

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

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Abstract

Expressing doubt and certainty is a significant feature of academic writing where the authors have to distinguish opinion from factual information and evaluate the force of their statements in an acceptable and persuasive way. Hedging and boosting markers are two interactional metadiscourse strategies employed for this purpose. The present cross-cultural study aimed therefore at analysing the type and frequency of hedges and boosters in English research articles by native (Anglo-American) and non-native (Iranian and Burundi) authors in the field of Applied Linguistics. Based on a corpus of thirty research articles and adopting the taxonomies of Hyland (1998a, 2005a) and Hinkel (2005), the overall rhetorical and categorical distribution of hedges and boosters were analysed across two rhetorical sections (Introduction and Discussion) of the texts under investigation. To calculate their frequencies, *AntConc*, a concordance programme was used. Moreover, using SPSS version 22, chi-square tests were run to check whether there were statistically significant differences in the use of hedges and boosters in the three sub-corpora. The results of data analysis showed statistically significant differences in the use of both hedges and boosters and their types throughout the two rhetorical sections among the three groups of authors. In the light of the results, pedagogical implications are provided and discussed in detail.

Keywords: Academic Writing, Boosters, Contrastive Rhetoric, Discussion, Hedges, Introduction, Research Articles

1. Introduction

Getting in touch with the latest philosophical thinking and research in any subject of knowledge today requires a good grasp of English as the language has become a global language (Crystal, 2003) and the language of research and scholarship (Hyland, 2011). In academia, individual academic progress or reputation is tied to both success in publishing and how well they participate in different academic genres (Hyland, 2009). Gaining fluency in the conventions of academic discourses and its genres demands, however, expertise or a reasonable understanding of English academic literacy as it plays a significant role in the current global scholarship. Though it varies from one discipline to another, successful writing for publishing involves effective use of ‘*metadiscourse*’, that is, using language to persuade an audience by conveying an attitude to both the evolving text and target readers (Hyland, 2005a). Metadiscourse resources are, thus, highly indispensable to interpersonal and social engagements between the text producer and their audience.

Since its coinage by Zellig Harris in 1959, metadiscourse, a repertoire of rhetorical resources that language writers draw on to manage the flow of the evolving text and engage with the audience, has captured increasing attention in academic and professional writing research (e.g., Gillaerts & Van de Velde, 2010; Hyland, 2005a, 2005b; Hyland, 2017, Hyland & Tse, 2004; Tavanpour et al., 2016). Long believed to be ‘an objective, faceless and impersonal form of discourse’ (Hyland, 2005b: 173), academic writing has become to be seen instead as a persuasive endeavour which draws from a range

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of rhetorical strategies to organise arguments and evaluate claims in order to convince the audience rather than simply being a mere process of objective findings reporting (Crismore et al., 1993; Hyland, 2005a). Hedges and boosters, two of the components of authorial stance-taking, constitute the two often employed interactional metadiscourse strategies in academic discourses, most particularly in research articles (Hyland, 2005b; Hyland & Tse, 2004). Though hedges and boosters are highly indispensable in academic writing, their use varies across cultures and languages (Connor, 2002; Kaplan, 1966) and across professional and academic disciplines (Hyland, 1998b). Following this cross-cultural/linguistic philosophical underpinning, a large number of studies investigating the use of the two metadiscourse strategies across cultures and languages have been conducted in different professional and academic genres (see, for example, Akbas & Hardman, 2018; Čmejková, 1996; Connor & Mayberry, 1996; Dontcheva-Navratilova, 2016; Jalilifar, 2011; Hu & Cao, 2011; Mur-Dueñas, 2011; Yang, 2013).

Despite a very large body of empirical cross-cultural research on hedges and boosters in academic writing, most of the contrastive rhetorical studies conducted to date have compared written texts by US/UK native English speaking academics with those by one group of English non-native speaking scholars. Findings from a few cross-cultural studies involving English native academics and two or more groups of non-native scholars (e.g., Hinkel, 2005; Kafes, 2018; Yağız & Demir, 2015) have shown that the use of hedges and boosters is different among the different social groups. There is, therefore, still a paucity of comparative cross-cultural studies between texts by English native writers with academic texts by more than one group of English non-native scholars. Besides, to my knowledge, no comparative cross-cultural study including Burundi EFL academic writers has been conducted so far. Thus, this study tries, to address this gap in the literature by comparing the use of hedges and boosters in English academic research articles by three groups of scholars who are from different linguistic and cultural backgrounds, namely English native (Anglo-American) and non-native (Iranian and Burundi) academics.

2. Review of Literature

Successful academic writing and competence depend on effective use of metadiscourse (Hyland, 2005a). Hyland (2009, 2017) has made an important distinction between interactive and interactional metadiscourse. Interactive metadiscourse refers to the writer's organisation and management of the information flow of the text. Interactional metadiscourse, on the other hand, refers to the use of linguistic features to engage and orient readers towards writers' attitude and commitment on propositional content and their potential audience. Metadiscourse is, therefore, of paramount significance in academic texts such as journal research articles as it enables smooth and scientific interaction between academic writers and readers who often share the same cultural and rhetorical practices of their discourse community.

