Journal of Education and Teacher Training Innovation (JETTI)
Published by Pusmedia Group Indonesia

Journal of Education and Teacher Training Innovation
Volume 4 Issue 1 Year 2026 Pages 385 - 404
e–ISSN : 3025-3500
DOI: 10.61227
e-mail : jetti.pusmedia@gmail.com
https://journal.pusmedia.com/index.php/JETTI

A Gender-Oriented Investigation of Interactional Metadiscourse in Research Article Abstracts

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Abstract: This study investigated gender differences in the use of interactional metadiscourse markers (IMMs) in research article abstracts. Focusing on 200 abstracts written by male and female scholars in Applied Linguistics, the research examined how gender influences the frequency and distribution of IMMs, including hedges, boosters, attitude markers, engagement markers, and self-mentions. Using Hyland's (2005) taxonomy, the abstracts were analyzed quantitatively. Statistical results showed a significant relationship between gender and the use of IMMs. In both disciplines, male authors employed these markers more frequently than female authors. Although disciplinary differences were observed, the main gender-related finding was that male writers tended to rely more on interactional resources overall. However, self-mentions and engagement markers were used relatively infrequently by both genders, suggesting a shared preference for hedges, boosters, and attitude markers as persuasive strategies in abstract writing. These findings carry practical implications for EAP pedagogy and editorial practice, particularly in guiding novice researchers, especially women, toward more rhetorically effective abstract writing.

Keyword : Applied Linguistics; Abstracts; Interactional Metadiscourse Markers; Gender difference.

Article info: Submitted : 2026-02-24 | Accepted : 2026-06-06 | Published : 2026-06-07

How to Cite :

Introduction

For learners of English as a Foreign Language (EFL), writing is especially significant. Being able to produce an academic essay represents a crucial stage in mastering a foreign language. It supports language development by involving students in an active process of choosing suitable vocabulary, constructing coherent sentences, and applying the conventions of academic writing to express their ideas clearly and effectively (Zeynali Dastuyi et al., 2024). To create clear and communicative texts, learners must pay attention to key interactive elements known as "metadiscourse markers." The concept of metadiscourse was first introduced by Zelling Harris (1959) to explain language in use and to show how writers guide readers in understanding a text (Kan, 2016).

On the other hand, most genre-based research focuses on the rhetorical organization of texts. In research articles, a key rhetorical element is metadiscourse, which enhances persuasiveness, improves readability, and helps writers connect with their audience (Hyland, 2005). According to Hyland (2005), metadiscourse markers (MM) function as tools for social interaction that support the construction of disciplinary knowledge, reflecting the distinct features of each field. Consequently, the use of metadiscourse varies across disciplines.

Hyland and Tse's (2004) framework categorizes metadiscourse into two main types: interactive and interactional resources. Hyland (2001) further identifies several categories of metadiscourse. Hedges indicate a writer's reluctance to present propositions with full certainty, while boosters convey confidence and assertiveness about claims. Attitude markers reveal the writer's evaluation of the information presented. Engagement markers, on the other hand, involve readers directly in the text through the use of second-person pronouns, imperatives, and questions.

Furthermore, the abstract is the most crucial part of a research paper, as it allows readers to quickly grasp the key elements of the study. For this reason, it serves as an important tool for informing the scientific community (Bazerman, 1988; García-Calvo, 2010). Crismore, Markkanen, and Steffensen (1993) argued that since the abstract can be viewed as a persuasive form of writing, examining the metadiscourse strategies employed by abstract writers would be especially valuable.

Understanding metadiscourse provides three key benefits. First, it enables writers to recognize the cognitive challenges their texts may pose for readers and how they can support readers in processing information. Second, it equips writers with the means to express their position toward their ideas. Third, it allows them to manage and negotiate this stance while actively engaging with their audience (Pasaribu, 2017). Therefore, this study investigates how interactional metadiscourse markers (IMMs) are structured in research article abstracts in Applied Linguistics with regard to gender. Additionally, it seeks to determine whether there is a relationship between gender and the use of IMMs in the abstract sections of research articles. Also, given

that the academic writing is a socially situated practice, author characteristic such as gender may systematically influence the deployment of these interactional resources. However, the extent to which gender shapes the fluency and distribution of IMMs in research article abstracts remains unexplored. According to the problems discussed above, the following main research questions are proposed:

1. Does gender play a significant role in the patterning of MMs in RA abstracts Applied Linguistics?
2. How do male and female authors differ in their use of interactional metadiscourse markers in RA abstracts within the field of Applied Linguistics?

