Poring Over Metadiscourse Use in Discussion and Conclusion Sections of Academic Articles Written by Iranian ESP Students[1]

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Abstract

This study investigated the employment of interactional metadisocurse in English academic articles written by Iranian ESP students. Data consisted of a total of 66 academic articles written in English by nonhumanities and humanities writers. Discussion and Conclusion sections were extracted, and Hyland's (2005) taxonomy was borrowed for analysis. The use of hedges, boosters, and attitude markers was compared in the articles. Total number of each metadiscourse marker was counted, and the differences were checked running Mann-Whitney *U* test. Analysis revealed that there were disciplinary differences in the use of markers by nonhumanities and humanities. Hedges and attitude markers were more frequent in the humanities' articles, rather than the nonhumanities' articles. Also, the use of hedges and boosters was statistically significant. Pedagogical implications are discussed in light of the empirical data.

Keywords: Interactional Metadiscourse; Nonhumanities; Humanities; Discussion and Conclusion Sections

1. Introduction

It goes without saying that cohesion and coherence are two key elements in any type of writing. Lee (2002) argued that an incoherent text transfers haphazard

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meaning without being considered as informative. Through coherence, writers can create an outline of the main idea and function of the text, and develop and support propositions by explaining details. This helps readers to understand the text, guides them how information is organized and accordingly facilitates construction of meaning. Of the operational factors creating coherence, Lee (2002) refers to (a) macrostructure, (b) information structure, (c) propositional relationships, (d) cohesion, and (e) metadiscourse.

Metadiscourse markers, which are the focus of this study, denote words or parts of sentences that link the writer to the reader. The literature of discourse studies has proposed a range of definitions from broad to specific on metadiscourse, such as "writing about writing" (Williams, 1981, p. 211), "discourse about discourse or communication about communication" (Vande Kopple, 1985, p. 83), to more specific ones, such as "writing about the evolving text rather than referring to the subject matter" (Swales, 2004, p. 121). Metadiscourse markers assist reader to shape, infer and evaluate meaning presented in the text. Specifically, the word *metadiscourse* consists of two morphemes: *meta* means "beyond" and *discourse* means "language use." In this sense, metadiscourse denotes the discourse that goes beyond the general norm of communication.

Hyland (2005) refers to it as "a way of understanding language as an attempt on the part of the speaker or the writer to guide the receiver's perception of a text" (p. 3). Hyland, further, argues that metadiscourse in communication does not simply indicate the transfer of information or data, but it also covers the personalities, beliefs, attitudes and assumptions of those who are interacting. According to Hyland, "metadiscourse has always been defined as *discourse about discourse* or *talk about talk*" (p. 16); however, it communicates an insufficient and unsatisfactory meaning. But this is a very partial and unsatisfactory view of a concept which has enormous potential to include features of language which describe not only how we organize our ideas, but also how we relate to our readers or listeners (Hyland, 2005, p.16).

According to Abdelmoneim (2009), metadiscourse "casts light on the aspects we use as we introduce ourselves to signal our attitude towards both the content and the audience of the text" (p. 11). Ädel (2006) further notes that not only is the context important in the communication but the communicators themselves are important. "metalanguage" is different from "object language" (Ädel, 2006, p. 215). Metalnaguge denotes language about another language whereas object language is the ordinary language applied to exchange and talk about objects. Accordingly, metadiscourse is a branch of metalanguage which is "text about the evolving text or the writer's explicit commentary on her ongoing discourse" (p. 20).

As a result, metadiscourse markers are means of promoting communication, and supporting the writer's position and the reader's understanding.

