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Comparative Analysis of Interactional Metadiscursive Resources in Academic Writing by L2 and L1 English Writers

Musa Al-Mudhaffari^{*1}

Supyan Hussin²

Imran Ho Abdullah²

¹Department of English, Faculty of Education, Albaydaa University,
Albaydaa, YEMEN

²Center for Research in Language and Linguistics, Faculty of Social Sciences &
Humanities, Universiti Kebangsaan Malaysia, Bangi 43600, MALAYSIA

Abstract

Interactional Metadiscursive Resources (IMRs) are established as the most common rhetorical features that assist writers in achieving interaction with the discourse community. The purpose of this study was to compare the use of IMRs in research articles (RAs) authored by Yemeni L2 writers and L1 English writers, while also examining the extent to which both groups employ these resources to achieve persuasive purposes. Based on Hyland's (2019) model, AntConc was used as an analytical tool in a corpus-based methodology to analyze the use of IMRs in their context of use, both quantitatively and qualitatively. Moreover, Swales' models were adapted to identify rhetorical moves in the different sections of RAs. The findings indicate that L1 writers tended to use IMRs more frequently and effectively to pursue ethos and pathos. However, Yemeni L2 writers tended to use IMRs sparingly, lacking familiarity with their persuasive role. L1 writers tended to express epistemic and affective stances and used these resources throughout their research, while Yemeni L2 writers tended to focus more on propositional content, using limited IMRs in their writing. Furthermore, unlike L1 English writers, who tended to negotiate their claims in the RA introduction and engage their audience in the RA conclusion, Yemeni L2 writers almost exclusively strengthened their line of argument when initiating and concluding their research. The study

* Corresponding author, email: modaffar60@hotmail.com

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concludes by discussing the pedagogical implications of the effective use of IMRs in L2 academic writing.

Keywords: Genre analysis, interactional metadiscourse, L1 and L2 academic writing, persuasive appeals.

1. INTRODUCTION

Research scholars commonly acknowledge that academic writing embraces a dynamic interaction between the writer's claims and the varied viewpoints of the audience (Hyland, 2019; Lee & Casal, 2014). It involves purposeful communication with a real audience, and it is therefore crucial for writers to attend to their audience's views and anticipate their doubts during the writing process. Thus, academic writing comprises not only ideational content but also rhetorical features that help writers mark their stance and interact with members of the discourse community. These rhetorical resources assist writers in signaling their stance and interacting with members of the discourse community. If the content dominates the writer's voice and stance, it might undermine their credibility. Therefore, academic writers often use rhetorical resources to signal discourse organization (e.g., 'first', 'in what follows', 'as noted above', etc.) and express their stance and attitude (e.g., 'in my opinion', 'surprisingly', 'it is obvious', etc.) towards the content and readers. These expressions have often been referred to as textual (or interactive) and interpersonal (or interactional) metadiscourse. In this paper, we will focus on the latter, i.e., interactional metadiscursive resources (IMRs), since their use is considered essential in academic writing, yet they have received less attention in research and pedagogy compared to interactive features (Hyland, 2019). IMRs encompass a wide range of expressions across five sub-categories of interactional metadiscourse, namely hedges (e.g., 'might', 'perhaps', 'possible'), boosters (e.g., 'in fact', 'definitely'), attitude markers (e.g., 'unfortunately', 'I agree', 'surprisingly'), self-mention (e.g., 'I', 'we', 'my', 'me', 'us', 'our'), and engagement markers (e.g., 'note', 'you can see that').

The appropriate use of IMRs is crucial for effective academic writing, especially in research articles (RAs), as they serve two major functions: conveying the writer's stance towards the content and engaging the audience with the presented material (Hyland, 2019). Consequently, the effective use of IMRs can impact reviewers' recommendations for publication (Bajwa et al., 2019). However, L2 academic writers may encounter difficulties in crafting their arguments using appropriate IMRs that meet the expectations of the discourse community. Some L2 writers may even maintain rhetorical strategies commonly employed in their native language when writing in English (Connor, 2004). Scholars have confirmed that IMRs vary across cultures (Hinkel, 2005). For instance, while hedging is highly persuasive in the Anglo-American context, its persuasive impact may not be as significant in other cultural contexts (Hinkel, 2005; Li & Wharton, 2012). In the Arabic cultural rhetorical context, persuasion may be achieved through different rhetorical features such as exaggeration and amplification (Hinkel, 2005; Hyland, 2019). Consequently, Arab L2 writers may employ exaggeration as a substitute for hedging in their arguments, leading to potential misunderstandings arising from cross-cultural differences. Thus, it is valuable to carry

out a cross-cultural research endeavor that compares the usage of IMRs in Arab L2 and L1 academic writing.

