

# Contrastive Study of Metadiscourse Features in Research Article Discussion Sections Authored by English and Arab Native Speakers

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## Abstract

This study investigates the deployment of metadiscourse resources in the Discussion sections of research articles authored in two languages: English and Arabic. It explores differences in the use of metadiscourse markers and whether these variations stem from linguistic and cultural distinctions between the two languages. A total of 40 Discussion sections from research articles written by English- and Arabic-speaking academics in the fields of Education and Applied Linguistics are analyzed based on Hyland's (2005) analytical framework. The findings reveal the employment of both Interactive and Interactional metadiscourse markers, with a preference for using more Interactives over Interactionals, assuming that the authors in both groups seek to enhance textual coherence over achieving interpersonal values. The results also show notable differences in the deployment of Interactive and Interactional resources, reflecting the influence of linguistic and cultural factors. For example, while English-language authors prefer using more hedges to express tentativeness, their Arabic-language counterparts tend to employ more boosters, indicating a more assertive authorial position. These implications may enhance awareness among novice authors regarding the significant role of metadiscourse in crafting persuasive arguments in academic writing, particularly for Arab academics seeking to publish and engage with international scholarly communities.

## Keywords

Metadiscourse, Discussion Sections, Academic Writing, Authorial Stance

## 1. Introduction

Metadiscourse has widely been recognized as crucial for effective writing, particularly in the academic realm. This significance stems from a consensus among academic

researchers that writing is no longer viewed merely as a presentation of knowledge and facts (Crismore & Farnsworth, 1990). Rather, it represents a social and communicative engagement between writer and reader (Hyland, 2004). Writers not only need to employ the most effective ways of linguistic resources and strategies to organize their texts, but they must also endeavor to engage readers and show their attitudes towards both discourse contents and discourse readers. In other words, writing is no longer viewed as an objective and impersonal process but also as a persuasive endeavor that involves interaction between writers and readers (Hyland, 2005). Academic writing does not simply involve producing well-organized texts (e.g., the ability to choose appropriate cohesive and coherent resources), but also the ways the writers represent themselves, evaluate the content, and consider readers' opinions to ensure their writing is credible and worthwhile. In doing so, the writers negotiate social relationships and construct persuasive arguments that are tailored to various academic communities (Hyland, 2005).

Metadiscourse in academic research has attracted significant attention from many researchers and academic authors in recent years. Most researchers aim to examine the abilities of academic writers to utilize linguistic resources that show their authorial stance toward both the text content and the reader (Hyland, 2005). Yet, identifying and analyzing the metadiscourse features in academic research writing has been a challenge as metadiscourse has remained under-theorized and empirically uncertain (Hyland, 2004). Analyzing real texts on the basis of metadiscourse poses another problem because of the difficulty researchers encounter in identifying a clear typology of the resources writers employ to express their positions and establish relationships with readers. However, the seminal work of Hyland and Tse (2004), based on 240 dissertations written by L2 postgraduate students from five Hong Kong universities, proposed a sturdy model. This model became the analytical framework that many researchers utilized to analyze metadiscourse features in various research articles. The main purpose of their work was to reassess metadiscourse and offer what they consider a more robust model, which is intended to help writers use different metadiscourse resources more effectively. The current research study adopts Hyland's (2005) analytical framework to identify, codify, and analyze the metadiscourse markers in Discussion sections of research articles written in English and Arabic.

## 2. The Theoretical Framework

### 2.1. Metadiscourse

The term "metadiscourse" was first introduced by the American structural linguist Harris (1959) to mean a way of understanding language in use, representing a language user's attempts to guide an audience's perception of a text. The term did not actually begin to appear until approximately the mid-to-late 1980s with the works of Williams (1981), Vande Kopple (1985), Crismore (1989), and others. Since then, metadiscourse has begun to gain traction among applied linguists and

has received different definitions from a number of academic authors and researchers. Williams (1981: p. 212), for example, sees the concept of metadiscourse as “writing about writing, whatever does not refer to the subject matter being addressed”. For Vande Kopple (1985), it is “the linguistic element which does not add propositional content, but rather signals the presence of the author in the text” (p. 83). In the same way, Crismore, Markkanen, and Steffensen (1993) view the notion of metadiscourse as “linguistic material in the text that goes beyond the propositional content which adds nothing to the subject matter but guides the listener or reader through organizing, interpreting, and evaluating the information mentioned” (p. 40).

It is clearly seen in the aforementioned definitions that scholars have unanimously begun to understand the concept of “metadiscourse” in different ways. The view now is that language not only refers to the world, concerned with exchanging information with various kinds, but also to itself: with material which helps readers to organize, interpret, and evaluate what is said (Hyland, 2017). Thus, most scholars see metadiscourse as a linguistic element in the text/discourse, but with nothing to add directly to the content of the text itself; rather, it helps writers organize the text, position themselves in the text by evaluating and showing viewpoints on what is said or written, and makes it easier for readers to appropriately arrive at the intended meaning. It, therefore, seems that metadiscourse involves the text, the writer, and the expected reader of that text as well. This is demonstrated in Hyland’s (2004) definition that metadiscourse is “self-reflective linguistic expression referring to the evolving text, to the writer, and to the imagined readers of that text” (p. 133). It could be inferred that metadiscourse is a concept encompassing a range of linguistic elements that not only help authors organize the texts but also help them take authorial stance towards both the text content and potential readers. Hyland (2005) later broadens the meaning of metadiscourse and takes the view that metadiscourse is “an attempt to guide a receiver’s perception of a text using a range of devices which explicitly organize texts, engage readers and signal the writer’s attitudes to both their material and their audience” (p. 2). This definition reveals the fact that metadiscourse, as it is taken up now, goes beyond the earlier relevant concepts in linguistics such as Jakobson’s (1980) “metalinguistic function” and Halliday’s (1985) “metaphenomena” where the focus in both is on the text itself and not on other items in the real world. This idea represents the intersection of “metadiscourse” with pragmatics where Watzlawick, Beaven, and Jackson (1968) take the view that the ability to metacommunicate appropriately is not enough for successful communication, but also to be aware of self and others. This philosophy is emphasized by Hyland et al. (2022), explaining that metadiscourse provides a framework for understanding communication as social engagement that shows how writers/speakers take into account their audience when producing texts. The manifestation of metadiscourse, therefore, does not only help in written/spoken text organization but also contributes to “the interactions between text producers and their texts and text users” (Hyland, 2005: p. 1).

## 2.2. Previous Studies

Studies on metadiscourse have been constantly emerging since the term itself began to gain ground in discourse analysis and applied linguistics, in general, in the 1980s. A great number of these studies were conducted in academic writing with foci on research articles in their different sections: Abstract, Introduction, Discussion, and Conclusion (Myers, 1989; Mauranen, 1993; Salager-Meyer, 1994; Swales, 1990; Hyland, 1998; and others) as they are considered central genres of knowledge production (Yang & Allison, 2003). Academic researchers have also been interested in investigating metadiscourse features in different genres: textbooks (Crismore, 1984; Hyland, 1999, 2000; Bunton, 1999), students' writings (Markkanen et al., 1993; Crismore et al., 1993), advertisements (Fuertes-Olivera et al., 2001), and casual conversation (Schiffrin, 1980). Some scholars examined metadiscourse markers across languages: for example, between English and Finnish (Markkanen et al., 1993; Mauranen, 1993); between English and Spanish (Valero-Garcés, 1996).