With respect to the importance of metadiscourse in writing, the present study aimed to explore the role of interactional metadiscourse applied by English for specific purposes (ESP) students in their academic writing. Based on Dudley-Evans and St John (1998), ESP serves the needs of students in specific fields of study by concentrating on the language (grammar, lexis, and register), skills, discourse and genres appropriate to the methodology and activities underlying the disciplines being served. Academic article, as a high-stakes genre, has always been one of the main concerns of ESP instructors and students. On the one hand, instructors should teach students to express meaning in a specific field of study, that is, debate and confirm the nonexistence of a phenomenon in chemical experiments. On the other hand, ESP students should know how to academically write a discussion rejecting or confirming a result. The use of metadicourse markers by ESP students, as a result, would show how they express themselves, organize the text, and communicate with the readers.

In this regard, the findings of the study gain significance as they indicate to what extent ESP students are aware of metadiscourse markers and their uses in academic writing and how they themselves use them in their writing. It further assists instructors and students to understand how students structure their text, involve readers in the text and how they evaluate their writing. This would open the door for other studies to deal with the metadiscourse markers, widen the scope of future research and aid policy makers to promote education. Concerning the objectives of the study, the following question was formulated:

> Is there any statistically significant difference between humanities and nonhumanities in their use of hedges, boosters, and attitude markers in the Discussion and Conclusion sections of the academic articles?

1. Literature Review

Based on the definition of metadiscourse, the models of metadiscourse also vary. Crismore, Markkanen, and Steffensen (1993) divided metadiscourse into interpersonal and textual types; Hyland (2005) used interactional and interactive; and, more recently, Mauranen (2008) distinguished text reflexivity as metadiscoursal uses of language. Hyland's (2005) model which is also applied in this study is the most comprehensive model of interpersonal metadiscourse uses. This model was preferred for its recency, simplicity and clarity (Abdi, 2011). The model includes two dimensions of writer-reader interaction: interactive and interactional. Interactive metadiscourse markers are used to direct and guide reader throughout the text and comprise the following elements (Hyland, 2005):

- Transition (express relations between main clauses) → In addition/but
- Frame markers (refer to discourse acts, sequence or stages) → Finally/to conclude
- Endophoric markers (refer to information in other parts of the text) → noted above/see Fig.
- Evidential (refer to information from other texts) → according to X
- Code glosses (elaborate propositional meaning) → namely/e.g.

The interactional metadiscourse markers engage reader in the argument and consist of:

- Hedges Withhold commitment and open dialogue → might/perhaps
- Boosters Emphasize certainty and close dialogue → in fact/definitely
- Attitude markers Express writers' attitude to propositions → unfortunately/I agree
- Self-mentions Explicit reference to author(s) → consider/note that
- Engagement markers Explicitly build relationship with reader → I/we

To the knowledge of the researchers, there have been few studies (Abdi, 2011; Hyland, 1999; Zarei & Mansoori, 2011) which have examined the differences between two main fields of humanities and nonhumanities in writing academic articles. Hyland (1999) explored the use of metadiscoursive elements in research articles in three disciplines: biology, applied linguistics, and marketing. Hyland reported that whereas biology (representative of nonhumanities disciplines) had the greatest variation in metadiscourse use, marketing and applied linguistics (representative of humanities disciplines) more consistently exploited metadiscourse markers. It was shown that biology writers favored hedges and applied linguistics writers favored evidential and relational markers. Hyland concluded that there was a significant disciplinary diversity in the use of metadiscourse. Blagojevic (2004) carried out a research on the use of metadiscourse in three disciplines of sociology,

psychology and philosophy by English and Norwegian students. Blagojevic showed that psychology writers used less attitude markers, but philosophy authors made most of the direct comments. In general, there were significant discrepancies across the three disciplines. In another study, Hyland and Tse (2004) investigated the use of metadiscourse in master's theses in six disciplines: applied linguistics, public administration, business studies, computer science, electric engineering, and biology. They showed that writers in humanities disciplines used applied more metadisocurse than writers in nonhumanities. The study showed (a) greater use of hedges, self-mentions, and transitions by humanities; (b) greater use of emphatics by nonhumanities; and (c) parallel use of boosters and engagement markers by the groups. The study also showed that evidentials which was a feature of humanities' writings were most used by biology students to show the importance of providing support for the authors' stance.

