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A preliminary study of interactional metadiscourse in discussion sections: Comparing native English and Turkish non-native English authors in q1 SSCI-indexed and locally indexed non-q-rated education journals

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This preliminary study examines the use of interactional metadiscourse markers (IMMs) in the discussion sections of education research articles (ERAs) authored by native English speakers (NSEs) publishing in Q1 SSCI-indexed journals and Turkish authors with English as an additional language (EAL) publishing in locally indexed or non-indexed journals. The corpus comprised 30 single-authored ERAs, with 15 from each author group. Analyses of IMMs, conducted both manually and with computer-assisted tools, were guided by Hyland's (2005a) framework. Log-likelihood tests revealed significant differences in the frequency and distribution of IMMs: NSE authors employed more IMMs across all categories, particularly hedges, boosters, self-mentions, and engagement markers, often demonstrating greater variety and rhetorical flexibility. In contrast, Turkish EAL authors displayed a preference for impersonal self-mentions and attitude markers, especially evaluative adjectives, and showed less frequent use of explicit reader engagement features. These findings highlight contrasting rhetorical strategies, with NSE authors constructing more dialogic and strategically hedged arguments. These differences suggest varying rhetorical preferences that may be shaped by prior academic literacy experiences, publication contexts, and disciplinary conventions. The study emphasizes the need for pedagogical interventions to support broader awareness and strategic use of IMMs and their rhetorical functions across academic writing contexts. Implications for teaching and recommendations for journal editorial boards are discussed to support the academic enculturation of novice scholars aspiring to publish in high-impact international journals.

Keywords: discussion section, educational research, interactional metadiscourse markers, native English authors, non-native English authors, research articles.

1. Introduction

Considered "[the] international language of science" (Kragh, 2024, p. viii), English is the medium in which the majority of research publications are written. Research articles (RAs) may be the

most dominant genres in academic journals. Eager to enhance their employability, climb the university hierarchy and even maintain their positions, some academics may feel pressured to publish frequently and rapidly. Such is the pressure that authors with English as an additional language (EAL) who are still developing scholarly writing experience in English-medium publication contexts, along with those with limited self-confidence, may seek publication in low-quality or even predatory journals. In contrast, authors whose native language is English (NSE) and who have substantial experience in academic publishing are generally able to circumvent this situation, targeting higher-quality journals indexed in prestigious databases such as the Social Sciences Citation Index (SSCI) and ranked Q1. Such publication patterns are not solely determined by individual competence; they are also shaped by the editorial, institutional, and readership contexts in which research is produced and evaluated. Journals indexed in international databases often emphasize explicit rhetorical positioning and contribution-oriented discussion sections, whereas locally indexed venues may prioritize neutrality and conventional structuring. Such contexts may influence rhetorical choices without reflecting differences in research quality (Deveci, 2025).

One critical section of a RA is the discussion section, where authors interpret their findings and situate them within the broader scholarly conversation. Equally important, if not more so, is how effectively the interpretation is communicated to the reader and how well the author engages with them. A key linguistic tool used for this purpose is metadiscourse markers (MMs), which can be defined as "discourse about discourse" and refer to the author's or speaker's linguistic manifestation in the text in order to interact with the receivers (Vande Kopple, 1985). MMs are divided into two subcategories: interactive and interactional, with the latter being the focus of our research. In academic discourse, the strategic use of interactional MMs (IMMs) is essential for maintaining professional standing and ensuring successful knowledge dissemination (Swales, 1990).

Given their importance, there has been a growing body of research examining IMMs. However, researchers generally tend to investigate one sub-domain of IMMs in RAs, with hedging being a particularly popular focus (e.g., Alhuqbani & Alhuqbani, 2025; Ghahraman et al., 2023). Such targeted studies offer valuable insights into specific metadiscourse functions; however, this approach may fail to explain the complex interplay among different types of IMMs that collectively shape academic discourse. Consider the following hypothetical example from the discussion section of a RA:

> We believe these findings suggest that the new approach is particularly promising, although further investigation is clearly necessary given our study's limitations.

"We believe" and 'our study's" in this sentence signal authorial voice, "suggest" hedges the claim, "particularly promising" expresses a positive attitude, and "clearly necessary" boosts the urgency of further research, together creating a balanced and persuasive tone that strengthens the arguments in one single sentence.

The examination of all five sub-domains can, therefore, help move beyond isolated snapshots and capture a more holistic picture of how authors utilize a range of interactional strategies. This is important because IMMs do not function in isolation; rather, they interact dynamically to enable authors to strategically engage readers, negotiate interpersonal stances, and construct persuasive academic arguments.

Due to their importance, researchers have also paid attention to the utilization of IMM across different academic disciplines, including special education and preschool education (Kirişçi & Duruk, 2022), their use in RA and book reviews (Bal-Gezegin & Bas, 2020), and changing patterns of disciplinary metadiscourse in professional writing (Hyland & Jiang, 2018). However, much of this research has focused on sections such as the introduction or results (Çapar & Turan, 2020), while the discussion section remains relatively underexplored. We seek to fill this gap by examining their use in the discussion sections of education research articles (ERAs). The rationale

for focusing on ERAs lies in our own scholarly background as education researchers. By analyzing the use of IMMs as a linguistic choice by our peers, we aim to better inform our own writing practices and improve the instruction we provide in writing-focused courses we teach.

Moreover, we will compare the use of IMMs by NSE authors publishing in high-quality, Q1-rated SSCI-indexed journals with that by Turkish scholars publishing in English in locally indexed or non-indexed journals. This comparison is intended to explore how differing publication environments may shape rhetorical realizations of stance and engagement, rather than to position one group as inherently more proficient than the other (Deveci, 2025). It is also particularly relevant, as we have observed many emerging Turkish authors in our field encounter recurring challenges related to rhetorical positioning in English-medium publication contexts. Identifying recurrent patterns across these venues may illuminate adaptation strategies available to authors who wish to engage with a broader range of publication contexts, particularly in systems where international publications carry significant weight in academic evaluation and promotion. By identifying key differences in the use of IMMs, we hope to provide insights that will help emerging scholars further develop their rhetorical repertoire in line with the expectations of high-impact international journals, thereby increasing their visibility within international academic discourse and expanding professional opportunities.