Hedges and boosters, two of the components of authorial stance-taking, constitute the two often employed interactional metadiscourse strategies in academic discourses, most particularly in research articles (Hyland, 2005b; Hyland & Tse, 2004). Hedges are linguistic devices such as *might*, *perhaps*, and *probably* which are used to attenuate the strength of a speech act and express epistemic modality about a proposition (Holmes, 1988, 1990). They can be employed to withhold writers' commitment to propositions (Hyland & Tse, 2004), to include a degree of hesitancy and doubt in the propositions (Akbas, 2014), to weaken the writer's claim (Hyland, 1998b) and to enable academic writers to recognize alternative voices and viewpoints for the reader's consideration (Akbas, 2014; Hyland, 2005a). On the other hand, boosters are linguistic expressions such as *obviously*, *demonstrate*, and *it is clear that*, which may be employed to express commitment or certainty about a proposition (Holmes, 1990). They can be used to reinforce a degree of truthfulness of the proposition (Akbas, 2014), to strengthen the force of statements (Gillaerts & Van de Velde, 2010) or to allow academic writers to close down or downplay alternative voices (Hyland, 2005a). Thus, hedges and boosters are communicative or metadiscourse strategies that play a very important interactional role in academic writing. They are two sides of the same coin as a text writer draws on them to either reduce epistemic authorial certainty or commitment about the propositional content put forth or to strengthen and

intensify commitment to a proposition by closing off alternative voices (Hyland, 1998b, 2005a; Vassileva, 2001).

Though hedges and boosters are highly indispensable in academic writing, contrastive rhetoric studies have revealed that the use of these metadiscourse strategies is not uniform but rather varies across cultures and languages (Connor, 2002; Kaplan, 1966), disciplines (Hyland, 1998b) and according to professional expertise such as language competence and generic conventions (Gotti, 2012). Following this cross-cultural, cross-linguistic or cross-disciplinary philosophical and empirical thinking in the use of metadiscourse, several studies have been conducted on hedges and/or boosters. In the literature, there has been a significant body of research that has investigated the use of these metadiscourse strategies across cultures (Akbas & Hardman, 2018; Čmejrková, 1996; Connor & Mayberry, 1996; Dontcheva-Navratilova, 2016; Lotfi et al., 2019; Yağız & Demir, 2015), languages (Jalilifar, 2011; Hu & Cao, 2011; Mur-Dueñas, 2011; Yang, 2013), academic disciplines (Farrokhi & Emami, 2008; Hyland, 1998b; Sanjaya, 2016; Sepehri et al., 2019; Takimoto, 2015), gender (Crismore et al., 1993; Holmes, 1990; Serholt, 2012), and in different academic and professional genres such as doctoral and masters dissertations/theses (Haufiku & Kangira, 2017; Hyland, 2004), newspapers (Al-Ghoweri & Al Kayed, 2019; Tavanpour et al., 2016), thesis or research article abstracts (Gillaerts & Van de Velde, 2010; Kafes, 2012; Ozdemir & Longo, 2014), research articles (Dontcheva-Navratilova, 2016; Hryniuk, 2018; Kafes, 2018; Mur-Dueñas, 2011; Sanjaya, 2016; Vassileva, 2001; Yang, 2013;), TV news (Elhambakhsh & Jalalian, 2018; Jalilifar & Alavi-Nia, 2012) and undergraduate and postgraduate students' essays (Alward et al., 2012; Hinkel, 2005; Hyland & Milton, 1997; Serholt, 2012).

As discussed above, there are several contrastive studies (e.g., Connor & Mayberry, 1996; Lotfi et al., 2019; Takimoto, 2015; Vassileva, 2001; Yağız & Demir, 2014) that have compared the use of hedges and/or boosters by academic writers from cross-cultural/linguistic perspectives. Vassileva (2001), for instance, compared Bulgarian and English research articles by Bulgarian linguists with English research articles written by Anglo-American linguists in terms of commitment and detachment and found that hedges and boosters were unevenly distributed throughout the three sets of articles and that both Bulgarian and English articles by Bulgarians revealed a higher degree of commitment. Culture-specific differences in using hedging strategies were also observed in Yağız and Demir's (2014) study wherein English native scholars were found to use more hedges in their English published articles when compared to Turkish English L2 counterparts. In similar vein, Connor and Mayberry (1996) conducted a study on a Finnish Ph.D. student in a U.S. university to test if the student's native language and culture have an effect on his L2 competence through his academic papers. The results showed that the student's first language background affected his English L2 products. Cross-cultural variation in terms of rate, distribution and choice of hedges and/or boosters used in different English academic generic papers was also found between English L1 writers and English non-native Czech writers (Dontcheva-Navratilova, 2016), between American academic writers and those written by both Taiwanese and Turkish English L2 writers (Kafes, 2012), between English L2 Cantonese speaking school leavers and English L1 British learners (Hyland & Milton, 1997), between English L1 Americans and Turks and Spaniards non-native English writers (Kafes, 2018), between US students and a group of English non-native students from various L1 backgrounds (Chinese, Japanese, Korean, Indonesian, Vietnamese and Arabic)(Hinkel, 2005). Significant culture specific differences in the use of rhetorical patterns (hedges, boosters, attitude markers, engagement markers, self-mentions) were equally found in the study by Lotfi et al. (2019) in which 80 argumentative essays by Chinese and Iranian EFL students were analysed.

Another group of studies (e.g., Farrokhi & Emami, 2008; Hyland, 1998; Takimoto, 2015) examined the use of hedges and/or boosters across languages and found evidence of cross-linguistic differences. Hu and Cao's (2011) comparative study, for example, investigated the use of hedges and boosters in academic article abstracts on a corpus of 649 abstracts collected from eight Chinese and English-medium journals of applied linguistics. Results indicated that English-medium abstracts featured markedly more hedges than Chinese-medium ones. This cross-linguistic variation was corroborated by the studies by Mur- Dueñas (2011) on a corpus of 24 research articles written in

English and Spanish by American and Spanish Scholars respectively, Yang (2013) on research articles by three groups of scholars, namely English L1, English L2 and Chinese L1 scholars, and Ebadi et al. (2015) on research articles written by Persian and English native speakers.

