JOURNAL OF ENGLISH STUDIES
Islamic Azad University, Science & Research Branch, 1(3), 3-15**,** Summer 2011

Metadiscourse Elements in English Research Articles Written by Native English and Non-native Iranian Writers in Applied Linguistics and Civil Engineering

Mohammad Hossein Keshavarz*
Department of English Language Teaching, Near East University, Nicosia, North Cyprus

Zahra Kheirieh
Edmonton Public School, Edmonton, Canada

Received: November 25, 2011 **Accepted: January 26, 2012**

ABSTRACT: This study investigated metadiscourse and its subcategories in English research articles (RAs) written by nonnative (Iranian) and native English writers from the two disciplines of applied linguistics and civil engineering. The study aimed at seeing whether language and discipline influenced the frequency of occurrence of metadiscourse elements in research articles. To this end, a sample of 120 research articles was analyzed in terms of the use of metadiscourse and its subcategories based on the model proposed by Hyland & Tse (2004). The AntConc text concordance software program was used to search for the metadiscourse elements in the corpora. The results of the data analysis showed that the writers from the two disciplines were significantly different in using metadiscourse elements collectively; however, no difference was found due to language background of the writers. With regard to different subcategories of metadiscourse, the results revealed that the four groups of writers from the two disciplines and the two languages used different types of metadiscourse differently.

Keywords: metadiscourse, research articles, native vs. non-native writers, discourse community

The concept of metadiscourse is operationally defined as "the linguistic resources used to organize a discourse or the writer's stance towards either its content or the reader" (Hyland, 2000, p. 109). Metadiscourse is the non-propositional content of the written text that reflects the writer's attempts to organize the expressed information, to interact with the reader, and to influence the audience in accepting the stated ideas and arguments. Metadiscourse allows the writers to echo their rhetorical style and attitude; it also allows them to evaluate the propositional content of their writing. In other words, metadiscourse reveals the writers' awareness of the readers' need for elaboration, clarification, and interaction. These attributes signify the prominent role that metadiscourse plays in conveying the writers' preferred message to the reader through the text, and show us why metadiscourse is now considered as an important research topic for many researchers.

This study seeks to investigate the influence of two variables, namely the discipline and native language on the use of metadiscourse items in research articles. Considering the first variable, i.e. discipline, and its relation to metadiscourse, it should be mentioned that every academic discipline is regarded as a community whose members are experts and theoreticians of that discipline and they have their special style in selecting technical terms and putting forward the arguments for presenting their ideas. These members use writing as a social activity to communicate with other members and other communities. Disciplinary communities are like tribes (Becher, 1989) that have their own particular norms, categorizations, bodies of knowledge, conventions, and modes of inquiry

* Corresponding author`s email address: keshavarz22@gmail.com

(Bartholomae, 1986; Swales, 1990). The common features specific to a disciplinary community cause some *sharedness* in using different types of metadiscourse elements.

Another feature investigated in this study is the influence of native language and culture on the use of metadiscourse in research articles. Cultural factors influence many aspects of human life, particularly the language style which is, to some extent, due to the fact that "our cultural values are reflected in and carried through language" (Hyland, 2005, p.114). In other words, culture is completely bound up with language (Kramsch, 1993) and writing is a form of language by which cultural differences are expressed clearly. In analyzing texts, it can be observed that almost all aspects of texts (e.g., logical arrangement of statements and events, giving reasons, and the style of coherence) may differ across cultures.

Review of related literature

The growing interest in metadiscourse and its subcategories has led to the production of different research projects in the field. Some of these projects have considered metadiscourse and its influence on students' writing and reading skills. For instance, Steffensen and Cheng (1996) investigated the effect of instruction of metadiscourse elements on the writing ability of university students. They taught the form, function, and the purpose of metadiscourse to the students in the experimental group. The researchers then asked the students, both experimental and control, to use metadiscourse features effectively in their writings. The results showed that the students in the experimental group scored significantly higher than the students in the control group. In another study, Intaraprawat and Steffensen (1995) investigated metadiscourse in the essays written by ESL university students. They found that higher rated essays included more metadiscourse than lower rated ones. Moreover, the study showed that good writers used a greater variety of metadiscourse elements in their texts. The results of these two studies proved a correlation between students' ability in using metadiscourse and their writing skill.

Hyland and Tse (2004) investigated metadiscourse in different disciplines. Their corpus consisted of postgraduate theses and dissertations from six academic disciplines: electronic engineering, computer science, business studies, biology, applied linguistics, and public administration. The findings indicated that the writers of Ph.D. dissertations used more metadiscourse elements than the writers of master's theses. They found that, compared to hard disciplines, the humanities and social science disciplines employed more metadiscourse elements. These disciplines used interactional features more than interactive forms. Based on these findings, they concluded that "metadiscourse is thus an aspect of language which provides a link between texts and disciplinary culture, helping to define the rhetorical context by revealing some of the expectations and understandings of the audience for whom a text was written" (Hyland and Tse, 2004, p. 175).