Accordingly, we seek to answer this question:

> What are the differences in the use of IMMs between NSE authors publishing in high-quality, Q1-rated SSCI-indexed journals and Turkish authors with EAL publishing in lower-tier, locally indexed or non-indexed journals?

2. Background to the study

2.1. Journal indexation and Q-ratings

Indexed journals are generally perceived to maintain a higher level of recognized scientific impact and visibility compared to those not indexed (Mishra & Alok, 2011). There are numerous indexing systems, the most popular of which are Web of Science, Scopus, Directory of Open Access Journals, and Index Copernicus. Maintained by Clarivate Analytics as part of the broader Web of Science Core Collection, the Social Sciences Citation Index (SSCI) is a highly regarded database that indexes widely recognized and influential academic journals in the social sciences. To maximize their impact, some authors strive to publish their manuscripts in journals included in such reputable databases (Astaneh & Masoumi, 2018).

Q-ratings are quartile rankings assigned to academic journals based on their impact within a particular subject category. Derived from databases like Scopus or Web of Science, these rankings divide journals into four quartiles: a) Q1: Top 25% of journals in the category, b) Q2: Journals ranked in the 26%–50% range, c) Q3: Journals ranked in the 51%–75% range, and d) Q4: Bottom 25% of journals in the category (Elsevier, 2023). It is common for researchers to aim for publication in top-ranked journals, particularly those in the first quartile (Q1), as these journals often provide greater advantages, such as increased access to funding and greater visibility and citations within the academic community (Teixeira da Silva, 2023).

2.2. Discussion section

Q-rated indexed journals have their set of criteria for accepting a manuscript for publication. For RAs, these normally include the rationale for the study, the strength of the methodology, the interpretation of the data collected, and the overall contribution of the paper to the existing literature. The latter two are explained in the discussion section of RAs. The American Psychological Association (2020) explains that this is where authors evaluate and interpret the implications of their results. They contextualize, confirm, and clarify their conclusions based on the comparison made between their results and the work of others. It is particularly important for authors to highlight

the importance and implications of their findings. Similarly, the discussion section needs to include the authors' argument in support of their overall conclusion (McCombes, 2020).

Writing the discussion section is not an easy task since it requires an effective discussion and commentary on the results rather than a simple report of them (Hartley, 2008). Submissions may face rejection when the discussion section does not sufficiently meet these rhetorical expectations (Day & Gastel, 2006). There are many texts, textbooks, and other instructional materials on how to write an effective discussion section, some with a clear focus on MMs, which we elaborate on further below.

2.3. Metadiscourse markers (MMs)

Metadiscourse plays a significant role in enhancing the quality of academic writing. With the purpose of presenting the information accurately in their texts, authors benefit from developing the ability to use the features of metadiscourse skillfully to enhance comprehensibility and logical coherence, thereby facilitating readers' understanding. Hyland (2005b, p. 3), drawing on Harris's 1959 concept, explains that metadiscourse "represent[s] a[n author's] or speaker's attempts to guide a receiver's perception of a text." Schiffrin (1980) later introduced the term meta-talk, suggesting that utilizing metadiscourse facilitates the alignment of text organization while enabling the assessment of the intended information's scope to be communicated. Crismore (1983) defines metadiscourse as "an author's discoursing about the discourse", and "author's intrusion into the discourse either explicitly or non-explicitly" (p. 2). It was also defined by Vande Kopple (1985, p. 1) as "discourse that people use … to help their readers connect, organize, interpret, evaluate and develop attitudes towards that material."

Hyland (2005a) divides MMs into two broad domains: interactive and interactional markers. While the former help organize the flow of information to meet the reader's processing needs (e.g., transitions, frame markers, endophoric markers), the latter, interactional metadiscourse markers (IMMs), reflect the author's presence, stance, and engagement with the reader. The next section focuses specifically on IMMs.

2.3.1. Interactional metadiscourse markers

Interactional metadiscourse markers (IMMs) are linguistic devices used by authors to "control the level of personality in a text and establish a suitable relationship to [their] data, arguments and audience, marking the degree of intimacy, the expression of attitude, the communication of commitments, and the extent of reader involvement" (Hyland, 2010, p. 128).

In the discussion section of a RA, IMMs are key to helping authors establish a clear presence and authority within their academic discipline. To this end, authors can utilize a variety of linguistic devices. First are hedges, which include verbs (e.g., *appear*, *tend*), adverbs (*apparently*, *slightly*), and probability terms (*may*, *possible*, *perhaps*). They allow authors to express varying levels of certainty or ambiguity, "indicat[ing] the [author's] decision to recognize alternative voices and viewpoints, thus withholding complete commitment to a proposition" (Hyland, 2005b, p. 52). Hedges also allow authors to present their findings with caution, acknowledging the complexity of their research and positioning their conclusions as one interpretation among others. This fosters credibility and humility, making the author's claims more balanced and thoughtful. Hyland (1994) notes that scientists often use hedges in their writing to convince others that their experimental results are valid, as scientific "truth" involves not only ideas but also social agreement. He states, "in persuasive writing, hedges are an important means of both supporting the [author's] position and building [author]-reader relationships" (p. 241). Variation in the use of hedging devices can influence how reviewers on a journal's editorial board interpret a manuscript. Differences may lead them to perceive the certainty, scope, or nuance of the claims in different ways. Similarly, the discussion section may appear more or less detailed in addressing the complexities and uncertainties inherent in most research, depending on authors' rhetorical choices and prior experience

with English-medium academic writing. These patterns do not necessarily indicate a lack of ability but rather reflect different approaches to signalling caution, positioning interpretations, and aligning with disciplinary or journal-specific conventions. Such choices can affect how the manuscript's arguments are evaluated in the context of high-impact, indexed journals, which prioritize well-supported and carefully framed claims.

