Indonesian Journal of English Language Teaching and Applied Linguistics

Vol. 11(1), May 2026
www.ijeltal.org
e-ISSN: 2527-8746; p-ISSN: 2527-6492

Hedging in English Social Science Research Articles: A Corpus-Based Comparison of Native and Turkish EFL Writers

Zekeriya Hamamcı
Düzce University, Türkiye, zekeriyahamamci@duzce.edu.tr

Received 10 February 2025 | Received in revised form 15 March 2026 | Accepted 21 March 2026

ARTICLE INFO

Keywords:
Academic Writing, EFL Academic Discourse, Epistemic Stance, Hedging, Research Articles

DOI:
http://dx.doi.org/10.21093/ijeltal.v11i1.2589

ABSTRACT

Hedging plays a central role in academic writing because it enables researchers to present claims with appropriate caution and to situate their arguments in relation to earlier scholarship. This study compares hedging in English-language social science research articles written by native speakers of English and by Turkish scholars writing in English as a foreign language. Adopting a corpus-based contrastive design, the study examines 90 published research articles with WordSmith Tools. The corpus comprises 37,243 words in the Turkish EFL subcorpus and 38,349 words in the native-speaker subcorpus, with texts drawn from economics, education, law, and literature. The analysis considers both the overall frequency of hedges and their distribution across two rhetorically important parts of the article: the Introduction and the Discussion/Conclusion. Statistical analysis showed no significant difference in total hedge frequency between the two groups (p = .935). Native-speaker writers produced 866 hedges (4.38%), while Turkish EFL writers produced 868 (4.39%). The contrast emerges not in quantity, but in placement. Turkish writers used more hedging in Introductions, whereas native-speaker authors used more in Discussion and Conclusion sections, where interpretation and evaluation become more prominent. The findings indicate that both groups share a broad awareness of cautious academic positioning, yet differ in how they distribute that caution across the article. The study therefore suggests that research on hedging should consider rhetorical location alongside raw frequency. The results also point to the value of section-sensitive instruction in EAP and ESP writing classrooms.

Acknowledgement*: This article is based on the author's MA thesis. The corpus analyzed in the study consists of research articles published between 2000 and 2005.*

How to cite:
Hamamcı, Z.. (2026). Hedging in English Social ScienceB Research Articles: A Corpus-Based Comparison of Native and Turkish EFL Writers. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 11(1), 87-102

1. Introduction

Hedging is one of the defining features of academic prose. In research articles, writers rarely present knowledge claims as final or beyond dispute. Instead, they often qualify their statements, acknowledge alternative readings, and signal that their conclusions remain open to evaluation. Such choices are especially important in the social sciences, where interpretations are often shaped by context and where findings frequently invite discussion rather than certainty. In this sense, hedging is not merely a way of weakening a statement. It is a means of managing commitment, negotiating credibility, and aligning one's voice with the expectations of a disciplinary community.

Interest in hedging has grown steadily since the 1980s, when attention began to shift from semantic accounts of vagueness toward the study of academic discourse in use. Research in genre analysis and metadiscourse has shown that hedging is closely related to rhetorical purpose, disciplinary convention, and the communicative demands of particular sections of a research article (Hyland, 1998; Varttala, 2001). More recent corpus studies also indicate that hedging practices are not fixed. Yao et al. (2023), for example, report a decline in uncertainty-oriented hedges in Science research articles and connect this trend to broader developments in scholarly publishing, including increased publication pressure and a more promotional style of presenting research. Viewed in this way, hedging is not simply a stable convention of academic prose; it is also responsive to changes in academic culture.

Cross-linguistic and interlanguage studies have added another important dimension to this discussion. Differences between native and non-native writers do not seem to depend solely on how many hedges they use. Variation can also be seen in the kinds of devices writers favor, the sections in which those devices appear, and the rhetorical work they perform. Tran & Tang (2022), for instance, found that Vietnamese scholars writing in applied linguistics show considerable adaptation to international norms, especially in their use of reliability hedges in Results and Discussion sections. By contrast, Adrian & Fajri (2023) observed a comparatively low rate of hedging in soft-science articles written by Indonesian scholars, while Al-Mudhaffari et al. (2020) reported that Yemeni Arab writers drew on a narrower range of interactional strategies and tended toward more direct assertion. Mur-Dueñas (2021) likewise showed that cross-cultural differences may remain visible even when scholars publish in their own languages. Together, these studies suggest that hedging is shaped not only by language proficiency but also by discourse traditions, publication contexts, and disciplinary habits.

Work carried out in the Turkish context points to similar patterns. Research on English academic writing by Turkish scholars indicates that Turkish EFL writers are generally aware of hedging as a conventional feature of scholarly prose, yet they may differ from native-speaker writers in the types of forms they prefer and in the sections where those forms cluster (Söğüt & Keçik, 2020; Yalavaç, 2021; Güçlü, 2024). Existing studies suggest that Turkish writers often rely more heavily on lexical verbs and nouns than on more flexible adverbial or modal forms, and that certain epistemic uses of modal auxiliaries, particularly can, may be less common in EFL academic writing (Tıkaç, 2013). Such tendencies are better understood as outcomes of rhetorical preference, prior instruction, and cross-linguistic influence than as signs of deficiency.

Given that, one question remains underexplored. Earlier studies have documented contrasts in overall hedge frequency, preferred linguistic forms, and broad disciplinary tendencies. Far fewer have asked whether the more revealing difference between native and non-native writers lies not in overall frequency, but in the distribution of hedges across the rhetorical structure of the article. This issue is especially relevant in the social sciences, where Introductions and Discussions serve different persuasive purposes and may therefore call for different forms of epistemic caution.

