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ORIGINAL ARTICLE

Hedges and Boosters in the Discussion Sections of Tourism and Pharmacology Research Articles

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ABSTRACT – The Discussion section of research articles (RAs) is a section where authors place their ideas and interpret their research findings by strengthening and making sense of the findings to benefit the communities in their fields or others. Academic writing is incorporated with mitigating devices and expressions that convey the attitudes of authors and communication abilities, such as the expressions of doubt (hedges) and certainty (boosters), which are important to the rhetorical nature of academic writing. Thus, given the strong roles of these mitigating devices in expressing certainty and uncertainty in the Discussion section of RAs, improper use of hedges and boosters will make it difficult for authors to state what they imply, and this may lead to a misunderstanding of what the authors attempt to convey or interpret in their writing. Through the taxonomies of hedges and boosters, this study investigates the use of hedges and boosters as well as identifies the similarities and differences in the use of hedges and boosters between 20 Tourism RA discussions and 20 Pharmacology RA discussions using a mixed method. Data were also supplemented using interviews with Tourism and Pharmacology specialist informants. Overall, the findings revealed that academic authors from both Tourism and Pharmacology fields used more hedges than boosters to avoid any overstatement of their research results. This study will assist authors and students in the use of hedges and boosters, particularly in academic writing.

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INTRODUCTION

The significant features of academic writing consist of establishing research, evaluating evidence, and drawing conclusions from research data (Basturkmen, 2012; Jalilifar, 2011). In the current study, these features are associated with the Discussion section of RAs. According to Basturkmen (2012), the Discussion section plays a significant role in RAs because it allows authors to highlight the contributions of their studies to the literature and general knowledge. However, since the Discussion section is commonly expected to be written in a way that is supported by communicative strategies in order to convey the attitudes of authors and develop professional communication skills, mitigating devices such as hedges and boosters play a key role as the communicative strategies for weakening or strengthening claims, respectively (Hyland, 1998a). While hedges denote a claim that weakens through an author's clear disclaimer of a certain commitment (e.g., might, possible, perhaps), authors may also use boosters to demonstrate and uphold their conviction with a strong claim about a situation (e.g., obviously, clearly, of course) (Hyland, 1998a). Therefore, without proper use of hedges and boosters, authors will find it difficult to state what they imply, and this not only leads to a problem in stating attitudes to the readers but also a misunderstanding of what the authors attempt to convey in their writing and communication of ideas (Ahmadpour et al., 2017). Accordingly, numerous studies have examined how hedges and boosters were used in various disciplines such as Linguistics, Marketing, Philosophy, Sociology, Chemistry, Electrical and Mechanical Engineering, and Physics RAs (Takimoto, 2015), Education and Engineering RAs (Taşpınar, 2017), and Applied Linguistics RAs (Hryniuk, 2018; Nizigama & Mahdavirad, 2021). However, to the researcher's best knowledge, there is no research on the use of hedges and boosters in the disciplines of Tourism and Pharmacology in particular. Thus, besides bridging this literature gap, the study also aims to compare the two disciplines of Tourism and Pharmacology, particularly between a soft discipline (Tourism) and a hard discipline (Pharmacology), in accordance with several past studies such as Hyland (2008) and Vázquez and Giner (2009). The current study addresses the following objectives:

1. To identify the use of hedges and boosters in Tourism and Pharmacology RA discussions.
2. To identify the similarities and differences in the use of hedges and boosters between Tourism and Pharmacology RA discussions.

LITERATURE REVIEW

Metadiscourse provides a means of comprehending language and represents the attempt of the author to guide one's perception of a text or discourse. Metadiscourse, as eloquently stated by Hyland (2005a), denotes the umbrella term for expressions that are self-reflective in nature, which enables authors (or speakers) to convey their opinions and

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communicate with readers as members of a certain community in texts. In other words, by establishing interactions, the writer negotiates or decides the effects to be placed on the readers. In general, the way in which communication is constructed tends to influence the use of metadiscourse, especially in demonstrating the extent of the author's comprehension of the information and the reader's processing requirements or potential objections (Hyland, 2021). Through metadiscourse, academic authors in their respective fields convince their readers using numerous rhetorical ways to support assertions, arguments, and evidence instead of merely reporting their findings impersonally or objectively (Hyland, 2005a; Abdi et al., 2010). Being contingent on the idea of academic writing to engage the discourse community (Hyland & Tse, 2004), metadiscourse constructs knowledge and manages author-reader interactions in the same community that employs similar academic practices, culturally and rhetorically. As such, metadiscourse application in academic writing does not only enhance the possibility of assertions being accepted but also the competence of the authors in the particular discourse community (Hyland, 2005a). One of the categories of metadiscourse markers is interactional metadiscourse devices (Hyland, 2004), which include hedges and boosters to convey the extent of authors' confidence in the truth of a statement and their attitudes towards the audience.