Cross-disciplinary studies in terms of the use of hedges and/or boosters (e.g., Farrokhi & Emami, 2008; Hyland, 1998b; Takimoto, 2015) have been conducted as well. For example, Hyland (1998b) investigated in his quantitative and qualitative study the use of hedges and boosters in a text corpus of 56 research articles from eight disciplines and the results revealed major disciplinary differences in the use of these metadiscursive resources. 'Soft' disciplines, i.e., the humanities and social sciences, preferred more hedges and boosters unlike natural sciences which were largely underrepresented in the number of those metadiscourse devices. These results are consistent with the ones from Takimoto's (2015) study from eight academic disciplines in which the humanities and social sciences showed a more significant use of hedges and boosters in contrast to the natural sciences. Similarly, based on a corpus of twenty research articles from Applied Linguistics and Electrical Engineering, Farrokhi and Emami's (2008) findings corroborate the results above as the frequency of hedges and boosters was higher in Applied Linguistics than in Electrical Engineering articles.

In spite of this large body of empirical research on metadiscourse strategies such as hedges and boosters in academic writing, some issues still deserve further research. To begin with, although hedging and boosting have increasingly attracted the attention of academic writing researchers, most of the contrastive rhetorical studies conducted so far have compared written by US/UK native English speaking academics with those by one group of English non-native speaking scholars. Thus, there is a paucity of comparative cross-cultural studies between texts by English native writers with academic texts by two or more groups of English non-native scholars. The results of a few cross-cultural studies between English native academics and two or more groups of non-native scholars (e.g., Hinkel, 2005; Kafes, 2018; Yağız & Demir, 2015) have shown that the use of those metadiscourse devices is different among the different social groups. Second, to my knowledge, no comparative cross-cultural study including Burundi EFL academic writers has been conducted so far. Burundi authors, unlike their Anglo-American and Iranian counterparts whose native languages belong to the Indo-European language family, have Kirundi as their native language. Kirundi belongs to the Bantu group of the Niger-Congo language family. Besides, they use French as a second language in their everyday administrative activities. Moreover, since the author's native culture plays a significant role in academic writing particularly in the selection of interactional metadiscourse devices (Hyland, 2005a), religious affiliations of the two non-native groups namely Islam for most Iranians and Christianity for most Burundians are, therefore, likely to influence their English written texts. As the analysis of English L2 written products of a Finnish L1 student revealed the presence of errors that were a product of cross-linguistic influence from Finnish L1 (see Connor & Mayberry, 1996), it is expected that Burundi authors will not use hedges and boosters in the same way as their Anglo-American and Iranian peers. Thus, Burundi English research articles might be cross-linguistically influenced by both Kirundi and French while English written texts by Iranians will likely be influenced by Persian. This study tries, therefore, to address this gap in the literature by comparing the use of hedges and boosters in English academic research articles by three groups of scholars who are from different linguistic and cultural backgrounds, namely English native (Anglo-American) and non-native (Iranian and Burundi) academics. Motivated by this need, the purpose of this corpus-based study is therefore twofold: 1) to examine the frequencies and distribution of hedges and boosters across the Introduction and Discussion sections of the research articles (RAs henceforth) by Anglo-American, Iranian and Burundi academics, and 2) to explore if there are any significant differences in the type of hedging and boosting devices used in the three sub-corpora.

2.1. Research Questions

More specifically, the present study addresses the following research questions:

Research Question One: Do the three groups of writers, namely Anglo-American, Iranian, and Burundi writers use hedging and boosting devices with the same frequency in the Introduction and Discussion sections of their RAs?

Research Question Two: Is there any statistically significant difference in the distribution of hedges and boosters across the Introduction and Discussion sections in the three sub-corpora?

Research Question Three: Is there any significant difference in the type of hedging and boosting markers most frequently employed by the three groups of authors?

3. Methodology

3.1. Corpora

In order to fulfil the purpose of this study, a corpus of total 30 English RAs was used. It consisted of 10 RAs written by Anglo-American authors, 10 by Iranian academics and 10 by Burundi authors. These three groups of academic writers were chosen for the following reasons: a) no comparative cross-cultural studies have so far been conducted to investigate how these particular three groups, who bear different linguistic and cultural backgrounds, employ hedging and boosting devices in RAs, and b) there are no studies on how Burundi academic writers use those metadiscourse strategies in their English L2 RAs. Verification of both native and non-native writers was presumed by means of their names and affiliations using the biographical information provided in their articles. Whenever possible, only one article per person was chosen to increase the comprehensiveness of the data.

To ensure comparability and at the same time maximise both reliability and validity of this study, the following selection criteria have been followed: all the RAs were written in English; they were all gleaned from the area of Applied Linguistics; they were all empirical research studies and were all published from 2015-2020 in peer-reviewed international journals including *Innovation in Language Learning and Teaching*, *Language Learning & Technology*, *International Journal of Research in English Education (IJREE)*, *Iranian Journal of Language Teaching Research*, *Research and Evaluation in Education*, *LingTera*, and *NELTA*. The three corpora differed in one aspect; the Anglo-American sub-corpus consisted of 69,438 words, the Iranian one of 62,441 while the Burundi corpus was of 53,251 (see Table 1). The corpora counted 185,130 words in total. This figure was obtained after minor parts of the RAs such as references, footnotes, acknowledgements, biography of the author and appendices had been deleted.

