

A CONTRASTIVE ANALYSIS OF MOVE STRUCTURES AND THE USE OF HEDGES AND BOOSTERS IN THE DISCUSSION SECTIONS OF TOURISM AND PHARMACOLOGY RESEARCH ARTICLES

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ABSTRACT

Effective academic writing is associated with a writer's ability to alternate interpretations and provide the readers with a cautious analysis of the data, while the acceptance or rejection of an article depends on how the discussion section is written (Hyland, 1994; Belcher, 2009). By adopting Yang and Allison's (2003) move model and the taxonomy of hedges and boosters by Hyland (1998a) and Hinkel (2005), this study examines how Tourism and Pharmacology writers organise their discussion as well as how they utilise hedges and boosters in this section. This study takes the approach of content analysis and quantitative analysis to analyse the discussion sections of 40 Tourism and Pharmacology research articles (RAs). The findings revealed that most Tourism and Pharmacology writers reported and commented on their results in the discussion sections interrelatedly whilst utilising more hedges than boosters to convey their communicative purposes. The outcomes of this study will assist future academic writers in employing the strategies for writing discussions as well as the use of hedging and boosting devices in their scholarly writing, particularly in RAs.

Keywords: *Move Analysis; Hedges; Boosters; Research Articles; Academic Writing*

INTRODUCTION

Over the last few decades, research articles (RAs) have piqued scholars' interests in discourse studies. According to Dobakhti (2016), RAs are a high valued genre in the dissemination of knowledge in academic communities; hence, it is challenging for authors because they not only have to be familiar with their discourse communities but they must also be able to apply such knowledge in their writing. One of the ways to describe the norms of the discourse community is through genre studies, which analyses genres in terms of move structures and/or discoursal features such as hedging and boosting. As such, vast studies have investigated the generic features of either the whole RAs or RA sections in various disciplines such as Forestry (Joseph, Lim, & Nor Arifah, 2014), Accounting (Amnuai, 2017), and Applied Linguistics (Liu & Buckingham, 2018; Sheldon, 2019). Studies have also focused on the discoursal features of RAs such as hedges (Rabab'ah, 2013; Loi & Lim, 2019) and boosters (Dobakhti, 2013; Dost, 2017). However, to the best of the researcher's knowledge, there has not been a study in the disciplines of Tourism and Pharmacology, particularly examining the discussion sections of these RAs. Hence, the primary objectives of this study are to identify the move structures and the use of hedges and boosters in the discussion sections of Tourism and Pharmacology RAs

as well as to identify the similarities and differences between the move structures and the use of hedges and boosters in the discussion sections of Tourism and Pharmacology RAs.

LITERATURE REVIEW

A genre is a class of communicative events that shares some sets of communicative purposes recognised by the expert members of the parent discourse community and thereby establishes the rationale for the genre that shapes the schematic structure of the discourse as well as influencing and constraining the choice of content and style (Swales, 1990). According to Bhatia (1993), a genre is not only defined as a communicative event that is recognised and characterised by an identified set of communicative purposes, but it also receives mutual understanding by the professional members or academic community where the occurrence of the genre is regular. Hence, Bhatia (1993) believed that any major changes in the communicative purpose will yield a different genre, while any minor changes in the communicative purpose will result in sub-genres. Nevertheless, these constraints are often exploited by the expert members of the discourse community to accomplish private intentions within the framework of socially recognised purposes.

Discourse Community

According to Swales (1990), the discourse community is “the parent of the genre” in which genres belong to discourse communities rather than individuals. Discourse communities are socio-rhetorical networks that are developed as a means to work towards accomplishing sets of common goals (Swales, 1990, p. 9). Specifically, a genre is a connection to one component of a rhetorical situation, i.e. purpose, and then the purpose is connected to the discourse community (Swales, 1990). According to Hyland (2006a, p. 18), genre and community provide a descriptive and explanatory framework that establishes the social construction of meanings by considering the forces outside an individual that assist in shaping writing and guiding purposes. Hyland (2006a, p. 20) further stated that a discourse community provides a scrupulous way of understanding how meaning is produced in interaction and it is proven to be useful in identifying how the rhetorical choices of authors depend on purposes, setting, and audience. As such, while communicative purpose is the most determinant feature in describing a communicative event as a genre, discourse community is an essential factor in determining the purpose of a communicative event (Dobakhti, 2011).

Move Analysis

Move analysis is a text analytical approach that was first developed by Swales (1981) to investigate the underlying generic structure of RAs in terms of moves and steps for pedagogical purposes (Moreno & Swales, 2018). As such, genres can be distinguished through rhetorical move structures through the identification of schematic units or moves to analyse texts in RAs. For instance, Swales (1990) proposed a four-move structure in the introductory section of RAs: (i) establishing the research field; (ii) summarising previous research; (iii) preparing for the present research; and (iv) introducing the present research. Later, Swales (1990) revised this structural model and proposed a three-move CARS (create a research space) structure that consists of (a) establishing a territory, (b) establishing a niche, and (c) occupying the niche. This structural pattern was then discussed at a micro-level in terms of the linguistic elements, which may occur within the framework of moves and steps.

In the same vein, Bhatia (1993) described moves as discriminative elements of generic structure that depend upon the communicative purposes that it serves in the genre; hence, it varies from one genre to another. However, the decisions about the classification of moves are also made based on linguistic evidence and text comprehension, as well as understanding the

expectations that both the general academic community and the particular discourse community have of the text (Dudley-Evans, 1994, p. 220). Below the genre level at which communicative purpose determines the categorisation, the analysis of text-internal elements of content as well as the linguistic encoding is conducted with not only rhetorical moves and steps but also the linguistic structures that relate to these moves and steps (Bruce, 2008).