Due to their pivotal role in establishing a writer-reader relationship, IMRs have gained much currency in recent years across genres, disciplines, and cultures. Research has explored the role of IMRs in research articles (Lee & Casal, 2014), abstracts (Ashofteh et al., 2020), postgraduate dissertations (Can & Cangır, 2019; Deng et al., 2021), argumentative essays (Ho & Li, 2018), and L2 academic writing (Al-Mudhaffari & Hussin, 2020; Al-Zubeiry, 2023). Research has also shown remarkable variations of IMRs across cultural rhetorical contexts (Mu et al., 2015), disciplinary contexts (Dontcheva-Navratilova, 2021), speech and writing (Zhang, 2019), book reviews (Bal-Gezeggin & Baş, 2020), high-rated and low-rated argumentative essays (Ho & Li, 2018), and successful and less successful argumentative essays (Lee & Deakin, 2016). Other studies have established that the effective use of IMRs contributes to the quality of writing (Ho & Li, 2018), and persuasion (Ho & Li, 2018; Lee & Deakin, 2016), and they tend to affect the acceptability of academic writing for publication (Bajwa et al., 2019; Mu et al., 2015).

1.1 IMRs in L1 and L2 Writing

Previous research has investigated variations in the use of IMRs in L1 and L2 writing (Abdollahzadeh, 2011; Azar et al., 2022; Can & Cangır, 2019). For instance, Can and Cangır (2019) aimed to investigate the extent to which L2 and L1 writers consider visibility or neutrality in academic writing. They compared Turkish doctoral students with their British counterparts and found that British writers used self-mentions more frequently than Turkish writers. In contrast, Turkish L2 dissertation writers tended to avoid self-representation and presented their stance impersonally.

Similarly, Azar et al. (2022) investigated how Malaysian writers used rhetorical resources to conform to the norms of the English discourse community. The study revealed that English writers used interpersonal resources more significantly than their Malaysian counterparts in moves 1 and 2, while Malaysian writers used more resources in move 3. Additionally, Anglo-American authors employed interactional resources for a wider range of rhetorical purposes than their Malaysian counterparts. The findings recommend that non-native speaker (NNS) authors increase their awareness of the conventions of the introduction section, including its rhetorical and stance features, to improve their academic writing skills.

1.2 IMRs in RAs Sections

Some scholars have focused on analyzing the use of rhetorical resources within specific sections of RAs, such as interactional resources in English and Malay RA discussions (Azar et al., 2022; Loi & Lim, 2019), emphatics and attitude resources in RA conclusions (Abdollahzadeh, 2011), hedging devices in the discussion section (Ghahraman et al., 2023), and metadiscursive resources in RA introductions (Azar et al., 2022). Azar et al. (2022) investigated the use of interactional metadiscursive resources in the introduction sections of research articles, comparing a group of native and non-native authors in Applied Linguistics.

Despite the usefulness of these studies, there is little research examining how L1 and L2 writers utilize interactional metadiscursive resources to achieve persuasive

appeals across the different rhetorical moves in RAs. While these studies provide insights into the use of IMRs across RA sections, they do not seem to address how IMRs can be used to achieve persuasive appeals in academic writing. This area remains underexplored and requires further investigation to enhance our understanding of persuasive academic writing.

1.3 Problem of Study

Therefore, comparing the use of IMRs for persuasive purposes across rhetorical moves of RA sections can provide valuable insights into the subtle differences between RA sections on the one hand and their use by L2 and L1 writers. Analyzing their use across the different rhetorical moves of research articles can help us understand how L2 and L1 academic writers use these resources to achieve their rhetorical goals. IMRs can reinforce the authors' claims and support their arguments, making them essential in persuading the audience. To investigate the persuasive role of IMRs, it is crucial to examine their deployment across the most common rhetorical moves of research articles. Thus, this study aims to explore the differences in the use of IMRs between Yemeni L2 writers and their L1 counterparts in applied linguistics research articles. The study is guided by the following research questions:

1. Are there significant differences between Yemeni L2 and L1 academic writers in their use of IMRs?
2. How do Yemeni and L1 academic writers differ in their use of IMRs to pursue persuasive appeals across the rhetorical moves of research articles?

The originality of this research lies in examining how L1 and L2 writers use interactional metadiscursive resources (IMRs) to achieve persuasive appeals across rhetorical moves in research articles (RAs). Unlike previous studies, it focuses on the role of IMRs in constructing persuasive arguments. By comparing Yemeni L2 writers with their L1 counterparts, it offers insights into rhetorical strategies and cross-cultural differences in academic writing.