Literature Review

1. Language and Gender Area of Research In the field of discourse analysis

Some researchers direct their efforts to understanding why gender differences appear through a functional approach where the same linguistic form may serve a variety of functions, depending on the context of its use (Holmes, 1995). According to the functional approach, gender is seen as inherent to the individual. From this perspective, gender can be treated as an independent variable, whose effects can be assessed on dependent variables (Holmes & Meyerhof, 2003). On the other hand, some scholars focus instead on communicative styles in which they take elements of the social context into account. The communicative approach conceptualizes gender as a role that depends on social structural position and the expectations associated with that position (Holmes, 2003). However, the current study adopted the functional approach. It sought to explore the effect of gender factor as an independent variable in the usage of interactive metadiscourse markers. Moreover, it attempted to figure out the reasons behind those variations in the light of difference theory and the discursive approach. C. Key Approaches to Language and Gender Research During the last few decades, many approaches to gender differences mirrored in language have developed building on each other. Cameron (1992) asserted that the science of language and gender is divided according to these different points of view. In order to situate this study within a theoretical framework, this section will provide a general overview of the main phases in the study of language and gender. First of all, the deficit Approach. This approach considers langauge of women as an essentially imperfect and powerless compared to langauge of men as it is limited in vocabulary, simpler in structure, and lacking in substance (Tej &William, 2006; Pearce, 2007). Later on, appeared the dominance model, a contextualized approach that links gender differences in language to the imbalance in economic power that men have over women in society (Hare-Mustin and Marecek, 1994). In spite of its effective role in stressing the connection between power and langauge, this approach has some shortcomings as being limited only to the effects of power which do not explain clearly differences between males and females. Accordingly, both genders must develop disparate strategies and skills

to function appropriately in and to accommodate with cultural and sociolinguistic needs in the society they live in (Cameron, 2003; Bunton, 1998). This method emphasizes the need to conceptualize the term 'gender' as a verb, not a noun (Coates, 2004, Dafouz-Milne, 2008).

2. Studies on Metadiscourse in Abstracts

The variation in purposes among different types of abstracts helps explain why their subgenres may display distinct characteristics. A number of studies have focused on identifying these features. For instance, Crismore et al. (1993) argue that since the abstract can be regarded as a persuasive genre, examining the metadiscourse strategies employed by abstract writers would be particularly worthwhile. Nevertheless, although several scholars have shown interest in exploring persuasive mechanisms in abstracts, comprehensive and innovative research in this area remains limited.

Bolívar (1999) examined conference abstracts in linguistics, concentrating on how they construct interaction between writer and reader. She maintains that conference abstracts are developed interactively and that evaluative elements appear throughout the text to persuade readers of the study's significance.

Similarly, Bondi (1999), in her analysis of economics textbooks and abstracts, demonstrates that the depiction of scientific procedures is central to economic discourse. She also shows that meta-argumentative expressions play a key role in shaping how the discipline presents itself, with economics discourse often revolving around the economist as a central figure.

García-Calvo (2000) carried out an intercultural and interdisciplinary investigation of metadiscourse in conference abstracts. Her corpus included 400 abstracts randomly selected from twelve books of abstracts from scientific conferences and congresses. The findings indicate that writers employed nearly all categories of interpersonal metadiscourse examined in the study, supporting the view that such features are commonly used in abstracts for scientific events.

3. Gender Studies of Metadiscourse Markers in Writing

Several studies have explored how gender influences the use of metadiscourse markers. Research by Ädel (2006), Francis, Robson, and Read (2001), and Tse and Hyland (2008) reported that male and female writers employ metadiscourse markers differently in their writing. Based on Xu and Long's (2008) framework, they identified five categories of stance markers: textual, epistemic, attitudinal, deontic, and causation. Their findings indicated that both male and female authors showed similar overall patterns in their use of stance markers. However, male writers used epistemic markers more frequently, which contributed to making their texts more persuasive.