Metadiscourse

Hyland (2005a, p. 143) described metadiscourse as “the cover term for the self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or speaker) to express a viewpoint and engage with readers as members of a particular community.” In short, the author negotiates and decides on the kinds of effects he or she intends to have on the readers or listeners through how the interactions are constructed or articulated. The focus on metadiscourse has been prompted by the fact that academic writers do not merely report their findings in an impersonal or objective manner to convince their readers, but rather through actively drawing from a range of rhetorical strategies embedded in their disciplines to provide evidence, establish arguments, and assess claims (Vande Kopple, 1985; Bazerman, 1988; Crismore et al., 1993; Flowerdew, 1997; Hyland, 2005a; Abdi et al., 2010).

Metadiscourse is rooted in a conceptualisation of academic writing as social engagement (Hyland & Tse, 2004); hence, in academic texts such as RAs, metadiscourse is of paramount importance in constructing knowledge and managing how authors and readers interact on the basis that they come from the same discourse community with shared cultural, academic, and rhetorical practices. In this sense, the strategic use of metadiscourse in academic writing increases the chances of knowledge claims being accepted and also indexes the competence of the author as a participant in the discourse community involved (Hyland, 2005a, p. 180).

Metadiscourse markers can be grouped into two categories. The first category is interactive metadiscourse devices, which have a discourse organising function and guide the reader through the text. Next, the second category is interactional metadiscourse devices, which consist of an evaluative function and convey the attitude of the authors towards the knowledge while engaging in a dialogue with the intended reader (Hyland, 2004). Examples of interactional metadiscoursal devices include hedges and boosters, which convey the extent to which the author is confident in the truth of the proposition and how the author expresses attitude towards the audience (Hyland, 2004). While the use of hedges (e.g. suggest, possibly, would, may, could) enables academic writers to acknowledge the existence of alternative viewpoints and to withdraw their full commitment to the proposition, the use of boosters (e.g. sure, definitely, strongly, precisely) on the other hand, helps them to close down alternatives and to show a high degree of certainty (Hyland, 2005a).

Previous Studies on the Discussion Sections of RAs

Belanger (1982) investigated the discussion section of 10 neuroscience RAs and found that the cyclic structure of the discussion section is heavily influenced by the type and number of research questions developed in the introduction section of the articles. As stated by Belanger (1982), the discussion section constitutes several cyclic moves depending on the number of research questions such as summarising results, suggestions for the research regarding previous or current work, and further questions. However, while these elements might not be present for every research question, the moves remain in the same order (Belanger, 1982).

Swales (1990) suggested a model that entails eight moves for the discussion sections of RAs: (i) providing background information; (ii) statement of results; (iii) (un)expected outcome; (iv) reference to previous research; (v) explanation; (vi) exemplification; (vii) deduction and hypothesis; and (viii) recommendations. According to Swales (1990),

“providing background information” and “reference to previous research” are among the most frequent moves, whereas “statement of result” is deemed quasi-obligatory and the rest of the moves are optional. Besides, these eight moves are likely to occur in the discussion section as a cycle whereby its complexity depends on the compatibility of the results with previous work and/or with the expected outcome to the hypotheses or questions (Swales, 1990).

Holmes (2000) examined 43 RAs in the field of Agricultural Economics that were published in the US, UK, Canada, Australia, and India to look into the frequency and the distribution of moves as well as the complexity of RAs in terms of structure. Based on his analysis, the most common moves were “statement of results”, “deduction”, “recommendation”, and “background information.” According to Holmes (2000), the “statement of results” move was the most common opening move, while the “deduction” and “recommendation” moves were found to be the most common closing sequence in his study.

Yang and Allison (2003) examined 20 RAs that reported empirical investigations in the field of Applied Linguistics on rhetorical choices from the Results to the Conclusion sections by proposing a two-level model (Moves and Steps) of the separate Discussion section (see Table 1). The findings revealed that “reporting results” and “commenting on results” were obligatory moves in the Results section, whereas the most frequent steps in this section were “comparing results with literature”, “interpreting results”, and “accounting for results.” According to Yang and Allison (2003), the frequency of moves and steps in this particular section was highly cyclical in all the articles; however, in the structure of the Discussion section, “commenting on results” was the most frequent and obligatory move, whereas “reporting results” and “summarising results” had less occurrence in the corpus. Besides, three other optional moves identified in the discussion sections were “summarising the study”, “evaluating the study”, and “deductions from the research.”

Amnuai and Wannaruk (2013) investigated the move structures of English Applied Linguistics research article discussions published in international and Thai journals. By employing Yang and Allison’s (2003) model for the discussion sections of RAs, they examined two corpora comprising 30 Thai discussions and 30 international discussions for similarities and differences regarding the move occurrence, move-ordering patterns, and move cyclicity. Based on their findings, the discussions in both corpora conformed to the proposed model in terms of moves and the most cyclical move in both datasets was “commenting on results”. However, the difference between both corpora lies in the employment of “deduction from the research”, which was more frequent in the Thai corpus compared to the international corpus.

Amnuai (2017) conducted a study on the textual organisation of the discussion sections of 20 accounting RAs, particularly the similarities and differences in the rhetorical moves of the RAs. Based on the findings of this study, it was revealed that four dominant rhetorical moves were both similar and different from the framework. Move 2 (Reporting the results) and Move 4 (Commenting on results) occurred most frequently in all of the RAs, followed by Move 1 (Background information) and Move 7 (Deduction from the research), while the remaining three moves were optional. According to Amnuai (2017), the difference between their studies and that of Yang and Allison’s (2003) can be seen in terms of the frequency of occurrences of “deduction from the research.” This is because this move was conventional in Amnuai’s (2017); however, it was optional in Yang and Allison’s (2003). Further, the pattern in ordering moves showed no linearity structure in Amnuai’s (2017) corpus because almost all moves re-occurred in their move sequences. Subsequently, it was inferred that authors in the accounting field preferred to extend their results point by point and relate their findings to the field by mentioning the unsolved areas for future research (Amnuai, 2017).