Second, boosters, such as adverbs (e.g., *definitely, clearly*), modal verbs (e.g., *must, have to*), and adjectives (e.g., *strong, significant).* Often considered closely related to and even inseparable from hedges (Grabe & Kaplan, 1997), boosters emphasize the certainty or importance of a statement, supported by data presented (Vázquez Orta & Giner, 2009). They enhance the force of propositions while also restricting possibilities for alternative voices (Hyland, 2009). Since every claim is open to interpretation, authors use boosting devices to strengthen their perspective and frame their arguments (Vázquez Orta & Giner, 2009). This helps reinforce their authority and establish a connection with the reader (Hyland, 2005b). Differences in the frequency or type of boosters used may reflect authors' rhetorical choices, but not necessarily limited ability. As such, these intensifying features in scientific articles are viewed as positive politeness devices (Myers, 1989), which in turn can support authors in confidently presenting their claims to meet the expectations of journals.

Third, self-mentions (e.g, I, we, my, your, the researcher, the current study, this paper) are "a powerful rhetorical device to display [an author's] contribution to a field and a strategic approach to constructing an author's identity" (Zhang & Pan, 2023). They enable authors to take responsibility for their interpretations and directly acknowledge their role in the research process, thereby establishing authority and emphasizing their central role. Although an impersonal self-mention (e.g., the author, the researcher) is possible, the American Psychological Association (2020) guidelines support using first-person pronouns when expressing personal views, as this reinforces the author's academic authority and positions them as active participants in the scholarly conversation. By articulating their perspective, authors showcase critical engagement with their findings and reflect on their significance within the broader context of existing literature. This expression of personal viewpoints and interpretations is particularly important in distinguishing their work from previous studies. High-impact journals prioritize contributions that not only build on existing research but also offer fresh insights or challenge established knowledge. Enriched by personal interpretation, such contributions can inspire further discussion, debate, and critique, aligning with the goals of leading academic publications.

Fourth, attitude markers, "the [author's] affective attitude to propositions, conveying surprise, agreement, importance, frustration, and so on" (Hyland, 2005b, p. 53), allow authors to communicate their feelings or evaluations about the subject matter, enhancing interaction with the audience. Common examples include adverbs (*e.g., fortunately, surprisingly*), adjectives (e.g., *essential, interesting*), and verbs (*e.g., agree, believe*). Attitude markers "create a convincing discourse and establish personal credibility, critical insight and disciplinary competence" (Hyland, 2005b, p. 151). These markers help engage with the research community and signal the author's involvement in the discourse, a feature that can support the manuscript's appeal to journals looking for active, engaged scholars.

Fifth, engagement markers "explicitly address readers, either, to focus their attention or include them as discourse participants" (Hyland, 2005b, p. 53). These include direct addresses (e.g., *you might notice*), questions (e.g., *what does this mean?*), references to shared knowledge (e.g., *as we know*), imperatives (e.g., *consider this example*), and personal asides, typically brief, often parenthetical comments in which the author steps out of the main flow to offer a reflection, clarification, or informal remark (e.g., *of course*, *let's not forget*). Academic writing presumes that readers actively engage with the text, making it essential to involve them in order to effectively reinforce the author's argument (Bal-Gezegin & Bas, 2020). The conversational tone created by

engagement markers likely captures the reader's interest, fostering an ongoing relationship with the audience. Authors' effective use of them enhances the persuasiveness and relevance of their arguments, making their work more likely to meet the rigorous standards of high-impact, indexed journals and increase its chances of acceptance.

2.4. Native English authors (NSE) and authors with English as an additional language (EAL)

Compared to experienced NSE authors, emerging EAL authors often navigate additional complexities due to differences in prior exposure to the linguistic, cultural, and rhetorical norms of English-language academic publishing. These norms extend beyond grammar to include argumentation structure, tone, and alignment with journal expectations. Such differences can influence the likelihood of acceptance in prestigious journals, which evaluate both content and the presentation of research (Canagarajah, 2002). Furthermore, unfamiliarity with how academic work is indexed and discovered can shape the visibility of their research. As a result, some authors may submit to journals less widely indexed or discoverable (Deveci, 2021a). In consequence, potential citation counts may be lower, reducing broader academic recognition and career advancement (Hindawi.com, 2019).

Additional challenges can stem from the cognitive demands of writing in a non-native language, which Hyland (2016) characterizes as 'a discursive challenge.' EAL authors often invest considerable mental effort in crafting their writing, particularly in areas such as vocabulary, sentence structure, and overall organization, and may require additional time to meet the expectations of English-medium journals (Englander, 2014; van Weijen, 2014).

Managing such cognitive load is a normal part of developing expertise in academic English writing and may take considerable time to fully develop. Emerging authors under pressure to publish quickly may therefore resort to alternative journals indexed in less reputable databases or not indexed at all, which often apply less rigorous screening procedures, maintain higher acceptance rates, and enforce less demanding editorial standards (Teixeira da Silva, 2023). This pattern reflects systemic dynamics in academic publishing, including the accumulation of experience and familiarity with journal expectations. Research analyzing articles and reviews published in ten library and information science journals over a 20-year period found that these journals increasingly feature publications by more experienced authors, with fewer contributions from less experienced teams (Frandsen & Nicolaisen, 2024). Such trends may influence publication strategies, encouraging emerging authors to prioritize accessibility and speed over prestige, thereby reinforcing stratified patterns of academic publication.

Albeit limited in size, comparisons have been made regarding the utilization of certain IMMs in the discussion section of RAs between NSE and EAL authors. Shirzadi et al. (2017), for example, found that the former tended to use attitude markers, hedges, and self-mentions more frequently, while the latter, of Iranian origin, were more inclined to use boosters. A more frequent use of hedges in the discussion section by NSE authors, compared to Bulgarian EAL authors, was also identified by Vassileva (2001). These differences may not necessarily reflect inability, weakness, or disparities in research quality; rather, they likely stem from variations in rhetorical choices shaped by prior experience, disciplinary conventions, editorial expectations, and differing levels of exposure to English-medium publication practices.

3. Methodology

3.1. Corpus

In this preliminary study, we conducted a corpus-based comparative analysis of discussion sections in RAs authored by NSE and Turkish EAL scholars in the field of education. We compiled two corpora: 15 single-authored RAs (15,166 running words) by NSE scholars published between

2020 and 2025 in Q1-rated, SSCI-indexed journals under "Education & Educational Research" (impact factors above roughly 3), and 15 single-authored RAs (19,048 running words) by Turkish scholars published in peer-reviewed, Turkey-based education journals indexed in the national database TR Dizin. We defined "nativeness" as having English as a first language and being raised and educated primarily in an English-speaking environment, and to verify this, we examined authors' names and institutional affiliations and then contacted each author by email to confirm their linguistic background. We selected the Turkish journals to mirror the disciplinary scope of the NSE corpus, and a complete list of journals appears in Table 1.