In a related context, Yeganeh and Ghoreyshi (2015) conducted a significant study on gender differences in the use of boosters and hedges in academic essays

written by male and female EFL students. They analyzed forty English research articles authored by native Persian speakers to determine the impact of gender on metadiscourse marker usage. Their findings demonstrated that gender significantly influenced the use of boosters and hedges: female writers tended to use more hedges, whereas male writers favored boosters. Although their study provided valuable insights and helped anticipate the findings of the present research, the relatively small sample size of forty articles limits the generalizability of the results, especially compared to the current study, which examines sixty academic essays. Moreover, unlike the present research, their investigation was restricted to only two subcategories of interactional markers. Similarly, Serholt (2012) explored gender-based differences in the use of hedges and boosters.

Method

Corpus of the Study

The study corpus consists of research article abstracts from the academic fields of Applied Linguistics. The data were collected from research papers published by Elsevier between 2012 and 2013. The corpus comprises 200 abstracts from Applied Linguistics (100 written by male authors and 100 by female authors). The total word count amounts to 32,895 words for Applied Linguistics abstracts.

For referencing purposes, the corpus was systematically coded. In Applied Linguistics, AL-M denotes abstracts written by male authors and AL-F denotes those written by female authors. Accordingly, the Applied Linguistics corpus is labeled from AL-M#1 to AL-M#100 and from AL-F#1 to AL-F#100.

Here is a sample paragraph that can be added to the Methods section of the study to address the issue of gender identification. This paragraph is written in academic English and is ready to be inserted into the relevant part of the methodology (e.g., under "Corpus Selection" or "Gender Classification").

A critical preliminary step in the corpus compilation process involved determining the gender of each author. Given that the study's primary objective was to investigate gender-based differences in the use of interactional metadiscourse markers, it was essential to establish a transparent and systematic method for gender classification. To this end, the following multi-stage procedure was adopted.

First, each author's gender was identified by cross-referencing three sources of information: (1) the author's first name as it appeared on the research article; (2) the author's institutional profile page (typically hosted by their affiliated university), which often includes personal pronouns or photographs; and (3) publicly available professional biographies or curriculum vitae (CVs) associated with the author's academic profile. In cases where first names were ambiguous or culturally unfamiliar, institutional profiles and author biographies were consulted as the primary sources for gender attribution.

Second, for authors whose gender could not be reliably determined through these means, the following protocol was applied: a second independent researcher reviewed the same publicly available sources to reach a consensus. If ambiguity persisted after independent review, or if no identifying information was available (e.g., the author had no visible online presence), the abstract was excluded from the final corpus. This exclusion criterion was applied uniformly to avoid any arbitrary assignment.

Third, as a final verification step, the gender attribution for a random sample of 10% of the corpus (20 abstracts) was independently audited by an external researcher not involved in the original coding process. Inter-rater agreement for gender identification was calculated as 98%, indicating a very high level of consistency. By implementing these procedures, the study minimized the risk of misattribution and ensured that the subsequent analyses of interactional metadiscourse markers were based on reliable gender classifications.

Instrumentation

1. The Model

The study corpus was examined for tokens that typically serve interactional metadiscourse functions in academic writing. For this analysis, the metadiscourse framework proposed by Hyland (2005) was employed. Hyland's model differentiates between "interactional" and "interactive" metadiscourse markers and is organized into two main categories: interactive resources and interactional resources. The interactional resources are further divided into five types:

a. Hedges – used to soften statements or indicate the writer's lack of full certainty (e.g., *might, perhaps, it is possible*).
b. Boosters – emphasize certainty or reinforce the force of a statement (e.g., *in fact, doubtless, definitely, it is clear*).
c. Attitude markers – convey the writer's evaluation or stance toward the propositional content (e.g., *surprisingly, remarkable, prefer, hopefully*).
d. Self-mentions – explicit references to the author(s) (e.g., *I, we, my, mine, our*).
e. Engagement markers – directly address or involve the reader to establish interaction (e.g., *consider, imagine, you see*).

This framework guided the identification and categorization of metadiscourse features within the abstracts.

2. Metadiscourse Categorizations

Researchers have proposed various classifications of metadiscourse, all of which essentially address similar elements within a text, though some focus on specific genres or types of writing. Hyland (2005) develops his metadiscourse model based on

a distinction between 'interactive' and 'interactional' metadiscourse, adopting a functional approach that considers metadiscourse as the ways writers refer to the text, themselves, or the reader. However, some categories in his model overlap, particularly regarding the differentiation between propositional and non-propositional content. His categories of *hedges* and *boosters* are quite broad, encompassing a wide range of expressions, while *attitude markers* are even more expansive. According to Hyland, attitude markers convey emotions or evaluations such as surprise, agreement, importance, obligation, or frustration, and they can be realized through various linguistic forms including subordination, comparatives, progressive particles, punctuation, or text placement.