The current study's purpose is to investigate the employment of metadiscourse (Interactive & Interactional) resources by English and Arabic native speakers when writing Discussion sections of their academic research articles and to explore variations, if any, due to differences in the two languages and cultures (English & Arabic). Therefore, it is reasonable to shed light on some previous studies examining metadiscourse features cross-linguistically and cross-culturally, with special focus on those involving Arabic. Sultan (2011) analyzed metadiscourse expressions: Interactive and interactional to examine the cultural differences between English and Arabic-speaking researchers. He drew on seventy Discussion sections of research articles written by native speakers of English and Arabic in linguistics. His findings revealed that metadiscourse markers play a great role in both research articles, English and Arabic, and that Arabic researchers used more intensive metadiscourse markers than English writers. Sultan further explained that Arab writers drew more on interactive resources than English, which may indicate that Arabs tend to "put a premium on textuality at the expense of reader involvement, hence, being comparatively less reader responsible than English" (p. 38). By contrast, English research articles seemed to be more reader-responsible. Some confusing points arise in Sultan's findings when he came to mention that both Arabic and English used more interactive than interactional resources, emphasizing the significance of text coherence over interpersonal functions of language in the academic genre. However, he concluded that there was an exaggerated tendency among Arab writers to use metadiscourse markers. Mohamed (2019) also investigated metadiscourse markers' role in linguistic research articles to explore if there are social contrasts between English and Arabic cultures when writing research articles. Like Sultan (2011), Mohamed utilized a contrastive corpus of seventy research papers written by English and Arabic native speakers. Both researchers (Tamer & Sultan) used chi-square tests in their investigations. Interestingly, the findings of Tamer's statistical analysis revealed the same conclusion

as Sultan's—that interactive resources are found more prevalent in Arabic research articles than in English. Hence, Arabic Linguistic Research writers focus on textuality rather than interpersonality. Tamer also arrived at the same conclusion as Sultan when he mentioned that interactive markers are used more than interactional by both groups of authors as a way to underscore coherence across research articles. [Alotaibi \(2015\)](#) examined linguistic variations by analyzing 44 paired abstracts (English and Arabic) published in English research articles by Arab scholars. He concluded that there was overuse of interactive markers compared with interactional ones. Hmoud added that Arabic abstracts relied on transition markers while English abstracts contained more frame markers and code-glosses. [Alghazo et al. \(2021\)](#) studied how academic writers interact with their readers in both English and Arabic, or how writers express their stance and engage with readers. They drew on 80 abstracts of research articles in the fields of social sciences (40 for each language), published in two journals (Scopus Q4): *Dirasat: Human and Social Sciences* and the *International Journal of Interdisciplinary Educational Studies*. They used [Hyland's \(2005\)](#) framework. Their analysis explored clear differences in the way academic writers in both languages (English & Arabic) express their stance and engagement with readers. Particularly, Arab writers used more boosters and attitude markers than their English counterparts. They also employed fewer hedges and engagement markers than English academic writers. Moreover, self-mention resources were not used at all by the English group, whereas they were used eight times in the Arabic abstracts. However, [Alghazo et al. \(2021\)](#) suggested more cross-linguistic and cross-cultural studies in research articles for more comprehensive findings. [Zaki \(2022\)](#) analyzed metadiscourse markers in 400 abstracts of research articles written in Arabic by Arab academics. The corpus of 400 abstracts was labeled in two variables: abstract type (journal or dissertation) and author's gender (male or female). Zaki analyzed both textual (interactive) and interactional/interpersonal metadiscourse features. The findings showed that both textual and interpersonal metadiscourse markers were prevalent in Arabic abstracts and that transitions and frame markers were the highest in frequency in textual domain, while in the domain of interpersonal metadiscourse, boosters and self-mentions were the most predominant. However, hedges and endophoric markers were the least frequent metadiscourse elements throughout the corpus. [Almakrob \(2023\)](#) studied metadiscourse interactional resources in 94 introductions of research articles written in Arabic by native Arabic speakers in the fields of linguistics and applied linguistics. The main purpose of the research was to explore how Arab academic writers interact with their readers when they introduce their research articles. Almakrob employed [Hyland's \(2005\)](#) model to analyze the interactional markers in these introduction sections. The conclusion was that Arab academics tend to explicitly involve readers in their communication as discourse participants in two ways: first, by using the first person plural pronoun “nahnu”—an inclusive pronoun, to use Almakrob's term, which is equivalent to “we” (one of the self-mentions markers in [Hyland's 2005](#) taxonomy); second, by using rhe-

torical questions. Booster markers were also found to be more frequent than hedges in Arabic introductions, which might indicate that Arab academics prefer to present their information as facts, not as opinions. Despite differences in analytical frameworks, this conclusion is consistent with [Alotaibi and Arabi's \(2020\)](#) work, who examined linguistic resources employed by Arab academic researchers to realize the interpersonal values when introducing their research topics. Specifically, the study focused on how the interplay of engagement resources and rhetorical move functions persuasively serves the overall argumentative writing expected in the academic context. They drew on the engagement system by [Martin and White \(2005\)](#) and the move structure in the CARS model by [Swales \(1990\)](#). They analyzed 20 Arabic RA introductions drawn from two established journals in the field of education. They found that Arab researchers used more Contracting than Expanding resources [Contracting is one of the Engagement resources in the taxonomy of [Martin and White's \(2005\)](#) Appraisal Framework, part of which may be equivalent to Boosters in Hyland's taxonomy]. According to Alotaibi and Arabi, using more Contracting options in Arabic introduction sections may imply that Arab writers prefer to take assertive authorial stances when introducing their research topics. [Benraiss and Koumachi \(2023\)](#) investigated interactional metadiscourse markers in 15 abstracts written by Moroccans in applied linguistics. Their findings revealed that interactional markers had a low frequency of occurrence in the abstract sections. However, boosters were the most prevalent interactional resources, while engagement markers did not appear at all in the corpus. [Alharbi \(2021\)](#) investigated the metadiscourse employment in 40 Result, Discussion, and Conclusion sections of published research articles and master's dissertations written in English by non-native speakers. The researcher utilized [Hyland's \(2005\)](#) framework to analyze the metadiscourse features found in the corpus. The findings showed that interactive markers were more frequent than interactional ones in both sets of the analyzed texts. The analysis also revealed that transitions were the most frequent interactive resources in the two texts, while hedges were the most prevalent interactional markers. [Alotaibi \(2016\)](#) examined metadiscourse markers in 20 Introduction and 20 Conclusion sections of research articles written in Arabic by native Arabic speakers and the same number of introductions and conclusions written in English by Arab scholars. The research articles were drawn from Arab Journal for the Humanities. Alotaibi employed [Ädel's \(2006\)](#) framework to analyze the metadiscourse resources found in the texts. The findings revealed some cross-linguistic variations, as the introduction and conclusion sections written in English included more metadiscourse markers than those written in Arabic. He concluded that the study showed some different perceptions of metadiscourse employment that Arabic speakers have when they are writing in English and when they are writing in their native language.

It is evident from the reviewed previous studies that most of the investigated genres were academic research articles and that most of the examined sections of the research articles were either Abstracts, Introductions, or Conclusions. It is also

true that most researchers drew on Hyland's (2005) taxonomy to codify, classify, and analyze the metadiscourse resources found in the corpora. Except for Sultan's (2011) study, few comparative metadiscourse studies have been done on Discussion sections of research articles written by English and Arab academics. The current study is, therefore, an attempt to fill this gap by comparing the employment of metadiscourse markers in Discussion sections of academic research articles written in English by English native speakers and in Arabic by Arab native speakers. The primary objective is to investigate cross-linguistic and cross-cultural variations, if any, between the two groups of writers when using metadiscourse markers in Discussion sections of their research papers.