Table 1: Total Number of Words per Each Author Group

| Word | Anglo-American | Iranian | Burundi | Total |
|---------------|----------------|---------|---------|--------|
| <i>Tokens</i> | 69438 | 62441 | 53251 | 185130 |
| <i>Types</i> | 5878 | 4982 | 5071 | 15931 |

For both the purpose and manageability of the study, only two rhetorical sections namely the Introduction and Discussion sections were selected. These two sections were chosen for analysis as samples representing the RA as a whole because, unlike other RA sections such as the Abstract which is rigid in structure and the Literature Review which mostly deals with other studies, these two sections are likely to include more hedges and boosters for reflecting the attitudes and opinions of the writer of the research articles (Hyland, 2005b; Hyland, 2009). This unique nature of those two rhetorical sections of academic RAs was the driving force behind the focus in this research study.

3.2. Data Analysis Procedure and Reliability

For data analysis, two frameworks were used. Based on the taxonomies of Hyland (1998a, 2005a) and Hinkel (2005), hedges and boosters in the corpora were calculated and counted.³

3.2.1. Framework for Hedges Analysis

³ see a compilation of hedges and boosters and other lexical expressions in Hyland (2004, pp. 188-189) or Hyland (2005a, pp. 221-224)

Based on the taxonomies by Hyland (1998a; 2005a), the list of hedges investigated in this study consisted of (1) modal auxiliaries (e.g. *would, might, could*), (2) epistemic adjectives (e.g., *possible, potential*), (3) epistemic adverbs (e.g. *quite, probably*), (4) epistemic lexical verbs (e.g. *seem, suggest, assume*), and (5) epistemic nouns (e.g. *assumption, possibility, probability*).

3.2.2. Framework for Boosters Analysis

On the other hand, the three types of boosters as classified by Hinkel (2005) were investigated: (1) Universal pronouns such as *every-* and *no-* words, which refer to a general audience; (2) Amplifiers (e.g., *very, absolutely, never, extremely, completely, totally, etc.*), which function to increase the effect of statements; and (3) Emphatics (e.g., *sure/for sure, no way, in fact, emphasize, stress, etc.*), which are employed to emphasize writer's certainty in a message.

To calculate frequencies of hedges and boosters in a corpus, there are several software PC-based programmes that can be used. In this study, *AntConc*, a concordance software programme, was employed. After downloading the RAs which were in the PDF format, all the articles have then been converted into .txt files in order to be readable by the *AntConc* computer software. Moreover, the same computer software was used to show the context in which those metadiscourse strategies appeared for the researchers to decide from the context whether they were functioning as hedges and boosters or not. Besides, using SPSS version 22, chi-square tests were also run to check whether there were statistically significant differences in the use of hedges and boosters in the three sub-corpora.

In order to validate the analysis and, thus, qualitatively ensure a higher degree of reliability, boosters and hedges were also manually checked and double-checked in the corpora using the list of both metadiscourse devices. With three weeks of interval between the two analyses, intra-rater reliability was calculated through *interclass correlation coefficient* and the result was 0.98 (98%), which was a very substantial agreement.

4. Results

4.1. Overall Distribution of Hedges and Boosters

As it can be seen in Table 2, the results of a quantitative analysis of occurrence of hedging and boosting devices show that there are significant differences in the three sub-corpora. The rate of occurrence of hedges is the highest in the English corpus by Iranian authors (12.3 per 1,000 words, 277 in the sub-corpus) and the lowest in the sub-corpus by Burundi academics (7.4 per 1,000 words, 163 in the sub-corpus). On the other hand, the total number of boosters is the largest in the Burundi sub-corpus (6.3 per 1,000 words, 139 in the sub-corpus) and lowest in the Anglo-American one (4.3 per 1,000 words, 87 in the sub-corpus).

Table 2: The Frequency and Number of Hedges and Boosters in the RAs

| Devices | Anglo-American | Iranian | Burundi | Total | X ² (P) ⁴ |
|----------|-------------------|--------------------|-------------------|-------|---------------------------------|
| Hedges | 168 (8.3) (27.7%) | 277 (12.3) (45.5%) | 163 (7.4) (26.8%) | 608 | 40.95 (0.000*) ⁵ |
| Boosters | 87 (4.3) (24.2%) | 133 (5.9) (37.0%) | 139 (6.3) (38.7%) | 359 | 13.52 (0.001*) |

Moreover, as one can clearly see it from the table above, the difference in terms of frequency of occurrence of both hedges ($p=0.000$) and boosters ($p=0.001$) is statistically significant among the three groups. Besides, the total number of hedges (608; 63%) was higher than the number of boosters (359; 37%) in the corpora.

4.2. Hedges and Boosters across the Introduction and Discussion Sections

Concerning the number and frequency of the two metadiscourse strategies across the two rhetorical sections of the RAs (Table 3), it can be seen that the highest number of hedges was employed by the Iranian authors in both the Introduction (11.1 per 1,000 words, 76 in the sub-corpus of 6835 words)

⁴ X²(P) corresponds to chi-square test results

⁵ *statistically significant

and Discussion (12.8 per 1,000 words, 201 in the sub-corpus of 15638 words) sections. For boosters, however, Burundi authors ranked first in the Introduction (5.6 per 1,000 words, 55 in the sub-corpus of 9703 words) while Iranian academics ranked first in the Discussion (6.9 per 1,000 words, 108 in the sub-corpus of 15638 words) sections. Except for the frequency of hedges in the introduction sections, there was a statistically significant difference in the number and frequency of use of both hedges and boosters in the three sub-corpora. As the Table 3 also indicates, the higher occurrence of both hedges and boosters is in the Discussion sections and is respectively 9.6 and 6.4 per 1,000 words.