The *interactional dimension* specifically concerns how writers engage with readers by commenting on or clarifying their message. The aim is to make the writer's presence explicit and involve the reader, inviting them to respond to the text. Analysis within this dimension relies on five subcategories: hedges, boosters, attitude markers, self-mentions, and engagement markers, which serve as the primary tools for identifying interactional metadiscourse. In the following paragraphs, some examples from the corpus were presented after defining each subcategory for more clarification.

According to Hyland and Tse (2004) hedges shows the writer's reluctance to the proposition as an established fact. As stated by Hyland (2005) they are devices such as "possible", "might" and "perhaps" which are used to withhold complete commitment to a propositional information. They allow subjectivity as they make information sound an opinion rather than a fact. The matter is then, a writer's plausible reasoning rather than certain knowledge.

a. Most students were enthusiastic about working with their own corpora: <u>*about*</u> 90% agreed that their corpus helped them improve their writing and intended to use it in the future. (AL- F #5)

   According to Hyland and Tse (2004) such markers imply certainty and emphasize the force of a proposition. As stated by Hyland (2005) words such as "clearly" and "obviously" allow writers to close down alternatives and head off conflicting views. Boosters emphasize certainty by marking involvement with the topic and solidarity with an audience, and by taking a joint position against other voices.

b. Cortical-to-cortical circuits <u>*undoubtedly*</u> play a role in human language, much as they do in other aspects of behavior. (AL- M #63)

c. The working of these interactional functions, however, <u>*always*</u> adapts to the grammatical possibilities of the particular language. (AL- F #75)

   According to Hyland and Tse (2004) attitude markers express the writer's appraisal of propositional information, conveying surprise, obligation, agreement, importance, etc. As stated by Hyland (2005) words such as "agree", "prefer",

"unfortunately" and "remarkable" indicate the writer's affective, rather than epistemic attitude to proposition.

d. Email has revolutionized the way in which professionals work and companies operate, and yet has received *surprisingly* little scholarly attention in English for Specific Purposes and has an *unexpectedly* muted presence in many Business English textbooks. (AL- M #4)

According Hyland (2005), such a marker refers to the degree of explicit presence of the author in a text. Items of such a marker are the first person pronouns and possessive adjectives (I, me, mine, exclusive we, our, ours). According to Hyland, the usage of the first person pronouns is the most powerful means of self-representation. Writers use such a marker to show how they stand in relations to their argument.

According to Hyland and Tse (2004) engagement markers explicitly address readers by focusing their attention or including them as participants in the text through second person pronouns, imperatives and question forms. This is usually achieved by questions, imperatives and obligation modals such as "should", "must", etc.

e. The connection between writing and identity has been a subject of academic interest for some time and there is now broad agreement that identity is created from the texts *we* engage in and the semiotic choices *we* make. (AL- M #80)

Procedure

Following the approaches of Grabe (1987) and Paltridge (1996), the selection of the corpus was guided by three criteria: genre, English for Specific Purposes (ESP), and text type. In line with Swales (1990), Mauranen (1993), and Connor (1996), who argue that research articles (RAs) constitute a distinct genre, academic RAs were chosen to satisfy the first criterion. To meet the second criterion, RAs were selected exclusively from the discipline of Applied Linguistics (AL) The study was further focused specifically on the *abstract section* of RAs, as this section allows authors to present a concise summary of their work.

The study's procedure began with compiling a word corpus from the abstracts of the selected research articles. All articles were drawn from internationally recognized, peer-reviewed journals published by Elsevier, with the full list of journals. The final corpus included 200 abstracts published between 2012 and 2013 (100 by male authors and 100 by female authors). The Applied Linguistics abstracts were sourced from the Language and Linguistics sub-discipline. Table 1 provides the list of Applied Linguistics journals included in the study.