### 2.3. This Study

The main objectives of the present study are to explicate overarching patterns in the use of metadiscourse linguistic resources by academic writers to project their authorial stance. This may provide insights into authors' styles across languages/cultures. The study focuses on the *Commenting on results* move and its constituent steps in the Discussion sections of research articles written in Arabic by native Arab academics, in comparison with those written in English by native English authors. The current study also seeks to identify the extent to which linguistic and cultural variations influence the ways authors take authorial stance.

The methodological underpinnings are based on Hyland's (2005) interpersonal model of metadiscourse and Yang and Allison's (2003) rhetorical structure.

The impetus for undertaking this study is three-fold. First, taking an evaluative stance is part of interpersonal meaning that is crucial for the persuasive argument expected in academic writing. Second, the context of discussing research findings, in general, is an important part of academic writing, and the *Commenting on results* move, in particular, is believed to be the most essential unit in RA Discussions (Basturkmen, 2012; Yang & Allison, 2003) because writers are expected to comment on their own results and relate them to others in prior literature, thereby taking their authorial stance more explicitly and guiding readers' interpretation smoothly. Third, metadiscourse features in Discussion sections written in Arabic have received less attention by researchers, and to my knowledge, there is only one study—Sultan (2011)—that has examined the evaluative stance, from metadiscourse perspectives, in Arabic discussions. The current study attempts to answer the following questions.

- 1) What are the general tendencies of English and Arab academics' employment of metadiscourse resources (interactive vs. interactional) when discussing their research findings?
- 2) Are there any notable variations in using metadiscourse markers by the two groups? And to what extent are the variations, if any, due to differences in linguistic and cultural backgrounds?
- 3) How do linguistic and cultural backgrounds influence the authors' authorial stance projection?

This study hypothesizes possible variations in metadiscourse markers' employment by English-speaking and Arabic-speaking authors. The hypothesis is grounded in established theories in contrastive rhetoric. Some of these theories argue that writing styles are influenced by cultural norms. Kaplan (1966), for instance, claimed that cultures have distinct rhetorical styles. In his theory of metadiscourse (Hyland, 2005), Ken Hyland took the view that authors' use of both interactive and interactional resources indicates different approaches to reader engagement, shaped by their cultural norms.

### 3. Methodology

#### 3.1. Data Collection

The corpus used in the present study comprised 40 Arabic and English research article Discussions in the field of education (20 for each). The intention was to restrict the selection to one journal in each language group. However, given the rigorous framework adopted in this study, which will be explained later, there was a lack of papers that met the selection criteria in the Arabic group. Hence, the 20 Arabic RAs were drawn from the two established journals in the Arab world: *The Journal of Educational & Psychological Sciences* (JEPS) (n = 10), published by the University of Bahrain in Bahrain, and *The Journal of Educational Studies* (JES) (n = 10), published by King Saud University in Saudi Arabia. The texts were written in Arabic by native Arabic speakers, based on their names, affiliations, and direct communication with the authors. The research articles were published between 2014-2017. The authors are academics in educational fields at Arab universities, suggesting a shared academic background and disciplinary expertise. They represent a variety of Arab countries (see Table 1), which indicates that both journals effectively represent research writing in the Arab world.

The 20 English texts were selected from the International Journal of Educational Research and were published from 2014 to 2017 by first-language English speakers. The information regarding the mother tongue of the writers was obtained by emailing the corresponding author of each paper to confirm that the author (and co-authors) of the paper are native English speakers. The size of the corpus and information about the authors are displayed in Table 1.

**Table 1.** The size of the corpus and distribution of the authors.

	Arabic	English
Total number of words in discussions	17,756	22,528
Average	887.8	1126.4
No. of authors	1) Author: 12 RAs 2) Authors: 8 RAs 3) Authors or more: 0 RA	1) Author: 3 RAs 2) Authors: 7 RAs 3) Authors or more: 10 RAs
Countries of Authors	Saudi Arabia-Kuwait-Bahrain-Egypt-Jordan-Sudan-Palestine	USA-UK-Australia-Ireland-New Zealand-Canada

The selection policy was rigorous as all texts from the three journals: 1) were from the same academic discipline (education), 2) were written by native speakers of each language group, 3) were written within a time span of 4 years, 4) the Discussion section was separate from both Results and Conclusions (hence, RAs that combined Results with Discussion or Discussion with Conclusion, for example, were excluded), 5) the Discussion section was not the last part of the RA (this condition was to avoid possible merging of the Discussion moves with those of Conclusion), 6) all RAs were data-based (experimental or quasi-experimental), hence other types such as reviews or theoretical were excluded.

The rationale for choosing the Arabic corpus from two journals is that both journals share a similar scope of publication; specifically, they are interested in publishing research articles in the field of education. However, drawing the Arabic corpus from two journals, compared to one journal chosen for the English corpus, may indicate an imbalance and should be avoided in future studies.

### 3.2. Analytical Framework

The author of the current study follows Hyland's (2005) metadiscourse analytical framework. Hyland's metadiscourse is a tool used to analyze how writers organize their texts, project their stance, and interact with expected readers. It is an adaptation of Thompson's (2001) distinction between *interactive* and *interactional* resources (Hyland, 2017). Thompson defined *interactive* as the ways writers organize their texts, manage a coherent flow of information and meanings, as well as guide expected readers to interpret the written text. For the purposes of eliciting and quantifying aspects of metadiscourse, Hyland's (2005: p. 49) taxonomy—a refinement of his 1998 position—has been adopted, while retaining the duality of textual and interpersonal metadiscourse terminology. The subcategories are detailed below:

#### **Interactive metadiscourse:**

This is similar to Halliday's textual metafunction. Both interactive metadiscourse and textual metafunction play an important role in understanding how writers organize their texts and communicate their ideas and meanings; though they address two different aspects of discourse. However, Hyland's interactive metadiscourse can be viewed as the linguistic resources that help the writer control and organize the sequence of discourse by anticipating the reader's knowledge of discursive conventions and reflecting the writer's opinion of how the text is to be interpreted. They comprise the following headings:

*Transitions:* including additives, adversatives, and causative markers, are employed to indicate continuity, contrast, or consequence in the flow of discourse.

*Frame markers:* demarcate text boundaries and elements of global textual structure and configuration. They are equally vital in sequencing and indicating text stages, shifts, and goals.

*Code glosses:* illustrate the restatement or reiteration of the propositional content of the text.

*Endophorics*: link together parts of discourse through highlighting prominent intra-textual relations, and thereby privilege certain interpretations of the text.

*Evidentials*: refer the reader to the textual sources used, mainly in the form of citations from the literature in the field.

#### Interactive Resources:

Category	Function	Examples
Transitions	Express semantic relations between main clauses	<i>In addition, but, thus, and</i>
Frame markers	Refer to discourse acts, sequences, or text stages	<i>Finally, to conclude, my purpose here is to</i>
Endophoric markers	Refer to information in other parts of the text	<i>Noted above, see Fig., in section</i>
Evidentials	Refer to the source of information from other texts	<i>According to X (2001), X claims that</i>
Code glosses	Help readers grasp the functions of ideational materials	<i>Namely, that is to say, e.g., such as</i>

#### Interactional Metadiscourse:

It helps reveal the writer's personality, commitments, and claims to being a credible member of the discourse community. In employing this resource, a writer unveils his attitudes and the degree of involvement he has both with his audience and textual material. It subsumes the following categories:

*Hedges*: display the writer's desire to eschew making categorical claims.