2. METHOD

2.1 Corpus Description

The purpose of this study is to compare the use of interactional metadiscursive resources (IMRs) in the field of Applied Linguistics between Yemeni L2 and L1 English writers by analyzing a corpus of research articles. The corpus (i.e., the data) of the present study consists of 64 RAs in the field of Applied Linguistics: 32 RAs written by Yemeni L2 writers and 32 RAs written by native English writers. The selection of the corpora was conducted through purposive sampling guided by three main criteria, namely genre, discipline, and text type. Firstly, a single sub-genre of research articles was chosen to meet the genre criterion. Secondly, research articles were selected from one academic discipline to eliminate disciplinary variations. Lastly, the corpus was refined by selecting three argumentative sections of research articles, which included the introduction, discussion, and conclusion sections. Moreover, the corpus was refined based on three major criteria: the journals, the writers' nativity, and the nature of the RAs. The Yemeni RAs were collected from indexed journals, and L1

RAs were selected from prestigious Applied Linguistics journals as recommended by an expert. As regards nativity, Yemeni authors' nativity was identified based on their last names. This is because it is common for Yemeni last names to begin with the prefix 'Al,' such as Al-Mudhaffari, which often reflects their place of origin or family name. In contrast, Swales' (1985) criteria were used to ascertain the nativity of L1 writers.

- The last name is English (1 point)
- The writer is affiliated with a native English-speaking institution (3 points).
- The writer's citations are to English language publications (1 point).
- The first name of the writer is English such as John, Jean, Juan, Johann, etc. (2 points).
- All the author's self-citations are written in English (2 points)
- There is evidence of the author's nativeness in the article footnotes or endnotes (3 points).

To determine the nativity of the English authors, we adopted Swales' 1985 scoring system, which is based on a set of criteria. Authors who score 5 or above are more likely to be native speakers of English, while those who score below 5 are more likely to be non-native speakers. To ensure the selection of only L1 English authors, articles written by authors who scored 6 or above were considered, while those written by authors who scored 5 or below were excluded. Moreover, the selection of RAs for this study was based on several criteria related to the nature of the RAs, including topic, type, and diachrony. Given that the content of RAs may impact the type of metadiscourse features used (Hyland, 2005), the RAs were selected from a single sub-discipline within Applied Linguistics, specifically language teaching and learning. This sub-discipline was chosen due to the abundance of RAs available, and RAs in other sub-disciplines were excluded. In addition, only data-based RAs, which adhere to the IMRD structure (i.e. Introduction, Methods, Results, and Discussion), were selected to serve the purpose of the study. Other types of RAs, such as theory pieces and review articles, were excluded. Finally, to avoid diachronic variation, RAs published between 2010 and 2017 were selected. A total of 64 RAs were included in the analysis, with 32 written by Yemeni L2 writers and 32 written by L1 writers (see Table 1).

2.2 Research Design

The study adopts a theory and corpus-based approach. It draws on theories of metadiscourse and employs a corpus of RAs on applied linguistics written by L2 and L1 writers. Although other approaches can be used in the analysis of IMRs, the corpus-based approach has proven more useful in various studies of metadiscourse (Ädel, 2006). Moreover, the corpus-based approach is likely to yield more authentic results than the ethnographic approach since participants might not be fully aware of the metadiscursive resources they use in writing. According to Mauranen (1993, p. 56), the corpus-based approach is more appropriate in linguistic studies because "writers are not consciously aware of using textual strategies in terms of the kinds of variables investigated". However, a mixed-methodology approach of both corpus-based and ethnographic approaches may be more helpful if time and subjects are readily accessible.

The study uses both quantitative and qualitative methods to analyze IMRs in the text of RAs. While quantitative studies of IMRs have been useful, mixed-method designs seem to yield a deeper understanding of the use of these resources. For example, in a comparative study of metadiscursive features in high-rated and low-rated argumentative essays, [Ho and Li \(2018\)](#) found that metadiscursive features are employed in high-rated essays to achieve many more rhetorical functions than those utilized in low-rated essays. They employed both quantitative and qualitative methods. The quantitative methods only revealed the frequencies and types of IMRs. However, the rhetorical functions of these resources were generated through qualitative analysis, allowing for a deeper understanding of how IMRs are used in these essays. Thus, the present study employs both methods to generate more authentic results and achieve a deeper understanding of the actual use of IMRs in RAs.

2.3 Theoretical & Analytical Framework

The study utilized the integrative approach to metadiscourse to analyze IMRs in the RAs being examined. However, there are different models within this approach, with some integrativists categorizing metadiscourse into textual and interpersonal, while others view it as interpersonal with two dimensions: interactive and interactional ([Hyland, 2019](#)). Previous models within the integrative approach ([Crismore et al., 1993](#); [Vande Kopple, 1985](#)) have been useful but tend to treat metadiscourse as a secondary aspect of discourse. To address this issue, [Hyland \(2019\)](#) considers both propositional and non-propositional features of discourse as integral parts of the communicative act. While Hyland's model has been criticized, particularly with regard to the placement of evidential in the interactive rather than interactional dimension ([Thompson, 2008](#)), it overcomes theoretical problems associated with earlier models by establishing explicitness principles to distinguish metadiscursive features from other discourse features ([Hyland, 2019, p. 44](#)):

- metadiscourse is distinct from propositional aspects of discourse,
- metadiscourse refers to aspects of the text that embody writer-reader interactions,
- metadiscourse refers only to relations that are internal to the discourse.