The present study addresses that gap by examining hedging in English-language social science research articles written by native speakers of English and Turkish EFL scholars. Adopting a section-sensitive contrastive perspective, it focuses on three issues: (a) the overall incidence of hedging, (b) the distribution of hedging devices across the Introduction and Discussion/Conclusion sections, and (c) the linguistic resources most commonly used to express hedging in each corpus. By looking at both frequency and rhetorical placement, the study seeks to provide a more nuanced account of how writers from different linguistic backgrounds manage epistemic stance in contemporary academic discourse. Accordingly, the study addresses the following research questions:

1. What is the overall frequency of hedging in English social science research articles written by native speakers and Turkish EFL writers?
2. How are hedging devices distributed across the Introduction and Discussion/Conclusion sections of research articles in the two corpora?
3. What types of linguistic resources (e.g., modal verbs, adverbs, nouns, adjectives, and full verbs) are most frequently used to realize hedging in each corpus?

2. Literature Review

2.1 Hedging in English Research Articles

The concept of hedging has changed considerably over time. Early discussions approached it mainly as a semantic matter and focused on vagueness, gradience, and fuzzy category boundaries. Zadeh's (1965) work on fuzzy set theory introduced the view that categories may involve degrees of membership rather than clear-cut limits. Lakoff (1973) later brought this insight into linguistic analysis and described hedges as items that modify the relationship between words and the categories they refer to. Although these early approaches were influential, they were primarily concerned with semantic indeterminacy rather than with the rhetorical uses of hedging in discourse.

Later research, especially in the study of academic writing, shifted the focus from semantic fuzziness to communicative function. In research articles, hedges do more than signal imprecision. They allow writers to calibrate the force of their claims, acknowledge the limitations of evidence, and present arguments in ways that fit disciplinary expectations. From this perspective, hedging becomes an important tool for managing epistemic stance and for positioning a claim within a community of readers who may question, refine, or reinterpret it (Hyland, 1994, 1998).

Recent corpus studies have further shown that hedging practices may change over time. Yao et al. (2023), for example, examined a large diachronic corpus of articles published in *Science* and found a gradual decline in uncertainty-oriented hedges over a 25-year period. They relate this pattern to broader changes in academic publishing, including heightened competition,

increased pressure for visibility, and more assertive ways of framing findings. Their study suggests that hedging should be understood not only as a feature of academic style, but also as part of a shifting ecology of scholarly communication.

2.2 Pragmatic and interpersonal perspectives: hedging as negotiation

Within discourse-based and pragmatic approaches, hedging is commonly treated as an interactional strategy. Rather than stating claims in absolute terms, writers often present them as provisional, interpretable, or open to further scrutiny. This allows them to advance arguments without foreclosing alternative positions, which is especially important in academic environments where knowledge is expected to remain contestable. In this sense, hedging helps writers manage the tension between authority and caution (Hyland, 1994, 1998).

This line of thinking also connects with politeness theory. Brown & Levinson (1987) argue that speakers and writers often soften potentially face-threatening acts in order to maintain social balance. In academic writing, categorical claims may risk appearing dismissive of other scholars' work or overly confident about the strength of one's own evidence. Hedges help reduce that risk. By qualifying a statement, the writer leaves space for discussion and presents the claim as part of an ongoing scholarly conversation rather than as an unquestionable conclusion. Research has also shown that hedging seldom functions in isolation. It typically works in combination with other stance resources such as boosters, self-mention, and evaluative language. Wang & Zeng (2021), for instance, demonstrate that doctoral writers use self-reference, hedges, and boosters together to construct disciplinary voice. Al-Mudhaffari et al. (2020) likewise found that L2 writers' use of hedging and boosting varies across sections of applied linguistics research articles, underscoring the close relationship between stance choices and rhetorical purpose. These studies support the view that hedging forms part of a wider interpersonal system through which writers negotiate authority, caution, and reader engagement.

2.3 Linguistic realizations in research articles: a multi-resource system

Hedging in English research articles is realized through a broad set of linguistic resources. Modal auxiliaries, epistemic lexical verbs, adverbs, adjectives, and epistemically loaded nouns can all contribute to the expression of tentativeness. Earlier work has consistently identified modal verbs such as *may*, *might*, *can*, and *could* as important markers of hedging in academic prose (Hyland, 1998). At the same time, later research makes clear that hedging cannot be reduced to modalization alone. Epistemic meanings may also be conveyed through verbs, nominalizations, and evaluative modifiers that distribute responsibility for a claim across evidence, interpretation, and disciplinary norms (Biber et al., 1999; Salager-Meyer, 1994).

Cross-linguistic work suggests that writers from different backgrounds may rely on these resources in different ways. Mur-Dueñas (2021), for example, found that English-medium scholars in business management research articles make frequent use of modal verbs and adjectives, whereas Spanish writers more often favor lexical verbs and nouns. One possible explanation is that Spanish does not map neatly onto some English modal constructions, which may influence rhetorical preference. Similar tendencies have been reported elsewhere. Adrian & Fajri (2023) observed that Indonesian scholars often rely on modal auxiliaries, especially *can*, when expressing possibility in soft-science articles, which may result in a narrower range of epistemic meanings than is typically found in Anglophone writing.

Variation is not limited to linguistic background alone. Hedging also shifts across genres and communicative situations. Nemickienė (2015) notes that hedging in research articles differs from hedging in popular science writing, which suggests that the function of a particular form depends less on its grammar than on the discourse environment in which it appears. Taken together, these findings support a functional view of hedging as a multi-resource system shaped by communicative purpose and discourse community practice.