Table 1. Journals constituting the corpus.

NSE Corpus		**EAL Corpus**	
Journals	**# of RAs**	**Journals**	**# of RAs**
Active Learning in Higher Education	2	Turkish Journal of Education	2
British Journal of Educational Technology	4	Adiyaman University Journal of Educational Sciences	2
Innovations in Education and Teaching International	2	Anadolu University Journal of Education Faculty	2
International Journal of Educational Research Open	2	Bogazici University Journal of Education	5
British Journal of Educational Studies	2	Educational Academic Research	2
International Journal of Educational Development	2	Kocaeli University Journal of Education	2
Tesol Quarterly	1		
Total	15		15
Word-count	15,166		19,048

Identifying single-authored articles verifiably written by NSEs in Q-rated journals was challenging because many education journals publish multi-authored papers or lack sufficient biographical details. We therefore prioritised author and language verification over quantity, which resulted in smaller but more rigorously validated datasets. We applied the same principles to the Turkish EAL corpus and matched both corpora by genre (single-authored RAs), disciplinary focus, and publication period (2020–2025) to minimise variability from co-authorship or disciplinary imbalance. We also chose SSCI-indexed journals for the NSE corpus to reflect the contextual importance of these journals in shaping academic publishing practices and expectations, particularly within the Turkish academic landscape, where such journals influence promotion and writing norms.

3.2. Data analysis

The taxonomy of IMMs we used was primarily based on Hyland's (2005b) framework. However, we closely examined how each item in his taxonomy functioned within the co-texts in which it appeared across the 30 research articles in our corpus. As Hyland (2005b) cautions, the application of metadiscourse categories should be guided by contextual usage rather than strict reliance on predefined lists. In line with this recommendation, our manual analysis of the discussion sections also identified IMMs specific to our dataset but not included in Hyland's original taxonomy.

Conversely, some items listed in his framework did not function as IMMs in our data, or there was insufficient evidence to support their classification as such. These items were excluded from our results.

We conducted the data analysis in two stages. Initially, we, as the two researchers, independently analyzed the texts after a standardization session to ensure consistent coding procedures. Analyses involved both automated tools, primarily LancsBox, and manual checks to enhance accuracy. The initial inter-rater reliability coefficient was 0.81, indicating a high level of agreement. We discussed any discrepancies that occurred and excluded the items that could not be resolved through discussion.

For the comparison of the two corpora, we used log-likelihood (LL) statistical tests to identify significant differences in the use of IMMs by the two groups of authors. Following standard practice in corpus linguistics (Rayson & Garside, 2000), we adopted conventional LL cut-off values to determine statistical significance: a LL value of 3.84 or higher was considered significant at the $p < 0.05$ level.

4. Results

Table 2 presents a summary of the data comparing the use of IMMs in the discussion sections of ERAs by NSE authors publishing in Q1 SSCI journals and Turkish EAL authors publishing in non-Q journals.

As shown in Table 2, notable differences emerged in the use of IMMs between the two datasets. When all categories are considered collectively, the grand total indicates a statistically significant higher frequency of IMMs by NSE authors (LL = 2.94, $p = 0.000$).

Hedges were the most frequently used IMMs by both groups, accounting for 307 instances (2.02%) in the NSE corpus and 257 instances (1.35%) in the EAL corpus. This difference was statistically significant (LL = 23.13, $p = 0.0000$), indicating overall higher use of hedges by NSE authors.

Within the NSE group, modal verbs were the most dominant sub-category, comprising 38% of all hedges. There were 118 instances of modal verbs, with the most common being "may" ($f = 55$), "would" ($f = 30$), and "might" ($f = 22$). This was followed by verbs (21%), adverbs (17%), quantifiers (12%), adjectives (7%), and expressions (4%). Compared to Turkish authors, NSE authors showed statistically significant higher use of modal verbs ($p = 0.0052$) and adverbs ($p = 0.004$). Notably, while adverbs made up 17% of hedges in the NSE corpus, they accounted for only 14% in the EAL corpus, indicating both a higher relative and a normalized frequency. Other sub-categories showed smaller or non-significant differences. Adjectives, for instance, were used slightly less frequently by NSE authors (7% vs. 12%), though this difference was not statistically significant ($p = 0.7886$).

Boosters were the second most frequently used IMM by both groups. NSE authors employed 119 instances (0.79%) and Turkish authors used 87 (0.45%). This difference was statistically significant (LL = 14.95, $p = 0.0001$), indicating a clear greater use by NSE authors.

Adverbs were the most frequently used sub-category in the NSE corpus, accounting for 48% of all boosters. They used a greater variety of adverbs, the most common of which was "highly" ($f = 19$), an adverb exclusive to the NSE corpus. This was followed by adjectives (29%), quantifiers (13%), modal verbs (8%), and expressions (2%). On the other hand, adverbs represented 29% of boosters in the Turkish corpus. This higher frequency of adverbs by NSE authors was statistically significant ($p = 0.0000$).