Hedges

Authors can identify counterarguments and eliminate their full support for the viewpoints by using hedges. Hedges, which separate a speaker from what they are saying, include the use of expressions like "possibly" and "maybe" and "maybe" in a polite speech to foster conviviality and promote conversation (Holmes, 1984). In academic writing, hedging strategies have been employed extensively and the use of hedges has become the focus of attention by most academic authors. Salager-Meyer (1997), for instance, categorised the linguistic realisation of hedging forms in scientific RAs and deliberated both formal and functional criteria to identify hedges, extending the taxonomy of linguistic devices such as modal auxiliary verbs (e.g., can, may, should), modal lexical verbs (e.g., to speculate, to indicate, to suggest), followed by probability adjectives (e.g., probable, possible, potential), adverbs (e.g., perhaps, apparently, presumably), nouns (e.g., possibility, assumption, tendency), approximators of quantity, degree, time, and frequency (e.g., approximately, generally, somehow), and introductory phrases (e.g., to our knowledge, I believe, we feel that).

The application of hedging devices is very common in academic discourse. Mercer et al. (2004) contended that a research publication is affected by the extent to which the new results are accepted by the research community; hence, this determines the degree to which an author has achieved his or her scholarly goal and integrated into the community. In brief, since scholars have expectations of how the community responds to their controversial or acceptable claims, hedges help mitigate interpersonal communication and are used for expressing a certain level of certainty because authors tend carefully acknowledge the extent to which they can draw conclusions from their research data (Yang, 2013). Thus, during the stage of article selection and review, it is crucial to determine whether the article is hedged in the right manner.

Boosters

Authors can eliminate alternatives and demonstrate a high level of assurance by using boosters (Hyland, 2005a). The term "boosters" is referred to as lexical items used by an author to express the certainty of their statement and to show a strong conviction for a statement (Holmes, 1982), for instance, "sure" and "definitely." In this sense, boosters signify the author's conviction regarding a certain claim. Boosters are likewise identified as strengtheners, emphatics, and intensifiers (Hyland, 2008). While boosters signal the author's confidence regarding the plausibility of utterance instead of showing tentativeness or uncertainty (Holmes, 1982), Hyland (1998a) argued that boosters strengthen propositions and show commitment to statements. As possible alternative voices are being limited, the use of boosters highlights a union of interest with an audience while promoting a position and countering other opinions, especially by emphasising the necessary inferences that can be drawn from shared experiences with other authors (Hyland, 2005a). Although the use of boosters may incite doubt on the listener's part (Donohue, 2006), it signals the awareness of the author or reader and the significant alternative interpretations in the text (Donohue, 2006; Hyland, 2005a).

In general, the quantity of boosting devices used in academic writing should be moderate (Hyland, 1998b). According to Yağız and Demir (2015), the overuse of intensity markers can produce an opposite impact on the readers and lessen the statements' credibility because more evidence would be required to support the claims or stances that are too assertive or challenging; hence, further investigation on boosting devices used in academic writing is essential. With the impact of a commitment on the reader's conviction regarding the issue being discussed, the more the boosting devices are employed in texts, the higher the acceptability level reached by the authors (Yağız & Demir, 2015). NamazianDost (2017) also stated that boosting is a topic covered by meta-discourse that leaves a strong impact on the extent of sureness, confirmation, and conviction to strengthen the authors' claims on the issue. Similarly known as intensifiers or certainty markers, boosters are strong indicators that show the author's position on a vast scale by narrowing purposeless space; hence, it is vital to examine expressions that can increase further knowledge of boosters (NamazianDost, 2017).

Previous Studies on the Use of Hedges and/or Boosters

Given the crucial role of metadiscourse markers such as hedges and boosters in elucidating a communicative context and reader perceptions, metadiscourse markers have been actively examined by numerous researchers across genres and disciplines (Hyland et al., 2021). Hyland (2008), for example, examined stance features and metadiscourse in eight disciplines: Applied Linguistics, Philosophy, Marketing, Sociology, Microbiology Medical Engineering, Physics, and Electrical Engineering. Among the stance and engagement features, hedges were evidently more dominant. Hyland (2008) also reported that stance and engagement features in the soft field RAs were higher than in the hard field RAs. Upon

comparing the eight disciplines, Applied Linguistics RAs recorded the highest occurrences of hedges and boosters, which Hyland (2008) argued to be resulted from authors' obligations to represent their readers as well as themselves and their work in various ways across fields. Hyland (2008) also remarked that stance markers were common in the soft field RAs because the field provides more interpretation and is not as abstract as the hard field. Finally, Hyland (2008) summarised that even though arguments or convictions in the soft field need to be presented with greater caution, it is also necessary that the arguments restrict possible alternative voices through boosting.

Farrokhi and Emami (2008) compared native with non-native authors by focusing on Applied Linguistics and Engineering RAs to examine how the authors used hedges and boosters. Similar to Hyland's (2008) findings, both hedges and boosters were also common in Applied Linguistics RAs. Overall, the native authors employed hedges and boosters to a greater extent than their non-native counterparts; however, the findings showed no significant difference between the native and non-native authors in Applied Linguistics RAs in the use of hedges, whereas the non-native authors used boosters less frequently in Engineering RAs. This difference was attributed to the non-native authors' unfamiliarity with the academic writing norms or the key characteristics of hedging and boosting (Farrokhi & Emami, 2008). In addition, Farrokhi and Emami (2008) also investigated the distribution of hedges and boosters in the Discussion section of RAs and their analysis revealed that Applied Linguistics and Engineering RAs both recorded high occurrences of hedges and boosters in the particular section, with boosters being employed most by both native and non-native authors.

