

**A Cross-Disciplinary Study of Hedging Expressions  
in English Articles of Iranian Writers**

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**Abstract**

Research on the use of hedging strategies as one of the key issues of rhetorical organization of academic texts has gained growing attention during the past few decades. The present paper aimed to explore the frequency and form of hedging expressions in the abstracts of Iranian writers' English research articles where findings and claims were more explicitly projected. To this end, a random sample of 200 abstracts (50 each) was drawn equally from the four subfields of chemistry and mathematics, and philosophy and English randomly selected from the two academic fields of Soft Sciences and Hard Sciences respectively as suggested in Biglan's (1973) typology of academic disciplines. The tally and analysis of the tokens of the hedge expressions indicated that the abstracts from the soft sciences differed from those from the hard sciences in terms of both frequency and form. The results revealed that the writers from the soft sciences tended to employ more hedge expressions than hard sciences writers. More specifically, whereas soft sciences writers utilized more modals, verbs, nouns, adjectives, and adverbs, their counterparts opted for more conditional expressions. Moreover, epistemic and cognition verbs were found to be the most frequently used hedging expressions in both sciences. This study discusses the research and pedagogical implications of the findings in the context of Iranian academia

**Introduction**

Following the growth of a considerable amount of attention pertinent to hedging strategies, no adequate and precise definition of the term "hedge" has been proposed so far and there has existed endless debate on the understanding of the term. Indeed, the concept

of hedging in linguistics was first used by Lakoff (1972) to mean "words whose job is to make things more or less fuzzy". Since then, more definitions of hedging came into view to ostensibly clarify the issue. Crystal (1997) defined hedging as "a number of words

showing uncertainty or limitation" in his *Modern Linguist Dictionary* (p.227). Another definition of hedging refers to Hyland (1998) who puts it as any linguistic means used to indicate either a lack of complete commitment to the truth of a proposition or a desire not to express that commitment categorically. A discrepant approach to hedges was posed when George Yule introduced Grice's Cooperative Principle into the definition of hedges as he mentioned that:

"[w]e assume that people are normally going to provide an appropriate amount of information [...] we assume that they are telling the truth, being relevant, and trying to be as clear as they can. Because these principles are assumed in normal interactions, speakers rarely mention them. However, there are certain kinds of expressions speakers use to mark that they may be in danger of not fully adhering to the principles. These kinds of expressions are called hedges" (Yule 1996, p.37-38).

On the other hand, Schroder and Zimmer (1995) asserted that "the term hedging is used to refer to the textual strategies of using linguistic means as hedges in certain contexts for specific communicative purposes, such as politeness, vagueness, mitigation, etc" (p.36). Moreover, hedging expressions are generally regarded as the words such as 'I mean, you know, sort of, I think, maybe, possibly' and others employed them to verify the eligibility of a speaker's confidence concerning the truth of a proposition and to put the statements at a low ebb in terms of commitment and responsibility. In addition, hedging considered as the mitigation of claims and regarded as a rhetorical device is often employed to convince and exert a strong influence on the

reader. Thus, taking everything into consideration, hedging could be defined as a non-obfuscated strategy so as to shirk the responsibilities of the utterances made by a speaker along with the statements put out by a writer, the strengths of which are attenuated and their commitments to the propositional truth become dimmed for the most part.

In parallel, taking hedging into account as one of the significant factors of the rhetorical organization of a text, much has been done to investigate the use of hedges across a variety of disciplines from which some information is gained and would bring about the argumentative strategies applied in a broad spectrum of different disciplines because each discipline is susceptible to its own specific terminology as well as its own favorable rhetorical strategies (Vold, 2006). That is why it is highly recommended that the content of an academic writing course should therefore be adjusted to the appropriate research field.