Liu and Buckingham (2018) analysed the schematic structure of discussion sections in 20 applied linguistics RAs and the distribution of metadiscourse markers by examining the schematic structure, the organisational features of moves, and the distribution of metadiscourse

markers across moves. Their findings revealed that “reporting results” and “commenting on results” were the most common obligatory moves in their corpus, whereas “evaluating the study” (Move 6) and “deductions from the research” (Move 7) occurred less. Besides, “background information” (Move 1) was the opening move of the discussion, while “deductions from the research” (Move 7) was the closing move in their study.

Sheldon (2019) examined the knowledge construction of discussion and conclusion sections of 54 RAs written by English L1 and L2 and Castilian Spanish L1 writers in applied linguistics by drawing on move analysis and contrasting texts written in two written languages (English and Spanish) as well as proposing the following scheme: (i) re-stating the focus of the study (purposes, research questions, and hypotheses restated); (ii) stating selected findings; (iii) making overt claims or generalisations; (iv) recommendation for practical application; (v) exemplifying; (vi) limitations of the study; and (vii) further research suggested. The findings revealed variations in terms of move structures in the discussion and conclusion sections. While “stating the focus of the study” was conventional for the Spanish L1 group, this move was optional for the other two English groups. Further, “recommendations for practical application” and “further research suggested” occurred most frequently in the English L1 group and considered conventional; however, these moves occurred less in the Spanish L1 and English L2 groups and were categorised as optional. Nevertheless, “stating selected findings” and “making overt claims or generalisations” moves were both deemed obligatory in all three groups. Similarly, all the three groups also employed “exemplifying” and “limitations of the study,” which were deemed optional.

Previous Studies on the Use of Hedges and Boosters in RAs

In the particular use of hedges in academic writing, Salager-Meyer (1994) examined the distribution of hedging in different rhetorical sections of case reports and research papers in the field of medicine. She found that the least-hedged section was the method section, whereas the most hedged sections were the discussion and the comment sections. Further, Yang (2003) studied the distribution of hedges across English and Chinese languages and the rhetorical sections of RAs. Similarly, the authors revealed that the introduction, discussion, and result sections were found to have employed more hedges than the methodology section.

Rabab'ah (2013) examined hedging in 50 nursing and academic RAs to identify how hedges were used in both disciplines and whether or not there were differences between the two disciplines in using hedges and their sub-categories. The findings revealed significant differences in terms of how hedging devices and their subcategories were used. In this sense, the writers of education articles used hedges more frequently than the writers of nursing articles and modal verbs were also preferred more when hedging. Tran and Duong (2013) also conducted a comparative study concerning the results and discussions in 15 Applied Linguistics and 15 Engineering research articles, and they found that applied linguistics writers employed more hedges compared to the engineering writers.

Demir (2018) analysed lexical hedges in 200 scientific articles on language education, language teaching, or other language pedagogy issues written in English by the native writers and the non-native writers (Turkish) to reveal the differences in the hedging strategies. Based on the findings, although Turkish writers used many hedging devices, no difference was observed in the total use of hedges between the two groups. However, while the non-native writers used modals more commonly in their writing, the native speakers, on the other hand, used verbs more frequently. In a recent study by Loi and Lim (2019) on the use of hedges in the discussion section of 20 English and 20 Malay RAs in the field of education, it was found that Malay RA discussions used hedges to a lesser extent than the English RA discussions, thus reflecting the possibility that the Malay language values fewer hedges texts compared to English where hedging seems to be a remarkable culture (Loi & Lim, 2019).

As for the particular use of boosters in academic writing, Peacock (2006) compared the function, form, and extent of boosters in 216 RAs across six academic disciplines: Language and Linguistics, Business, Law, Public and Social Administration, Physics, and Environmental Science. Based on his analysis, the highest proportion of boosters was observed in Language and Linguistics, whereas the lowest was found in Environmental Science. Besides, Vázquez and Giner (2009) studied the use of boosters in modelling persuasion in academic discourses of three different disciplines: Marketing, Biology, and Mechanical Engineering. Based on their findings, boosters were used more commonly in the Marketing RAs compared to the other two disciplines, with Mechanical Engineering the least.

In a cross-cultural study, Yağız & Demir (2015) compared boosting in 60 RAs written in English by Turkish, Japanese, and Anglophonic authors to investigate the statistical inclusion of certainty markers. Their analysis showed differences in the frequency of boosters in the sense that nationality plays a role in the lexical choices of the writers. For example, in the modal auxiliaries category, Anglophonic authors preferred to use “need to” whereas the Japanese and Turkish authors used “will.” However, Japanese authors were found to employ more boosting devices compared to their Anglophonic and Turkish counterparts. Dost (2017) in his recent comparative study examined the use of boosters in the discussion sections of 15 medical and 15 applied linguistics RAs to identify the frequency and percentage of boosters. His findings revealed no significant difference between medical and applied linguistics articles in the use of boosters and concluded that both the medical and applied linguistics writers, however, employed a substantial amount of boosters in their discussion.

Past studies have also particularly compared the use of hedges and boosters in academic writing. Vassileva (2001) concentrated on the expressions of commitment (i.e. boosters) and detachment (i.e. hedges) in Bulgarian and English RAs. Conclusively, Bulgarians were found to use more boosters and fewer hedges while writing in English compared to the native English writers. Besides, boosters were also included in the introduction, discussion, and conclusion sections of RAs. Based on her findings, while the English RAs favoured hedges and boosters in the discussion section (with more than 60% of occurrences), hedges were, however, used more frequently compared to boosters by the native English writers whereas Bulgarian writers used twice more boosters than hedges in the discussion section.