Jalilifar (2011) investigated hedges and boosters in the Discussion sections of RAs written in English and Persian. Based on his analysis, significant differences were found in the functions, frequencies, and types of hedging and boosting devices used in the RAs. Generally, in discussing research results, both Persian-English and English authors used hedges more frequently; however, Persian authors used more boosters in their discussion. According to Jalilifar (2011), the differences in the use of hedges and boosters between Persian and English authors might be explained by Persian researchers' lack of awareness regarding metadiscourse markers and the key roles of such devices. Besides, in the Persian academic setting, Persian authors often did not receive specific instruction on these particular devices (Jalilifar, 2011).

Takimoto (2015) analysed hedges and boosters in eight RA disciplines: Linguistics, Philosophy, Marketing, Sociology, Chemistry, Physics, Electrical Engineering, and Mechanical Engineering. Based on Takimoto's (2015) findings, compared to the RAs in Chemistry, Physics, and Electrical and Mechanical Engineering, hedges and boosters were more significant in Linguistics, Philosophy, Marketing, and Sociology RAs. The hedging and boosting choices of the authors in all disciplines were influenced not only by the different rhetorical styles of each discipline but also by the respective discourse norms, thus reflecting academic writing's disciplinary traits and their nature (Takimoto, 2015).

Meanwhile, Taşpınar (2017) investigated Education and Engineering RAs and found that boosters recorded more occurrences in Engineering RAs than Education RAs, while hedges recorded more occurrences in Education RAs than Engineering RAs. Based on Takimoto's (2015) conclusion, Taşpınar (2017) agreed that hedging and boosting choices might be influenced by disciplinary differences; however, despite disciplines, hedges and boosters collaborate to balance objective information with subjective evaluation in addition to convincing readers to accept the authors' statements (Takimoto, 2015). Besides, Taşpınar (2017) also concurred with Takimoto (2015)'s results that humanities and social sciences tend to be more interpretive and less abstract, hence requiring more use of hedges and boosters, while natural or hard sciences are more fact-based and neutral, hence requiring less use of hedges and boosters (Takimoto, 2015).

Hryniuk (2018) conducted an analysis of how hedges and boosters are used in Applied Linguistics RAs written by Polish and English authors in English. According to Hryniuk (2018), hedges used by Polish authors were higher than those of native English speakers, whereas English native authors used more boosters than their Polish counterparts. Since the articles were all English-written, the higher occurrences of hedges in the Polish sub-corpus might be due to diverse writing differences rhetorically or culturally (Hryniuk, 2018). Besides, the findings showed that boosters in the Polish sub-corpus discussion were slightly greater than the Anglo-American sub-corpus, despite the insignificant statistical difference. However, the use of hedges in the Anglo-American sub-corpus was higher than in the Polish sub-corpus.

In a recent study by Nizigama and Mahdavirad (2021), the taxonomy of hedges by Hyland (1998a, 2005a) and the taxonomy of boosters by Hinkel (2005) were employed to examine the use of hedges and boosters in Applied Linguistics RAs. Specifically, Nizigama and Mahdavirad (2021) examined RAs written in English by Anglo-American authors (native) and Iranian and Burundi authors (non-native). Their findings showed significant differences in the Discussion sections in which hedges such as modal verbs and epistemic adverbs recorded more occurrences than boosters. There were also variations in terms of how hedges and boosters were used by Applied Linguistics authors such that hedges were employed more by Iranian authors as opposed to their Anglo-American and Burundi counterparts, while boosters were employed more by Burundi authors than their Anglo-American and Iranian counterparts.

Based on the literature review on the use of hedges and boosters in general and the Discussion section of RAs in particular, it is worth highlighting that despite the similarities found in these studies, the results from different analyses may also show differences in certain parts. While some researchers may record a similar frequency of distributions of both hedges and boosters in their studies, some may also find that the use of one device was more common than the other. Conclusively, variations in terms of disciplines and contexts of the studies may influence the application of hedging and boosting devices by academic authors. However, despite the variations, the fundamental functions of hedges and boosters such as modal verbs, adjectives, adverbs, and nouns are all evident in past studies. Correspondingly, the current study adopted a combination of Hyland's (1998a) taxonomy of hedges and Hinkel's (2005) taxonomy of boosters to investigate the Discussion sections of Tourism and Pharmacology RAs. Besides the dependability of the taxonomies, the reason for selecting this model is also that it entails five types of hedging devices and three types of boosting devices, which explicate the reasons for their application in academic writing, particularly in discussing research results.

METHODOLOGY

Both qualitative and quantitative measures were combined in this study to obtain a deeper understanding of the research data. Particularly, this study employed a mixed method based on the exploratory sequential design. In this study, the Discussion sections of Tourism and Pharmacology RAs were acquired via content analysis and the frequencies and percentages of hedges and boosters in the RA discussions were recorded. Subsequently, the researcher interviewed Tourism specialist informants and Pharmacology specialist informants to supplement and enrich the collected data. In essence, the taxonomies of hedges and boosters by Hyland (1998a) and Hinkel (2005) were adopted to analyse the corpora, which respectively include five hedging devices with three boosting devices as depicted in Table 1.