A text becomes challenging once it is written academically in a foreign language, thus academic writing has received a considerable attention during the few past decades especially when internationally published. In this regard, English language has been accepted worldwide as the *lingua franca* of academic discourse. Thus, fledgling and the highly experienced investigators must express themselves cogently in the language that is internationally accepted and become members of the academic community. Over the recent years, this issue has gradually been contemplated as one of the critical issues of international discourse community and a pressure so as to produce scientific and academic texts in English for the sake of publishing internationally. Owing to the fact

that English has taken up the impregnable position of lingua franca throughout the academic settings, various academic English courses are being presented at all levels for the students and researchers in all the universities over the world where the classes also need to direct their standards of teaching practices towards research (Vold, 2006). In so doing, analyses of contemporary usage of academic English are considered essential, especially while writers of articles tend to employ hedging expressions from different disciplines. As regards the significance of hedging, not surprisingly, scientific research writing is to a large extent touched by hedging strategies, good illustrations of which can be found in the corpora of different researchers such as Adams Smith (1984), Hanania and Akhtar (1985), Skelton (1988), and Hyland (1996) who claimed that one hedging expression occurred every two or three sentences in their own corpora. Moreover, the most frequently used hedging expressions were lexical verbs (1), epistemic adverbs (2), epistemic adjectives (3) and modal verbs (4) as seen in their corpora as follows:

This would appear to be in significant conflict with...

I believe that the overall orientation of . . .

Possibly, phosphorylation of ACC synthase...

There is apparently a relationship between...

...is likely to be due primarily to a deficiency of functional...

... it appears possible that the mechanism causing the ...

These results may have relevance to... it should be possible to test predictions...

Therefore, the corpora of each discipline are followed by its own specific terminology along with the use of hedging expressions. For

example, academic articles are good examples which reflect hedging strategies, no matter in which fields of study they have been written. It is also true that the recent advent of e-journals and the widely facilitated access to the scientific journals through the internet may have brought about outstanding issues of development in the content of scientific and academic articles across many a discipline (Ayers, 1993). One of the most salient sections of an article is the abstract section which has received increasing attention as an ideal vehicle for mirroring the picture of the whole article as stated by a host of researchers (Ulijin & Pugh, 1985; Salager-Meyer, 1990; Berkenkotter & Huckin, 1995; Melander, Swales, & Friedrickson, 1997), and it seems that it is turning out to be more alluring and informative in yielding the overall results as well as the other correspondingly associated parts (Berkenkotter & Huckin, 1995). It is worthwhile mentioning that abstracts of articles are generally composed of a fairly expectable four-part structure as in Introduction – Methods – Results – Conclusion/Discussion (IMRC/D) that is considered a benchmark (see for instance Harvey & Horsella, 1988; Weissberg & Buker, 1990) against which writers put this sequence into practice whether traditionally or obligatorily in spite of some sort of swerve in a host of published articles to a large degree (Graetz, 1985; Salager-Meyer, 1990; Hyland, 2000; Samraj, 2005, etc.). One also should not overlook the fact that abstract sections mostly give prominence to the important information for easy access, are indicative of an early screening device, scaffold the foreground of the article in the light of distinct global dimensions, and provide a blueprint of the

major points of the article for the subsequent references (Berkenkotter & Huckin, 1995). As other sections of an article such as the discussion part, have been considerably investigated and touched upon in terms of the use and frequency of hedging expressions from among a number of academic articles, much has not been done to explore the frequency and form of hedging expressions in the abstract sections across different disciplines.

As argued above, article abstracts as the most accessible section have been paid scant attention as compared with a large volume of published studies describing the frequency and

form of hedging expressions in other sections of the articles. Therefore, the main concern of this study is to discover the frequency and form of hedging expressions in 200 abstracts of Iranian writers' English research articles derived from the four subfields of chemistry and mathematics, and philosophy and English (50 each) chosen on a random basis from the two academic fields of Soft Sciences and Hard Sciences respectively as proposed in Biglan's (1973) typology of academic disciplines where results and assertions were more explicitly anticipated.

### **Literature Review**

Spoken language is much more prone to hedge words (Stubbs, 1986; Coats, 1987) rather than the written works; however, less has not been done to examine hedging as a linguistic unit in the research articles. There is an element of truth in the notion that, publication, particularly publication of articles, has always been deemed to be a method through which a large number of researchers try their utmost to become in touch with their colleagues. By the same token, writing is of import in each academic and scientific context as an advantageous activity which demands an immediate certain audience over and above a skill so as to transfer the required information (YavuzKonca & Nasiri, 2014).

In this regard, Hyland (1996) argues that the distribution of hedges across various sections of research articles reflect their essentially rhetorical role in discourse. As such, in order to introduce an organization for research articles, the most prevalent way is to divide them into the sections of "introduction, method, results, and discussion" which are employed by a group of different researchers

to embark upon the distribution of hedge words through this organization (Swales, 1990 & Lau, 1999). In this connection, one hundred articles were analyzed by Lau (1999) in Taiwanese language to investigate the text structures of different sections in scientific research articles. The results of Lau's study revealed that discussion sections were the most widely sections in which hedge words were to be used because "writers are dealing with logical reasoning when they present experimental results in discussion section" (p.433). He further stated that why hedge words are not used in methodology section is that "the truth is simply reported rather than commented" (p.433).