Farrokhi and Emami (2008) studied hedges and boosters in 20 Applied Linguistics and Engineering RAs in the context of native versus non-native writers and found that the native writers used both hedges and boosters more commonly compared to the non-native writers. While no significant difference was found between both groups in the use of hedges in the Applied Linguistics RAs, non-native writers were, however, found to use fewer boosters compared to the native writers in Engineering RAs. Jalilifar (2011) in his cross-linguistic study also examined the use of hedges and boosters in 90 RA discussions written in Persian and English and he found significant differences in the frequency, type, and functions of hedging and boosting devices in the corpora such that the English and Persian-English writers used more hedges to discuss their results, whereas Persian writers used fewer hedges and employed more boosters in their discussion.

Takimoto (2015) conducted a corpus-based analysis of hedges and boosters in eight academic disciplines of linguistics, philosophy, marketing, sociology, physics, electrical engineering, mechanical engineering, and chemistry with a total of 56 RAs. The findings of this study revealed that the use of both hedges and boosters was significant in linguistics, philosophy, marketing, and sociology RAs compared to those in physics, electrical engineering, mechanical engineering, and chemistry. In another discipline-based analysis by Taşpınar (2017), the use of hedges and boosters was investigated in 24 RAs in the fields of education and engineering. Based on the analysis, it was found that hedges were used more

than boosters in the educational RAs compared to the engineering articles, while the use of boosters was more common in engineering RAs than education RAs.

A more recent study was conducted by Hryniuk (2018), who examined the use of hedges and boosters in 40 RAs written in English by Polish and English native writers (Polish and Anglo-American sub-corpora) in the field of applied linguistics. Other than exploring and comparing significant differences in the types and frequencies of hedges and boosters, the study also aims to investigate their location in the RAs according to the IMRD structure (i.e. Introduction-Method-Results-Discussion). Based on the results, Polish writers were found to employ more hedges compared to the English native writers, whereas boosters were more frequently used by the English native writers compared to their Polish counterparts. Concerning the Discussion section of these RAs, the findings of the study revealed that the frequency of boosters used in the discussion sections in the Polish sub-corpus was slightly larger than in the Anglo-American; however, the difference was not statistically significant between the two. Similarly, the use of hedges was also more common in the Polish sub-corpus although the number of hedges found was bigger in the Anglo-American sub-corpus.

METHODOLOGY

To examine the discussion sections of Tourism and Pharmacology RAs, this study employed the theoretical framework for the discussion sections of RAs by Yang and Allison (2003) and the taxonomy of hedges and boosters by Hyland (1998) and Hinkel (2005) through the approaches of content analysis and quantitative analysis by calculating the frequency and percentage of moves as well as hedges and boosters found in the corpora.

Theoretical Frameworks

This study adopts Yang and Allison's (2003) framework for the discussion section of research articles, which consists of seven moves that cover the rhetorical structure of the discussion sections. This study also employs the taxonomy of hedges and boosters by Hyland (1998a) and Hinkel (2005), which entails eight types of hedging and boosting devices that account for how writers use these devices in academic writing.

Table 1: Yang and Allison's (2003) Model for the Discussion Section of Research Articles

Move	Step
Background information	-
Reporting results	-
Summarising results	-
Commenting on results	Interpreting results Comparing results with literature Accounting for results Evaluating results
Summarising study	Highlighting overall results
Evaluating the study	Indicating limitations Indicating significance/advantage Evaluating methodology
Deduction from the research	Making suggestions Recommending further research Drawing pedagogic implications

Table 2: Hyland's (1998a) and Hinkel's (2005) Taxonomy of Hedges and Boosters

Category	Type	Example
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Hedges	Modal verbs	Can, may, should, could, will, ...
	Epistemic adjectives	Likely, potential, rather, tend, ...
	Epistemic lexical verbs	Suggest, show, indicate, reveal ...
	Epistemic adverbs	Probably, potentially, perhaps, ...
	Epistemic nouns	Likelihood, possibility, tendency, ...
Boosters	Universal pronouns	No, none, every, all, ...
	Amplifiers	More, very, significantly, highly, ...
	Emphatics	Particularly, specifically, indeed, ...

Research Instrument

The instrument of this study includes 40 RAs in the disciplines of Tourism (Tourism Management) and Pharmacology (European Neuropsychopharmacology). The journals were selected from Top Quartile (Q1) journals per high-impact factors as of 2019 with 3.068 and 1.652, respectively. Further, all of the RAs from these two journals display the Introduction, Method, Results/Findings, Discussion, and Conclusion (IMRD) format.

Data Collection and Procedures

The data were collected using judgment sampling from 40 RAs and the researcher further used stratified random sampling to select only the discussion sections of 20 RAs per discipline to form the actual corpus of this study. The sampling was made based on the publication that is 5 years earlier in time (2015-2019) and the samples were also coded with initials “T” for Tourism RAs and “P” for Pharmacology RAs (e.g. T1-T20 and P1-P20).

Data Analysis

In this study, the researcher employed both content analysis and quantitative analysis to analyse the data. Prior to the data analysis, a pilot study was performed on a 3-month interval period; thus, the samples were coded and analysed in two rounds. The first round was conducted in November 2019 (Pilot A), whereas the second round was conducted in February 2020 (Pilot B) to evaluate the coding categories and to identify whether the samples need to be redefined. Upon completion of the second round, Pilot B was found to communicate more move structures than Pilot A and the distinguishing features of hedges and boosters were more evident in Pilot B as opposed to Pilot A. As such, the coding categories in Pilot B were used for the actual sampling process of this study.

RESULTS

Overall, the move structures employed by Tourism and Pharmacology writers in the discussion sections of both RAs are Move 2 (reporting results) as the most frequently used move and Move 5 (summarising study) as the least frequently used move. Besides, Tourism and Pharmacology writers also employed more hedges than boosters in the discussion sections of both RAs. This section elaborates on the realisations of the move-step structures as well as the use of hedges and boosters employed by these writers in detail.

