*, *approximately*), and approximators (e.g., *generally*, *often*).

This step is followed by Identification Procedure including a dual-phase identification process was employed, using AntConc (Version 4.2.4, Anthony, 2022) as a supportive tool to enhance the accuracy and efficiency of the manual analysis. A predefined list of potential hedging items (e.g., *suggest*, *may*, *possible*, *likely*) was used to generate concordance lines for each item. This function was invaluable for quickly locating all instances of these target forms across the entire corpus. Primary Manual Annotation and Contextual Analysis: The concordance lines generated by AntConc were exported and served as the basis for the primary research activity: meticulous manual reading and contextual analysis. Each instance identified by the software was examined in its extended context to determine its pragmatic function. Crucially, only those instances that served a genuine hedging function in their specific discursive context were tagged and counted. This step was essential to eliminate false positives (e.g., *may* indicating permission, *can* indicating ability) and to identify hedges that may not have been on the initial search list.

To enhance coding reliability, two trained coders independently annotated 20%

of the corpus. Cohen's kappa coefficient was calculated, yielding an agreement of 0.87, indicating strong reliability. Manual annotation took approximately four weeks, reflecting the detailed reading and contextual validation required.

To allow for comparison across texts of different lengths, the frequency of confirmed hedging devices was normalized per 1,000 words for each section and for the entire article, using the word count functionality also provided by AntConc. The following equation is used to calculate hedging density:

$$\text{Hedging Density} = \left(\frac{\text{Total Confirmed Hedges in Text}}{\text{Total Words in Text}} \right) * 1000$$

Data Analysis

The data analysis was conducted to answer each research question using the following statistical measures: For RQ1 (Overall Hedging Density): The mean hedging density (hedges per 1,000 words) was calculated for the entire Native English (NE) corpus and the entire Indonesian (ID) corpus. An independent samples t-test was applied to determine if the difference in overall means was statistically significant. For RQ2 (Sectional Variation), hedging density was calculated separately for each IMRD section (Introduction, Methods, Results, Discussion) within each corpus.

To analyze the differences several steps were done including descriptive statistics (Means) were computed for each section in each group. A two-way Analysis of Variance (ANOVA) is then used to investigate the interaction effect between the two independent variables—author group (NE vs. ID) and article section (I, M, R, D)—on the dependent variable, hedging density. Then Post-hoc tests (e.g., Tukey HSD) were conducted to identify which specific sectional differences within and between groups were statistically significant.

For RQ3 (Types of Devices), the manually tagged hedges were classified into the categories of Hyland's (1998) taxonomy. The frequency and proportional use (% of total hedges) of each category were calculated for each corpus. A qualitative analysis of concordance lines was then conducted to illustrate the pragmatic functions and rhetorical consequences of the different device choices, explaining the finding.

Results

This section presents the findings of the comparative corpus analysis of hedging in Indonesian (ID) and Native English (NE) Applied Linguistics research articles. Results are organized around three research questions: (1) overall hedging density, (2) distribution across IMRD sections, and (3) the types of hedging devices preferred by each group. Statistical analyses include independent-samples t-tests, two-way ANOVA, effect sizes, and Tukey HSD comparisons.

The Overall Hedging Density

A total of 365 hedges were identified in the Indonesian corpus and 859 in the Native English corpus. Table 1 provides an overview of hedging frequency by article section.

Table 2. Total Count of Hedging Devices

Section	Hedging Type	10 Indonesian Articles	10 Native Articles
Introduction	all hedge types	92	247
Method	all hedge types	4	65
Results	all hedge types	88	142
Discussion	all hedge types	181	341
Total Hedges		365	859

Across all sections, Native English writers employed more than twice as many hedges as Indonesian writers. This difference reflects a substantially higher tendency among NE authors to qualify claims, particularly in interpretive contexts such as the Introduction and Discussion.

Table 3. Comparasion of Hedging Devices Across Sections

Hedging Types	Introduction		Method		Discussion		Results	
	IA	NA	IA	NA	IA	NA	IA	NA
Modal Verbs	33	138	2	27	26	89	69	170
Epistemic Verbs	15	65	1	18	24	74	66	118
Epistemic Adj/Adv	14	25	0	9	7	18	20	30
Approximators	30	19	1	11	31	21	26	27

Table 3 compares the distribution of hedging types across the four main sections of IA (Indonesian Article) and NA (Native Article) research articles. Overall, NA consistently employ hedging devices more frequently than IA, particularly in modal and epistemic verbs, indicating a stronger tendency among native writers to express caution and manage claims explicitly. In contrast, IA show a comparatively heavier reliance on approximators in several sections, suggesting a preference for softening statements indirectly rather than through modalized or epistemic constructions.