*Attitude markers*: reveal the writer's stance and appraisal of the conveyed information, whether in the form of importance, wonder, rejection, or agreement.

*Boosters register*: certitude and render force to the propositional content.

*Engagement*: explicitly addresses and draws the attention of readers as participants in the text in the form of second-person pronouns, question forms, or interjections.

*Self-mentions*: convey the degree of the author's overt presence in the text in terms of first-person pronouns and possessives.

#### Interactional Resources:

Category	Function	Examples
Hedges	Withholds writer's full commitment to proposition	<i>Might, perhaps, possibly, most likely</i>
Boosters	Emphasize force or the writer's certainty in the proposition	<i>In fact, definitely, it is clear that</i>

## Continued

Attitude markers	Express the writer's attitude to the proposition	<i>Unfortunately, I agree, surprisingly</i>
Engagement markers	Explicitly refer to or establish a relationship with the reader	<i>Consider, note that, you can see that</i>
Self-mentions	Express a clear authorial presence in the text	<i>I, me, our, we</i>

Yang and Allison's (2003) taxonomy was used as the analytical framework for the rhetorical structure of the Discussion sections in the present study. This model was selected because of its comprehensiveness and flexibility in capturing moves in adjacent sections, such as the Results and Conclusion that may occur in Discussions. The model was found suitable in studies by Basturkmen (2012) who, as in the present study, have focused on Move 4 (Commenting on results), arguing that it is the main move in the Discussion sections; an argument that was already stated by Yang and Allison (2003). According to Yang and Allison's (2003) model, Move 4 (*Commenting on results*) is used in Discussions to offer explanations of results, indicate the significance of the findings, make comparisons, and present claims and state arguments. More importantly, Move 4 is where writers are expected to show their authorial voices, which is similar to the investigation in this study. The similarity arises from Hyland's metadiscourse analytical framework, which is inspired by his belief that writers can manage their level of personality by fostering interactive relationships with readers, evaluating their topics, and positioning themselves alongside alternative viewpoints. Move 4 includes four steps (Step 1: Interpreting results, Step 2: Comparing results with literature, Step 3: Accounting for results, and Step 4: Evaluating results).

### 3.3. Procedures of Data Coding

After careful reading, linguistic resources realizing metadiscourse in each text were identified and classified based on the Engagement framework by Hyland (2005). The text in each group was broken down into sentences or embedded/non-embedded clauses to identify linguistic resources associated with the metadiscourse. The text containing linguistic resources of metadiscourse was written out on a paper labeled with an abbreviated name of each investigated corpus, for example, E (English) and A (Arabic). Afterwards, each resource was underlined. When the researcher identified a metadiscourse category for discussion, only that category was underlined, while other resources remained unmarked until their turn in discussion. The following example illustrates the process.

[1] *Collectively, the policies and associated documents reported above (frame marker) provide important insights into the complexity, inconsistency and disjuncture which characterize recognition and (transition) provision for students with SLD. In those jurisdictions in which students with SLD are recognized such as (code gloss) much of the US, Canada, England, and parts of Australia (e.g., the*

*Northern Territory), students with SLD are readily identified, and clear guidelines to support and (transition) resource their learning disabilities exist. However, in some jurisdictions, such as (code gloss) across the Australian states, the identification and recognition of such students is not consistent, and resourcing is sporadic. This is highly problematic. [ERA: 1]*

The excerpt begins with [1], which indicates that this is Example No. 1. The author discusses the metadiscourse-Transition category within the section titled “Interactive markers” to which “Transition” belongs. Therefore, all underlined items are instances of Transitions. The text is marked with [ERA: 1] at the end, meaning that it was drawn from an English research article. Furthermore, the sheet carries cardinal numbers (1, 2, 3, etc.) for each group to show the order of a text in the corpus. The process of identifying and categorizing the metadiscourse resources was first conducted by the researcher, then reviewed by two colleagues who are experts not only in metadiscourse, but also in Discourse Analysis, Systemic Functional Linguistics, and their relationships with academic writing. They have reasonable experience in conducting and publishing research papers in Discourse Analysis based on Metadiscourse (Hyland, 2005) and, more recently, in Appraisal theory developed by Martin and White (2005). In cases of uncertainty regarding the identification and classification of a Metadiscourse resource, the matter was discussed by the three members, then a consensus decision was arrived at.

For the Arabic texts, only the selected excerpts were translated into English.

#### 4. Result

In this section, the researcher explains the distribution of the two types of metadiscourse markers (Interactives & Interactionals) in both English and Arabic writings, providing a separate statistical tabulation for each type of metadiscourse resource. Starting with Interactives, **Table 2** presents the number of interactive resources found in the corpus along with the percentage of their occurrences. The table also shows the distribution of the markers per 1,000 words to avoid the influence of potential disparity between the total number of words used in the two sets of research articles. Some extracts from the two groups of original writings are provided for each metadiscourse marker to illustrate its presence and frequency in the texts.

**Table 2.** Interactive markers in English and Arabic research articles.

Marker	English	Arabic
Transitions	766 (73.4%)	239 (63.9%)
Frame Markers	45 (4.3%)	9 (2.4%)
Endophoric Markers	13 (1.3%)	20 (5.3%)
Evidentials	144 (13.8%)	50 (13.4%)
Code Glosses	75 (7.2%)	56 (15%)

Continued

<b>Total</b>	<b>1043</b>	<b>374</b>
<b>Per 1000 words</b>	<b>46.3</b>	<b>21.1</b>

Note: Total number of words in ERAs = 22,528; Total number of words in ARAs = 17,756.

It is clear from **Table 2** that the authors of English RAs used more interactive resources than their Arab counterparts, 1043 versus 374 (46.3, 21.1 per thousand words), respectively. It is also evident that transitions are the most predominant type of interactive marker across both languages. More interestingly, Arab writers employed more code glosses than English. Evidentials were similar in frequency in both groups of RAs, with English at 13.8% and 13.4 in Arabic. However, frame markers and endophoric markers appeared to be less frequent in both languages.

**Table 3** shows the general tendencies of utilizing interactional resources by English and Arab authors.

**Table 3.** Interactional markers.

Interactional Marker	English	Arabic
Hedges	284 (63.1%)	131 (52.6%)
Boosters	81 (18%)	105 (42.2%)
Attitude Markers	29 (6.4%)	0 (0%)
Engagement Markers	0 (0%)	1 (0.4%)
Self-Markers	56 (12.4%)	12 (4.8%)
<b>Total</b>	<b>450 (100%)</b>	<b>249 (100%)</b>
<b>Interactional Markers per 1000 Words</b>	<b>20</b>	<b>14</b>

It is evident from **Table 3** that instances of interactional metadiscourse are more prevalent in the English than in the Arabic corpus. Among interactional resources, “hedges” used by English authors are significantly higher in frequency (63.1%) compared to those used by Arab authors (52.6%). There is also a marked contrast between the two groups in drawing on “Boosters”. Arab academics use more Boosters (42.2%) than English authors (18%). Another key result is the discrepancy in the use of “attitude markers”. While texts written by Arab academics reveal no instances of “attitude markers”, English authors show a preference for them (6.4%), though attitude markers are the least prevalent among the interactional resources used by English authors. As for “Self-markers”, they are more frequent in English Discussion sections compared to Arabic (12.4% vs. 4.8%). Interestingly, both sets of Discussions include almost no “Engagement” markers.