Table 3: The Number and Frequency of Hedges and Boosters across the Introduction and Discussion Sections, and Chi-square Test Results

| Markers | Corpus | Article sections | |
|----------|-----------------------------------|------------------|----------------|
| | | Introduction | Discussion |
| Hedges | Ang.-Am. | 74 (9.4) | 94 (7.6) |
| | Iranian | 76 (11.1) | 201 (12.8) |
| | Burundi | 65 (6.6) | 94 (7.7) |
| | X ² (p) | 0.95 (0.619) | 58.86 (0.000*) |
| | Total words in the corpus | 24,387 | 40,176 |
| | Hedges total of and their F/1,000 | 215 (8.8) | 389 (9.6) |
| Boosters | Ang.-Am. | 19 (2.4) | 68 (5.5) |
| | Iranian | 25 (3.6) | 108 (6.9) |
| | Burundi | 55 (5.6) | 84 (6.8) |
| | X ² (p) | 22.54 (0.000*) | 9.35 (0.009*) |
| | Total words in the corpus | 24,387 | 40,176 |
| | Boosters total and their F/1,000 | 99 (4.0) | 260 (6.4) |

From the above table (Table 3), the findings show one similarity in the use of hedges and boosters across the two rhetorical sections: the higher incidence of both hedges and boosters in the corpora occurs in the Discussion sections while the lower number of the metadiscourse devices is found in the Introduction sections. In the Discussion section, there was a very meagre difference in hedges productivity between the Anglo-American and Burundi authors (7.6 per 1,000 words and 7.7 per 1000 words respectively) on the one hand and between Iranian and Burundi writers in terms of boosters use (6.9 per 1000 words and 6.8 per 1000 words respectively) on the other.

4.3. Types and Frequency of Hedges and Boosters used in the Corpora

4.3.1. Categorical Distribution of Hedges and Boosters in the three sub-corpora

When we look at particular types and frequency of hedges employed in the rhetorical sections in the corpora (Table 4), we can see that the authors differ in the number and type of hedges they employed. Apart from the numbers of *lexical epistemic verbs* and *epistemic nouns* which are the highest in the sub-corpora by Anglo-American and Burundi authors respectively, the frequency of hedges from the remaining categories is the largest in the Iranian sub-corpus and across the two rhetorical sections of the RAs.

Table 4: The Type and Frequency of Hedges in the Introduction and Discussion Sections

| Devices | Types | Corpus | Article sections | |
|---------|----------------------|--------------------|------------------|----------------|
| | | | Introduction | Discussion |
| Hedges | Modal verbs | Anglo-American | 32 (4.0) | 43 (3.4) |
| | | Iranian | 46 (6.7) | 114 (7.2) |
| | | Burundi | 45 (4.6) | 74 (6.0) |
| | | X ² (p) | 2.97 (0.226) | 32.90 (0.000*) |
| | Epistemic adjectives | Anglo-American | 13 (1.6) | 17 (1.3) |
| | | Iranian | 14 (2.0) | 25 (1.5) |
| | | Burundi | 2 (0.2) | 5 (0.4) |
| | | X ² (p) | 9.17 (0.010*) | 12.93 (0.002*) |
| | Epistemic adverbs | Anglo-American | 10 (1.2) | 14 (1.1) |
| | | Iranian | 10 (1.4) | 33 (2.1) |

| | | | | |
|--------------------|---------|--------------------|---------------|----------------|
| | | Burundi | 4 (0.4) | 8 (0.6) |
| | | X ² (p) | 3.00 (0.223) | 18.58 (0.000*) |
| Epistemic verbs | lexical | Anglo-American | 18 (2.2) | 19 (1.5) |
| | | Iranian | 5 (0.7) | 23 (1.4) |
| | | Burundi | 12 (1.2) | 8 (0.6) |
| | | X ² (p) | 7.25 (0.027*) | 7.24 (0.027*) |
| Epistemic Nouns | | Anglo-American | 1 (0.1) | 1 (0.08) |
| | | Iranian | 1 (0.1) | 6 (0.3) |
| | | Burundi | 2 (0.2) | 5 (0.4) |
| | | X ² (p) | 0.50 (0.779) | 3.50 (0.174) |

Concerning the types of hedging markers used in the three sub-corpora, there is a statistically significant difference among the three groups of authors in the use of *epistemic adjectives* and *epistemic lexical verbs* and across both the Introduction and Discussion sections. Besides, there was a statistically significant difference in the use of *modal verbs* and *epistemic adverbs* only in the Discussion section while for *epistemic nouns* no statistically significant difference is observed.

With regard to the type and frequency of boosters used in the three sub-corpora on the other hand, the number of boosters per 1,000 words indicates that the largest frequency of *Universal Pronouns* was used by Burundi academics and across the two rhetorical sections. *Amplifiers* were more employed by Anglo-American authors in the Introduction and by Iranians in the Discussion sections while the largest frequency of *Emphatics* was used by Burundi authors in the Introduction and by Iranian in the Discussion sections.