Table 1. Hyland's model of interactional metadiscourse.

Interactional metadiscourse	Function	Recourses
Hedges	Withhold commitment and open dialogue	might; perhaps; possible
Boosters	Emphasize certainty or close dialogue	in fact; definitely
Attitude markers	Express the writer's attitude to the proposition	unfortunately; I agree; surprisingly
Self-mentions	Explicit reference to author(s)	I; we; my; me; our
Engagement markers	Explicitly build relationships with readers	note; you can see that

The study aimed to address two research questions by comparing the use of IMRs in RAs by Yemeni L2 and L1 writers and examining the differences in their use of these resources to pursue persuasive appeals across rhetorical moves of RA sections. Based on [Hyland's \(2019\)](#) model, instances of IMRs were identified using AntConc, an analytical software tool, to search IMRs in the corpora. Since IMRs are fuzzy in nature and can convey different functions in different contexts, each candidate of IMRs

was analyzed in its context of use to determine whether it conveys a metadiscursive function or is part of the propositional content. To establish inter-rater reliability, a research scholar in linguistics was invited to code a sample of 40 instances of IMRs in their context of use, and the results were compared to achieve an inter-rater reliability of 87.5%. Areas of disagreement were discussed, and agreement was reached regarding the function of each instance of IMRs analyzed in its context of use.

To answer the second research question, three models were adapted: Swales (1990, 2004), Ruiying and Allison (2003), and Hyland (2019). The first two models were used to identify the rhetorical structure and move within the introduction, discussion, and conclusion sections of the RAs. Specifically, Swales's (2004) was adapted to identify the moves within the introduction and discussion sections, while Ruiying and Allison's (2003) was used to identify the moves within the conclusion section. Swales defines a move as a rhetorical unit that performs a discursual function and represents an authorial claim to convince the reader about a particular issue. Through the adaptation of Swales' model, the most common moves within the introduction and discussion sections of the RAs were identified:

- Introduction
- Establishing a territory
- Establishing a niche
- Occupying a niche
- Discussion
- Stating the importance of findings
- Interpreting findings
- Conclusion
- Summarizing the study
- Making deductions from the research

In addition, we followed Hyland's (2019) model to analyze the use of IMRs for persuasive appeals across rhetorical moves in RAs. Hyland suggests that IMRs can be used to establish credibility with readers (ethos) and to appeal to the audience's emotions (pathos). Hyland (2019, p. 75) states that IMRs "relate to credibility appeals where [they] concern the writer's authority and competence; address affective appeals when [they] signal respect for the readers' viewpoint or that the message has direct relevance to the audience". Having identified the rhetorical moves within each of the three RAs sections (Introduction, Discussion, Conclusion), an analysis was conducted to examine the use of IMRs for persuasive appeals across the rhetorical moves. A comparative analysis was then performed for selected samples to examine the variations between the two groups of writers in their use of interactional MD strategies to pursue persuasive appeals across these moves.

3. FINDINGS AND DISCUSSION

3.1 IMRs in Yemeni L2 and L1 Writing

The use of IMRs in academic writing indicates the degree to which writers interact with their audience by assessing their reactions, acknowledging alternative views, expressing conviction and attitude, and engaging readers in the text (Hyland, 2019). The first research question posed in this study was whether there are significant

differences in the use of IMRs between RAs written by Yemeni L2 writers and those written by L1 writers. The results revealed that L1 writers employed stance and voice more prominently than their Yemeni L2 counterparts, as evidenced by the higher frequency of IMRs used by L1 writers as illustrated in Table 2.

Table 2. The overall use of IMRs in the corpora.

Interactional MD	YEM writers		L1 writers	
	Freq.	Freq. per 1000 words	Freq.	Freq. per 1000 words
Hedges	775	6.35	1341	11.30
Boosters	248	2.03	269	2.27
Attitude markers	255	2.09	394	3.32
Self-mentions	58	0.48	270	2.28
Engagement markers	130	1.07	254	2.14
Total	1466	12.01	2528	21.30
Significance	0.0075			

Note: YEM writers refer to Yemen writers

Table 2 indicates that L1 writers used IMRs at a normalized frequency of 21.30 per thousand words, whereas Yemeni L2 writers used only 12.01 per thousand words. The difference is statistically significant ($p=0.0075$, i.e., $p<0.05$), indicating that L1 writers used IMRs more significantly than their Yemeni L2 counterparts. Notably, L1 writers employed a wide variety of IMRs more frequently than Yemeni L2 writers, except for boosters, which were used in similar proportions by both groups. This suggests that L1 writers tended to pay attention to interaction, whereas Yemeni L2 writers almost prioritized content over interaction, using IMRs sparingly in their RAs. Consider this example from the L2 corpus.