As a case in point, Abdi (2011) investigated the frequency and type of metadiscourse use in academic articles (Introduction, Method, Results, and Discussion sections) between social sciences (linguistics, education, and ethnography) and natural sciences (physics, biology, and medicine). The findings of the study revealed different patterns of metadisocurse use by the groups and this attributed "to the differences in cognitive-generic structure of different sections" and also the disciplinary proclivities (p. 12). Social sciences favored transitions, frame markers, hedges, attitude markers, self-mentions, and engagement markers in results and discussions, whereas natural sciences favored endophoric markers and boosters in results and discussions and code glosses in methods. Zarei and Mansoori (2011) specifically compared the use of metadiscourse based on Hyland's model between applied linguistics (representing humanities) and computer engineering (representing nonhumanities). They noticed that applied linguistics showed greater reliance on metadiscourse as compared with computer engineering writers. They concluded that the discipline specificity discloses that research articles have independent disciplinary nature.

The study of literature indicates different and significant uses of metadiscourse markers in academic writing by humanities and nonhumanities. Despite these different results and due to the importance of metadiscourse in different disciplines, there is still a need to examine the issue further. The available studies either examined the overall use of mtadisocurse in a genre, or were limited to two or three disciplines, or compared the metadiscursive elements across languages. The studies rarely focused on one particular section in a genre, for example, literature. The present study is, thus, intended to investigate the frequency of three types of interactional metadiscourse subcategories of hedges, boosters, and attitude markers in the Discussion and Conclusion sections of academic articles between two

main fields of humanities (entrepreneurship, economy, archeology, management, geography, physical activity, political science, business, and financial studies) and nonhumanities (civil engineering, mathematics, mechanical engineering, electrical engineering, chemistry, petroleum engineering, nano science, and energy engineering). More specifically, the current study set out to find out to what extent humanities and nonhumanities writers differed in showing certainty, attitude, and commitment when discussing and concluding their findings.

2. Method

3.1 Corpus

The academic articles in two main areas of humanities (H) and nonhumanities (NH) were taken to be the corpus of this study. As these two broadly disperate fields are generally associated with different research paradigms, it was supposed that "a sort of paradigmatic identity could prompt different rhetorical choices and, hence, different ways of metadiscourse marking" (Abdi, 2011, p. 4). In order to be consistent in the data collection and analysis, the study excluded the research articles in medicine. Therefore, H included mechanical engineering, chemistry, and so on, and NH included history, Persian language and literature, and so on. Applied linguistics was not also included in NH because this discipline is excessively analyzed in the literature.

In the next step, the journals from which the research articles would be selected were listed. In order to increase the validity of the study, all the articles were selected from leading local journals published in the English language over the years 2005-2015 in the fields of H and NH. The selected journals would have to have chief and associate editors and rigorous editorial and reviewing policies. Moreover, the journals were ranked as research-based journals by the Ministry of Science, Research, and Technology. Among the listed journals, the following journals were selected

- NH Journals:
  - *Transport Phenomena in Nano and Micro Scales*
  - *Energy Equipment and Systems*
  - *Journal of Electrical Systems and Signals*
  - *Iranian Journal of Fuzzy Systems*
  - *Civil Engineering Infrastructures Journal*
  - *Journal of Operation and Automation in Power Engineering*
  - *Journal of Applied Fluid Mechanics*

- *Journal of Chemical and Petroleum Engineering*

- H Journals:
  - *International Journal of Business and Development Studies*
  - *Iranian Journal of Archaeological Studies*
  - *Iranian Journal of Management Studies*
  - *Journal of Subcontinent Researches*
  - *Iranian Journal of Health and Physical activity*
  - *Iranian Economic Review*
  - *Journal of Entrepreneurship Research*
  - *Iranian Review of Foreign Affairs*