Table 1. Taxonomies of Hedges and Boosters by Hyland (1998a) and Hinkel (2005).

Category	Device	Examples
Hedges	Modal verbs	Can, should, may, could, will, would …
	Epistemic lexical verbs	Indicate, suggest, reveal, show …
	Epistemic adjectives	Likely, potential, tend, possible …
	Epistemic adverbs	Probably, perhaps, potentially …
	Epistemic nouns	Indication, tendency, possibility …
Boosters	Emphatics	Indeed, specifically, particularly …
	Amplifiers	Highly, completely, much, very …
	Universal pronouns	None, all, no, each, every …

Research Instrument

The Discussion sections of the Tourism and Pharmacology disciplines were analysed qualitatively through content analysis; however, the types of hedges or boosters identified in the corpora were calculated quantitatively and compared. In terms of journal selection, the researcher selected 20 Tourism RAs from Tourism Management and 20 Pharmacology RAs from European Neuropsychopharmacology from Top Quartile (Q1) journals based on their 2019 high-impact factors of 3.068 for the Tourism Management journal and 1.652 for the European Neuropsychopharmacology journal. Furthermore, the IMRD format comprising the Introduction, Method, Results, and Discussion is also displayed in the RAs of these two journals, which serves as one of the main criteria for selecting the current research samples.

Data Collection and Procedures

Using judgment sampling, 40 RAs were first collected from each discipline (Tourism and Pharmacology). Next, the study employed a stratified random sampling technique to select 20 RA discussions from each discipline to establish the actual corpus (Loi & Lim, 2019). Since the RAs should only entail a single Discussion section, the researcher excluded any sections labelled as "Discussion and Conclusions" or "Results and Discussion" from this study. The sampling was based on publications from 2015 to 2019 and initials were used to code all samples, such as "T" for Tourism RAs (T1-T20) and "P" for Pharmacology RAs (P1-P20).

Data Analysis

Based on the taxonomies of hedges and boosters developed by Hyland (1998a) and Hinkel (2005), all hedging and boosting devices in this study were coded as shown in Table 2.

Table 2. Coding Categories for the Taxonomies of Hedges and Boosters by Hyland (1998a) and Hinkel (2005).

Category	Type	Code
Hedges	Modal verbs	HMV
	Epistemic lexical verbs	HELV
	Epistemic adjectives	HEADJ
	Epistemic adverbs	HEADV
	Epistemic nouns	HEN
Boosters	Emphatics	BEMP
	Amplifiers	BAMP
	Universal pronouns	BUP

Based on the classifications in Table 2, the five hedging devices were coded as follows: modal verbs (HMV); epistemic lexical verbs (HELV); epistemic adjectives (HEADJ); epistemic adverbs (HEADV); epistemic nouns (HEN). Meanwhile, the three boosting devices were coded as follows: emphatics (BEMP); amplifiers (BAMP); universal pronouns (BUP).

The types of hedges and boosters were coded in this study using content analysis based on Hyland's (1998a) hedging devices and Hinkel's (2005) boosting devices per their respective taxonomies. Once the hedges and boosters in the Discussion sections of Tourism and Pharmacology RAs have been determined, the frequencies of hedges and boosters found in the corpora were calculated and their percentages were derived from the formula below.

$$X/Y \times 100\% = Z\%$$

The formula constitutes X as the frequency of hedges or boosters in the corpora, followed by Y as the total frequency of hedges or boosters, and finally Z as the percentage of hedges or boosters in the corpora. For instance, if the frequency of modal verbs in the Discussion section of Pharmacology RAs is 317, while the total frequency of hedges is 764:

$$317/764 \times 100\% = 41.49\%$$

Prior to the actual data analysis, the researcher carried out a pilot study based on five Tourism RA discussions from the Tourism Management journal and five Pharmacology RA discussions from the European Neuropsychopharmacology journal for coding purposes with the main aim to see if the hedging and boosting devices derived from the adopted taxonomies can be identified in the pilot study samples. Resultantly, all hedging and boosting devices per the selected taxonomies of hedges and boosters were found in the pilot study samples, thus confirming the validity of the coding categories to be applied to the actual research samples.

Reliability analysis was conducted to enhance the reliability of the coding based on Loi et al.'s (2016) interval period where the samples were analysed in two rounds after being coded. In this regard, the researcher evaluated the consistency of the coded data based on a three-month interval in order to compare the samples of the two corpora and to see whether any redefinition of the samples is necessary (Loi et al., 2016). The first round (termed Coding A) was carried out in November 2019, while the second round (termed Coding B) took place in February 2020. After completing the second round, the researcher found that the distinguishing features of hedging and boosting devices in the corpora were the same. As a result, the researcher could proceed with the actual samples to be used in the current study.