Another study has been carried out by Durik, et al (2008) which investigated the impact of hedging on attitudes, source evaluation as well as perception of argument strategies, the results of which revealed that hedge words lie mostly in discussion sections, the reason for which was the interpretation of data conducted by the author that was replete with hedge words.

Accordingly, Hyland (1996) conducted a study on the use of hedging in academic writing which showed that non-native writers (NNWs) were at a loss how to hedge their own assertions in "English as a main language of communication among the researchers around the world" (Nasiri, 2012b, p. 3). Consequently, he affirmed that NNWs "invariably require training in the appropriate use of hedging" (Hyland, 1996a, p.278). This could be for the simple reason that NNWs had arguably trouble expressing their commitment to and detachment from the verification of their statements. But then again, why the NNWs have difficulty hedging their claims while they are writing academically lies in the fact that there have been profound differences between NNWs' and NWs' texts (Kaplan, 1987).

Notwithstanding the claim posed by Kaplan (1987) on the difficulty of academic NNW writers for using hedging expressions, Iranian writers as the non-native authors of discourse community beat the odds regarding applying hedging devices almost but not quite similar to their native counterparts. This could be illustrated by a study taken up by Nasiri (2012a) who drew some conclusion from the use of hedges in the discussion sections of

Civil Engineering articles written by American and Iranian authors. The result of his study revealed that the discipline by its very nature plays a significant role in the utilization of hedging expressions as the linguistic phenomenon more than the cultural backgrounds or nationality of the writers.

When seen in this light, the current paper addressed the following research questions:

- 1) How do hedging expressions in article abstracts from the hard and soft science disciplines differ in terms of both form and frequency?
- 2) Is there a significant difference between the use of hedging expressions in the English article abstracts of soft science and hard science disciplines written by Iranian English writers?
- 3) What were the most and least frequently used hedging expressions in both sciences?

To answer the second research question, the following null hypothesis is also formulated:

H0: There is no significant difference between the use of hedging expressions in the English article abstracts of Soft science and Hard Science disciplines written by Iranian English writers

### Method

#### Corpus and Theoretical Framework

This study is an attempt to analyze the frequency of the hedging expressions in the abstract sections of Iranian writers' English research articles. In so doing, 200 abstracts; 50 abstracts for each group of disciplines, were chosen as the corpus of the study on a

random basis from the four subfields of chemistry and mathematics, and philosophy and English randomly selected from the two academic fields of Soft Sciences and Hard Sciences respectively in accordance with Biglan's (1973) typology of academic disciplines as shown in table 1.

**Table 1**  
**Clustering of Academic Task Areas in three Dimensions (Biglan’s (1973) typology of academic disciplines)**

Task area	Science		Soft Science	
	Hard	Life system	Nonlife system	Life system
<b>Pure</b>	Astronomy	Botany	English	Anthropology
	Chemistry	Entomology	German	Political Sciences
	Geology	Microbiology	History	Psychology
	Math	Physiology	Philosophy	Sociology
	Physics	Zoology	Russian Communications	
<b>Applied</b>	Ceramic engineering	Agronomy	Accounting	Educational administration and supervision
	Civil engineering	Dairy science	Finance	Secondary and continuing education
	Computer science	Horticulture	Economics	Special education
	Mechanical engineering	Agricultural economics		Vocational and technical education

According to table 1, Biglan (1973) listed "the areas included in each cluster and each cluster centroid is located in a different octant of the three-dimensional space and can thus be characterized according to whether it is hard or soft, pure or applied, and concerned

with life system or not"(p.207). Based upon this categorization, on one hand, pure research and non-life system deal with less people than do those in applied research and life system as illustrated in table

**Table 2**  
**Differences between the three Dimensions of Academic Task Areas (Biglan’s (1973) typology of academic disciplines)**