2.4 Sectional and rhetorical variation: where hedges cluster and why

One of the most consistent observations in the literature is that hedging does not occur evenly across the sections of a research article. Writers tend to use it most heavily in sections where they must position their study, interpret evidence, and anticipate possible objections. Earlier studies by Hyland (1998) and Varttala (2001) established that hedging is closely tied to the communicative goals of particular sections. More recent corpus-based work has continued to explore this sectional patterning. Poole et al. (2019), examining epistemic stance in a diachronic corpus of scientific writing, found that stance features do not necessarily develop uniformly across related domains. Their findings draw attention to the importance of considering rhetorical environment alongside broader disciplinary trends. Other studies have looked more directly at the internal distribution of hedges. Mur-Dueñas (2021) reports that the Discussion section of English- and Spanish-medium business management articles contains the highest density of hedging, reflecting the interpretive demands of that section. Tran & Tang (2022) similarly identify Results and Discussion sections as major sites for reliability hedges in applied linguistics. Research on soft-science writing points in the same direction, emphasizing the role of hedging in keeping epistemic commitment within acceptable limits (Adrian & Fajri, 2023). At the same time, sectional patterns are not always identical across writer groups. Al-Mudhaffari et al. (2020) found that Yemeni Arab writers used relatively few hedges overall but placed more of them in Introductions than in Conclusions. That pattern suggests that stance management may vary according to experience, rhetorical training, or familiarity with publication norms. Overall, the literature makes it clear that frequency counts on their own tell only part of the story. To understand hedging more fully, it is necessary to examine where it appears in the article and what rhetorical work it performs there.

2.5 Cross-cultural and interlanguage perspectives: Turkish EFL academic writing

Studies conducted in EFL and ESL contexts show that non-native writers do not form a single, uniform group. Their use of hedging may differ according to linguistic background, disciplinary orientation, publication experience, and exposure to academic English. Tran & Tang (2022), for instance, found that Vietnamese scholars writing in applied linguistics journals use modal auxiliaries as reliability hedges in ways that resemble international publication norms. Other studies report greater divergence. Adrian & Fajri (2023) found lower hedge frequency in Indonesian soft-science articles than is typically reported in Anglophone publications, while Al-Mudhaffari et al. (2020) observed that Yemeni Arab writers tended to use fewer hedges and boosters and to rely more on direct assertion. Cross-linguistic comparisons also show that such differences may remain visible even when writers publish in their own languages. Mur-Dueñas (2021), for example, found that Spanish researchers used hedges less frequently than their Anglophone counterparts in business management articles. These findings suggest that rhetorical habits are shaped not only by English proficiency but also by broader discourse traditions.

Research in the Turkish context points to related tendencies. Previous work suggests that Turkish EFL writers are aware of hedging as an expected feature of academic discourse, yet they may prefer different linguistic resources from those typically favored by native English writers. Corpus studies indicate that Turkish writers often rely more heavily on lexical verbs and nouns than on adverbial or modal forms (Tıkaç, 2013; Söğüt & Keçik, 2020; Yalavaç, 2021; Taymaz, 2021). Such patterns are generally interpreted in relation to cross-linguistic influence, educational background, and developing rhetorical competence rather than in terms of deficiency. Recent studies also indicate that stance resources vary across genres and disciplines within the Turkish context. Akman & Karahan (2023), for example, report clear disciplinary contrasts in the use of hedges and boosters in the discussion sections of ELT and physiotherapy research articles. Pedagogical research offers a related insight: explicit instruction appears to improve learners' command of hedging. Sun & Hu (2023) show that data-driven learning can significantly enhance EFL students' use of hedging as a lexico-grammatical resource in academic writing.

Despite these contributions, one issue remains relatively underexplored. Few studies have directly investigated whether the main contrast between Turkish EFL writers and native English writers lies in overall hedge frequency or in the way hedges are distributed across the sections of the research article. Since different sections perform different rhetorical functions, a section-sensitive analysis may offer a clearer picture of how Turkish EFL writers manage epistemic stance in English academic discourse. The present study takes up that issue by comparing the Introduction and Discussion/Conclusion sections of social science research articles.

2.6 Summary and Research Gap

Research on academic discourse widely recognizes hedging as a central resource for managing epistemic stance and negotiating knowledge claims in research articles. Rather than simply weakening statements, hedging allows writers to calibrate commitment, acknowledge interpretive limitations, and align their arguments with the expectations of disciplinary communities (Hyland, 1998; Salager-Meyer, 1994; Varttala, 2001). More recent corpus-based investigations have emphasized that hedging practices are shaped not only by language background but also by disciplinary context and rhetorical structure. Cross-linguistic studies show that differences between writer groups may appear not only in the overall frequency of hedging but also in the linguistic forms used and the rhetorical locations in which they tend to occur (Mur-Dueñas, 2021; Tran & Tang, 2022; Adrian & Fajri, 2023). Studies conducted in the Turkish academic context suggest that Turkish EFL writers are generally familiar with hedging as a conventional feature of research writing and may approximate native English writers in overall frequency. At the same time, earlier research indicates that contrasts may become more visible in the rhetorical distribution of hedges and in the linguistic resources used to express epistemic stance (Taymaz, 2021; Söğüt & Keçik, 2020; Yalavaç, 2021).

Against this background, the present study examines hedging in English-language social science research articles from a contrastive perspective. In addition to comparing the overall incidence of hedging, the study investigates how hedging devices are distributed across key rhetorical sections of research articles and which linguistic resources are most frequently used to realize them in each corpus.

3. Research Methodology

3.1 Operationalization of Hedging

In this study, hedging is treated as a context-dependent pragmatic strategy rather than as a fixed grammatical category. The analysis does not assume that certain forms are always hedges by default. Instead, it adopts a functional perspective in which hedging refers to rhetorical choices that soften claims, signal uncertainty, or reduce the writer's level of commitment to a proposition. Under this view, the same linguistic item may function as a hedge in one context but not in another.

On that basis, an item was counted as a hedge only when it served to attenuate a claim, express epistemic uncertainty, or distance the writer from the full force of the proposition in its immediate co-text. The study therefore includes modal auxiliaries (*may, might, could*), epistemic lexical verbs (*suggest, indicate, appear, seem*), adjectives (*possible, probable, tentative*), adverbs (*potentially, arguably, somewhat*), and epistemic nouns (*possibility, indication, evidence*). None of these items was treated as inherently hedging. Each token was examined in its local context before being included in the analysis.