Table 1. List of Journals in Applied Linguistics

	Subject	Journals	Number of Articles	
			Males	Females
Applied Linguistics	Language and Linguistics	English for Specific Purposes	5	8
		Journal of English for Academic Purposes	4	13
		Assessing Writing	7	19
		Journal of Pragmatics	35	37
		Journal of Phonetics	13	8
		System	15	10
		Computers and Composition	21	0
		Journal of Second Language Writing	0	5
		Total	100	100

After collecting the articles, the researcher converted them into rich text format to facilitate detailed analysis, resulting in a complete corpus of words. The entire corpus was then systematically searched to identify all instances of interactional metadiscourse markers (IMMs). Hyland's previously investigated items (2004a, pp. 190–193; 2005a, pp. 218–224) served as reference examples of metadiscourse markers. While analyzing each word or phrase against these examples, challenges arose in counting and categorizing items because each instance needed to be considered within its sentential context rather than taken from a simple list. Careful attention was given to ensure that each metadiscourse item was interpreted correctly, as some markers could fit more than one category. Each paper was read and marked for metadiscourse at least four times to ensure accurate categorization.

To enhance reliability and reduce the risk of misinterpretation, a pilot verification was conducted on *10% of the corpus (40 RA abstracts)***.** The method of analysis was agreed upon collaboratively, and the initial coding was independently reviewed by an experienced Applied Linguistics researcher. The pilot confirmed that the adopted methodology was effective, requiring no further modifications.

Acknowledging that metadiscourse is inherently fuzzy, multifunctional, and context-dependent (Ädel, 2006), the analysis followed Hyland's (2005) taxonomy. Each example was carefully analyzed manually in context to ensure its correct classification

as a metadiscourse marker. Because the total word count could vary between disciplines, frequencies of metadiscourse elements were calculated to allow fair comparisons across corpora of unequal sizes.

The inter-rater reliability coefficient is explicitly reported as a successful pilot verification on 10% of the corpus. The procedure describes the following steps taken to ensure reliability:

1. Pilot Verification: A pilot study was conducted on 10% of the total corpus, which consisted of 40 research article abstracts (since the full corpus contained 200 abstracts).
2. Collaborative Method Agreement: The researchers collaboratively agreed upon the method of analysis before beginning the coding process.
3. Independent Review: The initial coding was independently reviewed by an experienced Applied Linguistics researcher.
4. Outcome: The pilot verification confirmed that the adopted methodology was effective, and no further modifications were required.
5. While the procedure demonstrates a rigorous approach to ensuring reliability, it considered a statistical coefficient such as Cohen's Kappa (κ) or a simple percentage of agreement as"95% agreement".

Data analysis

Each group of texts was examined according to the five categories of interactional metadiscourse markers (IMMs). After identifying and counting the items, the frequencies of metadiscourse markers in each interpersonal category were calculated. A Chi-square test was conducted to determine whether significant differences existed in the use of metadiscourse markers within abstracts. A separate Chi-square test was then performed to examine differences in metadiscourse usage among authors in Applied Linguistics.

The analysis also included a comparison of metadiscourse usage between male and female authors. Chi-square tests were applied to evaluate differences in both the type and frequency of interactional metadiscourse markers used by male and female writers in the abstract sections of research articles in Applied Linguistics.

Results and Discussion

Results of Quantitative Analysis

1. Word Count Analysis

The initial step in analyzing interactional metadiscourse markers (IMMs) in the abstracts involved conducting a *word count* to determine the overall length of the corpus.

Table 2. Number of Words Used by Males and Females in Abstract Section of Ras in Both Disciplines

	Males	Females	Total
Applied Linguistics	16599	16296	32895

Table 3. The Frequency of Metadiscourse Markers

	Applied Linguistics
	F (%)
Number of Interactional Metadiscourse Markers	1080(5.33)
Number of total words	20244

As shown in Table 3, the frequency of IMMs in Applied Linguistics is 1,080, representing 5.33% of the total word count (20,244 words). A chi-square test was conducted to determine whether there were significant differences between the male and female corpora regarding the use of metadiscourse items. The non-parametric chi-square test was used, with the significance level (alpha) set at 0.05 and the degrees of freedom for all comparisons equal to 1. A significant difference was inferred if the observed chi-square value exceeded the critical value of 3.84 (Hatch & Farhady, 1982).

2. Frequency of Subcategories in Applied Linguistics

To examine the distribution of IMMs in Applied Linguistics, five subcategories were identified within each discipline. Table 4 provides the frequencies and percentages of these subcategories in the abstracts of Applied Linguistics research articles.