<b>Hard Sciences</b>		<b>Soft Sciences</b>	
-more people on research	-great collaboration with fellow faculty members	-less people on research	-meager collaboration with fellow faculty members
-more coauthors	-great performance for research	-less coauthors	-great performance for teaching
-great commitment to research	-less commitment to teaching	-less commitment to research	-more commitment to teaching
<b>Pure Research</b>		<b>Applied Research</b>	
<b>-less people</b>	-more research activities	-more people	-less research activities
<b>-spending less time on research</b>	-less technical reports	-spending much time on research	-more technical reports
-low quality of graduate students' first jobs		-high quality of graduate students' first jobs	
<b>Life System</b>		<b>Non-life System</b>	
-more people	-more sources of influence on research goals	<b>-less people</b>	-less sources of influence on research goals
-less commitment to teaching	-less time on teaching	-more commitment to teaching	<b>-more time on teaching</b>

### Data Collection and Analysis Procedure

In order to recognize, analyze and interpret the hedge words according to Biglan's (1973) category of sciences, a search was required among different Iranian scientific and academic journals. To this end, an attempt was made to collect the required data from different Iranian journals available in data bases as in Magiran (<http://www.magiran.com/>), Noormags (<http://www.noormags.ir/>), SID (<https://www.sid.ir/En/Journal/>), etc. Besides, for the purpose of this study, four majors of chemistry and mathematics as well as English and philosophy have been randomly selected in domain of pure research and non-life system within the two paradigms of hard and soft sciences. Additionally, in order to analyze the hedge words in these journals whose authors are Iranian writers with English as their foreign language, a total of

200 articles was opted for investigating the degree of frequency in the use of hedged words in their abstract sections, seeing to what extent they differ in terms of form i.e. modals, verbs, nouns, adjectives, adverbs and conditional expressions, and finally exploring a significant difference, if any, between soft and hard sciences Iranian English writers in the use of hedging expressions. Moreover, the most frequently used hedging expression of all in both sciences was also reported. In the same vein, authors' names were examined to make sure they are Iranian writers. Therefore, through SPSS, each type of the hedged expression was analyzed and their forms and frequencies were calculated. Also, a Chi-square analysis was run to find any meaningful difference of hedging devices use for both sciences in between..

The abstract sections of the selected articles in both research genres were analyzed and the hedging devices were identified. Table 3 shows the frequency of hedging expressions used by the Iranian writers in the abstract sections of two academic fields of Soft Sciences and Hard Sciences.

Considering all the categories, it is obvious that the soft science writers had more inclination to use these hedging expressions than the other group because they used 308 times of the total, while the hard science

### Results

writers employed 85 times. Moreover, table 4 shows that the total number of words in 100 abstracts of chemistry and mathematics (50 each) was 9989 words (6041 and 3948 respectively for each discipline) out of which only 85 hedging expressions were used and the total number of words in 100 abstracts of English and philosophy (50 each) was 17262 words (8818 and 8444 respectively for each discipline) out of which only 308 hedging expressions were used.

**Table 3**  
**Frequency of Hedges in two Academic Fields of Soft Sciences and Hard Sciences**

Hedging Categories	modal	verb	noun	adjective	adverbial	conditional	Total
Soft sciences	85	102	29	55	31	6	308
Hard sciences	13	23	3	22	14	10	85

**Table 4**  
**Frequency of Hedging Expressions across Disciplines**

Forms	Hard Science Writers		Soft Science Writers	
	Chemistry	Mathematics	English	Philosophy
adjective	9	13	42	13
adverb	10	4	24	7
modal	7	6	27	58
verb	8	15	40	62
noun	1	2	12	17
conditional	0	10	2	4
<b>Total</b>	35	50	147	161
	85 hedges out of 9989 words		308 hedges out of 17262 words	

As depicted in table 4, it is apparent that the soft science writers made use of modals, verbs, nouns, adjectives, and adverbs proportionately more than those of the hard science writers in terms of frequency (respectively,  $85 > 13$ ,  $102 > 23$ ,  $29 > 3$ ,  $55 > 22$ , and  $31 > 14$ ) whereas conditional expressions were to be used more by the hard science writers ( $10 > 6$ ). By the same token it is quite obvious that more forms of hedging expressions were used by the soft science writers than the hard science writers in that they used adjectives, adverbs, modals, verbs, and nouns which outnumbered the only conditional form of hedging expression used by the hard science writers.

Therefore, in order to answer the first research question of the study, table 3 and 4 seemingly represent that the Iranian soft science writers outnumbered the Iranian hard science writers in terms of both frequency by 308 to 85 and form by 5 to 1 while using hedging expressions in the abstract section of their articles, previously published in different Iranian journal websites.