Concerning the choice of articles, Nwogu's (1997) three criteria (i.e., representivity, accessibility, and reputation) were followed. First, the researchers tried to select those academic articles that were representative of the field of H and NH. Regarding accessibility, all the articles were available at the journals' homepages and were also stored by the researchers. Moreover, all the journals, in general, and the articles, in particular, were popular among Iranian professors and students in the fields of H and NH. Finally, in order to have homogeneous data, the articles with a research-based design were selected and theory-based articles were excluded. Of the articles which met these criteria, were written in English, and were comparable in terms of length, 33 academic articles by NH students (civil engineering, mathematics, mechanical engineering, electrical engineering, chemistry, petroleum engineering, nano science, energy engineering) and 33 academic articles by H students (entrepreneurship, economy, archeology, management, geography, physical activity, political science, business and financial studies) were randomly selected for the next stage of the study.

3.2 Procedure and Data Analysis

The Discussion and Conclusion sections of the selected articles were extracted. Due to the fact that the different parts of academic articles perform different rhetorical functions and, therefore, various linguistics markers might be employed, this study concentrated on the Discussion and Conclusion sections as a persuasive text type (Abdollahzadeh, 2011; Farrokhi & Ashrafi, 2009). In the Discussion and Conclusion sections, authors are required to be interpretative, rather than descriptive and have more freedom and flexibility to discuss, prove, admit, or reject. In this sense, the metadisocurse markers were explored in the extracted Discussion and Conclusion sections. It should be noted that during the data

collection process, we found out that some articles had the Discussion and Conclusion sections merged, whereas some had these sections separated. In order to be consistent, only the articles with separate Discussion and Conclusion sections were chosen. Footnotes, tables and figures were also excluded from the analysis.

Three subcategories of hedges, boosters, and attitude markers—as classified by Hyland (2005)—were selected, and their possible lexical and phrasal realizations with possible ambiguities were taken into account. It is worth mentioning that determining whether a word or expression has a propositional or metadiscoursal purpose is not an easy task. Jalilifar (2011) presented two examples suggesting that, in the first example, the verb *show* acts as a booster due to the context of its use and the cotext around it, whereas the verb *show* in the second example operates as a hedge because the words which surround it create a state of doubt in the reader:

1. Saxon et al. *showed* that only 1% of Bjps published articles come from lower and middle income countries. (*Psychiatry*, Persian writer)
2. They did not *show* to know which verbs do and which verbs do not alternate. (*ELT*, English writer)

The varied and multifunctional appearance of metadiscourse categories makes it difficult to identify which forms have metadiscourse functions and which do not. As a result, the function that a particular marker in a context has was defined with respect to its actual occurrence in that particular context. An example for each metadiscourse marker extracted from the corpus is presented below:

- NH/Hedge: *It is recommended* that boiler performance be considered to reduce waste and improve cycle efficiency.
- H/Hedge: From the policy perspective, knowing the FSD *can* affect on the new entrance decision and improve their performance.
- NH/Booster: *Clearly*, a survey of energy losses in power plant shows that loss resulting from the lack of an air-fuel ratio is one of the important issues that should be considered to improve performance.
- H/Booster: In the process of change, increasing trust *plays a crucial role*.
- NH/Attitude Marker: *It is sometimes a good idea* to consider how the pull-in voltage and natural frequency of the beam micro-gyroscope depends on design parameters and can provide researchers a guideline to *satisfy* the design requirements.

- H/Attitude Marker: We have shown that the *lack of interest* amongst the eminent classical economists in mathematical economics has had nothing to do with these factors.

The extracts were, then, checked, coded, and examined sentence by sentence by the researchers. Upon the careful analysis of the corpus, the researchers asked a university professor to review the data. The interrater reliability (Kappa) was, then, run to check the credibility of the ratings (0.81). Furthermore, the researchers and the university professor discussed the areas of disagreement and points of conflict were sorted out. Finally, the nonparametric data analysis in SPSS was run to find any possible differences between the two writer groups in the use of metadiscourse.