3.2 Corpus Design and Data Collection

The analysis performed in the study concentrates on the Introduction and Discussion/Conclusion sections of research articles. These sections were selected because they are the parts of the article where writers are most directly involved in presenting, qualifying, and interpreting claims. By comparison, the Method and Results sections are generally more descriptive and typically contain fewer stance markers (Hyland, 1998; Varttala, 2001). This focus is also supported by genre research. Introductions require writers to establish a research territory, identify a niche, and justify the significance of the study, often in relation to prior scholarship. Discussions and Conclusions, meanwhile, are the sections where findings are interpreted and connected to wider theoretical or disciplinary concerns. Both stages involve considerable rhetorical risk and usually call for careful epistemic positioning (Peacock, 2002; Swales, 2004). Concentrating on these sections therefore makes it possible to observe how writers manage stance where the need for interpretive caution is strongest.

The corpus consists of 90 social science research articles divided into two groups. One group includes articles written by native speakers of English (NS), and the other includes articles written in English by Turkish scholars working in EFL contexts (NNS). Each subcorpus contains 45 articles. The NS articles were written by scholars affiliated with universities in the United Kingdom and the United States. The NNS articles were written by Turkish scholars affiliated with universities in Turkey. All articles were drawn from peer-reviewed journals accessible through university libraries and major electronic databases. Journals were selected with attention to academic visibility, peer-review status, and availability. To keep the two corpora comparable, the study drew on similar types of journals in both groups. The corpus also includes texts from several social science disciplines, including economics, education, law, and literature, in order to reduce the effect of discipline-specific bias. Only empirical research articles were included; review papers, theoretical essays, and book reviews were excluded to preserve genre consistency. The final corpus contains 37,243 words in the Turkish EFL subcorpus and 38,349 words in the native-speaker subcorpus. In line with earlier corpus-based studies of academic hedging (Biber et al., 1999; Hyland, 1998; Salager-Meyer, 1994; Varttala,

2001), the analysis focuses on five lexical categories commonly associated with hedging: modal auxiliaries, epistemic full verbs, nouns, adverbs, and adjectives.

3.3 Analytical Procedure

The corpus was analyzed via WordSmith Tools, a software package widely used in corpus linguistics for producing frequency lists, concordance lines, and keyword analyses. The program made it possible to identify candidate hedging items and trace their distribution across the corpus. Because many of the forms under investigation can perform both epistemic and non-epistemic functions, automated extraction alone was not sufficient. Each candidate item was therefore examined manually in its immediate context to determine whether it actually functioned as a hedge. This step was necessary to ensure that only genuine instances of epistemic mitigation were included.

The analysis proceeded in two stages. First, a quantitative analysis was carried out to identify the overall frequency of hedging devices in each corpus and to map their distribution across the selected article sections. Second, concordance lines were examined qualitatively in order to understand how hedges were used in context and how they contributed to the rhetorical aims of Introductions and Discussion/Conclusion sections.

3.4 Reliability of Coding

Since hedging is highly sensitive to context, the identification of hedging devices required manual coding rather than automatic classification. To strengthen the reliability of the analysis, an intra-rater reliability procedure was used. A randomly selected 20% subset of the corpus, corresponding to 18 research articles, was re-coded four weeks after the initial analysis. The two rounds were then compared using percentage agreement. The resulting agreement rate was 94%, which indicates a high level of coding consistency. Although inter-rater statistics such as Cohen's kappa are sometimes employed in discourse studies, the present study relied on intra-rater reliability because the categories were defined functionally rather than structurally. In such cases, percentage agreement is commonly used to assess the stability of the coding process. When differences appeared in the second round, the relevant concordance lines were reviewed again in light of established classifications of hedging (Hyland, 1998; Salager-Meyer, 1994).

3.5 Analytical Scope and Exclusions

Some features that are occasionally associated with hedging in the literature, such as passive constructions and tense choice, were not included in the quantitative analysis. Though these grammatical resources can contribute to epistemic distancing, they also serve a wide range of functions unrelated to stance. In academic prose, passive voice and tense selection are often shaped by syntactic or stylistic convention making it difficult to determine whether a given instance is functioning rhetorically as a hedge. Including such features in a frequency-based analysis would therefore have introduced substantial ambiguity and weakened analytical consistency. For that reason, the study focuses only on lexically explicit markers of epistemic uncertainty whose meanings more directly signal tentativeness or reduced commitment. This decision is in line with earlier corpus-based work that treats lexical markers as more stable indicators of hedging (Hyland, 1998; Salager-Meyer, 1994; Varttala, 2001).

3.6 Statistical Analysis

In addition to descriptive comparisons, inferential statistics were used to test whether the two groups differed significantly in hedge frequency. Because the articles were not identical

in length, frequencies were normalized to occurrences per 1,000 words. For the statistical comparison, the research article rather than the raw hedge token was treated as the unit of analysis. Mean normalized hedge frequencies were calculated separately for the NS and NNS corpora. An independent samples t-test was then run to determine whether the difference between the two groups was statistically significant. Before conducting the test, the assumptions of normality and homogeneity of variance were checked in order to confirm that a parametric test was appropriate. Effect sizes (Cohen's d) were also calculated so that the magnitude of the observed difference could be interpreted alongside the p-values. The level of statistical significance was set at $p < .05$. This procedure follows standard practice in corpus-based contrastive studies, where individual texts are treated as independent observations rather than aggregated token pools (Biber et al., 1999; Hyland, 1998; Varttala, 2001).

4. Results

4.1 Overall incidence and sectional distribution of hedging

The overall frequency of hedging is strikingly similar in the two corpora. Native-speaker (NS) authors produced 866 hedges (4.38%), while Turkish non-native speaker (NNS) authors produced 868 (4.39%). An independent samples t-test showed that this difference is not statistically significant, $t(88) = 0.081$, $p = .935$. At the level of total frequency, then, the two groups appear remarkably alike. The more interesting contrast emerges when the distribution of hedging is examined by section. Turkish EFL writers used more hedges in Introductions (491; 2.48%) than native-speaker writers (407; 2.06%). The reverse pattern appears in Discussion/Conclusion sections, where NS authors used 459 hedges (2.32%) compared with 377 (1.91%) in the NNS corpus. This indicates that the key distinction between the two groups lies less in how much hedging they use overall than in where they place it within the article.