Once the analysis of data has been completed, three specialist informants from the Tourism field and another three from the Pharmacology field were interviewed to gain their insights and supplement the research data. In line with Bhatia's (1994) recommendations, the specialist informants are active professionals in their respective fields and can support the findings, insights, and psychological accuracy of the study. Besides, they are also well-known experts in their professions who are knowledgeable about publications and could offer insights into their respective fields' conventions. Prior to the interviews, the researcher constructed semi-structured questions from the current data to be emailed to the specialist informants for consent and approval purposes. Ten informants from each field were initially contacted for the interviews; however, the researcher only received responses from three informants who were willing to take part in the study. Each interview session lasted between 30 and 40 minutes and was conducted via Google Meet. The interviews were also recorded on audio and transcribed.

FINDINGS AND DISCUSSION

The overall findings have shown that hedges were employed more than boosters to discuss research results in the Discussion sections of Tourism and Pharmacology RAs, which can be explained by the likelihood that hedges serve to "indicate and reflect possibilities," as deduced by most of the Tourism and Pharmacology specialist informants. The use of hedges and boosters in Tourism and Pharmacology RA discussions is presented in Tables 3 to 5.

Table 3. Hedges in Tourism and Pharmacology RA Discussions.

Code	Hedging Device	Frequency of Hedges		Percentage of Hedges (%)	
		T	P	T	P
HMV	Modal verbs	337	317	51.45	41.49
HELV	Epistemic lexical verbs	172	312	26.26	40.84
HEADJ	Epistemic adjectives	111	84	16.95	10.99
HEADV	Epistemic adverbs	24	34	3.66	4.45
HEN	Epistemic nouns	11	17	1.68	2.23
Total		655	764	100%	100%

Note: T = Tourism RAs; P = Pharmacology RAs; 100% = Total Percentage of Hedges

Hedges allow authors to convey a claim as an opinion instead of a fact (Hyland, 1996b). Based on the results in Table 3, modal verbs such as "can" and "may" were most employed in both Tourism RA discussions and Pharmacology RA discussions, respectively with 337 (51.45%) and 317 (41.49%) occurrences. This finding agrees with recent studies by Carrió-Pastor (2021), Nizigama and Mahdavirad (2021), and Loi and Lim (2019), which reported that modal verbs are highly common in scholarly writing. Besides, the high occurrences of modal verbs in Tourism and Pharmacology RA

discussions may also be attributed to the fact that the use of modal verbs is generally aimed at expressing an author's stance, either to an extent of epistemic modality or meanings such as necessity or obligation (Vázquez & Giner, 2009). Extract 1 shows the use of modal verbs in the corpora as presented by the bolded words, which demonstrate how modal verbs are employed by the Tourism and Pharmacology authors.

Extract 1:

T14: Consequently, the results **can** be used to address planning and development issues. (Tourism, Article 14)

P5: Our results suggest that hyperactivity as it is seen in psychiatric disorders **may** result from increased dopaminergic activity in the mesolimbic pathway, rather than the nigrostriatal pathway. (Pharmacology, Article 5)

The second-most frequently used hedging device to discuss research results among Tourism and Pharmacology authors was epistemic lexical verbs, for instance, "suggest" and "show" with 172 (26.26%) and 312 (40.84%) occurrences, respectively. Evidently, this finding is similar to the finding reported by Mur-Dueñas (2021), which evidenced the frequent use of epistemic lexical verbs in academic writing. According to Salager-Meyer (1997), lexical verbs like "to suggest," "to indicate," and "to speculate" deliberate both formal and functional criteria for authors to express hedging. Besides, Salager-Meyer (2007) and Loi and Lim (2019) also stated that lexical verbs are often used to tone down the force of arguments, to put an emphasis on the authors' contribution value, and to develop the tentative nature of the authors' conclusion and generalisations. Extract 2 shows the use of epistemic lexical verbs in the corpora as presented by the bolded words, which demonstrate how epistemic lexical verbs are employed by the Tourism and Pharmacology authors in discussing research results.

Extract 2:

T13: Our results further **suggested** that the drop in trip demand under these conditions can cause considerable economic losses not only to the dive tourism industry but also for the broader local tourism sector. (Tourism, Article 13)

P4: The present results **indicate** that pharmacological stabilization of the dopamine system might prove useful in modulating some of the reward-driven behaviours in alcohol dependence and that OSU6162 might have the potential as a novel medication for alcohol dependence. (Pharmacology, Article 4)

Epistemic adjectives (e.g., "potential" and "possible") occurred 111 (16.95%) and 84 (10.99%) times in Tourism and Pharmacology RA discussions, respectively; however, since the use of epistemic adjectives in the corpora was rather scarce compared to modal verbs and epistemic lexical verbs, this finding agrees with Hyland's (1994) assertion that adjectives are still commonly used to convey modality in written texts, although they might not be as frequent as modal and lexical verbs. Subsequently, epistemic adverbs (e.g., "relatively" and "possibly") occurred 24 (3.66%) and 34 (4.45%) times in the Discussion sections of Tourism and Pharmacology RAs, respectively, while epistemic nouns (e.g., "interpretation" and "hypothesis") occurred the least in Tourism and Pharmacology RA discussions with only 11 (1. 68%) and 17 (2.23%) occurrences, respectively. Both findings on epistemic adverbs and epistemic nouns coincide with those reported by Salichah et al. (2015) and Mur-Dueñas' (2021), which demonstrated lower occurrences of epistemic adverbs and epistemic nouns in their corpora. Extract 3 demonstrates the use of epistemic adjectives as well as epistemic adverbs and epistemic nouns in the corpora as presented by the bolded words, which demonstrate how these devices were employed by the Tourism and Pharmacology authors.