Move-Step Structures of Tourism RAs

The move-step structures involved in this model comprise a total of 7 moves and 10 steps (four steps in Move 4, three steps in Move 6, and three steps in Move 7) as shown in Table 3.

Table 3: Move-Step Structures of Tourism RAs

Coding Category	Move/Step	Frequency	Percentage
M1	Background information	30	3
M2	Reporting results	244	22
M3	Summarising results	2	0
M4	Commenting on results		
M4S1	Interpreting results	222	20
M4S2	Comparing results with literature	146	13
M4S3	Accounting for results	89	8
M4S4	Evaluating results	47	4
M5	Summarising study	2	0
M6	Evaluating the study		
M6S1	Indicating limitations	55	5
M6S2	Indicating significance/advantage	94	9
M6S3	Evaluating methodology	70	6
M7	Deduction from the research		
M7S1	Making suggestions	90	3
M7S2	Recommending further research	23	2
M7S3	Drawing pedagogic implications	0	0

Based on Table 3, the most frequently used move structure in the discussion section of Tourism RAs is Move 2 (reporting results) with 244 occurrences (22%) and followed by Move 4 Step 1 (interpreting results) with 222 occurrences (20%). This finding is in line with the study by Le and Harrington (2015), which revealed that Move 2 (reporting results) is most commonly used in the discussion section of research articles because writers tend to rely on evidence from their results to make interpretations, create comparisons, and suggest explanations. However, while Move 4 Step 1 (interpreting results) is the second frequent move-step structure used by Tourism writers in this study, this move-step structure recorded fewer occurrences in the study by Yang and Allison (2003). Meanwhile, Move 3 (summarising results) and Move 5 (summarising the study) were least used by Tourism writers with only 2 occurrences. Extract 1 demonstrates the realisations of these moves.

Extract 1:

T5: Likewise, the importance level of heritage tourism in tourists' trip motivation **had significant effect** on preferences toward management actions. The results **showed significant differences** between the four types of heritage tourists regarding their preferences for direct management actions. (Move 2; Tourism, Article 5)

T1: **It appears that** the higher the quality of the information that consumers retrieve, the more they will perceive the website to be of high quality, which will both lead to customer satisfaction and trust in the CGM website. (Move 4 Step 1; Tourism, Article 1)

T20: **In summary, the results suggest that**, in order of decreasing importance, the service, the room, value, cleanliness, and location significantly affect customers' OS. (Move 3; Tourism, Article 20)

T18: **To summarize**, there are new potentials to attract citizens in times of heat stress by offering escape to refreshing areas in a low travel distance. (Move 5; Tourism, Article 18)

Move-Step Structures of Pharmacology RAs

The move-step structures involved in this model comprise a total of 7 moves and 10 steps (four steps in Move 4, three steps in Move 6, and three steps in Move 7) as shown in Table 4.

Table 4: Move-Step Structures of Pharmacology RAs

Coding Category	Move/Step	Frequency	Percentage
M1	Background information	26	2
M2	Reporting results	230	22
M3	Summarising results	8	1
M4	Commenting on results		
M4S1	Interpreting results	210	20
M4S2	Comparing results with literature	209	20
M4S3	Accounting for results	52	5
M4S4	Evaluating results	21	2
M5	Summarising study	4	0
M6	Evaluating the study		
M6S1	Indicating limitations	92	9
M6S2	Indicating significance/advantage	32	3
M6S3	Evaluating methodology	99	9
M7	Deduction from the research		
M7S1	Making suggestions	40	4
M7S2	Recommending further research	30	3
M7S3	Drawing pedagogic implications	0	0

Similarly, as can be seen in Table 4, the most frequently used move structure in the discussion section of Pharmacology RAs is Move 2 (reporting results) with 230 occurrences (22%), followed by Move 4 Step 1 (interpreting results) with 210 occurrences (20%). This finding coincides with the studies by Amnuai and Wannaruk (2013) and Amnuai (2017), which reported that Move 2 (reporting results) and Move 4 (commenting on results) tend to co-occur because the discussion section is used to comment on the results by interpreting, explaining, and comparing them with previous work (Yang & Allison, 2003). Nevertheless, Move 5 (summarising the study) was the least move structure used by Pharmacology writers with only 4 occurrences. Extract 2 depicts the realisations of these moves.

Extract 2:

P2: In our study, BD **was not associated** with subcortical volume change over time in any of the examined regions (including those that showed an association with BD at baseline), except for the nucleus accumbens where **a significant association was found**. However, this association **was no longer significant** after Bonferroni correction. (Move 2; Pharmacology, Article 2)

P3: The increased connectivity between the left and right FPNs in ADPs **was associated with** less alcohol related problems, **which supports** the notion that higher between FPN connectivity may benefit ADPs. In short, **the literature and our results suggest that** increased connectivity may serve as a compensatory mechanism in ADPs and that ADPs with severe problems are less successful in recruiting this mechanism. (Move 4 Step 1; Pharmacology, Article 3)

P7: **In summary, the study provides** the first evidence that the allosteric binding site influences serotonergic neuronal firing rate for escitalopram, but not for other SSRIs such as sertraline and paroxetine. (Move 5; Pharmacology, Article 7)

Move-Step Structures in Tourism and Pharmacology RA Discussions

Table 5 shows the similarities and differences in the move-step structures in the discussion sections of Tourism and Pharmacology RAs. Each move is described based on the following

classifications: obligatory, quasi-obligatory, and optional (Yang & Allison, 2003; Kanoksilapatham, 2005; Amnuai & Wannaruk, 2013; Joseph et al., 2014; Liu & Buckingham, 2018). A move is deemed “obligatory” if its occurrences can be found in all of the texts (100%), “quasi-obligatory” if its occurrences comprise about 51% to 99% of the texts, and “optional” if its occurrences in the texts are 50% or fewer (Joseph et al., 2014).