- (1) Yemeni learners of English usually face the problem that after graduating from university, they don't have the ability to communicate in English. [YEM3]

This suggests that Yemeni L2 writers tended to focus primarily on the propositional portion of discourse, using IMRs to a limited extent. The absence of IMRs in writing can make the text impersonal, less engaging, and difficult to follow (Hyland, 2019). It also indicates a lack of sensitivity to the audience and makes the text appear more monologic. On the other hand, L1 writers tended to be more attentive to interaction by using IMRs to mark their stance towards the content and attempt to engage with readers within a specific discourse community.

- (2) *Arguably*, [Hedge] all language students suffer from language learning anxiety at *some* [Hedge] point in their language learning careers. [L1-1]

This example shows that L1 writers used IMRs, such as 'arguably' and 'some', to convey their stance and engage with the audience, resulting in a more negotiable tone. This finding suggests that the use of IMRs in academic writing is influenced by cultural and rhetorical contexts (Can & Cangir, 2019; Loi & Lim, 2019). Previous research has also highlighted significant differences in the use of IMRs between L1 and L2 academic writers, such as disparities observed in the employment of IMRs between L1 Chinese and L1 English writing (Mu et al., 2015). Similarly, in this study, the lack of IMRs in Yemeni L2 writing may have been influenced by cultural and rhetorical preferences in Arabic writing. In particular, the rhetorical style of Arabic is

intrinsically linked to the Arabic language system, resulting in variations between English writing produced by Arabic speakers and that produced by English speakers.

Nevertheless, the present study found that Yemeni L2 writers used even fewer IMRs when compared to L2 writers in other contexts, which is inconsistent with other studies. For instance, Hyland's (2004) study on post-graduate Chinese L2 dissertations found that L2 Chinese writers used IMRs extensively in their dissertations. Moreover, when comparing Yemeni L2 writers in this study to Malay and Turkish RA authors (Azar et al., 2022; Can & Cangir, 2019), the researchers observed that Malay and Turkish authors used IMRs more frequently than Yemeni L2 writers. This suggests a lack of familiarity among Yemeni L2 writers regarding the significance of IMRs in academic writing. It also indicates that L2 writing courses offered at Yemeni universities tend to prioritize content while neglecting interpersonal features in writing. While content is undeniably the most crucial element of discourse, it is imperative to "recognize that the interpersonal dimension of academic writing, often referred to as the 'hidden sources' of academic writing" (Wingate, 2012, p. 147), significantly contributes to the success of academic writing.

The second research question aimed to determine the extent to which both L2 and L1 writers utilize IMRs to convey persuasive appeals throughout various rhetorical moves within RAs. In this way, we conducted a comparison of the persuasive appeals sought by writers through the use of IMRs across the introduction, discussion, and conclusion sections of RAs. To begin with, we will overview the use of IMRs for persuasive appeals across rhetorical moves of RA's introduction.

3.2 The use of IMRs for persuasive appeals

3.2.1 Persuasive appeals in RAs introduction section

In the RA introduction, we analyzed the use of IMRs for persuasive appeals across three rhetorical moves: establishing a territory, establishing a niche, and occupying a niche (see Swales, 1990, 2004). Generally, writers begin research papers by demonstrating the significance of the particular field to which their research pertains. This is typically done by asserting centrality (Swales, 1990) or providing background information on the overall research area (Swales, 2004). The findings reveal that L1 writers employed more effective persuasive appeals via IMRs when attempting to establish their field than Yemeni L2 writers across the rhetorical moves of RA introduction. One notable difference between the two groups of writers is that Yemeni L2 writers generally adopted a more assertive writing style, while L1 writers tended to use a tentative style.

- (3) In the current teaching situation, teachers used to rate students usually based on intuition rather than disciplined testing scales whether the speaking task in hand is an interview, a role-play, or a presentation. [YEM8]
- (4) Only those NNSs who are proficient in writing and speaking skills, along with a fair command of the other two skills, can survive to fulfill their career goals. [YEM11]

The above examples clearly indicate that Yemeni writers tended to establish their field of research by making assertive generalizations. They often presented their arguments as if they were established facts, aiming to assert their claims as facts. While

this approach may be acceptable in some contexts, it may not be persuasive in others, particularly in contexts where hedging is preferred. This observation supports the argument that assertion is a prominent rhetorical strategy in Arab culture (Connor, 1996; Hinkel, 2005). However, claiming that a particular area of research is well-established should involve anticipating readers' doubts, and writers should not always be overly assertive. While writers may prefer to establish a territory by marking conviction, it is recommended not to present arguments as established facts. L1 writers, however, attempt to establish their area of research by expressing caution and signaling an affective attitude towards the audience.