Table 1. Incidence of hedges in Introduction and Discussion/Conclusion sections

Section	NS f (%)	NNS f (%)
Introduction	407 (2.06)	491 (2.48)
Discussion/Conclusion	459 (2.32)	377 (1.91)
Total	866 (4.38)	868 (4.39)

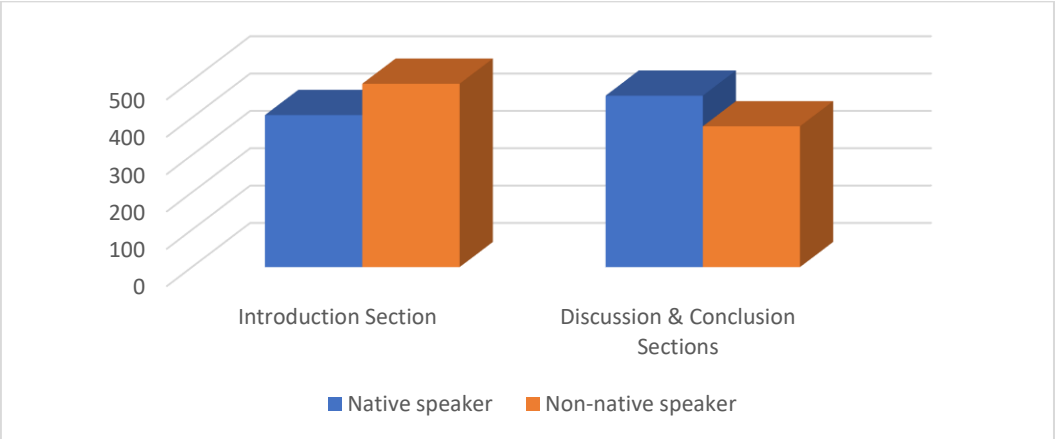

Figure 1. Distribution of hedges across article sections in NS and NNS corpora

The corpus contains a wide range of familiar hedging expressions, including modal auxiliaries such as *may*, *might*, and *could*; epistemic verbs such as *suggest*, *think*, and *seem*; nouns such as *possibility* and *assumption*; and adverbs such as *perhaps*, *sometimes*, and *possibly*. Across both corpora, these items serve to qualify claims and present interpretations as provisional rather than categorical.

4.2 Distribution by hedge category across sections

A more detailed picture of writer preference emerges when hedging is examined by lexical category. Rather than looking only at overall frequency, this analysis considers the types of linguistic resources used to express epistemic caution in different parts of the article. Table 2 presents the distribution of five hedge categories in the Introduction sections, while Table 3 reports the same categories in the Discussion/Conclusion sections.

Table 2 shows the distribution of modal verbs, adverbs, nouns, full verbs, and adjectives used as hedging devices in the Introduction sections of both corpora.

Table 2. Categories of hedges in Introduction sections

Category	NS Introduction f (%)	NNS Introduction f (%)
Modal verbs	130 (0.66)	133 (0.67)
Adverbs	96 (0.48)	66 (0.35)
Nouns	95 (0.49)	115 (0.53)
Full verbs	48 (0.27)	88 (0.45)
Adjectives	38 (0.20)	74 (0.35)

As the table 2 indicates, modal verbs appear at nearly identical rates in the two corpora. Native-speaker (NS) writers used 130 modal verbs (0.66%), while Turkish EFL (NNS) writers produced 133 (0.67%). This similarity suggests that both groups draw on modal auxiliaries when introducing research territory and presenting claims with a degree of caution. More noticeable differences emerge in the use of other lexical resources. Turkish EFL writers employed more nouns, full verbs, and adjectives in their Introductions than native-speaker writers. For instance, nouns occur 115 times (0.53%) in the NNS corpus compared with 95 (0.49%) in the NS corpus, while full verbs appear 88 times (0.45%) compared with 48 (0.27%). The difference is particularly visible in the use of adjectival hedges, where Turkish writers produced 74 instances (0.35%) compared with 38 (0.20%) among native speakers. Adjectives such as *possible*, *likely*, and *potential* frequently appear when writers frame research problems or position their studies in relation to earlier work. An example from the corpus illustrates this pattern: "Information-processing theory offers a possible explanation for the influence topic has on composing."

Adverbial hedges display the opposite tendency. Native-speaker writers use adverbs more frequently in their Introductions, producing 96 occurrences (0.48%) compared with 66 (0.35%) in the Turkish EFL corpus. Adverbs such as *perhaps*, *possibly*, and *sometimes* allow writers to adjust the force of a claim with relatively subtle modification.

The distribution of hedge categories in the Discussion/Conclusion sections is presented in Table 3.

Table 3. Categories of hedges in Discussion/Conclusion sections

Category	NS Discussion/Conclusion f (%)	NNS Discussion/Conclusion f (%)
Modal verbs	247 (1.25)	154 (0.78)
Adverbs	73 (0.35)	30 (0.16)
Nouns	59 (0.27)	101 (0.60)
Full verbs	36 (0.20)	55 (0.31)
Adjectives	40 (0.21)	21 (0.11)

A different pattern emerges in these sections. Modal verbs are particularly prominent in the native-speaker corpus, where they occur 247 times (1.25%), compared with 154 instances (0.78%) in the Turkish EFL corpus. The higher frequency of modal auxiliaries suggests that native-speaker writers rely heavily on modalization when interpreting findings, proposing explanations, and situating results within broader disciplinary discussions. Typical examples include statements such as: "It might be argued that there is a general agreement on the need for administrative reform in Turkey" and "It could be that students in this low score range benefit more from such instruction than those at a higher level of ability." In such cases, modal verbs allow writers to advance interpretations while leaving room for alternative explanations.