Table 5: Move-Step Structures of Tourism and Pharmacology RAs

Coding Category	Move/Step	Frequency		Percentage	
		T	P	T	P
M1	Background information	30	26	3	2
M2	Reporting results	244	230	22	22
M3	Summarising results	2	8	0	1
M4	Commenting on results				
M4S1	Interpreting results	222	210	20	20
M4S2	Comparing results with literature	146	209	13	20
M4S3	Accounting for results	89	52	8	5
M4S4	Evaluating results	47	21	4	2
M5	Summarising study	2	4	0	0
M6	Evaluating the study				
M6S1	Indicating limitations	55	92	5	9
M6S2	Indicating significance/advantage	94	32	9	3
M6S3	Evaluating methodology	70	99	6	9
M7	Deduction from the research				
M7S1	Making suggestions	90	40	3	4
M7S2	Recommending further research	23	30	2	3
M7S3	Drawing pedagogic implications	0	0	0	0

* Note: T denotes Tourism RAs; P denotes Pharmacology RAs

Based on Table 5, it is evident that Tourism and Pharmacology writers employed Move 2 (reporting results) most frequently and followed by Move 4 Step 1 (interpreting results); hence, these two move-step structures are considered obligatory in both Tourism and Pharmacology RAs. Generally, Move 2 (reporting results) is used to present the research results and this move can be indicated based on the use of some expressions or linguistics signals that relate to numerical values, reporting verbs, and statements regarding the results that usually involve figures, graphs, examples, and tables (Amnuai & Wannaruk, 2013) (see Extract 1, T5 and Extract 2, P2). Subsequently, Move 4 Step 1 (interpreting results) allows the writers to make claims pertaining to the research results by presenting and simultaneously elaborating on their ideas based on the presented results (Amnuai & Wannaruk, 2013). According to Amnuai and Wannaruk (2013), this step is often associated with linguistics signals that show tentativeness or certainty such as “suggest” and “indicate” as well as modal verbs such as “may”, “might”, “could”, and “can” (see Extract 1, T1 and Extract 2, P3).

While Move 6 Step 2 (indicating significance/advantage) is deemed quasi-obligatory in Tourism RAs with 94 occurrences (9%), Pharmacology writers, on the other hand, employed Move 6 Step 3 (evaluating methodology) rather frequently in discussions with 99 occurrences (9%). Briefly, Move 6 Step 2 (indicating significance/advantage) enables the writers to indicate the strengths of their studies that are deemed advantageous for implications or applications, which includes phrases such as “value”, “essential”, “advantage”, and “benefit” (Amnuai & Wannaruk, 2013), while Move 6 Step 3 (evaluating methodology) allows the writers to point out the strengths or weaknesses in their research methodology, such as lexical items applied as a clue through tentative statements involving words associated with “approach”, “design”, and

“model” (Amnuai & Wannaruk, 2013). Extract 3 demonstrates the realisations of these move-step structures.

Extract 3:

T6: Specifically, the lens of intersectionality **guided our discovery** of unique structural constraints such as the negative reputation of tour guides and few employer-paid vacations. In addition, **we uncovered** six negotiation strategies older Chinese females use to negotiate through their intrapersonal, interpersonal, and structural constraints to travel. (Move 6 Step 2; Tourism, Article 6)

P14: The primary limitation of this European multicenter study represents its observational cross-sectional **design**. Using such naturalistic **approach**, we aimed to recruit a best possible real-world MDD patient sample. (Move 6 Step 3; Pharmacology, Article 14)

Additionally, Move 7 Step 1 (making suggestions) is another quasi-obligatory move employed by Tourism writers with 90 occurrences (8%); however, this move is optional in Pharmacology RAs with only 40 occurrences (4%). Evidently, this move-step allows the writers to highlight their research contributions to the literature, besides providing guidelines from the research results to solve problems related to their studies (Amnuai & Wannaruk, 2013). Extract 4 depicts the realisations of this move-step structure in both RAs.

Extract 4:

T18: Diminishing barriers of organising and performing those travels **should be a priority** of the respective destinations. In communicating SRDs, **it seems important to use** a wide range of media channels since the overall picture and awareness people have of destinations strongly affects their visit intentions. (Move 7 Step 1; Tourism, Article 18)

P5: Inclusion of hyperactivity symptoms in the analysis of imaging studies **could yield valuable information** concerning the relationship between mesolimbic dopamine activity and functional outcome. **We suggest that** VTA>NAC dopamine neurons may be a promising target for future treatments in order to normalise hyperactivity symptoms, although **further verifications are required**. (Move 7 Step 1; Pharmacology, Article 5)

In addition to Move 3 (summarising results), it was also revealed that Move 5 (summarising the study) is the least frequently used move structure in both Tourism and Pharmacology RAs, thus making them optional (see Extract 1, T20 and Extract 2, P7). This finding coincides with the study by Yang and Allison (2003), which reported Move 3 (summarising results) and Move 5 (summarising the study) as optional moves in the discussion sections of research articles. Nevertheless, none of the Tourism and Pharmacology writers had employed Move 7 Step 3 (drawing pedagogic implications) in the discussion sections of both RAs.

The Use of Hedges in Tourism RAs

The hedges involved in this model comprise a total of 5 hedging devices as shown in Table 6, namely modal verbs, epistemic lexical verbs, epistemic adjectives, epistemic adverbs, and epistemic nouns (see examples in Table 2).

Table 6: Hedges in Tourism RAs

Coding Category	Hedging Device	Frequency	Percentage
HMV	Modal verbs	336	54
HELV	Epistemic lexical verbs	154	25
HEADJ	Epistemic adjectives	111	18
HEADV	Epistemic adverbs	16	3
HEN	Epistemic nouns	2	0

Based on Table 6, the most frequently used hedging device in the discussion section of Tourism RAs is modal verbs such as “can” and “may” with 336 occurrences (54%), which is in line with the findings reported by Rabab’ah (2013) that modal verbs are more preferred when hedging. This is followed by epistemic lexical verbs such as “suggest” and “show” with 154 occurrences (25%), while epistemic nouns such as “likelihood” occurred only twice in this section. Extract 5 depicts the realisations of these hedging devices.