Across sections, both groups display the highest concentration of hedging in the Discussion and Introduction, reflecting the need to justify claims, acknowledge limitations, and position findings cautiously. However, NA demonstrate a more pronounced escalation of hedging in these interpretive sections, whereas IA show a more uneven distribution, with notably sparse hedging in the Method section. This pattern suggests that native writers maintain a more consistent rhetorical stance across the research article, while Indonesian writers vary their hedging density depending on section demands.

To evaluate whether the mean hedging use differs significantly between the two groups, a t-test was conducted using aggregated counts per article (Table 4).

Table 4. Comparasion of Hedging Devices Counts

	Indonesian Article	Native Article
Mean	22,8125	53,6875
Variance	436,2958333	2533,829167
Observation	16	16
Pooled Variance	1485,0625	
Hyphoththesized Mean Difference	0	
df	30	
T Stat	12,26610273	
P(T<=T) one-tail	0,015410491	
T Critical one-tail	1,697260887	
P(T<=T) two-tail	0,030820981	
T Critical one-tail	2,042272456	

The difference in mean hedging counts between groups is statistically significant ($p = .0308$) with a large effect size ($d = 1.41$). Beyond statistical significance, the magnitude of difference suggests a practically meaningful divergence in rhetorical norms: NE authors rely much more heavily on hedging to signal tentativeness and stance.

Sectional Variation in Hedging Density

The analysis of hedging density across the Introduction, Methods, Results, and Discussion (IMRD) sections in Indonesian and Native English applied linguistics research articles reveals interesting patterns. The two-way ANOVA showed significant main effects for both the type of article section and author group on hedging density, indicating that these factors influence how frequently hedging devices are used. Hedging was not evenly distributed across the IMRD structure. Table 5 presents the descriptive statistics.

Table 5. Mean Hedging Density (per 1,000 words) by Section

Section	Indonesian Corpus (M)	Native English Corpus (M)
Introduction	23	61.75
Methods	1	16.25
Results	22	50.5
Discussion	45,25	86.25

Mean hedging density was highest in the Discussion and Introduction sections for both groups, with Native English authors using considerably more hedging per 1,000 words than Indonesian authors in these sections. For example, in the

Introduction, Native English articles averaged 61.75 hedges per 1,000 words while Indonesian articles averaged 23.00. Similarly, the Discussion section showed Native English at 86.25 and Indonesian at 45.25, both areas where hedging serves to position claims cautiously and interpret results with appropriate tentativeness.

In contrast, the methods section had the lowest hedging densities overall, reflecting the convention of objective, factual reporting. Here, Native English articles averaged 16.25 hedges per 1,000 words, significantly higher than the Indonesian average of just 1.00, but both groups showed considerably less hedging than in other sections. The Results section fell in-between, with Native English articles averaging 50.50 and Indonesian articles 22.00 hedges per 1,000 words, showing moderate hedging to soften interpretations of data. The following table 6 Showed two-way anova result regarding the sectional variation between Indonesian versus Native English writer.

Table 6. Two-Way ANNOVA Analysis of Sectional Variation in Hedging Density

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F (F-ratio)	P-value	F critical
Row (Article Section)	3309.81	3	1103.27	15.98	0.0238	9.28
Column (Author Group)	1906.53	1	1906.53	27.61	0.0134	10.13
Error	207.16	3	69.05			
Total	5423.50	7				

The Two-Way ANOVA summary table provides key information about how hedging density is affected by two categorical independent variables: author group (Indonesian vs. Native English) and article section (Introduction, Methods, Results, Discussion). The ANOVA partitions the total variability in hedging density into components attributable to (1) differences between article sections, (2) differences between author groups, and (3) residual error.

The Article Section (Row) Effect shows the sum of squares is 3309.81 with 3 degrees of freedom, resulting in a mean square of 1103.27. This yields an F-ratio of 15.98 and a p-value of 0.0238, which is less than 0.05, indicating that hedging density significantly varies across the four article sections regardless of author group.

The Author Group (Column) Effect displays The sum of squares is 1906.53 with 1 degree of freedom, mean square 1906.53, and F-ratio 27.61 with a p-value of 0.0134. This shows a significant difference in overall hedging density between Indonesian and Native English authors.

The Error (Residual) demonstrates The residual variance, represented by

207.16 sum of squares and 3 degrees of freedom (mean square 69.05), accounts for unexplained variability. The F Critical Values shows For the article section effect, the critical F is 9.28; for author group, it is 10.13. The observed F values exceed these thresholds, reinforcing the significance of these factors.