Turkish EFL writers, however, display a somewhat different pattern in these sections. Instead of depending primarily on modal verbs, they make more frequent use of nouns and full verbs. Nouns appear 101 times (0.60%) in the NNS corpus compared with 59 (0.27%) in the NS corpus, while full verbs occur 55 times (0.31%) compared with 36 (0.20%) among native-speaker writers. These lexical forms allow authors to express epistemic caution in a more explicit way. One example from the corpus reads: "...human mind seems to be unique with respect to some qualities that no machine can duplicate." The verb *seems* softens the claim while still presenting an interpretation.

Adverbial hedges again occur more frequently in the NS corpus. Native-speaker writers used 73 adverbs (0.35%), whereas Turkish EFL writers produced 30 (0.16%). Because adverbs often help fine-tune the degree of certainty in evaluative statements, this difference may indicate that native-speaker writers engage in more nuanced mitigation when discussing the implications of their findings. One example from the corpus is: "Perhaps teachers have no distinct intellectual authority in this regard."

Overall, the patterns observed in Tables 2 and 3 suggest that the two groups are not distinguished by the overall amount of hedging they employ, but rather by the linguistic resources they prefer and the stages of the article in which those resources appear. Turkish EFL writers rely more heavily on lexical devices such as nouns, verbs, and adjectives, particularly in Introduction sections, whereas native-speaker writers make greater use of modal auxiliaries and adverbial hedges in the interpretive stages of the research article.

5. Discussion

5.1 Quantitative similarity, rhetorical redistribution

One of the most notable outcomes of this study is the near-identical overall rate of hedging in the two corpora. Turkish EFL writers and native-speaker authors appear equally aware that

academic claims are expected to be presented with a degree of caution. At first glance, then, the two groups seem very similar. That similarity becomes less straightforward once rhetorical placement is taken into account. The contrast is not mainly a matter of quantity, but of distribution. Turkish EFL writers place more hedging in Introductions, while native-speaker writers concentrate more of it in the discussion and Conclusion sections. This pattern suggests that the two groups do not differ in their general sensitivity to epistemic caution, but in how they time that caution across the unfolding structure of the article. Earlier corpus-based work has made similar observations. Mur-Dueñas (2021) shows that differences between English- and Spanish-medium research articles become clearer when sectional distribution is considered. Tran & Tang (2022) likewise report that writers may show comparable rates of hedging overall while diverging in where those hedges are located. Adrian & Fajri (2023) also argue that raw frequency alone does not fully capture the rhetorical significance of hedging. The present findings support that view. What appears at first to be equivalence in frequency turns out, on closer inspection, to involve different patterns of rhetorical deployment.

From this perspective, Turkish writers seem to foreground caution while establishing the research territory, whereas native-speaker writers intensify it later, at the point where findings are interpreted and linked to broader debates. The difference is better seen as one of rhetorical organization than of competence.

5.2 Modal auxiliaries and section-sensitive epistemic calibration

Modal auxiliaries provide the clearest point of contrast between the two groups. In Introductions, the frequency of modal verbs is nearly identical in the NS and NNS corpora. This makes sense in that Introductions often require writers to identify gaps, define research aims, and formulate motivations in relatively cautious terms. The more revealing divergence appears in Discussion and Conclusion sections. Native-speaker writers use modal verbs much more heavily at this stage, especially forms such as *may*, *might*, and *could*. These verbs allow them to advance interpretations while avoiding overcommitment. They are compact, flexible, and particularly useful when writers want to acknowledge uncertainty without interrupting the flow of argument. Earlier research has similarly emphasized the centrality of modalization in the interpretive parts of research articles (Biber et al., 1999; Hyland, 1998; Salager-Meyer, 1994; Varttala, 2001). However, Turkish EFL writers appear to depend somewhat less on modal auxiliaries in these sections. Instead, they often achieve similar effects through nouns and lexical verbs. This difference does not indicate a lack of awareness of hedging. Rather, it points to a preference for different rhetorical resources. Native-speaker writers seem more inclined to use modalization as a flexible means of keeping interpretations open, whereas Turkish writers often rely on other lexical choices to express caution (Hyland & Jiang, 2016; Söğüt & Keçik, 2020; Yalavaç, 2021).

5.3 Full verbs: preference for explicit stance marking

Epistemic full verbs also reveal an important difference. These forms occur more frequently in the Turkish EFL corpus, especially in Introductions. Verbs such as *suggest*, *seem*, and *claim* allow writers to express a position while making the interpretive character of the statement explicit. For EFL writers, this may provide a relatively transparent way of signaling stance. One possible explanation is that lexical verbs make evaluation more visible than modal auxiliaries do. Modalization often depends on finer pragmatic distinctions, while verbs such

as *suggest* or *seem* state the writer's interpretive orientation more overtly. Earlier studies of L2 academic writing have noted that developing writers may prefer forms that make stance more explicit, perhaps because such forms reduce ambiguity and feel more manageable in formal prose (Hyland, 1994; Varttala, 2001). There also appears to be a qualitative difference in the kinds of verbs used. Native-speaker writers sometimes employ more subjective verbs such as *think* or *feel*, which bring the authorial voice more directly into view. Turkish EFL writers, in contrast, more often favor verbs such as *regard*, *see*, or *claim*. This may reflect differences in rhetorical convention or disciplinary training rather than any limitation in ability (Söğüt & Keçik, 2020; Yalavaç, 2021).