- (5) A *perennial* [Attitude marker] struggle for teachers is how to develop both accuracy and fluency in students' speaking since one often *seems* [Hedge] to come at the expense of the other. [L1-11]
- (6) While feedback is *widely* [Hedge] *seen as* [Hedge] *potentially* [Hedge] one of the most *powerful* [Attitude marker] influences on learning, rated just below direct instruction and students' cognitive abilities (Hattie & Timperley, 2007), this potential *often* [Hedge] remains unrealized. [L1- 20]

The examples in (5) and (6) show that L1 writers used hedging strategies and attitude markers to qualify their claims (e.g., 'seems', 'seen as', 'potentially', 'perennial', and 'powerful') when establishing their field of research. This allowed them to signal caution and show humility as disciplinary servants, even though they were experts in their fields. By doing so, L1 writers were more likely to establish credible and effective appeals. Writers must distinguish between claims and facts in academic writing (Aull & Lancaster, 2014) and use hedging strategies to make their claims more tentative and open to evaluation by members of the discourse community.

The second rhetorical function identified in the RA's introduction is the writers' attempt to establish their niche, convincing readers that they addressed a researchable problem that has been underexplored. In order to achieve this, writers often expressed their stance towards the problem and their voice towards the readers. The study shows that Yemeni writers tended to have a more direct style when indicating a research gap, using limited instances of IMRs.

- (7) The motivation behind initiating this kind of work stems from the fact that *there is a dearth of research* that is concerned with how DMs are actually utilized in the written discourse created by Arab EFL learners. [YEM2]
- (8) This issue *has not received* enough attention from the researchers in Yemen, especially the variables associated with anxiety like the year of study. [YEM9]

The examples in (7) and (8) suggest that Yemeni L2 writers tended to adopt an assertive writing approach while indicating research gaps, with little attention to interaction. This is consistent with the notion that exaggeration is a characteristic feature of Arabic rhetoric (Connor, 1996; Hinkel, 2005). As a result, Yemeni L2 writers may be influenced by such a discursive strategy, which is considered salient in Arabic rhetoric, and therefore tend to prefer assertion over tentativeness when establishing their niche. Since hedging is an essential persuasive feature in the Anglo-American context (Hinkel, 2005), Arab L2 writers need to consider this discursive feature when making claims in academic writing to ensure that their arguments are considered by the target reader.

By contrast, L1 writers tended to be more tentative and interactive when establishing a research niche. They often hedged their claims to signal a lack of commitment to the idea presented and used attitude markers in combination with hedges to demonstrate a commitment that needs to be fulfilled. They used these resources to persuade their audience that the upcoming research is worthwhile.

- (9) However, the effects of each as a form of pre-task planning – as opposed to online planning – on adult L1 writers’ texts are not entirely clear and – *to the knowledge of the authors* [Hedge]– have not been investigated among L2 writers. [L1-17]
- (10) *Surprisingly* [Attitude marker], there have been relatively [hedge] few empirical studies exploring the predictive validity of standardized language exams. [L1-9]

The examples suggest that L1 writers established a niche by expressing a lack of commitment and an affective attitude, making their argument more interactive and reader-oriented. They expressed their tentative stance by showing a lack of epistemic commitment, signaling humility to their disciplinary community. Moreover, L1 writers expressed their affective stance by emphasizing an obligation that should be fulfilled by the discourse community, seeking to establish effective appeals. Conversely, Yemeni L2 writers tended to adopt a more assertive approach, using scarce IMRs to indicate a research gap, which aligns with previous research on less advanced L2 writing (Lee & Deakin, 2016). In their study, Lee and Deakin (2016) found that less successful undergraduate Chinese L2 writers often make assertions, primarily presenting arguments as established facts. Therefore, teaching metadiscursive resources to postgraduate students could be beneficial in enhancing academic writing skills, allowing novice writers to address their audience’s perspectives and uncertainties while endeavoring to carve out their niche, thereby enhancing credibility and improving the prospects of getting their work published.

Once writers have established their niche, they move on to outlining the purpose of their research. This move aims to convince readers that a particular aspect of the research is worth exploring. The study found that both Yemeni L2 and L1 writers tended to use a limited number of IMRs when presenting the purpose of their research. This may be because this part of the introduction is typically shorter than other sections. Nevertheless, unlike Yemeni writers, L1 writers tended to use more hedges and a combination of hedges and attitude markers when describing the purpose of their research, suggesting a more accommodating and reader-oriented approach.

- (11) The aim of the current study is to show that collocation is not simply an arbitrary phenomenon but is a process which can be *partially* [Hedge] explained by examining *some* [Hedge] of the linguistic features and processes which influence the way collocations are formed. [L1-3]
- (12) A large-scale study of many sessions with students from a great number of different backgrounds *would* [Hedge] ultimately be *necessary* [Attitude Marker] to provide generalizable findings and concrete implications. [L1- 26]

In contrast to L1 writers, Yemeni L2 writers tended to establish their research context without explicitly engaging the audience in the purpose of their study. They often adopted a more assertive tone in articulating the research purpose, using limited IMRs to soften their claims and involve the audience. This finding is consistent with previous research on L2 writing, which has noted a tendency for less proficient writers to employ assertive language when presenting their arguments (Lee & Deakin, 2016).