In summary, The two-way ANOVA showed significant interaction between group and section. These factors independently and significantly contribute to variability in the data, reflecting differences in rhetorical strategies between sections and cultural writing conventions between author groups. Table 7 supplies the pairwise comparison to identify the differences of hedging density.

Table 7. Post-Hoc Tukey HSD Pairwise Comparisons (Statistically Significant Differences) of Hedging Density

Comparison Type	Section	Mean Difference (NE - ID)	Significance (p < 0.05)	Interpretation
Between Groups (NE vs ID)	Introduction	61.75 - 23.00 = 38.75	Yes	Native use significantly more hedging in Intro
Between Groups (NE vs ID)	Methods	16.25 - 1.00 = 15.25	No	No significant difference in Methods section
Between Groups (NE vs ID)	Results	50.50 - 22.00 = 28.50	No	No significant difference in Results section
Between Groups (NE vs ID)	Discussion	86.25 - 45.25 = 41.00	Yes	Native use significantly more hedging in Discussion
Within Groups (Indonesian)	Introduction vs Methods	23.00 - 1.00 = 22.00	Yes	Significant difference in Indonesian sections
Within Groups (Indonesian)	Introduction vs Results	23.00 - 22.00 = 1.00	No	No significance within Indonesian
Within Groups (Indonesian)	Introduction vs Discussion	23.00 - 45.25 = -22.25	Yes	Discussion has significantly more hedging
Within Groups (Native English)	Introduction vs Methods	61.75 - 16.25 = 45.50	Yes	Significant difference in NE sections
Within Groups (Native English)	Introduction vs Results	61.75 - 50.50 = 11.25	No	No significance between Intro & Results

Within Groups (Native English)	Introduction vs Discussion	61.75 86.25 24.50	- = -	Yes	Discussion significantly higher hedging
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Post-hoc tests confirmed that differences in Introduction and Discussion were statistically significant ($p < .05$), while Methods and Results were not. Examples show the interpretive functions of hedging in these sections:

Introduction (NE): *"It is possible that learner agency plays a critical role"* (RA03_Intro).

Introduction (ID): *"This study is believed to provide useful insights"* (RA09_Intro).

Discussion (NE): *"These findings could suggest a shift in classroom dynamics"* (RA14_Discussion).

These excerpts reinforce that both groups hedge heavily in interpretive sections but with different stylistic preferences.

Types of Hedging Devices

Based on the analysis of the manually tagged hedging devices classified following Hyland's (1998) taxonomy, the comparison between the two author groups—Indonesian (ID) and Native English (NE)—reveals both similarities and distinct preferences in hedging strategies.

Table 8. The Distribution of Hedging Types

Category	Indonesian Articles (Count)	Indonesian Articles (%)	Native English Articles (Count)	Native English Articles (%)
Modal Verbs	150	41.1%	420	48.9%
Epistemic Verbs	70	19.2%	185	21.5%
Epistemic Adjectives/Adverbs	45	12.3%	90	10.5%
Approximators	75	20.5%	85	9.9%
Others (e.g., Conditionals)	25	6.9%	40	9.1%
Total	365	100%	860	100%

Examples further clarify these tendencies:

Modal verbs (NE): *"The data may reflect broader institutional practices"* (RA06_Discussion).

Modal verbs (ID): *"The students could improve with more exposure"* (RA15_Discussion).

Epistemic verbs (NE): *"These results suggest a complex relationship"* (RA10_Results).

Discussion

This study examined the hedging practices of Indonesian (ID) and Native English (NE) authors in Applied Linguistics research articles and revealed systematic differences across groups, sections, and hedging types. Overall, the findings show that NE writers employ hedging more frequently and more grammatically, whereas Indonesian writers rely more on lexical softening. These patterns reflect both disciplinary norms and culturally conditioned rhetorical preferences. The discussion below addresses the three research questions in turn while situating the findings within broader intercultural and disciplinary writing practices.

The Hedging Density

First, concerning the overall hedging density (RQ1), the results demonstrate that NE authors employ hedging devices nearly two and a half times more frequently than Indonesian authors (859 vs. 365 total hedges). This statistically significant difference of t-test $p = 0.0308$ echoes extant research establishing that English academic writing conventionally foregrounds hedging as a key interpersonal and rhetorical resource to express caution, politeness, and epistemic modality (Hyland, 1998; Livytska, 2019).