5.4 Adverbs: reduced mitigation in interpretive stages

Adverbial hedges display a somewhat different pattern in the corpus. Native-speaker (NS) writers use adverbs more frequently overall, and the difference becomes particularly noticeable in the Discussion and Conclusion sections, where Turkish EFL (NNS) writers show a marked decline (from 0.35% to 0.16%). Adverbs such as *perhaps*, *possibly*, *generally*, or *arguably* provide compact and flexible ways of qualifying claims by adjusting degree, frequency, or approximation. Because of this flexibility, they are especially useful when writers move from reporting results to interpreting them, weighing alternative explanations, or acknowledging possible limitations. Previous studies have similarly associated interpretive sections of research articles with a greater need for rhetorical nuance and careful calibration of epistemic commitment (Mur-Dueñas, 2021; Tran & Tang, 2022).

In the present corpus, however, Turkish EFL writers employ fewer adverbial hedges at this stage, which may lead to interpretations that sound somewhat more direct or categorical. This pattern should not be interpreted as evidence of lexical limitation. Rather, it can be understood in terms of pragmatic competence and rhetorical choice. Since adverbial hedges often require a fine-grained control of epistemic nuance, writers working in a second language may avoid such flexible modifiers in order to prevent rhetorical over-complication when generalizing knowledge claims. From this perspective, the reduced use of adverbs may reflect a preference for clarity and categorical force rather than the subtle qualification these forms provide (Hinkel, 2005). The tendency also fits the broader pattern observed in the corpus: Turkish NNS writers hedge extensively in Introduction sections, adopting a cautious stance when establishing the research territory, but rely on a narrower range of mitigation resources when evaluation and generalization become more central in the Discussion and Conclusion stages (Hyland, 1998; Hyland & Jiang, 2016; Güçlü, 2024; Varttala, 2001).

5.5 Adjectives and nouns: accessible resources for cautious positioning

Adjectival hedging is relatively infrequent compared with modal verbs, full verbs, or adverbs, yet Turkish EFL (NNS) writers use adjectival modifiers more often than native-speaker (NS) writers in Introduction sections. Adjectives such as *possible*, *likely*, and *potential* provide a relatively straightforward way of qualifying propositions without creating syntactically complex structures. For writers working in English as a foreign language, such forms may therefore function as an accessible strategy for expressing caution while maintaining structural clarity (Söğüt & Keçik, 2020; Yalavaç, 2021). These modifiers are particularly useful when defining research problems, identifying gaps in the literature, or framing the contribution of a study.

Nominal hedging shows a somewhat different pattern. While NS writers tend to reduce their use of epistemic nouns in the Discussion and Conclusion sections, NNS writers maintain relatively stable levels of nominal hedging across the article. Nouns such as *assumption*, *possibility*, *view*, and *claim* allow writers to frame propositions in an abstract and relatively impersonal way, thereby preserving epistemic distance. This tendency suggests that nouns and adjectives may function for Turkish EFL writers as stable and familiar resources for cautious positioning. Native-speaker writers, by contrast, appear more likely to shift toward modal verbs and adverbial forms as interpretive pressure increases and the need for fine-grained epistemic calibration becomes more prominent (Hyland, 1994, 1998; Hyland & Jiang, 2016; Varttala, 2001).

5.6 Implications

The findings suggest that Turkish EFL writers do not hedge less than native speakers. What differs is the rhetorical distribution of hedging and the linguistic means through which it is expressed. This has clear implications for academic writing instruction. In many EAP and ESP settings, hedging is introduced as a list of forms to memorize. The present results indicate that such an approach is too narrow. Knowing a set of hedging expressions is useful, but it is equally important to understand when and why different forms are typically used.

Instruction may therefore benefit from a stronger focus on section-specific stance management. Turkish EFL writers, in particular, may benefit from greater exposure to modal auxiliaries and adverbial hedges in the Discussion and Conclusion sections, where the interpretation of findings often requires a more flexible calibration of certainty. Building this kind of rhetorical awareness may help developing scholars participate more effectively in international academic discourse (Hyland & Jiang, 2016; Söğüt & Keçik, 2020; Güçlü, 2024).

6. Conclusion

This study examined the use of hedging in English-language social science research articles written by native speakers of English and Turkish EFL scholars. Drawing on a contrastive corpus of ninety research articles, the analysis compared both the overall frequency of hedging and the way hedging devices were distributed across key rhetorical sections of the research article. At the broadest level, the two groups proved remarkably similar in terms of the overall quantity of hedging employed. No statistically significant difference was observed in total hedge frequency, suggesting that Turkish scholars writing in English demonstrate quantitative competence in the use of epistemic mitigation in academic discourse (Hyland & Jiang, 2016; Söğüt & Keçik, 2020). However, more revealing contrasts emerged when the data were examined in relation to rhetorical structure and linguistic realization. Turkish non-native speaker (NNS) writers tended to concentrate hedging in Introduction sections, whereas native-speaker (NS) writers used a greater proportion of hedges—particularly modal auxiliaries and adverbial modifiers—in Discussion and Conclusion sections, where the interpretation and evaluation of findings become more central. In addition, Turkish writers showed a stronger reliance on nouns and epistemic full verbs, while using fewer flexible mitigation resources such as adverbial hedges. These patterns point to differences in rhetorical distribution and epistemic calibration rather than a lack of awareness of hedging as a conventional resource of academic writing (Yalavaç, 2021; Güçlü, 2024).

In general, the findings support the view that hedging is a discipline-sensitive and rhetorically motivated practice shaped by the interaction of linguistic background, academic training, and genre conventions (Hyland, 1998; Hyland & Jiang, 2016; Varttala, 2001). Preferences for particular hedge categories and their distribution across article sections may reflect cross-linguistic influence, educational experience, and varying degrees of exposure to explicit instruction in academic writing. Importantly, such differences should not be interpreted as shortcomings, but rather as alternative strategies for managing epistemic caution and authorial responsibility in scholarly communication.

From a pedagogical view, the results highlight the value of EAP and ESP instruction that moves beyond presenting hedging as a simple inventory of linguistic forms. Instead, academic writing pedagogy should emphasize the rhetorical functions of hedging and the ways in which different stance resources are conventionally deployed across sections of the research article. In particular, increased attention to modalization and adverbial qualification in Discussion and Conclusion sections may help developing scholars achieve greater flexibility in managing epistemic stance.