## 4.1. Interactive Markers

### 4.1.1. Transitions

Recalling Hyland’s (2005) definition (in the Theoretical framework section, above), transition markers are linguistic devices, including additives, adversatives, and

causative markers, drawn on by authors/speakers to maintain continuous flow of information, relationships between ideas, ensure the logical sequence of ideas, and the flow of meanings in a more coherent manner. They signal shifts in thought, contrast, continuation, or conclusion. Throughout the English corpus, *transitions* represent more than 73% of *interactive* resources used by academics.

The following example illustrates the writer's employment of transitions.

[1] *Collectively, the policies and associated documents reported above (frame marker) provide important insights into the complexity, inconsistency and disjuncture which characterize recognition and (transition) provision for students with SLD. In those jurisdictions in which students with SLD are recognized such as (code gloss) much of the US, Canada, England, and parts of Australia (e.g., the Northern Territory), students with SLD are readily identified, and clear guidelines to support and (transition) resource their learning disabilities exist. However, in some jurisdictions, such as (code gloss) across the Australian states, the identification and recognition of such students is not consistent, and resourcing is sporadic. This is highly problematic. [ERA: 1]*

Although the writer, in the provided text, employs several metadiscourse markers such as *Frame markers* (reported above), *Close gloss* (such as), and *Booster* (highly); *Transitions* (and, however) are by far the most prevalent. Of the transition markers, the additive “and” is the most frequent.

By discussing the complexities of the recognition and provision for students with Specific Learning Disabilities (SLD) via different jurisdictions, particularly in the context of policy and documentation, the author employs the additive “and” to bear more than one function. For example, it sometimes links ideas and other times stresses relationships between items and concepts. However, it is used more frequently to join together similar ideas such as “complexities”, “inconsistency”, and “disjuncture”, emphasizing the interrelationships between them. The employment of the additive “and” is intended by the writer not only to connect the items together but also, and most likely, to highlight the complex nature of the problems faced by students with Specific Learning Disabilities (SLD).

The following example—from an Arabic corpus—is provided to illustrate Arab academics' tendency to use transition markers and to compare it with English.

[2] *The results of the current study showed the expected prevalence of developmental learning difficulties among kindergarten children in the State of Kuwait. The general percentage reached 6.6%. The results also showed the role of gender or educational region in the different prevalence rates of developmental learning difficulties among kindergarten children. The results also showed the emergence of social and psychological difficulties as the most severe type of developmental difficulties among kindergarten children. While cognitive difficulties appeared as the easiest and most common type among kindergarten children with developmental learning difficulties. The results also showed that 22.7% of kindergarten children are considered to be struggling in the knowledge society and are expected to suffer from educational problems in the future. [ARA: 14]*

The provided paragraph reports findings from a research article on developmental learning difficulties among kindergarten children in Kuwait. Like English text, the Arabic example includes several *transition* markers. Interestingly, while the additive “and” was predominant in English written text, the key markers in the Arabic example include the additive “and” and “also”. However, Arab academics are different from English in drawing on “also”, almost the same as “and”. The repetition of the additive “also” may imply a tendency among Arab writers to enhance their argument for results by joining them to one another.

It is important to explain that “also” is used to add information and as a cohesive device to bring two or more ideas together. For example, it appears before “the role of gender”, “the emergence of social and psychological difficulties” and “22.7% of kindergarten children are considered to be struggling...” to indicate that these factors are important aspects to add to research findings reported by the writer.

“Or” and “while” are also employed in the text, yet they are less frequent than “and” and “also”. Based on Hyland’s (2005) framework, both “or” and “while” can serve as metadiscourse transitions, but with different functions. The first is an alternative that presents options or different possibilities, and it usually guides readers to construe multiple ways to understand ideas. The second is used to show a contrast between two different ideas. For example, the writer uses “while” to compare the cognitive difficulties described as the “easiest and most common” with the social and psychological difficulties described as the “most severe”. Its employment helps readers to understand the shift in discussion from focusing on one aspect of results to another more clearly and coherently.

Comparing the aforementioned examples, it could be said that the authors have some different tendencies due to their different linguistic and cultural contexts. While English writers, for instance, use “and” to link ideas together and enhance their argument, Arab academics depend on “and” and “also” almost equally to additively relate ideas to one another, striving for coherence in their arguments. This is most likely because, in the Arabic language, “و” /wa/ and “أيضاً” /aydan/—which are equivalent to English “and” and “also”, respectively—can be used to add information or join two or more ideas together in an additive manner.

#### 4.1.2. Evidentials

Evidentials, according to Hyland’s (2005) taxonomy, are used by authors to refer to the source from which they obtain information. They include lexical items like “according to X, X (2000) claims, says, explains, etc. that...”.

The frequency of occurrence of evidentials in both investigated texts is almost the same, with a very slight preference for employment by English over Arab authors (13.8% vs. 13.4%). More importantly, most of these Interactive resources are more common in Step 2 of Move 4 (comparing findings with others in previous literature). The following texts—by English and Arab writers, respectively—illustrate the point.

[3] *Such a finding, although limited, is consistent with previous research that has identified that positive parent-child connectedness in terms of schooling is related to students' school performance and educational aspirations (McNeely et al., 2002). The findings tentatively reiterate what national and parent organizations have reported, that developing stronger home-school partnerships has a positive impact on students' education (National School Public Relations Association, 2006; OFSTED, 2009). The findings lend support to the research of Shochet et al. (2007), which proposed that parent-child connectedness directly or indirectly influenced students' level of school connectedness... [ERA: 12]*

[4] *The result of this hypothesis is consistent with the results of many studies, including the study of Al-Masry (2011) and the study of Al-Mashykh (2009), which indicated that there is an inverse relationship between self-efficacy and future anxiety. The more future anxiety increases, the more self-efficacy decreases. [ARA: 16]*

The two provided texts bear examples of evidentials such as references to McNeely et al. (2002) and Shochet et al. (2007) in the English text, and Al-Masry (2011) and Al-Mashykh (2009) in the Arabic example. Both English and Arabic authors effectively used interactive evidentials effectively to enhance their arguments by relating current research findings with other existing in previous literature. However, there are some differences in style between the two groups of authors, specifically regarding tentativeness and directness. For instance, the English academic in the first text tends to follow a cautious approach by using phrases like “tentatively reiterate” and “although limited”. The Arab author, in contrast, prefers a straightforward style. He cites such studies as Al-Masry (2011) and Al-Mashykh (2009) directly to create a clear relationship between his findings and them. For example, the writer utilizes a phrase like “consistent with the results of many studies” to emphasize the alignment with other findings in prior research. Another example of differences in academic conventions can be seen in Arab authors' tendencies to use less tentative language. The phrase “The more future anxiety increases, the lower self-efficacy decreases”, in the second text, bears a definitive conclusion rather than a cautious interpretation.

#### 4.1.3. Code Glosses

It is explained in previous sections that code glosses are used to illustrate the restatement or reiteration of the propositional content of the text (Hyland, 2005) and to help readers understand the functions of ideational materials through providing examples, explanations, paraphrasing, etc. In the current study, code glosses are the second key interactive markers used by the writers of both groups. More importantly, the Arabic corpus contains more instances of code gloss (15%) than the English (7.2%). The following text (from one of the Discussion sections of research articles authored by Arab academics) illustrates the employment of code glosses.