Extract 5:

T1: This result **may** be due to the fact that consumers **may** be aware that fake profiles **can** be created easily on CGM websites and that not all the sources that publish reviews **can** be considered as credible and trustworthy. (Modal Verbs; Tourism, Article 1)

T2: The PPGIS distributions **showed** strong correlation with the GPS tracking results **suggesting** the validity of the PPGIS method for future use. (Epistemic Lexical Verbs; Tourism, Article 2)

T15: First, if the average household age is high, there is less **likelihood** of diversification, whereas being a member of a community association or organization (second variable) has a positive influence on diversification. (Epistemic Nouns; Tourism, Article 20)

The Use of Hedges in Pharmacology RAs

The hedges involved in this model comprise a total of 5 hedging devices as shown in Table 7, namely modal verbs, epistemic lexical verbs, epistemic adjectives, epistemic adverbs, and epistemic nouns (see examples in Table 2).

Table 7: Hedges in Pharmacology RAs

Coding Category	Hedging Device	Frequency	Percentage
HMV	Modal verbs	308	45
HELV	Epistemic lexical verbs	275	40
HEADJ	Epistemic adjectives	86	12
HEADV	Epistemic adverbs	19	3
HEN	Epistemic nouns	3	0

As can be seen in Table 7, the most frequently used hedging device in the discussion section of Pharmacology RAs is modal verbs such as “may” and “might” with 308 occurrences (45%), which coincides with the study by Demir (2018) that modal verbs are more commonly used in writing. This is followed by epistemic lexical verbs such as “suggest” and “show” with 275 occurrences (40%), while epistemic nouns such as “likelihood” and “tendency” occurred only thrice. Extract 6 shows the realisations of these hedging devices.

Extract 6:

P1: Even though another **possible** mechanism that **might** account for the observed effects of CBT during morphine reinstatement **may** involve the modulation of the HPA-axis activity, in the present study CBT pre-treatment did not induce any alterations in plasma corticosterone levels. (Epistemic Adjectives and Modal Verbs; Pharmacology, Article 1)

P4: Although OSU6162's stabilizing ability remains to be shown in humans, it is tempting to **speculate** that an OSU6162-induced normalization of an dopamine deficiency **could possibly** explain the present results **showing** that OSU6162 blunted priming-induced alcohol craving in dependent individuals, as dopamine deficiency has been **suggested** to drive craving and contribute to relapse. (Epistemic Lexical Verbs, Modal Verbs, and Epistemic Adverbs; Pharmacology, Article 4)

P6: Increasing evidence has **indicated** that psychiatric comorbidities, such as anxiety, substance use, and alcohol use disorders, increase the **likelihood** of resistance to antidepressants among patients with major depression. (Epistemic Lexical Verbs, Epistemic Nouns; Pharmacology, Article 6)

The Use of Hedges in Tourism and Pharmacology RA Discussions

Table 8 shows the similarities and differences in the use of hedges in the discussion sections of Tourism and Pharmacology RAs.

Table 8: Hedges in Tourism and Pharmacology RAs

Coding Category	Hedging Device	Frequency		Percentage	
		T	P	T	P
HMV	Modal verbs	336	54	308	45
HELV	Epistemic lexical verbs	154	25	275	40
HEADJ	Epistemic adjectives	111	18	86	12
HEADV	Epistemic adverbs	16	3	19	3
HEN	Epistemic nouns	2	0	3	0

* Note: T denotes Tourism RAs; P denotes Pharmacology RAs

Overall, based on Table 8, Tourism and Pharmacology writers both used modal verbs most frequently with 336 occurrences (54%) and 308 occurrences (45%), respectively. This is followed by epistemic lexical verbs with 154 occurrences (25%) in Tourism RAs and 275 occurrences (40%) in Pharmacology RAs. However, although epistemic lexical verbs are the second frequently used hedging device in both RAs, it is evident that Pharmacology writers preferred to use more lexical verbs than Tourism writers. Further, based on the table, epistemic adjectives were found to have more occurrences in Tourism RAs with 109 (18%) compared to Pharmacology RAs with 86 (12%), thus showing Tourism writers' inclination to use more epistemic adjectives compared to Pharmacology writers. Meanwhile, both Tourism and Pharmacology writers were found to employ epistemic adverbs almost equivalently with only 16 (3%) and 19 (3%) occurrences, respectively. Nevertheless, epistemic nouns were the least frequently used hedging device in the discussion sections of both Tourism and Pharmacology RAs with 2 (0%) and 6 (1%) occurrences, respectively.

The Use of Boosters in Tourism RAs

The boosters involved in this model comprise a total of 5 boosting devices as shown in Table 9, namely emphatics, amplifiers, and universal pronouns (see examples in Table 2).

Table 9: Boosters in Tourism RAs

Coding Category	Boosting Device	Frequency	Percentage
BEMP	Emphatics	82	50
BAMP	Amplifiers	72	43
BUP	Universal pronouns	12	7

Based on Table 7, the most frequently used boosting device in the discussion section of Tourism RAs is emphatics such as “highlight” and “fact” with 82 occurrences (50%). This finding is parallel to the study by Dost (2017), which reported that emphatics are used more frequently in the discussion section of research articles. This is followed by amplifiers such as “more” and “very” with 72 occurrences (43%), while universal pronouns such as “no” and “none” were least used by Tourism writers with only 12 occurrences (7%). Extract 7 demonstrates the realisations of these boosting devices.