3. Results

The study explored whether there was any statistically significant difference between humanities and nonhumanities academic writers in their use of metadiscourse in the Discussion and Conclusion sections of the articles. To this end, the use of metadiscourse subcategories of hedges, boosters, and attitude markers based on Hyland's (2005, p. 49) taxonomy was traced in the related parts. Table 1 provides the frequency of use of these subcategories between the two groups:

Table 1 *Use of Hedges, Boosters, and Attitude Markers by H and NH Academic Writers*

	Hedge	Booster	Attitude Marker	Total
Humanities	192	82	47	321
Nonhumanities	156	101	41	298
Total	348	183	88	619

Interestingly, Table 1 shows that the H and NH disciplines, on the whole, indicate a marginal difference in terms of interactional metadiscourse use (321 vs. 298). Our quick interpretation is that metadisocurse is regarded as a significant rhetorical means in the process of persuasion in the Discussion and Conclusion sections of academic writings among the H and NH authors. The most frequently employed markers are hedges (348) followed by boosters (183) and attitude markers (88) by the writers of both H and NH. However, as displayed in Table 1, H (192) employed far more hedges than NH (156) in the Discussion and Conclusion sections of the articles. Table 1 also reveals that NH (101) used boosters more than H2). Boosters, as opposed to hedges, infer certainty and emphasize the force of the proposition. This can be explained with reference to the objectivity of data, experiments and analysis in NH. With respect to attitude markers, H are again

ahead. Whereas the H writers employed attitude markers 47 times, the NH student researchers used them 41 times.

However, to prove the significance of data, Mann-Whitney *U* test was applied to check the differences between the two nonparametric data. The motive for choosing Mann-Whitney *U* test was that the metadiscourse markers used in the Discussion and Conclusion sections did not enjoy a normal distribution. Table 2 provides the result of the analysis:

Table 2 *Differences in Use of Metadiscourse Between H and NH Academic Writers*

	Hedge	Booster	Attitude Marker	Total
Mann-Whitney *U*	340.500	322.500	487.000	520.000
Wilcoxon *W*	901.500	883.500	1048.000	1081.000
Z	-2.637	-2.880	-.754	-.316
Asymp. *Sig*. (2-tailed)	.008	.004	.451	.752
a. Grouping Variable: Group				
b. Not corrected for ties.				

According to Table 2, there was a significant difference between NH and H regarding the use of hedges and boosters in the Discussion and Conclusion sections of the academic articles ($p = 0.00 \leq 0.01$). Despite the difference in the use of attitude markers, the student researchers did not show statistically significant variation ($p = 0.45 \geq 0.05$). This reveals that the two groups similarly employed attitude markers when they were in need of communicating their opinions and attitudes towards the propositional content of the Discussion and Conclusion sections. Moreover, no significant difference was found between the two groups on the total use of metadiscursive elements.

4. Discussion

The frequency counts indicate the importance of metadisocurse to ESP student researchers in academic writing. Table 1 shows that there was a similar pattern of metadiscourse use in the whole corpus by the H and NH academic writers. This could mean that the students in their attempt to create a more writer-reader interaction tend to resort significantly to metadiscurive elements which help to establish appropriate intercational effects. This suggests that the students pay attention to the text producing process, notice the generic and disciplinary requisite and attempt to "gain acceptance for their claims through a balanced demonstration of deference, humility, respect, attitudinal and assertive language to persuade readers about the validity of their arguments" (Abdollahzadeh, 2011, p. 292). Moreover, hedges are the most frequently used metadiscourse in the Discussion and Conclusion sections of H and NH disciplines. This signifies the importance of distinguishing

fact from fancy in academic research in order to convince their reader of the argument they forge.