Table 2. Log-likelihood test results.[1]

IMMs	Sub-category	NSE			EAL			Higher/ Lower use[c]	LL	*p*
		f	%[a]	%[b]	f	%[a]	%[b]			
Hedges	Modal verbs	118	0.78	38	83	0.44	32	+	16.71	0.0000
	Verbs	65	0.43	21	71	0.37	28	+	0.66	0.417
	Adverbs	53	0.35	17	36	0.19	14	+	8.29	0.004
	Quantifiers	36	0.24	12	28	0.15	11	+	3.66	0.058
	Adjectives	23	0.15	7	31	0.16	12	-	0.07	0.7886
	Expressions	12	0.08	4	8	0.04	3	+	1.98	0.1595
	Total	307	2.02	100	257	1.35	100	+	23.13	0.0000
Boosters	Adverbs	57	0.38	48	25	0.13	29	+	21.18	0.0000
	Adjectives	34	0.22	29	52	0.27	60	–	0.81	0.3681
	Quantifiers	15	0.10	13	4	0.02	5	+	9.54	0.002
	Modal verbs	10	0.07	8	2	0.01	2	+	7.80	0.0052
	Expressions	3	0.02	2	4	0.02	4	–	0.01	0.9136
	Total	119	0.79	100	87	0.45	100	+	14.95	0.0001
Self-mentions	Impersonal	53	0.35	56	75	0.39	100	–	0.44	0.5093
	Personal	41	0.27	44	0	0.00	0	+	66.71	0.0000
	Total	94	0.62	100	75	0.39	100	+	8.66	0.0032
Engagement markers	Shared knowledge	33	0.22	59	2	0.01	28	+	40.71	0.0000
	Personal asides	11	0.07	20	2	0.01	28	+	9.08	0.0026
	Rhetorical questions	9	0.06	16	0	0.00	0	+	14.64	0.0001
	Imperatives	3	0.02	5	3	0.02	44	+	0.08	0.7760
	Total	56	0.37	100	7	0.04	100	+	55.37	0.0000
Attitude markers	Adjectives	21	0.14	68	48	0.25	74	–	5.59	0.0181
	Expressions	8	0.05	26	9	0.05	14	+	0.05	0.8237
	Adverbs	1	0.01	3	2	0.01	3	–	0.15	0.7005
	Verbs	1	0.01	3	6	0.03	9	–	2.91	0.0877
	Total	31	0.21	100	65	0.34	100	–	5.80	0.0160
	Grand total	607	4		491	2.58		+	52.94	0.0000

a. Percentages calculated based on the total number of words in each corpus (i.e., normalized to corpus size).
b. Percentages calculated based on the total number of IMMs within each main category, showing the relative distribution of sub-category types.
c. "+" indicates higher use in the NSE corpus relative to the Turkish corpus, while "–" indicates lower use in the NSE corpus relative to the Turkish corpus.

[1] A complete list of items used in each type by both groups of authors can be found in Appendix A.

A statistically significant higher frequency was also observed for quantifiers (p = 0.002) and modal verbs (p = 0.0052). Although adjectives were used more frequently by Turkish authors (60% vs. 29%), this difference was not statistically significant (p = 0.3681). Moreover, they

demonstrated less variety in adjective use, often relying on "significant" (f = 24) to highlight their findings. Expressions, the least used sub-category by both groups, showed almost identical distributions (p = 0.9136).

Self-mentions were the third most frequently used interactional IMMs; NSE authors used them 94 times (0.62%) and Turkish authors utilized them 75 times (0.39%). This difference was statistically significant (LL = 8.66, p = 0.0032). The self-mention category was divided into personal and impersonal references. Among NSE authors, impersonal forms were slightly more common (56% of self-mentions), while personal references accounted for 44%, including 18 instances of "I," 15 of "my," 6 of "we," and 2 of "our." The last two were used to refer to earlier publications co-authored with others; therefore, their occurrence in a single-authored paper should not be considered unusual. See the examples below:

> *In the project report we concluded that the reforms tended to create both 'winners and losers', but ….*
>
> ***My** conclusions here largely chime with our earlier assessment that ….*

In contrast, Turkish authors relied exclusively on impersonal forms, the most common of which were "this study," "the current study," and "the research." The absence of personal self-mentions in the Turkish corpus stands in sharp contrast to their frequent use by NSEs, a difference that was highly statistically significant (p = 0.0000). However, the use of impersonal references did not differ significantly between the two groups (p = 0.5093).

Engagement markers ranked as the third most frequently used IMM among NSE authors, but they were the least used by Turkish authors. The former employed 56 instances (0.37%) of engagement markers, while the latter used only 7 (0.04%), marking a statistically significant difference in overall use (LL = 55.37, p = 0.0000). Among NSEs, the most frequently used sub-category was the shared knowledge references (59%, f = 33). An example is as follows:

> ***We** are, though, in dangerous territory here, as such an argument could be used to ….*

This was followed by personal asides (20%), which NSEs used with greater variety (e.g., "of course," "after all," "to be clear," and "as we have seen"), rhetorical questions (16%) (e.g., "... why did segmentation not increase learning?" and "Would it be so very different if an expanded epistocracy were in place today?"), and imperatives (5%). In contrast, the Turkish corpus showed minimal or no use of most engagement features; only 2 instances each of shared knowledge and personal asides, no rhetorical questions, and 3 imperatives. Statistically significant differences were observed in the use of shared knowledge (p = 0.0000), personal asides (p = 0.0026), and rhetorical questions (p = 0.0001). The use of imperatives, however, did not differ significantly between the two groups (p = 0.7760).

The least frequently used IMMs by NSE authors were attitude markers, with only 31 instances (0.21%) compared to 65 instances (0.34%) in the EAL corpus. This difference was statistically significant (LL = 5.80, p = 0.0160), indicating a general less frequent use of attitude markers by NSEs relative to Turkish EAL authors. This difference was driven largely by the more frequent use of adjectives among Turkish authors (68% vs. 74%). Notably, they used the adjectives "important" (f = 23 vs. 13), "expected" (f = 8 vs. 2), and "noteworthy" (f = 5 vs. 0) more frequently than NSE authors. This sub-category showed a statistically significant less frequent use in the NSE corpus (p = 0.0181). Despite the higher frequency of adjectives, Turkish authors employed a narrower range of adjectives compared to NSE authors. Expressions made up 26% of attitude markers in the NSE corpus and 14% in the Turkish one, though the difference was not statistically

significant ($p = 0.8237$). Adverbs and verbs were used minimally by both groups, each accounting for just 3% of the NSE corpus. While verbs were more frequent in the Turkish texts (9% vs. 3%), this difference was not at a statistically significant level ($p = 0.0877$). The case was similar for adverb use ($p = 0.7005$).