Finally, several directions for further research emerge from the present study. Future work could examine larger and more diverse corpora, include additional disciplinary contexts, or explore other stance-related features alongside hedging. Longitudinal studies would also be valuable for tracing how hedging practices develop as writers gain greater experience with academic publication in English. Such research would contribute to a deeper understanding of how epistemic stance is negotiated across languages, disciplines, and stages of academic expertise.

References

Adrian, D., & Fajri, M. S. A. (2023). Hedging practices in soft science research articles: A corpus-based analysis of Indonesian authors. *Cogent Arts & Humanities, 10*(1). https://doi.org/10.1080/23311983.2023.2249630

Akman, E., & Karahan, P. (2023). Hedges and boosters in academic texts: a comparative study on English language teaching and physiotherapy research articles. RumeliDE Dil ve Edebiyat, (32), 1335-1349. https://doi.org/10.29000/rumelide.1252902

Al-Mudhaffari, M., Hussin, S., & HoAbdullah, I. (2020). Interactional strategies in L2 writing: An exploration of Hedging and Boosting Strategies in Applied Linguistics research articles. *International Journal of Arabic-English Studies*, *20*(1), 171–186. https://doi.org/10.33806/ijaes2000.20.1.9

Biber, D., Johansson, S., Leech, G., Conrad, S., & Finegan, E. (1999). *Longman grammar of spoken and written English*. Pearson Education.

Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language usage*. Cambridge University Press.

Güçlü, R. (2024). Hedging and boosting in Turkish MA theses' conclusions. *Mersin Üniversitesi Dil ve Edebiyat Dergisi, 20*(1), 17–54. https://izlik.org/JA82FY93KM

Hinkel, E. (2005). Hedging, inflating, and persuading in L2 Academic Writing. *Applied Language Learning, 15*(1-2), 29-53.

Hyland, K. (1994). Hedging in academic writing and EAP textbooks. *English for Specific Purposes, 13*(3), 239–256. https://doi.org/10.1016/0889-4906(94)90004-3

Hyland, K. (1998). *Hedging in scientific research articles*. John Benjamins Publishing Company. https://doi.org/10.1075/pbns.54

Hyland, K., & Jiang, F. (2016). Change of attitude? A diachronic study of stance. *Written Communication, 33*(3), *251–274.*

Lakoff, G. (1973). Hedges: A study in meaning criteria and the logic of fuzzy concepts. *Journal of Philosophical Logic, 2*(4), 458–508.

Mur-Dueñas, P. (2021). There may be differences: Analysing the use of hedges in English and Spanish research articles. *Lingua, 260,* 103131. https://doi.org/10.1016/j.lingua.2021.103131

Nemickienė, Ž. (2015). Hedging as a Multifunctional Phenomenon of Research / Popular Research Articles. *Respectus Philologicus*, *28*(33A), Article 10. https://doi.org/10.15388/RESPECTUS.2015.28.33A.10

Peacock, M. (2002). Communicative moves in the discussion section of research articles. *System*, *30*(4), 479–497. https://doi.org/10.1016/S0346-251X(02)00050-7

Poole, R., Gnann, A., & Hahn-Powell, G. (2019). Epistemic stance and the construction of knowledge in science writing: A diachronic corpus study. *Journal of English for Academic Purposes,* 42, 100784. https://doi.org/10.1016/j.jeap.2019.100784

Salager-Meyer, F. (1994). Hedges and textual data in medical English academic writing. *English for Specific Purposes, 13*(2), 149–170. https://doi.org/10.1016/0889-4906(94)90013-2

Sun, X., & Hu, G. (2023). Direct and indirect data-driven learning: An experimental study of hedging in an EFL writing class. *Language Teaching Research*, *27*(3), 660–688. https://doi.org/10.1177/1362168820954459

Söğüt, M., & Keçik, İ. (2020). Hedges and boosters in academic writing: A comparative study of Turkish writers and native writers of English. *Konin Language Studies, 8*(1), 75–95.

Swales, J. M. (2004). *Research Genres: Exploration and Applications.* Cambridge University Press. https://doi.org/10.1017/CBO9781139524827

Taymaz, N. (2021). A corpus-based comparison of use of hedges and boosters by Turkish ELT MA and PhD students. *Journal of Language and Linguistic Studies, 17*(Special Issue 1), 33–49.

Tıkaç, S. (2013). *Hedging in academic writing: The use of "can" in university students' argumentative essays at an English-medium university in Turkey* (Master's thesis). Boğaziçi University

Tran, T. Q., & Tang, T. B. (2022). Hedging in the Results and Discussion Section of English Applied Linguistics Research Articles by Vietnamese and Foreign Writers. *Journal of Language Teaching and Research, 13(*1),119-124. https://doi.org/10.17507/jltr.1301.14

Varttala, T. A. (2001). Hedging in scientifically oriented discourse: Exploring variation according to discipline and intended audience (Doctoral dissertation, University of Tampere, Finland). http://acta.uta.fi/pdf/951-44-5195-3.pdf

Wang, J., & Zeng, L. (2021). Disciplinary recognized self-presence: Self-mention used with hedges and boosters in PhD students' research writing. *SAGE Open*, 11(2). https://doi.org/10.1177/21582440211005454

Yalavaç, Ç. (2021). *Boosting and hedging in Turkish research articles* (Master's thesis). Hacettepe University

Yao, M., Wei, Y., & Wang, H. Promoting research by reducing uncertainty in academic writing: a large-scale diachronic case study on hedging in *Science* research articles across 25 years. *Scientometrics* 128, 4541–4558. https://doi.org/10.1007/s11192-023-04759-6

Zadeh, L. A. (1965). Fuzzy sets. *Information and Control, 8*(3), 338–353.