[5] *The researchers attribute the reason for the existence of such a percentage*

to several factors that vary in part or another from this percentage, *such as* the lack of an agreed-upon operational definition of learning difficulties. It also differs in the tools for success, strategies, and diagnostic criteria, and the category of similarity of those with learning difficulties with some of the combative and exciting categories in this field, *such as* academic delay, slow learning, behavioral disorders, and others. The most important thing that can be among all of these categories is low academic achievement, *which is* a single characteristic and feature among many profit-making and learning difficulties, not. The concept of learning difficulties differs from the concepts that we can differ partially through many things *such as* the material factor and the cause of these cases or the diverse ability and others. [ARA: 14]

The author of the given text prominently draws on “such as” to clarify and elaborate on his discussion. By using “such as”, he provides examples to enhance the factors he counts as reasons for learning difficulties. The writer, for example, employs the code gloss “such as” to introduce “the lack of an agreed-upon operational definition of learning difficulties” as one instance of the factors that cause learning difficulties. Using “such as” consistently, the author not only specifies examples or categories of factors causing learning problems but also tries to direct potential readers H. A. Arabi attention to key points, how these points are coherently and logically related to one another and to the main point of argument. The argument, therefore, unfolds more coherently and persuasively.

In the English corpus, by contrast, code glosses are less frequent, representing 7.2% compared with the Arabic one, 15% (see **Table 2**). The following text is an example of English writers’ employment of code glosses.

[6] *Alongside attention to service providers and resilience as two factors in the processes underpinning educational connectedness, there is also a place for direct educational intervention to enhance educational connectedness. Again, this is where a multidimensional approach to educational connectedness is helpful. For example, understanding that at-risk service users may have lower levels of prior achievement (one of the indicators of educational connectedness), allows educators to consider whether additional instruction and skill development in literacy and numeracy (just two important achievement foundations) are important to nurture academic functioning (Liem & Martin, 2003). Or self-regulatory strategies (e.g., Zimmerman, 2002) to address academic engagement (another indicator of educational connectedness) such as planning, task management, and persistence may be a useful focus for intervention for at-risk youth.*

*In researching and addressing the role of resilience in educational connectedness, consideration might also be given to cognate factors that have come into recent attention, namely, the roles of academic buoyancy and academic resilience. Academic buoyancy is defined as students’ ability to deal with everyday academic setbacks (i.e., minor adversity, Martin & Marsh, 2009). [ERA: 8]*

In this text, the author discusses educational connectedness and lists the factors that support it. He particularly focuses on service providers, resilience, and direct

educational intervention as major factors underpinning educational connectedness. More importantly, the text contains several code gloss markers. However, unlike an Arab academic, who previously used “such as” was repeatedly used, the English author in this text employs various code glosses (such as “for example”, “namely”, “that is to say”) to clarify and elaborate on his discussion. This may indicate that the writer follows various strategic ways in presenting the concepts, most likely to ensure coherent and logical progression of the discussion, which makes it easier for readers to understand.

## 4.2. Interactional Markers

Based on Hyland’s (2005) framework, “interactional” is a key component of metadiscourse alongside “interactive” resources. Interactional markers are linguistic resources utilized by writers to engage readers and map their interpretation as well as establish interpersonal relationships with them. As mentioned in the Methodology section, a writer uses interactional resources to express his personality, commitments, and assertions of credibility within the discourse community. By utilizing these resources, a writer also shows his perspectives and the extent to which he manages his text contents and audience. Interactional aspect includes “*hedges*”, “*boosters*”, “*attitude markers*”, “*engagement markers*”, and “*self-mention markers*”.

### 4.2.1. Hedges

According to Hyland (2005), hedges-as one of several interactional resources-are utilized by writers to express their attitudes not only toward the texts they compose but also toward their audience. They are also employed to indicate a degree of uncertainty and to withhold full commitment to a proposition. The following text is an excerpt from an English corpus that illustrates the use of hedges.

[7] *Despite the wider focus on becoming what could be seen as an effective, continually developing classroom teacher, the specific goal that was most frequently nominated was to gain employment in general or in particular contexts. This could perhaps be expected, given the career stage of the participants. It could also be related to the local Australian context, where new graduates are typically able to find casual or relief work, and achieving permanency in government schools may take time (Pietsch & Williamson, 2009). This finding points to a potential conflict for beginning teachers, as they may have the intrinsic goal to develop, learn, and create positive learning environments and relationships with their students and colleagues. [ERA: 5]*

In discussing the goals for new teachers’ employment within the context of Australian education, the author of the provided text draws on various hedges like “could”, “perhaps”, and “may”. The phrase “this could perhaps be expected” suggests that the author is not making a definitive statement but rather presenting it as one of several possibilities. In other words, the writer invites readers to view the findings or assertions not as conclusive truth but as topics open to discussion and acknowledges alternative viewpoints. By doing so, the author fosters interpersonal

engagement with readers, striving to formulate a persuasive argument, a common objective within the academic community. Another example of this point is also observed in the use of “may” in the phrase “This finding points to a potential conflict for beginning teachers as they may have the intrinsic goal to develop”. Using “may” indicates that the writer acknowledges “having the intrinsic goals to develop” as a possibility rather than asserting it as a given outcome. It suggests considering scenarios, hence encouraging a more collaborative interpretation of the findings.

Arab academics also utilize various “hedges” in their Discussion sections when reporting and commenting on research findings. However, as noted in the table above, the frequency of “hedges” is lower compared to those used by English authors. The following is an example from the Arabic-written texts.

[8] *This result can be explained by what was stated in Bandura’s theory, that people with high self-efficacy often expect success, which increases their level of motivation to achieve the best possible performance and reach effective and good solutions to the problems that the individual may encounter, unlike people with low self-motivation who expect failure in all tasks they face. This may lead to a decrease in the level of motivation and performance. [ARA: 16]*

The text reveals instances of “hedges” such as “often”, “possible”, and “may”. This may imply that Arab academics are aware of the importance of other alternative viewpoints, as the use of such hedges is intended to invite readers to engage and share their ideas in discussions rather than taking them for granted.

Referring to the author’s comment on the findings in the last sentence, the modal “may” encourages understanding the statement “a decrease in the level of motivation and performance” as a possible conclusion rather than a definitive one. Therefore, the author tends to foster dialogic engagement with readers, emphasizing togetherness in interpretations over individual assertions.

#### 4.2.2. Boosters

In Hyland’s (2005) taxonomy, boosters, like other metadiscourse interactional markers, are viewed as linguistic tools utilized by writers to organize texts, engage readers, and show authorial stance. More specifically, they are employed by authors to clarify and enhance argument. Words or phrases such as “clearly”, “definitely”, “in fact”, “no doubt”, “confirm”, or “demonstrate” are usually used to show strong assertions. In the present study, boosters come second in frequency among the interactional resources identified in the corpus, following “hedges”. More importantly, they are more prominent in the Discussion sections written in Arabic compared to those in English (42.2% vs. 18%, respectively). The following text, extracted from Arab Discussion sections, illustrates this point.