5. Discussion

In this preliminary study, we analyzed how NSE authors used IMMs in the discussion sections of Q1 SSCI-indexed ERAs, compared to Turkish authors writing in lower-ranked local journals. Our analyses revealed multiple differences across all five IMM categories, most of which were statistically significant. Overall, NSE authors used a greater number and a wider variety of IMMs in more strategic ways than Turkish authors. These findings align with previous research revealing the rhetorical sophistication of experienced NSE authors (Shirzadi et al., 2017), whose use of IMMs facilitates writing discussions with insightful commentary on their results (Hartley, 2008) through reader engagement. They also support Crismore and Fransworth's (1990) view that academic writing is purposeful communication, not merely one-way transmission of information, emphasizing the role of IMMs in guiding reader interpretation. Such patterns underscore the importance of viewing academic writing as a skill that can be explicitly taught and scaffolded, highlighting potential areas for development in academic literacy and genre awareness training for EAL authors. This perspective aligns with recent findings showing that differences in stance, authorial presence, and agency across publication contexts reflect recurring rhetorical tendencies associated with editorial, peer-review, and readership practices, not differences in scientific rigor; making these patterns explicit can enhance authors' strategic choices when targeting different journal environments (Deveci, 2025).

As for the sub-categories of IMMs, hedges were the most frequently used one in both corpora. NSE authors displayed a broader and more varied use, particularly with modal verbs and adverbs. Their use is key to scholarly persuasion through tentative and negotiable interpretations and claims (Hyland, 1994, 2005b). Turkish authors' narrower deployment of hedges may reflect the types of feedback and instructional practices prevalent in local academic writing courses, where precision and certainty are emphasized. In this sense, hedging can be understood not as an inherent linguistic limitation but as a rhetorical resource that develops through sustained engagement with English-medium publication practices (Hyland, 2016).

Boosters were the second most frequent IMM in both corpora. The comparable frequency of hedges and boosters supports Grabe and Kaplan's (1997) observation that these two categories are closely related. Compared to Turkish authors, NSE authors used significantly more boosters, particularly adverbs, to reinforce their claims and express conviction, possibly reflecting their greater attention to the dual role of boosters in conveying confidence and guiding reader interpretation (Vázquez Orta & Giner, 2009).[2] Interestingly, Turkish authors relied more heavily on adjectives, though their range was narrower, with the word *significant*[3] occurring most frequently.

[2] The observed difference may also reflect variation in rhetorical conventions across publication contexts, where NSE authors publishing in higher-impact journals may be more inclined to use stronger evaluative language to emphasize findings and meet perceived publication expectations, whereas EAL authors may adopt a more restrained style that remains closer to reporting results without amplification. In the present study, we do not assess the correspondence between linguistic emphasis and statistical magnitude; therefore, this interpretation remains speculative.

[3] The term *significant* is used variably in research writing, sometimes to denote "statistical significance" and at other times general importance. In the present dataset, the few instances of *statistically significant* (one in each corpus) were excluded; the results therefore reflect uses of *significant* denoting general importance rather than statistical significance.

This reliance on a limited set of lexical items may reflect established rhetorical preferences or greater familiarity with certain evaluative expressions. While both groups used boosters to highlight their findings, NSE authors showed a repertoire that allowed for more varied and nuanced expression. This variety may support reinforcing authority and employing positive politeness strategies with readers (Myers, 1989). Although EAL authors' patterns represent alternative approaches to conveying emphasis and claim strength, the findings suggest scope for expanding interactional strategies in response to the rhetorical expectations of high-impact journals (Hyland, 2016; van Weijen, 2014).

As far as we are concerned, the use of self-mentions yielded the most striking finding. It was particularly interesting to note Turkish authors' exclusive use of impersonal references, whereas NSE authors employed both personal and impersonal references with roughly equal frequency. Turkish authors' preference for impersonal self-mentions clearly reflects local academic writing norms regarding authorial stance. But why might this be the case, despite APA's (2020) recommendations, Zhang and Pan's (2023) recognition of self-mention as crucial for authorial identity, and Sword's (2012) argument that it makes writing more energetic and persuasive? This, we believe, stems from their local norms that prioritize perceived objectivity in formal writing. Anecdotal evidence suggests that many Turkish journals discourage the use of personal language in academic writing. For example, the first author of this study had to justify his use of personal pronouns in article submissions reviewed by Turkish reviewers (see Deveci, 2021a). Other Turkish scholars have reported similar experiences. One participant cited in our earlier research (Deveci & Nunn, 2020, p. 305) explained: *"Scholars in Turkey prefer the use of passive voice in academic writing as they see it as a sign of being humble and kind."* He further shared that he was heavily criticized by Turkish reviewers for overusing the personal pronoun *I* and had to adapt the authorial voice to align with reviewer expectations. He added that he had never received such criticism in his international publication experiences in the UK or the USA. Whatever the underlying cause, these divergent uses of self-mention represent alternative strategies for constructing rhetorical presence within specific academic publishing contexts with varying levels of acceptance.

We also find the differences in the authors' use of engagement markers notable. Except for the use of imperatives, all subcategories of engagement markers differed significantly between the datasets. NSE authors' SSCI-indexed papers included a greater variety of engagement markers. They frequently utilized shared knowledge and personal asides as well. The use of the first-person plural, in particular, helps involve the reader in the reading process and allows the author to reference their direct discourse community (Livnat, 2012). In doing so, the author does not highlight themselves but rather expresses membership in the scientific discourse community. In our study, too, these markers helped the authors create a more dialogic, reader-aware text (Hyland, 2005b). In contrast, Turkish authors' use of these markers was more selective or limited, and some subcategories, such as rhetorical questions, were largely absent. Their inclusion, however, could have expanded the dialogic space for readers' interpretations (Alzahrani, 2020). Why do Turkish authors avoid such reader-oriented strategies, especially when questions are known to emphasize the dialogic nature of academic writing (Hyland, 2002)? This is interesting because the nonexistence of rhetorical questions in our study contradicts prior research findings showing Turkish authors used them in their essays (Uysal, 2012). As authors educated within the Turkish academic writing tradition, we know firsthand that these patterns reflect local pedagogical practices and the writing instruction students typically receive, which prioritizes content organization and justification over interactive, reader-focused strategies. Additionally, Turkish authors tend to view RAs as a genre distinct from essays and, in emphasizing formal objectivity, consequently limit their use of rhetorical questions. Taken together, the findings suggest that Turkish EAL authors tend to favour a structured, presentation-focused style, primarily intended to report results and situate them relative to prior research, rather than to foster dialogic interaction with readers. Based on

our own background and observations, we attribute this largely to the influence of local academic literacy training and limited exposure to genre models that foreground reader engagement (Grabe & Kaplan, 1996). This interpretation is consistent with research suggesting that internationally indexed journals typically encourage more visible authorial agency and dialogic positioning through their editorial and review frameworks, whereas locally indexed journals may privilege alternative norms of rhetorical realization that remain equally rigorous but align with different audience expectations (Deveci, 2025).