Extract 3:

T10: Thus, that perspective alone offers the rather limited **potential** to elucidate conservation volunteering in terms of consumption values. (Tourism, Article 10)

T9: Interaction among tourists was not frequently mentioned by the respondents, **possibly** due to the limited time off sightseeing. (Tourism, Article 9)

P3: In line with our **interpretation** of increased connectivity representing a compensatory mechanism, these results may indicate that dlPFC rTMS has a beneficial influence on cognitive flexibility or control and may result in lower relapse rates. (Pharmacology, Article 3)

Table 4. Boosters in Tourism and Pharmacology RA Discussions.

Code	Boosting Device	Frequency of Boosters		Percentage of Boosters (%)	
		T	P	T	P
BEMP	Emphatics	103	94	62.43	51.37
BAMP	Amplifiers	45	37	27.27	20.21
BUP	Universal pronouns	17	52	10.30	28.42
Total		165	183	100%	100%

Note: T = Tourism RAs; P = Pharmacology RAs; 100% = the Total Percentage of Boosters

Boosters, which signal the assurance of an author's statements, are synonymous with strengtheners, upgraders, and intensifiers (Hyland, 2008). Based on the results in Table 4, emphatics such as "highlight" and "specifically" were the most frequently used boosting device in Tourism and Pharmacology RA discussions with 103 (62.43%) and 94 (51.36%) occurrences, respectively. According to Hyland (1998a), emphatics are used to highlight certainty using words such as "in fact," "emphasise," and "sure." While this finding coincides with NamazianDost's (2017) study, which found the frequent application of emphatics in RA discussions, this finding is not in line with Salichah et al.'s (2015) and such a difference could be influenced by disciplinary variations because, according to Hyland (1998b), emphatics application typically varies by discipline. Emphatics also strengthen the degree to which a statement is true or expresses the speaker's or author's convictions (Hinkel, 2005). Therefore, the current study postulates that Tourism and Pharmacology authors mostly used emphatics to discuss research results because the common use of emphatics shows a conclusive representation that demonstrates conviction, certainty, and assurance (Hyland, 1998a). Extract 4 shows the use of emphatics in the corpora as presented by the bolded words, which demonstrate how emphatics were employed by the Tourism and Pharmacology authors.

Extract 4:

T11: Our findings, therefore, **highlight** the need to transcend macro views of cultural tourists and recognize intra-cultural variances. (Tourism, Article 11)

P8: This suggests that lithium is associated with global brain volumes, and it is not **specifically** associated with local areas or specific structures. (Pharmacology, Article 8)

Amplifiers (e.g., "very" and "fully") evidently were the second-highest boosting device used by Tourism authors with 45 (27.27%) occurrences; however, Pharmacology authors used amplifiers the least as the results only showed 37 (20.21%) occurrences in the corpus. According to Hyland (1998a), amplifiers such as "completely" and "extremely" are used to increase the size or effect of a statement. Alongside emphatics, it is possible that amplifiers are commonly employed in Tourism RA discussions because emphatics and amplifiers both denote heightened emotions and the speaker uses sentence relatives to make attitudinal remarks, thus indicating high levels of interpersonal interactions or emotional expressiveness (Biber, 1988). Nonetheless, amplifiers might be used less frequently in the Discussion section of Pharmacology RAs because they tend to imply exaggerations when writing in English (Smoke, 1999). Extract 5 shows the use of amplifiers in the corpora as presented by the bolded words, which demonstrate the amplifiers employed by the Tourism and Pharmacology authors.

Extract 5:

T6: We recognize that there are multiple cultures within a given race and, as a result, individuals who ascribe to those different cultures may perceive constraints **very** differently. (Tourism, Article 6)

P5: **Importantly**, the dose-response curve we observed in VTA:Dq+ and VTA4NAC groups is in line with predictions about *in vivo* DREADD functionality. (Pharmacology, Article 5)

Finally, universal pronouns such as "no" and "all" were used the least in the Discussion section of Tourism RAs with only 17 (10.30%) occurrences; however, this boosting device was ranked second in Pharmacology RA discussions with 52 (28.42%) occurrences. Arguably, universal pronouns can also be considered exaggeratives; therefore, similar to amplifiers, the occurrences of universal pronouns in English academic writing are also scarce. However, drawing from the results in Table 4, Pharmacology authors might use universal pronouns more commonly than Tourism authors because the exaggeration of universal pronouns demonstrates the rhetorical ways to express an author's confidence, which indicates an inflated and hyperbolic impression to increase its persuasive attributes (Hinkel, 2005). Extract 6 shows the use of universal pronouns in the corpora as presented by the bolded words, which demonstrate the universal pronouns employed by the Tourism and Pharmacology authors.