Table 5: The Type and Frequency of Boosters in the Introduction and Discussion Sections

| Devices | Types | Corpus | Article sections | |
|----------|--------------------|--------------------|------------------|--------------|
| | | | Introduction | Discussion |
| Boosters | Universal Pronouns | Anglo-American | 4 (0.5) | 25 (2.0) |
| | | Iranian | 11 (1.6) | 44 (2.8) |
| | | Burundi | 27 (2.7) | 37 (3.0) |
| | | X ² (p) | 19.85 (0.000*) | 5.22 (0.073) |
| | Amplifiers | Anglo-American | 3 (0.3) | 1 (0.080) |
| | | Iranian | 1 (0.14) | 3 (0.19) |
| | | Burundi | 1 (0.10) | 1 (0.082) |
| | | X ² (p) | 1.60 (0.449) | 1.60 (0.449) |
| | Emphatics | Anglo-American | 12 (1.5) | 42 (3.3) |
| | | Iranian | 13 (1.9) | 61 (3.9) |
| | | Burundi | 27 (2.7) | 46 (3.7) |
| | | X ² (p) | 8.11 (0.017*) | 4.04 (0.133) |

With regard to whether the use of this group of metadiscourse strategies was significantly different, it can be seen from Table 5 that the only statistically significant difference among the three sub-corpora was in the use of *universal pronouns* and *emphatics* in the Introduction sections.

4.3.2. Most Frequently Used Hedges and Boosters in the Corpora

As to the choice of interpersonal metadiscourse devices, Table 6 shows the most frequently used hedges and boosters in the three sub-corpora (*see Appendix for a sample of the analysis of hedges and boosters in the corpora*). There are similarities in the choice of the most frequent realisations of hedges in the three sub-corpora. The most prominent hedges are modal verbs, such as *can*, *would*, *should*, *could*, *may*, and *might* and epistemic lexical verbs such as *feel*, *indicate*, *seem*, *suggest*, *tend to*, and *appear*. There are, however, differences in the types of hedges frequently selected. While in both the Anglo- American and Burundi sub-corpora epistemic adverbs (*often*, *in general*) are among the most frequently chosen hedges, there are no epistemic adverbs in the first ten of the most frequently employed hedges in the Iranian sub-corpus. With regard to boosters, there is no difference in the type of the most frequently used words among the sub-corpora; in the ten of most frequently used words, there is a presence of the three types of boosters, namely universal pronouns, amplifiers and emphatics.

Table 6: Most Frequent Hedges and Boosters in the Three Sub-corpora (listed in descending order of frequency)

| Anglo.-Am. Corpus | | Iranian corpus | | Burundi corpus | |
|-------------------|---------------|----------------|---------------|----------------|---------------|
| Hedges | Boosters | Hedges | Boosters | Hedges | Boosters |
| Can | All | can | All | Can | all |
| Would | No | possible | No | Should | very |
| Might | Very | may | Very | Would | no |
| Could | Really | could | Must | Might | the fact that |
| Will | the fact that | should | the fact that | Possibility | it is clear |
| possible | Establish | indicated | Every | Could | find that |
| Felt | Must | will | Clearly | Often | indeed |
| Often | Always | might | in fact | tend to | every |
| in general | Indeed | seems | Always | in general | demonstrate |
| Ought | in fact | suggested | None | Appear | i believe |

5. Discussion

Adopting the taxonomies by Hyland (1998a, 2005a) and Hinkel (2005), the main objective of this study was to detect similarities and differences among Anglo-American, Iranian and Burundi academics in terms of using hedging and boosting devices across the Introduction and Discussion sections of their Applied Linguistics research articles written in English. To achieve the research aims, quantitative statistical analyses were conducted to obtain results for the research questions that guided this study.

RQ1: Do the three groups of writers, namely Anglo-American, Iranian, and Burundi writers use hedging and boosting devices with the same frequency across the Introduction and Discussion sections in their RAs?

First of all, the quantitative analyses (see Table 2) show that, overall, there were more hedges (63%) than boosters (37%) in the corpora. These findings are consistent with results from Hyland (1998b) and Takimoto's (2015) studies in which hedges exceeded boosters which reflects the significance of both distinguishing factual information from opinion in academic writing and the necessity of presenting claims in a provisional rather than assertive way.

Concerning the degree to which the use of the two metadiscourse strategies varied among the authors, the results of descriptive analyses in the same table (Table 2) reveal that the highest hedges productivity belonged to Iranian authors. They were followed by the Anglo-American authors, and then by Burundi academics though the numerical gap between Anglo-American and Burundi authors was very minor. This finding, although consistent with results from Hryniuk (2018) and Tavanpour et al. (2016) in which Polish and Iranian English non-native writers employed more hedges than their English native speakers counterparts, did not, however, fall into a general pattern from the literature that shows that English native writers significantly use more hedging devices than non-native academic scholars (see Cheng & Zhang, 2016; Fujimura-Wilson, 2019; Hinkel, 2005; Shirzadi et al., 2015; Rezanejad et al., 2015; Yağız & Demir, 2014). The fact that Iranian used more hedges than the Anglo-American was, therefore, not expected as it is contrary to what was found in most of cross-cultural comparative studies. This might be due to the influence of Iranian/Persian culture. In the same line of ideas, Tavanpour et al. (2016) argue that the reason why Iranian English non-native writers were found to be less assertive than their English native counterparts 'was due to their being more polite to their readers' (p.11). Similarly, Hinkel (1997) found eastern communities (e.g., Chinese, Korean, Japanese, and Indonesian) to be indirect and vague in their English written texts when compared to American English native speakers. Thus, this English non-native rhetorical behaviour in terms of high frequency of hedges productivity by Iranian academics might stem from their native culture.