Table 4.
The Frequencies and Percentages of Subcategories in Applied Linguistics Research Article Abstracts

	Frequency	Percent
Valid Hedges	414	39.4
Boosters	307	27.3
Attitude Markers	204	18.9
Self- mentions	82	7.8
Engagement Markers	73	6.6
Total	1080	100.0

Table 4 presents the distribution of IMM subcategories. Hedges were the most frequently used markers (414, 38.3%), followed by boosters (307, 28.4%), attitude

markers (204, 18.9%), self-mentions (82, 7.6%), and engagement markers (73, 6.8%). A chi-square test revealed significant differences in the distribution of these subcategories.

3. Comparison of the Use of Interactional Metadiscourse Markers across gender

This study also explores the influence of gender on the use of IMMs, aiming to determine whether a relationship exists between gender and the distribution of interactional metadiscourse in the abstract sections of research articles. By comparing abstracts authored by male and female researchers, the analysis highlights how gender may shape the patterning of metadiscourse markers. Figure 1 illustrates the differences in the frequency of interactional metadiscourse used by male and female writers across the two disciplines.

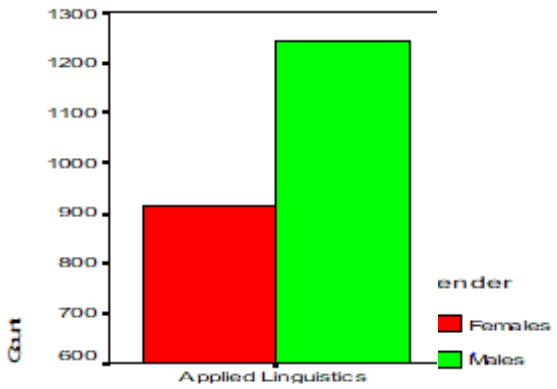

Figure 1. Number of IMMs across Gender

As illustrated in Figure 1, male authors in this field generally uses more interactional metadiscourse in their writing than female authors. Table 5 and Figure 2 present the frequencies and percentages of various subcategories of interactional metadiscourse used by males and females across the two disciplines.

Table 5.
The Statistical Analysis of Subcategories of IMMs across gender

			Gender		Total
			Females	Males	
Interactional Metadiscourse Markers	Hedges	Count	394	436	830
		% within Interactional Metadiscourse Markers	47.5%	52.5%	100.0%
		% within Gender	23.7%	19.5%	21.5%
		% of Total	10.1%	11.2%	21.4%
	Boosters	Count	210	269	479

		% within Interactional Metadiscourse Markers	43.8%	56.2%	100.0%
		% within Gender	12.8%	12.2%	12.3%
		% of Total	5.4%	6.9%	12.3%
	Attitude Markers	Count	123	240	363
		% within Interactional Metadiscourse Markers	33.9%	66.1%	100.0%
		% within Gender	7.4%	10.8%	9.3%
		% of Total	3.2%	6.2%	9.3%
	Self- mention	Count	78	87	165
		% within Interactional Metadiscourse Markers	47.3%	52.7%	100.0%
		% within Gender	4.7%	3.9%	4.2%
		% of Total	2.0%	2.2%	4.2%
	Engagement Markers	Count	24	81	105
		% within Interactional Metadiscourse Markers	22.9%	77.1%	100.0%
		% within Gender	1.5%	3.7%	2.7%
		% of Total	.6%	2.1%	2.7%
	Number of Metadiscourse Markers	Count	829	1113	1942
		% within Interactional Metadiscourse Markers	42.7%	57.3%	100.0%
		% within Gender	50.0%	50.0%	50.0%
		% of Total	21.3%	28.7%	50.0%
Total		Count	1658	2226	3884
		% within Interactional Metadiscourse Markers	42.7%	57.3%	100.0%