- (13) This study aims to analyze the PCK in the current curriculum of ETEP at a Faculty of Education in Yemen. [YEM21]
- (14) The purpose of the present study is to provide an assessment of the communicative competence of the students in the advanced levels of the Faculty of Education at Hodeidah University. [YEM29]

Overall, L1 writers used a variety of IMRs in the introduction of RAs to establish credible and effective appeals. They often expressed epistemic and affective stances towards the content by using a range of hedges and attitude markers, anticipating objections, and expressing obligations towards the claims presented. However, Yemeni L2 writers tended to be less tentative, using bare assertions and presenting claims as established facts. This suggests that Yemeni L2 writers may be more focused on the content and pay less attention to how it is perceived by members of a discourse community. Moreover, Yemeni L2 writers often made sweeping claims, such as stating that there is a dearth of research, a lack of studies, or that a particular topic has not received attention, without providing a rationale for why a specific aspect should be investigated. Consequently, they did not make much of an effort to engage readers in the content presented or to express their stance through limited IMRs.

3.2.2 Persuasive appeals in RAs discussion section

The findings suggest that Yemeni L2 writers tended to use emphatic verbs, such as ‘show’ and ‘demonstrate’, to express their conviction when stating and interpreting their findings. This may be an attempt to establish their credibility and strengthen their argument, and it aligns with the view that assertion and amplification are prominent features of Arabic rhetoric (Hinkel, 2005), which Yemeni L2 writers may transfer to their English academic writing.

- (15) The results *showed* [Booster] that they have made use of elaborative, inferential, contrastive, causative, and topic relating markers. [YEM2]
- (16) In this study and the previously mentioned studies, the results *show* [Booster] that there is no relationship between the level of foreign language anxiety and the year of study. [YEM9]

In contrast to Yemeni writers, who often made assertive claims that their research findings were consistent with previous research using limited IMRs, L1 writers tended to be more cautious when interpreting their findings and supporting their hypotheses. They used a combination of boosters and hedges to articulate both their uncertainties and convictions.

- (17) These findings *suggest* [Hedge] that discomfort with NNESTs on the part of students and the teachers themselves *may* [Hedge] often [Hedge] be misplaced. [L1-16]
- (18) The results *provide evidence* [Booster] that it *may be* [Hedge] easier for learners to understand the vocabulary in related programs than in unrelated programs, because there are *likely* [Hedge] to be fewer word families encountered in related programs, and the word families that do occur are more *likely* [Hedge] to reoccur, increasing the potential for vocabulary learning. [L1-25]

These findings suggest that L1 writers tended to adopt a more interactive and engaging writing style when stating and interpreting their findings. They utilized a

combination of hedges and boosters to express both conviction and doubt and establish ethos with the audience. In contrast, Yemeni L2 writers employed less tentative language, expressed conviction, and compared their findings with previous research without relying heavily on interactional metadiscursive resources (IMRs). They might assume that their findings speak for themselves and overlook the importance of engaging the audience. However, it is crucial to consider the audience's perception of the findings and actively involve them in the research process. These findings are in line with Ghahraman et al.'s (2023) study, which reported that Iranian authors use fewer hedging devices as they discuss their findings, indicating a lack of understanding of the importance of differences between academic Persian and English. Therefore, it is recommended that Yemeni L2 writers learn to negotiate their claims and use IMRs to show respect to the audience and accommodate their views.

3.2.3 Persuasive appeals in RAs conclusion section

RA's conclusion involves three major rhetorical moves (see Ruiying & Allison, 2003), namely, summarizing the study, evaluating the study, and making deductions from the research. However, as noted above, only two major rhetorical moves were identified and analyzed, i.e., summarizing the study and making deductions from the research. Generally, L1 writers tended to pursue credible and effective appeals as they summarized research using IMRs.

- (19) This study *suggests* [Hedge] that being an NEST or NEST is not a *critical* [Attitude Marker] factor in teachers being *effective* [Attitude Marker] pronunciation teachers. [L1-16]
- (20) Although it *may be* [Hedge] most effective [Attitude Marker] for learners to watch different episodes of the same television program rather than watching different programs, it *would* [Hedge] be *unreasonable* [Attitude Marker] to expect all learners to be motivated to only watch episodes of one program. [L1-25]

By contrast, Yemeni writers tended to summarize research by expressing conviction using emphatic verbs such as 'show', 'reveal', 'prove', etc., attempting to pursue pathos.