As regards the second research question, in order to find out any significant difference, if at all, between soft and hard sciences in the use of hedging expressions in the abstract section of articles by the Iranian English writers in the aforementioned disciplines, a Chi-Square analysis was run. (See table 5)

**Table 5**  
**Chi-Square Analysis for the Use of Hedges in the Disciplines in both Sciences**  
**Tests**

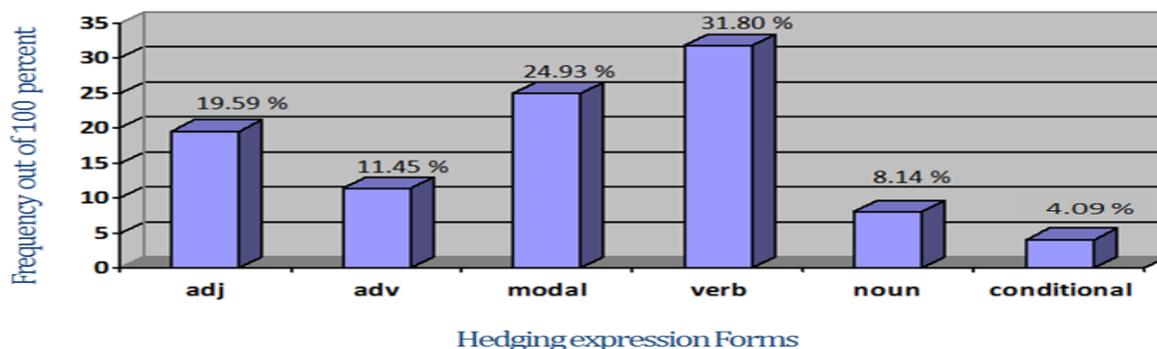
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.596 <sup>a</sup>	4	0.000
Likelihood Ratio	12.682	4	0.000
Linear-by-Linear Association	8.760	1	0.002
N of Valid Cases	200		

As it is evident from table 5, there is a statistically significant difference between

the frequency of hedging expressions in the abstract sections of chemistry and

mathematics, and philosophy and English disciplines from Soft and Hard Sciences. To put it more simply, the amount of Chi-square value is 12.596 at 4 degrees of freedom, indicating that the significance level of this test is lower than 0.05 (Sig.=0.000,  $p < 0.05$ ), hence a significant gap between both sciences. In other words, the pertinent research null hypothesis of the study is refuted.

Accordingly, in order to answer the third research question of the study with respect to table 4 and figure 1, one can claim that epistemic and cognition verbs were the most frequently used hedging expressions in both sciences (102 out of 393 in Soft and 23 out of 393 in Hard). The overall importance of these hedging expressions out of 100 percent is shown in Fig. 1.



**Fig.1**  
**Relative Frequency of Hedging Expressions in Science Articles**

As can be seen from Figure 1 (and Table 4), cognition or epistemic verb is the most frequently occurring hedging item within the abstract sections of academic corpora of Iranian articles. The analysis of the token indicate that verbs are the most frequently used hedging expressions of all forms in this line of investigation representing 31.8 % of the total, then modals (24.93) and adjectives (19.59 %) followed by a restricted range of adverbs

(11.45 %) along with nouns (8.14 %) and finally conditional expressions (4.09 %) as the least frequently used hedge form. In other words, it was found that there are some preferences toward the use of different kinds of hedging expressions, especially verbs by different Iranian authors in writing their scientific articles from among diverse academic disciplines.

#### **Discussion, Conclusion, and Implications**

In order to be considered as one of the members of a discourse community and to exert an influence on others, it is recommended that one should be capable of writing academically since writing itself is viewed as an important language skill in the context of academia. Also, writers should be able to recognize the rudimentary elements and knowledge of effective communication in English throughout the academic and scientific contexts because English is marked

as the lingua franca of almost all countries (Crystal, 2003, p.5). It is also estimated that already over a quarter of the world's population are competent in English (Crystal, 2003, p.6). Therefore, in the world of academia, an accomplished researcher must be cognizant of the way a broad spectrum of textual genres is drafted in different cultures and disciplines.