[9] *The results of Odom’s (1996) study indicated that mothers of children with attention deficit hyperactivity disorder who participated in educational sessions to improve their parenting styles showed significant improvement in their methods of dealing with their children. The study of Matthews et al. (2009) also confirmed that parents of children with attention deficit hyperactivity disorder were*

*more likely to use more positive parenting styles and practices after being exposed to a counseling program aimed at improving their negative practices towards their children.*

The author in example 7 reports results from prior literature related to parental styles of mothers of children with Attention Deficit Hyperactivity Disorder (ADHD). He particularly focuses on two studies that highlight improvements in mothers' practices due to educational interventions. The writer intentionally uses lexical items—that are conceived as Boosters—like “indicated”, “significant”, “confirmed”, and “more positive”. These phrases are used here to serve the author's stance and viewpoints concerning the effectiveness of the educational intervention. The phrase “significant improvement”, which highlights the significant change in mothers' parenting styles, not only emphasizes the intervention's efficacy but also aims to persuade potential readers of the study's validity. The author's use of Boosters in the aforementioned example indicates that Arab academics acknowledge the significant role these linguistic resources play in formulating scholarly dialogic communication preferred or expected within the academic domain.

#### 4.2.3. Self-Makers

Self-markers constitute another subcategory of interactional metadiscourse. Hyland (2005) defines them as linguistic resources employed by a writer to convey a clear authorial stance within the text. They include personal pronouns such as “we”, “I”, “our”, “me”, and “us”. In the current study, self-markers were used more frequently in Discussion sections by English authors compared to their Arab counterparts (12.4% vs. 4.8%). The following text from English authors provides examples of self-markers.

[10] *At first sight, this may cast doubt on Jacob's assertion that “using feminist pedagogy should benefit not only female students but also other students and society at large and in no way denies the power or beauty of mathematics” (Jacobs, 1994/2010: p. 445). Conversely, we suggest that Jacobs is justified in making such a claim, since, if used judiciously and in appropriate contexts, the collaborative cognitive-activation strategies that epitomize fundamental aspects of feminist mathematical pedagogy may have an important role to play in promoting social justice by reducing gender disparities in attitudes to mathematics.*

*However, our results suggest that further research into the potential benefits of collaborative cognitive-activation teaching strategies is warranted and, if this article serves as a catalyst for triggering it, our aim will have been realized. [ERA: 18]*

The presence of plural first-person pronouns “we” and “our” in the above-mentioned example serves as interactional self-markers that reflect the author's stance. These pronouns also carry interpersonal value, playing an essential role in explaining the ways the writer interacts with readers. They encourage readers to engage and interact with the ideas presented in the text. Therefore, when the author uses “we” in the first paragraph, he/she not only projects authorial stance and the credibility of the topic in question, but also expresses a sense of readiness and openness

to accepting the potential audience's opinions. This approach may enhance his position as an academic with intimate knowledge and high confidence about the topic under discussion, which is "feminist pedagogy of mathematics".

Similarly, the use of "our" in the last paragraph suggests that the author intends to share the responsibility for the research finding with others in the field of education and that suggestions are not solely the writer's but a collective work of all educational practitioners. This strategy, on the part of the writer, maintains engagement with readers and emphasizes the interpersonal values expected in academic discourse. The following text is another example of the employment of self-markers by Arab academics.

[11] *In general, we can interpret this result in light of the socialization processes and cultural contexts that surround both males and females and contribute to shaping the personal characteristics of each of them. We can also interpret the result by saying that the current research sample of deaf adolescents is considered to be a stressful stage for determining the academic, professional, and social future. [ARA: 16]*

Like English writers, the Arab author of this text employs the plural first-person pronoun "we" to express a sense of collectivity and interpersonal values. As a self-marker, "we" not only emphasizes the writer's individual viewpoint but also suggests that the interpretation of results is a collaborative effort. The values of collaboration and shared knowledge, resulting from clear engagement with readers, are evident in the provided text. However, self-markers are less frequent in Arabic compared to English research articles, which may indicate some linguistic or cultural variations.

## 5. Discussion and Interpretation

The overall results revealed that both English and Arabic academics used a substantial number of metadiscourse resources in the analysed corpus, with a greater prevalence observed in the Discussion sections written in English. This suggests the crucial role metadiscourse markers play in shaping writing tendencies and styles within academic realms. These findings reiterate the ones reported by Sultan (2011), which highlight the significant role of metadiscourse markers in English and Arabic research articles. Sultan concluded that both Interactive and Interactional markers were used in the Discussion sections of both language sets (English & Arabic). One of the key findings of the current analysis is the prominence of Interactive markers over Interactional markers in RA's Discussion sections written in both languages. This result suggests that the authors prioritize enhancing textual coherence over establishing interpersonal values and promoting interactional engagement with expected readers. Similar conclusions can be found in the findings of three research articles: Sultan (2011), Alotaibi (2015), and Mohamed (2019). Although these researchers examined the use of metadiscourse markers across different research article sections written in both Arabic and English, all three employed Hyland's (2005) analytical framework. Each study arrived, almost, at a com-

parable conclusion: Interactive markers were more prevalent than Interactional markers. More importantly, Interactive resources were more frequent in the corpus authored by English scholars than by Arab scholars. These results contrast with Sultan's (2011) conclusion that Arab authors used more Interactive resources than their English counterparts.

Among *Interactive* markers, *Transitions* were the most frequent in Discussion sections written in both languages. This finding is partially consistent with the conclusions drawn by Alotaibi (2015) and Zaki (2022). Although they focused on different RA sections, specifically Abstracts, compared to the section examined in the current study (Discussions), they utilized Hyland's (2005) analytical framework to analyze linguistic variations in RAs Abstract sections written in two languages: English and Arabic. The former concluded that Arabic abstract sections relied heavily on Transition markers, while English Abstracts contained more Frame markers and Code-glosses. The latter researcher reported that *Transitions* and *Frame markers* were the most frequent in the textual domain. While *Frame markers* were prevalent in English papers, Arab authors utilized both *Code Glosses* and *Endophoric* markers more frequently than their English counterparts. Alharbi (2021), who also investigated the metadiscourse employment in 40 Result, Discussion, and Conclusion sections of published research articles authored in English by non-native English speakers, emphasized that interactive markers were more frequent than interactional ones in the analyzed texts and that transitions were the most frequent interactive resources.

With regard to Interactional metadiscourse, Hedges and Boosters were by far the most prevalent markers used in Discussion sections written in both languages. Furthermore, notable discrepancies exist in the strategic use of these resources. While English authors used a great number of Hedges, their Arab counterparts tended to favour Boosters. This suggests variations attributed to linguistic and cultural differences between the two groups of authors. English authors tend to present their arguments and claims as more tentative, showing a degree of uncertainty and openness to alternative perspectives. In contrast, by utilizing more Boosters, Arab academics convey greater certainty and assertiveness in their arguments. Therefore, while the linguistic styles of English writers reflect values of humility, entertaining readers' participation and engagement with the texts and authors' arguments, the more frequent use of Boosters by Arab academics suggests a tendency towards a direct style of persuasion and assertiveness in communicating their research findings. Variations in the utilization of these interactional resources may stem from cultural backgrounds. For instance, in many Western cultures, interpersonal interactions, dialogic discussions, critical thinking, and acknowledgement of alternative perspectives are highly valued within the academic community, and English-speaking authors are no exception to this trend. This may, therefore, account for the preference of English academics for using Hedges, which encourage a collaborative scholarly dialogue. However, Arabic culture tends to emphasize authority and confidence in the presentation of knowledge. That is why

Boosters are more dominant in the texts authored by Arab academics, as they are used to emphasize assertions, certainty, and confidence in communication. This finding reinforces Kaplan's (1996) model, which argues that different cultures reflect distinct rhetorical patterns. It also reiterates Hyland's (2005) theory of metadiscourse, which suggests that authors' cultural backgrounds influence different styles and approaches to interacting with readers.