- (21) The results of this study *show* [Booster] that the students are instrumentally motivated at the same time they do not integrative motivation in learning English. [YEM3]
- (22) The current study *proves* [Booster] that polite request strategies differ from culture to culture. [YEM6]

These examples indicate that Yemeni L2 writers tended to reinforce their argument by using boosters when summarizing their research, aiming to establish ethos. This aligns with a study by Loi and Lim (2019), which found that Malay L2 writers tended to strengthen their argument, while L1 writers adopted a more negotiating style in concluding their research. While using emphatic language can be effective in expressing conviction, it is important to also incorporate caution (Hyland, 2019) and other interactional resources to effectively convey stance and engage with the audience. In attempting to demonstrate the value of their research, Yemeni L2 writers tended to be assertive and use scarce instances of IMRs.

- (23) The testing framework, in the present study, underpins the use of a performance-based test approach for oral assessment that is operationalized via the description of the test task in relation to observable domains of target language use. [YEM8]
- (24) The results of this study provide an example of using public speaking to improve students' oral CC and reduce their CA. [YEM26]

In contrast, L1 writers tended to use hedges to express their lack of commitment to their claims, negotiate their line of argument, and interact with the audience effectively (Loi & Lim, 2019). By using such strategies, L1 writers attempted to establish a relationship with the reader and create a more engaging and effective RA conclusion.

- (25) Although much research still needs to be done on the topic, this study brings to the forefront *some* [Hedge] of the *crucial* [Attitude Marker] issues involving experience abroad, L2 proficiency, and language learning anxiety, especially with regard to the *important* [Attitude Marker], yet *understudied* [Attitude Marker], concept of tolerance of ambiguity. [L1-1]
- (26) While *some might argue* [Hedges] that allowing students at an intermediate or lower level to 'improvise' in the classroom *could* [Hedge] lead to linguistic anarchy, *I* [Self-mention] agree [Attitude Marker] with Willis that opportunities for improvisation in the classroom are *essential* [Attitude Marker]. [L1-11]

Overall, Yemeni L2 writers tended to express conviction as they concluded their research. These strategies suggest that Yemeni L2 writers preferred conviction as they attempted to convince readers of the contribution of their research. In contrast, L1 writers tended to use a variety of IMRs, hedge their claims, and signal their attitude, seeking to pursue credible and affective appeals. Thus, it is important for novice Yemeni writers to effectively negotiate their claims and engage their audience through the use of metadiscursive resources to establish persuasive appeals (Hyland, 2019).

4. CONCLUSION

In this study, we argue that effectively expressing stance and voice towards the content and readers is crucial for a successful academic argument; however, this poses a challenge for L2 academic writers. The findings support this claim and highlight significant differences in the use of IMRs between Yemeni L2 and L1 writers. This suggests that Yemeni L2 writers may not fully recognize the important role of IMRs in expressing stance and voice toward the content and readers. L2 writers may view IMRs as merely supplementary to the propositional content and therefore focus more on the content itself, paying less attention to metadiscursive resources. While content is undoubtedly important, IMRs are also crucial because they signal the author's stance toward the content and acknowledge the presence of the audience. Therefore, academic writers are encouraged to make use of these resources to effectively signal their stance and voice towards the content and interact with their audience, ultimately pursuing more effective persuasive appeals.

Moreover, the study highlights significant variation in the use of IMRs between L1 and Yemeni L2 writers, which can pose a challenge for L2 academic writers in effectively expressing their stance and voice towards the content and readers. While L1 writers tend to expend rhetorical effort seeking to pursue ethos and pathos, Yemeni

L2 writers have a more direct and assertive writing style using limited persuasive appeals. It is important to note that a convincing argument is closely related to the pursuit of persuasive appeals, which are linguistically realized through the use of IMRs. As we introduce, discuss, and conclude our research, we must engage our readers in a dialogue, using IMRs to express our stance toward the ideas and voice toward the audience we address. By engaging our readers in an effective argument, we are likely to pursue persuasive appeals using a variety of IMRs to express our stance and engage our audience in the content presented. Thus, it is crucial to be aware of the essential rhetorical role of IMRs in writing to express our stance and pull the readers into an implicit dialogue to bring them into our interpretation.

The study has made significant contributions to understanding the differences in the use of IMRs between L1 and L2 writers. However, several limitations suggest potential areas for future research. The study focused on the persuasive use of IMRs by L1 and L2 writers across rhetorical moves of research articles. A broader investigation that encompasses various L1 backgrounds and examines how metadiscursive resources are employed to signal rhetorical moves across rhetorical moves would be particularly valuable, especially from a pedagogical perspective.

Moreover, the current research relied on a corpus-based approach to analyze the use of IMRs within research articles. To obtain more insightful findings, it would be beneficial to combine corpus analysis with ethnographic methods, such as conducting discourse-based interviews with writers. Such an approach could explore writers' perceptions regarding the use of IMRs and shed light on the rhetorical strategies they employ to convey their stance and voice about their content and readers. By adopting this combined approach, future research could offer a more comprehensive understanding of the role of metadiscursive resources in academic writing.

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