	% within Gender	100.0%	100.0%	100.0%
	% of Total	42.7%	57.3%	100.0%

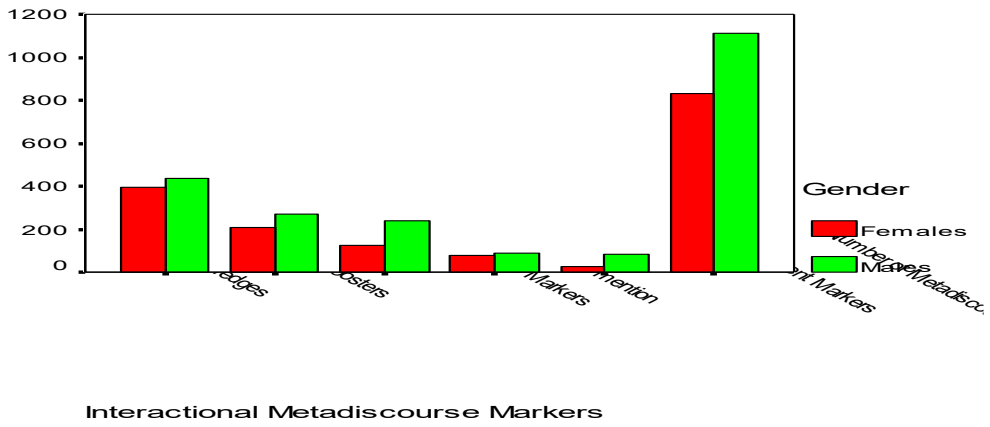

Figure 2.
Frequency Use of Each Subcategory of MDMs Across Gender

Regarding gender differences, Table 5 shows the frequencies of IMMs used by male and female authors in Applied Linguistics. Male authors used a higher total number of IMMs (1,113, 57.3%) compared to female authors (829, 42.7%). This pattern was consistent across all subcategories, with the largest gender gap observed for engagement markers (77.1% male, 22.9% female). A chi-square test confirmed a statistically significant relationship between gender and the use of interactional metadiscourse markers ($\chi^2 = 18.45$, df = 1, $p < .001$).

To identify whether there were any statistically significant differences in the application of interactional metadiscourse between males and females, a chi-square test was carried out and shown in Table 6.

Table 6. Results of Chi-Square Test on Males and Females' Use of Interactional Metadiscourse

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.823(a)	5	.000
Likelihood Ratio	37.290	5	.000
Linear-by-Linear Association	3.294	1	.070
N of Valid Cases	3894		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 44.82.

As displayed in Table 6, the observed chi-square value (38.823) is significant at the 0.000 level, indicating a meaningful difference between the two groups in their use of IMMs. In other words, male and female writers differ significantly in their overall use of IMMs as well as in the use of their subcategories.

Discussion

Interactional metadiscourse features (IMMs) allow writers to engage with readers, gain access to them, and signal the credibility of their propositional content. Regarding attitude markers, Applied Linguistics writers used them less frequently, aligning with their higher use of boosters and lower use of hedges. It is well established that disciplinary background significantly shapes academic communication, while the role of gender has received less systematic attention. To address the final research question of this study, we examined gender-based differences in the use of interactional metadiscourse markers (IMMs) in research article abstracts. The results revealed significant differences between male and female writers, indicating that the two groups employ IMMs and their subcategories differently. Across both disciplines, male authors tended to use IMMs more frequently than female authors.

In both groups, hedges were the most frequently used subcategory (M: 19.5%; F: 23.7%), reflecting a shared tendency to signal caution, although males showed slightly higher overall usage. This greater use of hedges by male writers may suggest a stronger emphasis on expressing uncertainty or nuance in their claims. All types of Hyland's (2005) IMMs were observed in both genders, but notable differences emerged in certain categories. Boosters and hedges occupied prominent positions in abstracts, particularly among males. The largest inter-gender differences were found in attitude markers (M: 10.8%; F: 7.4%) and engagement markers (M: 3.7%; F: 1.5%), with males using these features more extensively. Greater use of attitude markers by males may indicate a higher willingness to make discourse affective, employing evaluative adjectives to highlight the significance of their work. Similarly, higher use of engagement markers suggests that male authors are more likely to explicitly involve the reader in the negotiation of knowledge.

In contrast, self-mentions showed the smallest inter-gender difference (M: 3.9%; F: 4.7%), suggesting that males and females refer to themselves at similar rates. Overall, the findings indicate that male writers employ a higher overall number of IMMs, supporting the view that academic writing exhibits gender-specific patterns. These results align with Tse and Hyland (2008), who found that male authors used interactional metadiscourse, including engagement markers, hedges, boosters, and self-mentions, more frequently than females in a corpus of academic book reviews from philosophy and biology. However, the findings contrast with Yavari and Kashani

(2012), who reported no significant gender differences in the overall use of interpersonal metadiscourse features.

Conclusion and Implications

This study highlights the role of gender in shaping the use of interactional metadiscourse markers (IMMs) in research article abstracts within Applied Linguistics. The quantitative analysis revealed that male authors employed IMMs more frequently than female authors, indicating a significant gender influence on rhetorical strategy. Hedges, boosters, and attitude markers were the most commonly used across both genders, suggesting a shared preference for persuasive and evaluative techniques in abstract writing. In contrast, self-mentions and engagement markers were relatively infrequent, pointing to a limited focus on direct reader interaction regardless of gender. These findings suggest that while gender affects overall frequency, disciplinary conventions strongly guide the selection of specific IMMs. Male writers appeared to adopt a more assertive stance through interactional resources, whereas female authors used subtler means of engagement.