To illuminate it more, it is usually the case that academic writing is mostly

concerned with the use of cautious language, hence hedging strategies. More importantly, it is essential to bear in mind that one who writes academically attempts to justify his stance on a special subject, or the strength of many utterances he is making should be heedfully adjusted to the proven facts whatsoever. If not, the writer should possibly be able to make good his escape from an air of considerably lingering uncertainty as to whether his relevant brainchildren of the claim were contemplated humorous spotlights on others' frailties, prejudices, and concerns, or not. This is perhaps due to the rejection of absolute assertions in the realm of humanities sciences since they may be manipulated in forthcoming investigations. In addition, the investigators should present their results to such an extent that the other researchers access to options for their free decisions. Thus, analysis of hedging expressions in international discourse community requires to be studied on the part of non-native writers.

Taking the above-mentioned discussion into account, the current study was an attempt to analyze the frequency and the use of hedges in 200 abstract sections of Iranian writers' English research articles drawn equally from the four subfields of chemistry and mathematics, and philosophy and English, randomly selected from the two academic task areas of Soft Sciences and Hard Sciences respectively as suggested in Biglan's (1973) typology of academic disciplines. It was found that soft science writers tended to employ more hedging expressions than do their counterparts in hard sciences in terms of frequency. This result is consonant with Nasiri's (2012a) study who affirmed that the discipline plays a pivotal role in the use of hedging expressions not the nationality or cultural background of writers. Regarding this study, English and philosophy as two disciplines from the subfield of soft

sciences, or somehow human sciences, were concerned with more hedging devices.

To put it bluntly, the soft science writers employed more forms of adjectives, adverbs, modals, verbs, and nouns than do their counterparts in hard science articles, while the hard science writers applied conditional form more than their counterparts in soft science articles. This may be due to the assumption that the two disciplines of chemistry and mathematics are more concerned with non-life system, pure research, and conditionality of the problems and materials in the laboratory as suggested in Biglan's typology (1973).

Additionally, although abstract section in itself manifests an overall blueprint of the whole article, discussion section of the articles mirrored the most incarnations of the hedging devices of all (Lau, 1999; Durik, et al, 2008, & Nasiri, 2012). Probably, it may refer to the total length of each section in that the discussion section of the article is usually longer than the abstract section so that the writer has more freedom to maneuver over the writing in a hedging manner. The next reason could be the logical reasoning behind the justification of results the writers employ to present and analyze the experimental findings; hence more hedge devices are required naturally (Lau, 1999).

Possible reason for the use of hedge words on the behalf of the soft science writers more than their counterparts in the hard sciences could be due to the nature of the disciplines or majors under investigation. Since chemistry and mathematics disciplines need to be exact in almost the whole aspects of abstract section, English and philosophy disciplines are soft and more susceptible to a cautious language i.e., hedging, in which anything goes (Soodmand Afshar & Bagherieh, 2014). Furthermore, similar to the results of studies carried out by Adams Smith (1984), Hanania and Akhtar (1985), Skelton (1988), and Hyland (1996), the analysis of

the gathered data revealed that cognition or epistemic verbs were concomitantly the most occurring used hedging expressions in both sciences.

Moreover, the findings of this paper are in a way in agreement with the study of Mirzapour and Rasekh Mahand (2012). They maintained that frequency of hedges is discrepant among native and non-native writers in that non-native writers tend to apply much less hedging expressions in their academic articles. This is probably owing to the claim held by Kaplan (1987) who maintained that why non-native writers are not that much able to express themselves in a hedging way is because of the huge differences existing in native and non-native writers' texts and writing styles. Clearly, there is also a need to investigate the effect of non-nativeness on a way that hedge words are used in different sections of Iranian English research articles.

Taking everything into consideration, studies conducted on the use of hedging expressions in the articles do bring about many implications and suggestions for further research. The present paper could be of relevance to the non-native English academic

writers who are not well-aware of taking advantage of the hedging devices in their academic writing. Therefore, much should be done to encourage the NNWs in applying more hedges and focus on the issue more than before. In this regard, Hyland (1994) maintained that there should be "a need for greater and more systematic attention to be given to this important interpersonal strategy" (p.246). Another implication to suggest for further research could be the possible factor of gender as to whether masculinity or femininity will affect the writing styles of authors when it comes to the use of hedging expressions. Ultimately, textbook designers can benefit from the findings of this study by including the hedge words, their forms, and their significant positions in the textbooks to make the students well-aware of the issue and over-prepared for employing them in their academic manuscripts. In future, these avenues of investigation could be potential of being scrutinized to yield more novel findings

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