By contrast, Indonesian authors rely more heavily on lexical approximators (e.g., some, several), which function as indirect lexical softenings rather than overt grammatical markers. This finding corresponds with Rahman et al (2025) observation that Indonesian academic discourse tends to express politeness and caution lexically rather than grammatically, reflective of broader sociocultural communication styles privileging indirectness and modesty. The preference for approximators in Indonesian RAs, particularly in Introduction and Results sections, thus situates these authors within a cultural rhetorical framework that values subtlety and deference more than the frequently explicit hedges found in NE texts.

The Method section, as expected, contains the fewest hedging devices for both groups. Native writers still use more modal verbs (27 vs. 2) and epistemic verbs (18 vs. 1) than Indonesians, reflecting a more cautious stance in detailing methodology. Indonesian authors use almost no epistemic adjectives/adverbs or approximators in Methods, whereas these appear moderately in native texts. In the Results section, native writers again rely more heavily on modal verbs (89 vs. 26) and epistemic verbs (74 vs. 24), indicating a greater tendency to hedge interpretations of data findings. Indonesian authors use more approximators (31) than native writers (21), consistent with their preference for lexical softeners.

The Discussion section, the most hedged section overall, shows a broad difference in hedge counts. Native writers use modal verbs 170 times and epistemic verbs 118, substantially more than Indonesians who use 69 modal verbs and 66 epistemic verb. Epistemic adjectives/adverbs and approximators are also somewhat more frequent in natives' discussions.

Overall, this quantification confirms that Native academic articles employ

hedging devices more densely, especially modal and epistemic verbs, across all sections, highlighting a stronger rhetorical strategy to express caution and avoid overstatement. Indonesian articles employ more approximators, particularly in the Introduction and Results, reflecting a cultural preference for indirectness in softening claims. Both groups hedge least in Methods, but native writers still show more hedging here. The Discussion section is the heaviest hedged, signalling both groups recognize its interpretive sensitivity.

This consistent difference supports the view that Native English academic writing in this field is characterized by more frequent hedging, expressing greater cautiousness or politeness in claims. Indonesian articles tend to hedge less often in comparison. Excerpts illustrate the tendency toward denser hedging in the NE corpus:

NE: *"This may indicate broader pedagogical implications"* (RA07_Discussion).

ID: *"Some students experienced difficulties in applying the strategy"* (RA12_Results).

These examples highlight how NE writers frequently rely on modal verbs (*may indicate*), whereas ID writers lean on approximators (*some students*).

Sectional Variation

Second, the sectional variation of hedging density (RQ2) highlights that both ID and NE authors hedge most densely in the Discussion and Introduction sections—sections inherently interpretive and dialogic in academic articles. This concurs with Hyland's (1998) and Livytska's (2019) findings that hedging peaks where writers make interpretive claims or frame the significance of findings, reflecting the rhetorical sensitivity and negotiation of knowledge claims in these parts. The significantly greater hedging density by NE authors in these sections, confirmed by post-hoc Tukey analyses, underscores the stronger rhetorical convention among English-speaking scholars to manage claim strength explicitly via frequent hedging (Hyland, 1998; Mur-Dueñas, 2021).

The low hedging rates in Methods for both groups mirror norms of objectivity and factual reporting well documented in academic writing research (Livytska, 2019). However, the comparatively higher hedging in NE Methods sections suggests a more cautious stance even in this ostensibly factual part, aligning with practices found in international English academic discourse (Hyland, 2004). The two-way ANOVA results support these sectional differences as statistically robust. This nuanced understanding of the interaction between section and cultural norms accords with broader cross-cultural rhetoric research demonstrating that disciplinary conventions intersect dynamically with cultural-specific rhetorical styles (Kozubíková Šandová, 2020; Sanjaya, 2013).

The post-hoc Tukey HSD pairwise comparisons reveal significant differences in hedging density between Native English (NE) and Indonesian (ID) academic texts, particularly in the Introduction and Discussion sections. Specifically, NE writers use significantly more hedging than their Indonesian counterparts in both the Introduction (mean difference = 38.75, $p < .05$) and

Discussion (mean difference = 41.00, $p < .05$) sections. In contrast, no significant differences were found in the Methods and Results sections.

Within-group comparisons further illustrate distinctive hedging patterns. Indonesian texts show a significant increase in hedging density from Introduction to Discussion (mean difference = -22.25, $p < .05$) and between Introduction and Methods (mean difference = 22.00, $p < .05$), indicating greater hedging in interpretive sections. Similarly, Native English texts display significantly more hedging in the Discussion than in Introduction (mean difference = -24.50, $p < .05$) and much less in Methods compared to Introduction (mean difference = 45.50, $p < .05$). However, no significant difference exists between Introduction and Results sections for either group.