Based on your request, here is an additional paragraph that explicitly discusses the theoretical contribution of the study to metadiscourse theory and gender studies in academic discourse. This paragraph is designed to be inserted after the first few sentences of the conclusion, before the pedagogical implications.

Beyond its pedagogical applications, this study makes several theoretical contributions to the field of metadiscourse analysis and gender studies in academic writing. First, the findings strengthen and extend Hyland's (2005) interactional metadiscourse taxonomy by demonstrating that the five subcategories—hedges, boosters, attitude markers, self-mentions, and engagement markers—operate differently across gender lines. While Hyland's framework has been widely validated as a descriptive tool, the present study provides empirical evidence that the weight and distribution of these markers are not uniform across author demographics. Specifically, the consistent finding that male authors employed IMMs more frequently than female authors suggests that the taxonomy should be applied with an awareness of gender as a mediating variable. In other words, the taxonomy is not gender-neutral in its practical manifestation; rather, it interacts with author characteristics that Hyland's original model did not explicitly address.

Second, the study challenges a potential assumption within metadiscourse theory that all writers in a given discipline employ interactional resources similarly. By revealing that male and female scholars differ systematically in their use of hedges, boosters, and attitude markers, the findings question the notion of a single, unified "disciplinary voice" (cf. Hyland, 2008). Instead, they support a more nuanced view in which disciplinary conventions are filtered through individual and social identities,

including gender. This complicates purely text-based models of metadiscourse and calls for their integration with sociolinguistic theories of identity performance.

Third, the study fills a notable gap in the intersection of metadiscourse research and gender studies. While previous work has examined gender differences in conversational discourse (e.g., Lakoff, 1975; Tannen, 1990) and, to a lesser extent, in academic writing, few large-scale corpus studies have systematically applied Hyland's (2005) taxonomy to investigate gender in research article abstracts. The present study therefore provides a replicable methodological model for future cross-disciplinary and cross-linguistic comparisons, contributing to the gradual development of a more robust, evidence-based theory of how gender shapes rhetorical choices in academic genres. Finally, the finding that self-mentions and engagement markers were used infrequently by both genders suggests a boundary condition for Hyland's framework: in the abstract genre, certain interactional resources may be pragmatically constrained by genre conventions, overriding individual or gender preferences. This insight invites further theoretical refinement to account for genre-specific variations in the operation of interactional metadiscourse.

Moreover, the study contributes theoretically to Hyland's (2005) taxonomy by demonstrating that gender systematically affects the frequency of interactional metadiscourse markers, challenging the assumption of a unified disciplinary voice. The findings strengthen the taxonomy's applicability while revealing that it is not gender-neutral; rather, it interacts with author demographics that the original model did not address. The study also challenges the notion that all scholars in Applied Linguistics employ interactional resources similarly, supporting a view that disciplinary conventions are filtered through social identities such as gender. Finally, the infrequent use of self-mentions and engagement markers by both genders suggests a boundary condition: genre conventions may override individual preferences, inviting further theoretical refinement of Hyland's framework to account for genre-specific variation.

Pedagogically, these insights can inform EAP instruction by raising awareness of gendered patterns in academic writing, helping novice researchers balance assertiveness and reader engagement effectively. Editors and reviewers may also benefit from recognizing these tendencies to better evaluate abstracts for clarity, stance, and rhetorical impact. Limitations include the focus on Applied Linguistics and English-language abstracts, which may reduce generalizability across disciplines and languages. Future studies could explore cross-disciplinary comparisons, particularly in Medicine or Engineering, and examine whether IMM patterns evolve over time or with experience. Investigating interactions between author background, institutional context, and IMM usage could further elucidate underlying mechanisms. Overall, this study underscores the importance of gender-sensitive analysis in academic discourse, contributing to theoretical understanding and practical applications in scholarly

writing. By identifying gender-specific tendencies, it lays the groundwork for targeted writing instruction and enhances awareness of rhetorical variation. The findings also open avenues for future research on social and cognitive factors shaping gendered academic writing practices, supporting broader explorations of discourse variation in scholarly communities.

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