One area where Turkish authors showed a higher frequency of IMMs relative to their EAL counterparts was in the use of attitude markers. This was largely due to a greater reliance on adjectives, which were also frequently used as boosters. Their focus on adjectives, whether overt or covert, can be viewed positively in light of Biber et al.'s (1999) observation that they are particularly common in written registers, especially academic prose, since they contribute to the informational density of expository writing. In support of this, Okulicz-Kozaryn (2013) identified frequent utilization of adjectives in social sciences RAs. In discussion sections, authors often use adjectives to highlight the significance of their findings, which contributes to a transparent authorial voice. Drawing on data from high-impact journals in our previous study, we argued that acknowledging assumptions and subjectivity is essential to presenting knowledge creation as credible (Nunn, et al., 2018). Proficient authors, in particular, tend to employ explicit evaluative language for this purpose. Indeed, our previous research on adjectives in lifelong learning and adult education-related RAs found that evaluative adjectives were used extensively (Deveci, 2021b). Therefore, the Turkish authors' frequent use of adjectives in the current study can be seen as a rhetorical strength that emphasizes key findings; at the same time, it highlights an opportunity to diversify engagement strategies, incorporating additional interactional markers to further involve readers. Their reliance on adjectives, often revolving around words like significant and important, may complement other rhetorical techniques rather than replacing them, suggesting room for expansion in dialogic engagement strategies typical of high-impact academic discourse. Consistent with this, contextual research on RA closings indicates that differences in stance and authorial presence are systematic patterns shaped by publication context (Deveci, 2025).

Overall, these results suggest that variations in rhetorical strategies may reflect differences in academic training and teaching practices. In Turkey, prescriptive educational norms and socially transmitted genre expectations shape how authors are socialized into disciplinary practices (Güçlü, 2025), and limited exposure to rhetorical and interactional features in writing instruction contributes to observed tendencies in stance and engagement (Altınmakas & Bayyurt, 2019; Altun, 2022). In contrast, English-medium academic literacy instruction often foregrounds dialogic and rhetorical dimensions, helping authors to strategically negotiate claims and involve readers (Canagarajah, 2002). Accordingly, the patterns identified in this study reflect differences in socialization and exposure to discipline-specific writing conventions, highlighting opportunities for targeted pedagogical interventions discussed below.

6. Implications and recommendations

Although based on a small sample of RAs from a limited range of journals, the findings of this study offer valuable insights for supporting the scholarly development of EAL authors, particularly Turkish authors exploring strategies for publication in SSCI-indexed or other high Q-rated journals. Below, we outline three areas where these findings have practical implications.

6.1. Author focused strategies

Emerging scholars aiming to publish internationally need to develop self-regulation skills that enable strategic control over their academic writing, including authorial voice, epistemic stance, and reader engagement. To this end, they should employ first-person pronouns to assert responsibility for their interpretations and clearly position themselves as active participants in the

research process. It is also important to use rhetorical devices such as rhetorical questions and personal asides, creating a dialogic tone that invites readers into the argument. Authors should be deliberate and consistent in their conscious use of these elements and be prepared to explain their rationale to journal editors.

Additionally, authors need to expand their lexicon to avoid overreliance on a narrow set of adjectives and underuse of modal verbs or boosting adverbs, which can otherwise constrain rhetorical clarity and effectiveness. To broaden their discipline-specific vocabulary for education and the RA genre, they could consult literature on academic vocabulary (e.g., Deveci, 2019). Another effective strategy is extensive reading of texts by competent authors, which Krashen (1984) notes enhances writing proficiency. They should read high-quality journal articles[4] and consciously attempt to emulate stylistic and rhetorical features. These practices are *not* prescriptive norms but serve as benchmarks to cultivate awareness of rhetorical conventions often recognized in international academic publishing. Emerging authors can also leverage their self-regulated learning skills by applying the principles of McGrath et al.'s (2023) collaborative model. With coordinated guidance from experienced colleagues, language specialists, and academic developers, they can plan, monitor, and reflect on their writing while strategically applying rhetorical conventions within authentic, discipline-specific tasks.

6.2. Pedagogical strategies

The findings also highlight practical pedagogical strategies that instructors and educational practitioners can broadly apply to enhance learning development in academic writing. First, the limited frequency and variety of IMMs by EAL authors points to opportunities for strengthening genre-based academic writing instruction. Instructors can provide learners with greater exposure to discourse models that illustrate authorial presence, reader engagement, and epistemic caution, helping students understand how experienced authors construct persuasive and credible arguments (Altun, 2022). This approach also aligns with Wilson and Chan (2025), who emphasize that embedding academic literacy instruction within discipline-specific courses helps students connect rhetorical skills to tasks and texts in their field, making learning more meaningful and applicable. This approach further aligns with Dix's work (2026), which emphasizes that developing academic discourse skills goes hand-in-hand with fostering students' critical thinking and inquiry processes; teaching learners how to inquire and think critically is therefore fundamental to improving their academic communication, and integrating IMMs into writing instruction can support both rhetorical competence and critical thinking development. In support of this need, Rantala-Lehtola (2025) notes that emerging authors' academic writing development involves identity transformation as they negotiate disciplinary norms and expectations; pedagogy, therefore, should also support learners in developing their sense of themselves as authors, helping them enact authorial voice and presence while engaging critically with their field.