With regard to booster productivity, on the other hand, the Burundi sub-corpus included the largest number. Burundi authors were followed by Iranian academics, and then by Anglo-American authors. Although the numerical gap between Burundi and Iranian was extremely meagre, Anglo-American authors were at a long distance in terms of the total number of used boosters. Therefore, it

can be concluded that Burundi and Iranian English non-native authors used more boosters than English native academics. These results are consistent with the findings of others cross-cultural studies such as Hryniuk (2018), Shirzadi et al. (2017), Yağız and Demir (2015) and Vassileva (2001) in which Polish, Iranian, Japanese, and Bulgarian English L2 writers used significantly more boosters than English native authors regardless of whether English was being used as a second or foreign language. The findings of this study fall, thus, into that pattern of booster use by English non-native academics. All the differences between English native and non-native authors in terms of using boosting devices in this study prove, to some extent, that native culture and languages can influence academic writing in a second or a foreign language. As Hyland (2005a) highlights, culture plays a very significant role in academic writing, particularly in the choice of interactional metadiscourse elements. Besides, this finding may, to some extent, evince shortfalls in English non-native writers' academic writing competence.

These findings which show a significant difference in the use of hedges and boosters between Iranian and Burundi English non-native writers and Anglo-American authors seem, nonetheless, to indicate some shortfalls in the English academic writing of the non-native scholars. As English is the international language of scientific research and scholarship (Hyland, 2011), English L2 academic writers with different native cultures and languages need to enhance their L2 academic writing and pragmatic competence required for publication of their research articles in English-medium journals. Hedges and boosters, the two often deployed interactional metadiscourse strategies in academic discourses, are ones of the significant indicators of L2 rhetorical, stylistic and pragmatic competence in academic writing (Hyland, 2005b). Academic English-medium journals editors and reviewers are unlikely to be sympathetic towards English non-native authors. Thus, metadiscourse markers should be focused on in ESL/EFL writing instruction to enable English non-native speakers achieve that important characteristic feature of native author competence.

RQ2. Is there any statistically significant difference in the distribution of hedges and boosters across the Introduction and Discussion sections in the three sub-corpora?

To find results for this research question, chi-square tests were run and inferential statistics are presented in Table 3. A statistically significant difference was found in terms of using (1) hedges in the Discussion, and (2) boosters in both the Introduction and Discussion sections. Although Iranian authors employed more hedges than Anglo-American and Burundi academics in the Introduction sections, there was however no statistically significant difference among the three groups. Besides, as shown in Table 3, there were more metadiscourse devices in the Discussion sections than in the Introduction ones. This finding is corroborated by results from Dontcheva-Navratilova (2016) and Yağız and Demir's (2014) studies in which, not only boosters and hedges were unevenly distributed throughout the rhetorical sections of RAs, but also the Discussion sections included the largest number. The fact that the Discussion sections seem to favour more interactional metadiscourse devices may be due to the fact that it is the place where researchers persuade their audience by strengthening and justifying claims of their findings.

RQ3. Is there any significant difference in the types of hedging and boosting markers most frequently employed by the three groups of authors?

This last research question which was about variety in the type of hedges and boosters used in the corpora can be answered using the results from Table 4, Table 5 and Table 6. Concerning the use of hedges, Anglo-American authors ranked first in the use of *epistemic lexical verbs* in both rhetorical sections of the RAs and Burundi authors employed more *epistemic nouns* than the other two groups of authors. Iranian academics used, however, the remaining categories, namely *modal verbs*, *epistemic adjectives*, and *epistemic adverbs*, more frequently than their counterparts and across both the Introduction and Discussion sections. The differences in the type of boosters in the three sub-corpora were also noticed (see Table 5). Burundi academics ranked first in using *universal pronouns* across the two rhetorical sections; Iranian authors came in the first position in employing *amplifiers* in the Discussions sections while *emphatics* was the largest in the Introduction sections of Burundi sub-corpus and the highest in the Discussion sections of Iranian sub-corpus.

In using hedging devices, the difference was statistically significant in employing 1) *modal verbs* (Discussion sections), 2) *epistemic adjectives* (both Introduction and Discussion sections), 3) *epistemic adverbs* (Discussion sections), and 4) *epistemic lexical verbs* (both Introduction and Discussion sections). On the other hand, there was a statistically significant difference when using boosters of the following types: 1) *universal pronouns* (Introduction sections), and 2) *emphatic* (Introduction sections). This preference of different type of hedges and boosters which is in some cases statistically significant is consistent with the findings by Hinkel (2005) and Yağız and Demir (2014). There are numerous factors that might be behind this difference in the types of hedging and boosting markers most frequently employed by the three groups of authors. This discrepancy could be due to the cultural and linguistic backgrounds of the authors. The author's native culture and language may influence the selection of certain words that are different from other words selected by another group of authors when conveying the same meaning. Moreover, it might also stem from other authors' demographic variables such their level of education and their expertise in English academic writing. One factor alone might fail to account for such apparent discrepancies.

When the first ten most frequent metadiscourse devices per both category and rhetorical section were sorted, similarities were found in the three sub-corpora (see Table 6). Most frequently selected hedges were modal verbs (e.g., *can, would, should, could, may, might*) and epistemic lexical verbs (e.g., *feel, indicate, seem, suggest, tend to, appear*). This finding generally corroborated Hyland and Milton (1997) and Hyland's (1998b) results in which modal and epistemic lexical verbs were the most frequently used devices to modify statements. With regard to boosters, there was no difference in the type of the most frequently selected word among the sub-corpora.