Extract 7:

T4: Here, the obtained results **highlight** that previous studies (focusing on general, basic or narrow perspectives) may lead to erroneous approaches. (Emphatics; Tourism, Article 4)

T6: Keeping in mind that the females in this study are older, were raised in a tumultuous and difficult time in China, and most of them travel less frequently, the **fact** that they have health and safety concerns with travel is not surprising. (Emphatics; Tourism, Article 6)

T11: In retrospect, she felt that the two trip experiences did not make her **more** culturally connected, but made her **more** aware of culture manipulation by tourism providers. (Amplifiers; Tourism, Article 11)

T18: One potential reason for the smaller relevance in this study is that the destinations within these pre-defined summer retreat destinations are already **very** accessible to Viennese citizens, **especially** when owning a car. (Amplifiers and Emphatics; Tourism, Article 18)

T2: There was also **no** significant difference in the overall number of markers placed per participant between online and field participants. (Universal Pronouns; Tourism, Article 2)

T18: In **none** of these studies do attitudes appear as the most influential factor. (Universal Pronouns; Tourism, Article 18)

The Use of Boosters in Pharmacology RAs

The boosters involved in this model comprise a total of 5 boosting devices as shown in Table 10, namely emphatics, amplifiers, and universal pronouns (see examples in Table 2).

Table 10: Boosters in Pharmacology RAs

Coding Category	Boosting Device	Frequency	Percentage
BEMP	Emphatics	87	40
BAMP	Amplifiers	87	40

As can be seen in Table 8, emphatics (e.g. “specifically” and “further”) and amplifiers (e.g. “more” and “significantly”) were used equally by Pharmacology writers with 87 occurrences (40%). Evidently, boosters signal the assurance of what is stated by the authors; boosters are also known as intensifiers, upgraders, strengtheners, and emphatics (Hyland, 1999b, 2005c, 2008). However, in this study, universal pronouns such as “no” and “all” were least used with only 43 occurrences (20%). Extract 8 shows the realisations of these boosting devices.

Extract 8:

P19: **Specifically**, nalmefene **significantly** heightened neural response to faces in the bilateral inferior parietal lobule, including the right angular and supramarginal gyrus, and also in the left middle and posterior cingulate gyrus as well as in the putamen. (Emphatics and Amplifiers; Pharmacology, Article 19)

P3: Stimulation of the right dlPFC with active rTMS **further** increased connectivity within the left FPN at a trend level, **especially** in the ADP group (trend: $p = 0.03$). (Emphatics; Pharmacology, Article 3)

P13: Due to stronger action at the CB1 receptor, SCRA are thought to **more strongly** inhibit GABA mediated neurotransmission than Δ^9 -THC. (Amplifiers and Emphatics; Pharmacology, Article 13)

P7: The temperature block at 4 °C (Figure 6(B)) inhibited protein transport and resulted in **no** change in signal intensities. (Universal Pronouns; Pharmacology, Article 7)

P2: However, we ensured scanner field strength (1.5 T), imaging parameters and (pre)processing algorithms to have been equal for **all** subjects across measurements. In addition, **all** baseline scans were obtained on one scanner while **all** follow-up scans were obtained on the other scanners. (Universal Pronouns; Pharmacology, Article 2)

The Use of Boosters in Tourism and Pharmacology RA Discussions

Table 11 shows the similarities and differences in the use of boosters in the discussion sections of Tourism and Pharmacology RAs.

Table 11: Boosters in Tourism and Pharmacology RAs

Coding Category	Boosting Device	Frequency		Percentage	
		T	P	T	P
BEMP	Emphatics	82	50	87	40
BAMP	Amplifiers	72	43	87	40
BUP	Universal pronouns	12	7	43	20

* Note: T denotes Tourism RAs; P denotes Pharmacology RAs

Overall, based on Table 11, both Tourism and Pharmacology writers used emphatics most frequently with 82 (50%) and 87 (40%) occurrences, respectively. This is followed by amplifiers with 72 (43%) occurrences in Tourism RAs and 87 (40%) occurrences in Pharmacology RAs. However, although emphatics and amplifiers are the top two frequently-used boosting devices in both RAs, it is evident that Pharmacology writers used more emphatics and amplifiers compared to Tourism writers. Further, the use of universal pronouns has a distinct difference between Tourism and Pharmacology RAs. Although ranked last, it can be deduced that Pharmacology writers were more likely to use more universal pronouns than Tourism writers.

CONCLUSION

This study investigated move structures and the use of hedges in boosters in the discussion sections of Tourism and Pharmacology RAs. Overall, based on the results, both Tourism and Pharmacology writers employed all of the move-step structures except for drawing pedagogical implications; however, most of the writers reported and commented on their results interrelatedly in the discussion sections of both RAs and this corroborates Amnuai and Wannaruk's claims that Move 2 (reporting results) tends to co-occur with Move 4 (commenting on results). Besides, both Tourism and Pharmacology writers were also found to employ more hedges than boosters to discuss their findings, which coincides with the finding reported by Taşpınar (2017) and supports Yang's (2013) and Rabab'ah (2013) assertions that authors use hedges to express the degree of certainty and truth value to carefully acknowledge the limits of their conclusion from their data, besides qualifying their commitment, reducing their force of statements, expressing probability, saving faces, persuading readers, and avoiding any rejection of their statements.

The results from this study will assist academic writers in writing discussions as they can utilise the move structures and hedging or boosting devices that best express their findings. Besides contributing to the body of knowledge, the findings of this study could also provide insights into the most and the least employed move in the discussion section of RAs including a variety of hedging and boosting devices to be used in academic writing. Further, instructors of English for Specific Purposes (ESP) and English for Academic Purposes (EAP) may obtain some useful information when teaching academic writing to university students by instructing them to write discussions. It is recommended that future research expands the pool of move analysis and metadiscourse markers, especially hedges and boosters to other sections of RAs across fields of studies and even gender so as to allow for comparisons in the move structures and the use of hedges and boosters in RAs.

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