These results align with the research conducted by Alghazo et al. (2021), which revealed that Arab writers used more boosters and attitude markers than their English counterparts. Furthermore, their study found that Arab authors also employed fewer hedges and engagement markers than English academic writers. In her examination of metadiscourse features in 400 Abstract sections, Zaki (2022) discovered that boosters and self-mentions were the most prevalent in the interpersonal domain. Additionally, she reported that hedges and endophoric were the least frequent metadiscourse markers across the corpus. Preference for booster utilization by Arab authors was also noted by Almakrob (2023). His study focused on interactional resources of metadiscourse in 94 Introductions of research articles written in Arabic, specifically within the fields of linguistics and applied linguistics. He concluded that boosters were more frequently employed than hedges in Introduction sections, indicating that Arab academics tend to present their information as facts, not as opinions. Interestingly, Alotaibi and Arabi (2020) employed a different taxonomy—Martin and White's (2005) Appraisal analytical framework—to examine the use of linguistic resources for taking authorial stance in Introduction sections of research articles written in English and Arabic languages. They found that Arab academics used more *Contracting* resources than *Expanding* ones. *Contracting*, categorized as an Engagement resource in Martin and White's (2005) framework, may be analogous to booster in Hyland's taxonomy. Alotaibi and Arabi suggested that this preference for contracting resources in Arabic texts may indicate that Arab authors tend to show a more assertive authorial stance when introducing their research topics.

Another significant observation from the current research findings regarding the interactional domain is that Discussion sections written in Arabic contained no instances of Attitude markers. This suggests that Arab authors may prioritize an objective presentation of knowledge over personal feelings and adhere to a more formal style in academic communication. Culturally, Arabic-speaking writers tend to avoid using attitude markers because many lexical categories, such as “لأسف” (lilasaf), “أنا أتفق معك” (ana atafaq ma'ak), and “بشكل مفاجئ” (bishakl mofaji), which correspond to the English terms “unfortunately”, “I agree with”, and “surprisingly”, are conceived as conversational; therefore, they are considered less formal in scholarly writing. Yet, this assertion requires further investigation as Alghazo et al. (2021) noted that attitude markers were among the most prevalent interactional resources in the Arabic corpus. However, it also remains uncertain and entails further investigation to determine the extent to which the absence of Attitude markers in the Arabic corpus is attributable to specific cultural values.

## 6. Conclusion

The main objective of this study was to identify how academic authors utilize metadiscourse resources—both Interactive and Interactional—to enhance textual coherence, take authorial stance, and engage with readers in discussing their research findings. The key findings can be viewed from three perspectives to address the main research objectives and questions: the existence of both metadiscourse types, variations in their employment, and the influence of linguistic and cultural backgrounds.

The overall findings revealed the deployment of both Interactive and Interactional metadiscourse, indicating that authors recognize the importance of these resources in academic writing. Notably, Interactive resources were more prevalent than Interactional ones, suggesting a preference for textual coherence over interpersonal engagement. Transitions, particularly the conjunction “and”, were used more frequently in English Discussion sections compared to Arabic. Arab scholars also utilized “also” alongside “and”, reflecting linguistic differences in additive expressions.

Furthermore, Code Glosses were more common in the Arabic corpus, with Arab authors predominantly using “such as”, while their English counterparts employed a broader range of phrases. The frequency of Evidentials was similar across both groups, but Frame markers were least in frequency overall, with a slight preference in the English corpus over Arabic.

Regarding the interpersonal domain, distinct patterns between the two groups were detected: English authors favored hedges, whereas Arab scholars used more boosters. This variation, coupled with the absence of attitude markers in the Arabic corpus, reflects cultural norms and rhetorical strategies that may influence academic writing performance.

To sum up, the overall findings of the analysis have addressed the primary research objectives and questions. The findings revealed that English and Arab authors utilized both types of metadiscourse resources—Interactive and Interactional—demonstrating their awareness of the role these resources play in academic writing. Furthermore, significant variations were discerned in the use of metadiscourse resources between the English and Arab groups, which can be attributed to linguistic and cultural backgrounds. Finally, these differences may affect writing performance, particularly in academic settings.

The current research study examined metadiscourse features, which serve as one of the linguistic aspects ensuring credibility in academic writing. The findings have shown how linguistic and cultural variations influenced the authors’ employment of metadiscourse resources.

I believe that the findings of the current study provide non-native writers (Arabic writers are no exception) and novice researchers with insights into metadiscourse utilization for enhancing both textual coherence and engagement with readers. The study may also be of particular value for Arab academics, whose aim is to write for publication, claim recognizable authorship, and share knowledge with the in-

ternational academic community. In addition, the study hopefully offers some pedagogical implications, as the findings can be useful resources and materials for teaching academic writing to both graduate students and novice researchers, particularly in Arabic contexts (see **Appendix**). In the light of such research findings as those contained in the present study, Arabic graduates and novice academic researchers may be exposed to the variability of metadiscourse resources' deployment due to differences in languages and academic disciplines. Instructors can utilize the findings and focus, for example, on teaching Arabic novice researchers Arabic lexical terms corresponding to English words used as hedges. The emphasis should also be on encouraging Arab researchers to use attitude markers, as they are crucial for engaging with readers.

It is important to note, however, that the analysed data of the present study are taken from one academic discipline. Therefore, the findings can scarcely be generalized to other disciplines. For more comprehensive results, the area of investigation should be broadened to include other academic disciplines. Moreover, further studies are needed to examine in depth the cross-linguistic variations expected in research papers written by academics who speak different languages.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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## Appendix

### Interactive markers.

Category	Function	Examples	
		English	Arabic
Transitions	Express semantic relations between main clauses	<i>In addition, but, thus, and, and others</i>	”بالإضافة الى“، ”بالتالي“، ”لكن“، وما شابه ذلك
Frame markers	Refer to discourse acts, sequences, or text stages	<i>Finally, to conclude, my purpose here is to</i>	”أخيراً“ ”في الختام“ ”او“ ”يمكن نختم“ ”هدفي هنا هو“ ”... او“ ”أهدف هنا الى“
Endophoric markers	Refer to information in other parts of the text	<i>Noted above, see Fig., in section</i>	”ذكر آنفا“ ”انظر الي الشكل“ ”في القسم كذا“
Evidentials	Refer to source of information from other texts	<i>According to X (2001), X claims that</i>	”بناء على X“ ”وفقا لما ذكره X“
Code glosses	Help readers grasp functions of ideational materials	<i>Namely, that is to say, e.g., such as</i>	”بالاسم“ ”أو“ ”بالتحديد“ ”مثلا“ ”أو“ ”مثل كذا“

### Interactional markers.

Category	Function	Examples	
		English	Arabic
Hedges	Withhold writer’s full commitment to proposition	Might, perhaps, possibly, most likely	”ربما“، ”من المحتمل“، ”قد“، ”احتمال“، ”غالبا“
Boosters	Emphasize force or writer’s certainty in proposition	In fact, definitely, it is clear that	”في الحقيقة“، أو حقيقة ”بالفعل“، ”من الواضح انه“
Attitude markers	Express writer’s attitude to proposition	Unfortunately, I agree, surprisingly	”لحسن الطالع“، أو لحن الحظ ”أوافق“، ”بدهشة“، أو ”بصورة مفاجئة أو ”بغرابية“
Engagement markers	Explicitly refer to or establish relationship with reader	Consider, note that, you can see that	في الاعتبار لاحظ انه، يمكنك ان ترى أن
Self-mentions	Express a clear authorial presence in the text	I, me, our, we	أنا ، نحن