Hedging Devices Types

Third, the investigation into types of hedging devices used (RQ3) reveals native English (NE) writers favored modal verbs as their primary hedging tool. These include modal auxiliaries such as *may*, *can*, *could*, and *might*, which function to signal possibility and reduce assertiveness. The frequent use of modals allows NE authors to maintain a cautious stance while presenting arguments, showing an awareness of the provisional nature of knowledge claims common in applied linguistics research (Hyland, 1998; Wang & Tatiana, 2016). Epistemic verbs like *suggest*, *indicate*, and *appear* also figure prominently in NE texts, especially in the Discussion and Results sections where interpreting findings requires rhetorical softness. This preference aligns well with international academic writing conventions emphasizing nuanced, probabilistic claims.

Indonesian authors, while employing modal and epistemic verbs, predominantly utilize approximators which soften claims lexically rather than grammatically, a feature consonant with politeness and indirectness valued in Indonesian and broader Southeast Asian academic cultures (Rahman, 2025; Sanjaya, 2013). The lower frequency of epistemic adjectives and adverbs among Indonesian RAs further underscores a linguistic style privileging lexical hedging over grammatical marking.

This lexical strategy aligns with findings by Kozubíková Šandová (2020) and Wang & Tatiana (2016) that non-native academic writing often adapts hedging forms to mitigate tentativeness more subtly, reflecting divergent cultural approaches to authorial stance and politeness. Qualitative concordance analyses in this study confirm these tendencies, showing NE writers foreground explicit epistemic modality, whereas Indonesian writers balance assertiveness with mitigated indirectness. Collectively, these findings advance our understanding of how hedging as a metadiscursive and intercultural rhetorical strategy manifests differently across English and Indonesian academic writing cultures. They reaffirm Hyland's taxonomy as a valuable analytical lens while highlighting the indispensable role of culture in shaping linguistic choices in hedging.

This aligns with prior cross-cultural studies (e.g., Kozubíková Šandová, 2020;

Mur-Dueñas, 2021; Sanjaya, 2013) illustrating that rhetorical norms reflect deep-seated cultural values regarding directness, politeness, and epistemic responsibility. The specific preference of Indonesian authors for lexical approximators as opposed to grammatical hedges parallels other findings in Southeast Asian academic discourse, where indirectness and hedging function as politeness strategies to balance modesty and authorial presence.

In sum, this study substantiates that while both Indonesian and Native English Applied Linguistics authors employ hedging to manage epistemic stance and politeness, they do so via culturally distinct yet equally strategic rhetorical means. Native English writers foreground grammatical hedges to communicate tentative knowledge claims clearly, while Indonesian authors prefer indirect lexical hedging as a politeness strategy congruent with their cultural communication norms. These insights enrich cross-cultural academic writing research and provide a springboard for further explorations into how hedging intersects with identity, culture, and disciplinary conventions in global scholarly communication.

Conclusion

This study reveals a striking contrast in hedging practices between Native English (NE) and Indonesian (ID) Applied Linguistics research articles, spotlighting a deeper cultural and rhetorical narrative. The overall hedging density in Native English (NE) Applied Linguistics research articles is significantly higher than in Indonesian (ID) articles, with NE authors using approximately 53.69 hedges per 1,000 words versus 22.81 for Indonesian authors. This difference reflects a stronger rhetorical emphasis on caution and politeness in NE academic writing.

Hedging density varies across article sections in both groups, with the Introduction and Discussion showing the highest concentrations due to their interpretive and argumentative nature. NE writers consistently hedge more than Indonesian writers in these sections, whereas the Methods section shows the lowest hedging density for both groups, highlighting conventional norms for objectivity.

The types of hedging devices differ between groups. NE authors mainly use modal and epistemic verbs to explicitly express uncertainty and caution, aligning with international academic conventions. Indonesian authors prefer indirect lexical approximators as their primary hedging strategy, reflecting cultural norms valuing subtlety and politeness.

These conclusions demonstrate that while both groups use hedging to manage epistemic stance and maintain scholarly politeness, their approaches are shaped by distinct cultural and linguistic norms. This insight supports culturally aware academic writing teaching and suggests Indonesian scholars benefit from developing modal and epistemic verb use without disregarding their native rhetorical style.

Limitations of this study include the restricted disciplinary scope and the

exclusion of single-authored vs. multi-authored dynamics. Future research could expand to other disciplines and explore the relationship between hedging and writer identity in multilingual contexts.

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