Extract 6:

T13: Conversely, only 14% of divers would recommend the Maldives if there were **no** sharks. (Tourism, Article 13)

P5: Indeed, we observed that 0.1, 0.3 and 1.0 mg/kg CNO **all** resulted in a maximal effect on locomotor hyperactivity. (Pharmacology, Article 5)

Overall, the occurrences of both hedges and boosters in Tourism and Pharmacology RA discussions were evident; however, compared to boosters, the use of hedges was more frequent and this agrees with numerous studies on hedges and boosters in general, such as by Farrokhi and Emami (2008) and Taşpınar (2017). As indicated by one specialist informant on the use of hedges, "when you try to highlight or compare the outcome of your study with reference to the particular research question, you (would) put in assumption using these kinds of connection words (hedges) to reflect the possibility of what if the particular research findings might have different kinds of output and so on" (Tourism, Specialist Informant 3). Nonetheless, the findings of the present study differ from those of previous studies in terms of the distinctions between "soft" and "hard" disciplines (e.g., Hyland, 2008; Vázquez & Giner, 2009). Based on the findings, compared to Tourism RAs, which entail a soft discipline, hedges and boosters were employed more in the Discussion section of Pharmacology RAs—a hard discipline. Therefore, the present study contradicts the claim made by Hyland et al. (2021) that the use of metadiscourse markers is more common in social sciences and humanities than in science fields where research is extensively contingent on interpretations and authors tend to build a convincing disciplinary voice or argument. However, even though hedging and boosting are discourse choices, the use of these devices may still be constrained by the rhetorical styles and discourse norms of each discipline (Takimoto, 2015). For example, according to another specialist informant in this study, boosters can only be used "if you have data to support" (Pharmacology, Specialist Informant 1) so as not to overclaim the research results. Hence, although hedges were used more frequently than boosters, both Tourism and Pharmacology authors balanced the discriminatory components of communicative strategies while reporting research results through both hedges and boosters. As such, despite the disciplines, hedges and boosters collaborate to balance objective information with subjective evaluation in addition to convincing readers to accept the authors' statements (Takimoto, 2015). The present study clearly demonstrates this phenomenon, for example, as can be seen in Extract 4 for Pharmacology, Article 8 where the hedging word "suggest" is followed by the boosting word "specifically," as well as in Extract 5 for Tourism, Article 6 where the hedging word "may" is followed by the boosting word "very." Therefore, it can be deduced that the proper use of both hedges and boosters is crucial because it shows the willingness of authors to communicate their research and views, in addition to satisfying the authors' aim to be convincing in academic writing and fulfilling the need to spread accurate information through writing (Taymaz, 2021).

CONCLUSION AND RECOMMENDATIONS

This study has examined how hedges and boosters were used in the Discussion sections of Tourism and Pharmacology RAs. Evidently, in discussing research results, both Tourism and Pharmacology authors employed hedges to a greater extent than boosters—similar to the studies by Yang (2013) and Rabab'ah (2013) in which authors employ hedges to show a level of certainty when drawing conclusions from their data, as well as to express probability, persuade readers, save faces, decrease the power of their comments, qualify their commitment, and avoid any rejection of their statements. Hence, by identifying how hedges and boosters are used in the Discussion sections of Tourism RAs and Pharmacology RAs, this study has filled the literature gap regarding the dearth of studies that focus on these two disciplines in particular.

The findings of this study will help academic authors discuss their findings effectively since they can appropriately use hedges or boosters to express the data from their studies. In addition to supplementing the literature, this study could also provide a wide range of academic writing-related hedges and boosters for educational objectives. For example, English language classrooms can employ the findings to teach learners of English as a Second Language (ESL) about a variety of verbs, adjectives, and adverbs (e.g., modal verbs and epistemic adjectives) to use when writing a discussion. Moreover, instructors of English for Academic Purposes (EAP) and English for Specific Purposes (EAP) may also teach scholarly writing to undergraduate students using the current findings, for instance, by instructing the students to discuss their research results using the various hedging and boosting devices highlighted in this study in order to help them employ their understanding of metadiscourse and effectively write about their ideas and arguments (Hyland et al., 2021).

Since the current study is only limited to 20 RAs for each Tourism and Pharmacology field, the findings cannot be applied to all authors who specialise in Tourism and Pharmacology. Therefore, it is recommended that future studies increase the sample sizes with a wider corpus to offer more in-depth explanations of how hedges and boosters are employed. Besides, the current study can be extended by gathering more specialist informants and expanding the fields of Tourism and Pharmacology to find other potential varieties in the use of hedges and boosters. Future research is also suggested to expand the pool of metadiscourse markers, e.g., hedges and boosters to varying RA sections across a wide range of RA disciplines to make more comparisons on how hedges and boosters can be employed in different sections.

REFERENCES

Abdi, R., Rizi, M. T., & Tavakoli, M. (2010). The cooperative principle in discourse communities and genres: a framework for the use of metadiscourse. *Journal of Pragmatics, 42*, 1669-1679.

Ahmadpour, S., Kuhi, D., Naderi, Y., & Ahmadpour, L. (2017). Hedges and boosters in English academic writings as L1 vs. English as a foreign language for Persian nurses. *International Journal of Scientific Study, 5*(4), 473-480.