Second, language instruction should go beyond grammar and decontextualized vocabulary by also providing explicit guidance on the different types of IMMs and their rhetorical functions. Authentic examples from high-impact international journals can be used to illustrate how seasoned authors use IMMs to engage readers and construct a stance. Classroom exercises, scaffolded assignments, and guided feedback cycles can help learners practice these features systematically, enabling them to apply IMMs strategically in their own writing. Originally focused on grammar, Paraskevas's (2006) "grammar apprenticeship" approach can be adapted to enhance

[4] Rather than relying on indexation and journal rank *per se*, model texts can be selected through external validation (e.g., instructor recommendation, inclusion in widely used academic writing textbooks, or repeated use in graduate-level courses).

awareness of IMMs and their rhetorical effects. Particular attention should be given to features less frequently employed by Turkish authors in our study (i.e., rhetorical questions, personal asides, and shared knowledge markers).

Finally, instruction should avoid presenting IMMs as isolated items. While types and functions can be taught individually, it is crucial to highlight their interaction with each other, with broader interactive metadiscourse markers, and with other language features such as sophisticated syntactic structures and academic lexis. Workshops, peer-review exercises, and collaborative writing tasks can provide structured opportunities for emerging authors to integrate IMMs with these broader linguistic and rhetorical features, supporting their development as self-regulated, strategically aware authors. By emphasizing these connections, educators can help all novice authors, not just those with EAL, develop more dialogic, reader-aware, and persuasive writing.

6.3. Editorial implications

Editorial boards of journals, too, have a role to play. We suggest that local journals consider revisiting their submission guidelines regarding metadiscourse. Overly strict rules discouraging personal voice may inadvertently limit opportunities for authors to assert scholarly identity and hinder the global visibility of local research**.** Similarly, editorial boards of high-impact, highly indexed journals could benefit from greater openness to manuscripts that exhibit developing authorial presence (particularly during initial screening), ensuring that valuable content is not excluded due to rigid rhetorical expectations with which authors from different linguacultural contexts may be less familiar. Nunn and Adamson (2007, p. 206) warn against standardized, "strict evaluation criteria in linear fashion dictat[ing] an inflexible generic review structure to the detriment of promoting different cultural voices." To mitigate such limitations, alternative review models have emerged. For example, author-guided open peer review promotes dynamic evaluations, ensures high-quality feedback, and fosters collaboration between authors and reviewers (Chung, 2019). Alongside these models, teams of reviewers can support authors' development by providing constructive feedback, acknowledging valid variations, and guiding emerging authors toward more effective academic expression (Nunn & Adamson, 2007).

6.4. Next steps for research

There are several areas in which further research could deepen our understanding of scholarly writing. First, because this study draws on a relatively small set of RAs from a limited range of journals, its findings remain tentative and should be approached with caution. Future research would benefit from expanding the dataset to include a larger number of articles from a wider variety of educational journals to test the generalizability of these results. Second, researchers could investigate the use of IMMs across various social sciences, including comparative analyses between soft and hard sciences to identify disciplinary differences. Third, examining the effect of explicit IMM instruction on authors' ability to become more visible and authoritative within their fields would provide valuable pedagogical insights. Additionally, qualitative research focusing on authors' beliefs about academic writing practices and the challenges they face could deepen our understanding of the writing process.

Declarations

Generative AI use

During the preparation of this work, we used OpenAI's ChatGPT (version GPT-4) to check the manuscript for language accuracy and fluency. We employed the tool to identify and revise instances of grammatical errors, awkward phrasing, and stylistic inconsistencies. We have reviewed all content and wordings created by the generative AI tool(s) used, edited this content as needed, and take full responsibility for the content of the publication.

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Appendix A. Inventory of IMMs used by NSE and EAL authors[5,6]

IMMs	Sub-category	NSEs	EALs
Hedges	Verbs	suggest, indicate, tend to, appear, argue, claim, **estimate**, contribute, seem	suggest, indicate, tend to, appear, argue, claim, contribute, seem, **feel**
	Adverbs	often, perhaps, potentially, not necessarily, relatively, almost, largely, arguably, frequently, sometimes, typically, about, entirely, completely, generally, partly, possibly, presumably, supposedly, somewhat, at times, unlikely, likely	often, perhaps, potentially, not necessarily, relatively, almost, largely, arguably, frequently, sometimes, typically, about, entirely, completely, generally, partly, possibly, presumably, supposedly, somewhat, at times, unlikely, likely **mostly, mainly, approximately**
	Adjectives	potential, certain, possible	potential, certain, possible, **apparent, typical**
	Quantifiers	some, many, most, **a few**	some, many, most
	Modal verbs	may, would, might, could	may, would, might, could
	Expressions	**as a general perspective**, **an explanation**, in general, **as a general perspective**	one of the reasons, in general, **in certain cases**, **from an educational perspective,**
Boosters	Adverbs	highly, particularly, very, always, indeed, **really**, strongly, **actually**, **clearly**, **notably**, obviously, **so**	particularly, very, indeed, always, strongly, obviously
	Modal verbs	must	must
	Quantifiers	less, much	less, much
	Adjectives	significant, key, certain, essential, clear, evident, **sure,** major, inevitable, **indisputable, incontestable, apparent**	significant, key, certain, essential, clear, evident, sure**,** major, inevitable, indisputable**,** incontestable**,** apparent, **obvious**
	Expressions	**it is evident that**	**it is obvious that, in fact**
Engagement markers	Rhetorical questions	Why did …?, Would it …?, Should the more highly educated…?, How would it …?, Who makes …?	–
	Shared knowledge	we, our, us	we, our, us, **as it is known**
	Imperatives	see, note, consider, refer, think of, notice	see, note, consider, refer, think of, notice
	Personal asides	**of course, after all, to be clear, as we have seen**	**in particular, as can be seen**
Attitude markers	Verbs	worth	**emphasize**, **prefer**, worth
	Adverbs	**notably**	**correctly**
	Adjectives	important, expected, appropriate, essential, **promising, preferable,** striking	important, expected, **noteworthy,** striking
	Expressions	in line with/align with/chime with, even x, this raises the question	in line with/align with/chime with, even x, this raises the question
Self-mentions	Personal	I, my, we, our	–
	Impersonal	this study, the study, the current study, **it**, **this paper**, this finding, the research, this research, **this study's**	this study, the study, the current study, **the researcher's**, this finding, the research, **the researcher**, this research

[5] Items in bold represent lexical markers that appear only in one corpus and not in the other.
[6] Items are listed in order of frequency.

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