6. Conclusion

Summing up, this cross-cultural study intended to compare the frequency of use of hedges and boosters in a corpus of English research articles by three groups of academics from different cultural and linguistic backgrounds, namely Anglo-American, Iranian and Burundi scholars in the field of Applied Linguistics. Although being very important in academic discourse, these interpersonal metadiscourse devices were found to be used differently by the three groups of academic writers. Overall, there was a statistically significant difference in the use of those interactional metadiscourse strategies in the corpora. Concisely, Iranian authors used more hedges than both Anglo-American and Burundi academics while Burundi authors, on the other hand, used more boosters than their Anglo-American and Iranian counterparts.

It must, however, be stated that the findings of this study either partially support previous cross-cultural research or is in contradiction with it. Favouring different metadiscourse strategies in English academic writing is thus an indication that the differences can stem from 1) the linguistic and cultural traditions of the writers, 2) the constraints faced by non-native academics writing in English as a lingua franca of the globalised academia, or 3) individual factors, such as competence in English academic writing, experience of writers and self-confidence as well.

English non-native rhetorical behaviour by both Iranian and Burundi authors seems, however, to be culturally inappropriate for scholarship dominated by the Anglo-American culture and might lead to the rejection of their papers when submitted to Anglo-American journals. The insights of the present cross-cultural study can, then, have the following pedagogical implications: First, given that metadiscourse is a key feature of academic writing (Hyland, 2016), it looks imperative to include hedges and boosters and other metadiscourse devices in courses such as advanced writing, academic writing or ESP/EAP courses at both undergraduate and postgraduate levels of ELT programmes in Iran and Burundi. In these courses, as several academic scholars such as Holmes (1988) and Hyland (2016) point out, explicit or conscious instruction on how expert writers effectively use these devices should be emphasised. Hyland, however, deplores little attention that has been paid to those metadiscourse markers in textbooks or academic writing classes. Second, this study has implications for both materials designers and policy makers as well. Policy makers should ensure that university EFL programmes offer academic writing courses. Materials designers, on the other hand, should write materials that can assist graduates and postgraduates to gain both appropriate rhetorical expression

and fluency in the conventions of academic writing in English required for writing an academic research article.

Although this study revealed important findings, it does, however, have a number of limitations. First, as the numbers of RAs analysed was not very large, the findings of this study should not be generalised to all academic writings by Anglo-American, Iranian and Burundi academics. Second, some of the explanations to the differences in the use of the two metadiscourses strategies that are provided in this study may be regarded as tentative. More cross-cultural research is therefore needed in this area as the findings might both contribute to the improvement of ESL/EFL writing instruction and benefit research articles reviewers and editors of the cultural influence in L2 academic writing. More quantitative and/or qualitative cross-cultural studies on how Anglo-American, Iranian and Burundi academics use hedging and booster in academic writing are, thus, still needed in order to arrive at conclusive results.

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Examples of hedges (*in italics*) and boosters (**in bold colours**) in the Anglo-American, Iranian and Burundi corpora

A. The Anglo-American sub-corpus

1. **Indeed, the fact that** learners also rested on either external sources or their classmates even to present negative feelings or a positive perspective of their C2 confirms L2 learners' reluctance to be critical and hurt their tele-collaborative partners' feelings, which *could potentially* create a negative or threatening environment.
2. This pressure was **certainly** evidenced in this study where for the majority of teachers, the end of year assessments were seen as having major impact on their practice, *potentially* forcing more uniformity in learner proficiency than **really** exists (Cross 1988)
3. Teachers should discern, explain, and reflect upon culturally contingent patterns of interaction with their students (Kern et al. 2004) and train students in advance to anticipate *possible* discrepancies in any intercultural communication.
4. We *suggest* a third reason, that student teachers are *unlikely* to be able to sustain a form of innovative pedagogy which directly challenges existing conventional practices, hierarchies of power associated with these (DeCoursey and Trent 2016, 537) and the resultant challenges to their emerging professional identity.
5. *Almost all* of the studies conducted so far, relating to Dörnyei's model, have used older language learners as their sample (Csizér and Kormos 2009; Ryan 2009; Taguchi, Magid, and Papi 2009; Lamb 2012).

B. The Iranian sub-corpus

1. To be more precise, the language education policymakers are **clearly** communicating this message that the Iranian-Islamic identity is a top priority and that the teaching of any foreign language **must** accord with it.
2. It *may be likely* that the Iranian foreign language policymakers have tried to lower the criticisms that are associated with the topic of biological puberty and foreign/second language learning by refraining from providing their audiences with a numeric value.
3. Finally, I told my students to talk about their experiences during their lives to get involved in a real situation even about the experiences that they had **never** talked due to **all** the forbidden topics that are there outside which **I believe** *should* be addressed in the class.
4. **Of course**, they thought it was difficult at the beginning to do so, but practice made it perfect.
5. The improvement that *appeared* in the learning outcome as a result of the heightened situational interest level *can* also be explained by the idea that the attention and desire resulting from such increase in interest *can possibly* bring about facilitated learning for EFL learners.

C. The Burundi sub-corpus

1. The lecturers involved in that study *tend to* use common sense in assessment scoring instead of written rubrics, which *could* affect negatively, as the authors observed, the lecturer's integrity in grading students' work

2. **Indeed**, Nizonkiza (2006) argues that the interest in English is growing considerably.
3. However, with this pre-survey insights, Yusuf could not tell whether what he observed was **really** an authentic assessment being implemented in a pragmatics course.
4. If the assessment model choice does not balance the aspects raised above, assessment *may not* achieve its end in education.
5. This perception was corroborated by content analysis whereby it was **established** that **all** that teachers have to do – if they teach prescriptively – is give the meanings of the target forms and model their pronunciation for the pupils to repeat, a process which is not cognitively challenging, to say the least.