Basturkmen, H. (2012). A genre-based investigation of discussion sections of research articles. *Journal of English for Academic Purposes, 11*(2), 134-144.

Bhatia, V.K. (1994). ESP and the World of Professions: Bridging the Gap or Making Inroads? *ESP Malaysia*. *2(1)*, 19-31.

Biber, D. (1988). *Variation across Speech and Writing*. CUP.

Carrió-Pastor, M.L. (2021). The assessment of metadiscourse devices in English as a foreign language. *Assessing Writing, 50*, 1-12.

Donohue, J. P. (2006). How to support a one-handed economist: The role of modalisation in economic forecasting. *English for Specific Purposes, 25*(2), 200-216.

Farrokhi, F., & Emami, S. (2008). Hedges and boosters in academic writing: native vs. non-native research articles in applied linguistics and engineering. *The Journal of Applied Linguistics, 1*(2), 62-98.

Hinkel, E. (2005). Hedging, inflating, and persuading in l2 academic writing. *Applied Language Learning, 15*(1), 29-53.

Holmes, J. (1982). Expressing doubt and certainty in English. *RELC Journal, 13*(2), 9-28.

Holmes, J. (1984). Modifying illocutionary force. *Journal of Pragmatics, 8*, 345-365.

Hryniuk, K. (2018). Expert-like use of hedges and boosters in research articles written by Polish and English native-speaker writers. *Research in Language, 16*(3), 263-280.

Hyland, K. (1994). Hedging in academic writing and EAF textbooks. *English for Specific Purposes, 13*(3), 239-256.

Hyland, K. (1998a). Boosting, hedging and the negotiation of academic knowledge. *TEXT, 18*(3), 349-382.

Hyland, K. (1998b). *Hedging in scientific research articles.* John Benjamins.

Hyland, K. (2004). Disciplinary interactions: Metadiscourse in L2 postgraduate writing. *Journal of Second Language Writing, 13*, 133–151.

Hyland, K. (2005a). *Metadiscourse: Exploring Interaction in Writing.* Continuum.

Hyland, K. (2008). Persuasion, interaction and the construction of knowledge: representing self and others in research writing. *International Journal of English Studies, 8*(2), 1-23.

Hyland, K., & Tse, P. (2004). Metadiscourse in academic writing: a reappraisal. *Applied Linguistics, 25*, 156–177.

Hyland, K., Wang, W., & (Kevin) Jiang, F. (2021). Metadiscourse across languages and genres: An overview. *Lingua*, 1-8.

Loi, C., Sweetnam Evans, M., Lim, J., & Akkakoson, S., (2016). A Comparison Between Malay and English Research Article Discussions. *SAGE Open, 6*, 1-11.

Loi, C. K., & Lim, J. M.-H. (2019). Hedging in the discussion sections of English and Malay educational research articles. *GEMA Online Journal of Language Studies, 19*(1), 36-61.

Mur-Dueñas, P. (2021). There may be differences: Analysing the use of hedges in English and Spanish research articles. *Lingua*, 103-131.

NamazianDost, I. (2017). A comparative study of boosters in the discussion section of medical and applied linguistics articles. *International Journal of Applied Linguistics & English Literature, 6*(7), 1-5.

Nizigama, E., & Mahdavirad, F. (2021). Hedging and Boosting in the Introduction and Discussion Sections of English Research Articles: A Cross-cultural Study of Papers Written by Native and Non-native Academics. *Iranian Journal of English for Academic Purposes*, *10*(1), 108-123.

Salager-Meyer, F. (1997). *I think that perhaps you should: A study of hedges in written scientific discourse. In T. Miller (ed.), Functional approaches to written texts: Classroom applications (pp. 127-143).* United States Information Agency.

Salichah, I., Irawati, E., & Basthomi, Y. (2015). Hedges and boosters in undergraduate students' research articles. *Jurnal Pendidikan Humaniora, 3(2)*, 154-160.

Smoke, T. (1999). *A writer's workbook (3rd ed.)*. New York: Cambridge University Press.

Takimoto, M. (2015, July). A corpus-based analysis of hedges and boosters. *Indonesian Journal of Applied Linguistics, 5*(1), 95-105.

Taşpınar, H. K. (2017). Epistemic modality in academic writing: A discipline-based analysis. *The Literacy Trek, 3*(1), 75-65.

Taymaz, N. (2021). A corpus-based comparison of use of hedges and boosters by Turkish ELT MA and PhD students. *Dil ve Dilbilimi Çalışmaları Dergisi, 17*, 33-49.

Vázquez, I., & Giner, D. (2009). Writing with Conviction: The Use of Boosters in Modelling Persuasion in Academic Discourses. *Revista Alicantina de Estudios Ingleses*, *22*, 219-237.

Yağız, O., & Demir, C. (2015). A comparative study of boosting in academic texts: A contrastive rhetoric. *International Journal of English Linguistics, 5*(4), 12-28.

Yang, Y. (2013). Exploring linguistic and cultural variations in the use of hedges in English and Chinese scientific discourse. *Journal of Pragmatics, 50*, 23-36