With respect to metadiscourse subcategories, the two groups, however, showed discrepancy. To begin with hedges, as shown in Tables 1 and 2, this marker was significantly and quite meaningfully employed by H. The use of this marker shows humility and respect to audience and allows them to disagree. This could be inspired by the nature of the two major fields. Whereas NH deal with empirical and objective propositions, H tend to be more subjective. Therefore, the Discussion and Conclusion sections of the H articles draw less on empirical data and quantitative procedures as compared with the NH writers. The Discussion and Conclusion sections of academic articles have the central role of presenting new claims and receiving agreement for new claims. Accordingly, authors feel the need to establish a relationship with their audience to involve them and discourage them from turning to alternative interpretations. Authors, thus, employed hedges as a strategy to receive acceptance and solidarity from their readers.

The two groups also showed significant differences in the use of boosters; however, this discrepancy is in favor of NH. Boosters, as opposed to hedges, infer certainty and emphasize the force of the proposition. The greater use of boosters by writers in NH disciplines can be explained with reference to the objectivity of data, experiments and analyses in their studies. NH writers express certainty, are assertive, and stress a proposition. In the Discussion and Conclusion sections, the authors used boosters as a tactful means to signify the importance and contribution of their findings, add to the current knowledge, and emphasize the results to receive a positive evaluation of the similar results by the audience. Despite the differences in using tentative and emphatic language, the two groups were not statistically significant in their employment of attitude markers. This means that the two groups similarly employed attitude markers when they were in need of communicating their opinions and attitudes towards the propositional content of the Discussion and Conclusion sections. Attitude markers help writers express their affective attitude in the form of agreement, importance, and necessity. According to Hyland (2005), attitude markers assist reader to grasp the writer's attitude toward a specific perspective or a given data in the text. And, it appears that both writer groups are aware of this. Affectively, the H and NH writers showed engagement with the reader, emphasized shared information, and group membership.

5. Conclusion

The present study aimed to explore whether the use of interactional metadiscourse differed by ESP student researchers. In this respect, the academic articles by N and NH were selected as the focus of the study. The Discussion and Conclusion sections of 66 articles written in English were extracted and examined

for the use of hedges, boosters, and attitude markers based on Hyland's (2005) taxonomy. Frequency and Mann-Whitney *U* test were applied to analyze the data. The findings revealed that on the whole there was no significant difference between the two groups in terms of metadiscourse use. With respect to metadiscourse subcategories, H significantly employed hedges to show their commitment to the text as compared with NH. However, NH tended to be more assertive by employing more significant boosters. Finally, the findings showed that although H used more attitude markers than NH, there was no significant difference between the two major fields.

According to the results, the use of hedges and attitude markers by humanities gives evidence of the greater role that explicit personal interpretation has in the humanities and social sciences. Hyland (2005) argued that proposition and interpretation in these sciences are usually more explicit and the principles for claiming proof are less reliable. It is implied that H feel more need for interactional involvement, communicating their emotional thoughts and being more acceptable and persuasive to the readers. Abdi (2011) argued that "this is expected on the grounds that social sciences deal with people in the first place and interactional options are critical in dealing with human issues" (p. 9). Contrary to H, NH were more assertive, less conservative and inclined to express their affective values in their writings. This was reflected through the use of boosters in writing the Discussion and Conclusion sections of the articles. The findings signify the important role of metadiscourse in writing. Metadiscourse, as part of pragmatics, is rather difficult to be mastered. It is deemed necessary that instructors consider the teaching of metadiscourse in any writing syllabus. Importantly, the persuasive nature of the Discussion and Conclusion sections requires specific focus of instructors on these sections. Academic article is a widely practiced genre among different disciplines for claiming new findings and consequently seeking agreement for new claims. If students do not know the norms and the process of self-expressions, the audience will find the text difficult to read and evaluate it negatively. As a result, the presence of specific metadiscourse in certain sections or across disciplines stresses that different sections need a particular focus. It is suggested that future studies investigate the frequency of types of each metadiscursive element across genres and languages. Along with future studies, this study could assist teachers and instructors to find the problematic areas in academic writing, remove them, and help students to improve their academic writing and knowledge of metadiscourse.

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