Camiciottoli (2003) studied the effect of metadiscourse on reading comprehension of a group of Italian university students. In her experiment, two groups of students read selected texts from two versions of the same text which differed in the quantity and type of metadiscourse; then, each group took a reading comprehension test and their mean scores were compared. The findings of her study supported the idea that metadiscourse features have a positive influence on the students' comprehension. She concluded that "the greater presence of some types of metadiscourse (e.g., frame markers, person markers, and hedges) could be linked to the better performance… in some of the comprehension questions" (Camiciottoli, 2003, p.37).

The relationship between metadiscourse and first language and culture was studied by Mauranen (1993) who investigated English texts written by Finnish and Anglo-American students. She analyzed English texts written by native and non-native students based on the use of metadiscourse elements as text organizers. Mauranen (1993) found that Anglo-American students used more metadiscourse than Finnish students. In general, the results of this study revealed that Finnish is not a reader-oriented language and its writers have a slight tendency to guide their readers through the text, and this characteristic is reflected in English writing of Finnish learners. Mauranen related this difference in communicating with the reader to the differences between the two cultures in norms of politeness and rhetorical explicitness. She concluded that Anglo-Americans tried to be as explicit as possible in their

writing in order to give the reader the feelings of comfort and easiness, while in Finnish culture, "saying too obvious things is, as we know, patronizing" (Mauranen, 1993, p. 17).

The present study aims to answer the following questions regarding the two features of discipline and first language and their relationship with using metadiscourse elements in writing English research articles:

1. Is there any significant difference between Iranian and English-speaking applied linguists in the use of the type and frequency of metadiscourse elements in their research articles?
2. Is there any significant difference between Iranian and native English-speaking writers in civil engineering discipline in the use of the type and frequency of metadiscourse elements in their research articles?
3. Is there any significant difference between Iranian scholars in applied linguistics and civil engineering in the use of the type and frequency of metadiscourse elements in their research articles written in English?
4. Is there any significant difference between English-speaking scholars in applied linguistics and civil engineering in the use of the type and frequency of metadiscourse elements in their research articles?

Methodology

Corpus

The corpus of the present study consisted of 120 research articles written in English and published in leading academic journals from 2005 to 2008. It contained four corpora of research articles (RAs) written in two different disciplines and by scholars of two languages: the first corpus included 30 English RAs written by Iranian researchers in applied linguistics (henceforth referred to as IRN-AL), the second corpus consisted of 30 English RAs written by English speakers in applied linguistics (ENG-AL), the third corpus contained 30 English RAs written by Iranian researchers in civil engineering (IRN-CE), and the fourth corpus included 30 English RAs written by English speakers in civil engineering (ENG-CE).

It is worth mentioning that only the main body of each article was included in the corpora. That is, no abstracts, headings, quotes, tables, figures, examples, equations, notes, or references were included in the data. The diversity of each corpus was guaranteed by selecting 30 articles written by 30 different authors. Articles written by English speakers were checked in terms of the first language of their authors by sending emails to them. In articles with more than one author, it was made sure that all the authors were native speakers of English. In order to use a computer program for scrutinizing the metadiscourse elements, the electronic versions of the research articles were analyzed.

Tables 1 and 2 list the journal sources in the two disciplines from which the research articles were selected.

Table1. *Journal Sources of Applied Linguistics*

Journal	Publication Year
Age and L2 Acquisition and Processing	2006
Applied Linguistics	2006, 2007
Asian EFL Journal	2006, 2007, 2008
California Linguistic Notes	2008
Electronic Journal of Foreign Language Teaching	2007
International Journal of Applied Linguistics	2007
Iranian Journal of Applied Linguistics (IJAL)	2006
Journal of Psycholinguistic Research	2007
Language Learning	2006
Language Teaching Research	2008
Language Testing	2006, 2007
RELC Journal	2005, 2006, 2008
SSLA	2006
System	2005, 2006, 2007
TESOL Quarterly	2007
The Modern Language Journal	2006

Table2. *Journal Sources of Civil Engineering*

Journal	Publication Year
Cement & Concrete Composites	2005, 2007, 2008
Computers and Structures	2005, 2006, 2008
Engineering Structures	2007, 2008
Finite Elements in Analysis and Design	2008
International Journal of Impact Engineering	2006-2008
International Journal of Solids and Structures	2005-2008
Journal of Hazardous Materials	2007
Journal of Reinforced Plastics and Composites	2007
Metallurgical and Materials Transactions	2006
Waste Management	2008
Waste Management & Research	2007

Instrumentation

The Model

The present study is based on Hyland and Tse's (2004) model in which they defined metadiscourse as a "functional category" that assists writers "to express a viewpoint and engage with readers as members of a particular community" (Hyland, 2005, p. 37). The great merit of this model is its attempt in offering a clear picture of the concept of metadiscourse based on a functional approach. This model is based on three principles that focus on the distinction between metadiscoursal and propositional aspects of discourse, the writer-reader interaction during the text, and the internal relations established in the text.

In this model, Hyland and Tse (2004) divided metadiscourse items into two major categories, each consisting of five subcategories, as shown in Table 3.

Table 3. *The Metadiscourse Taxonomy by Hyland & Tse (2004)*

Interactive Resources	***Interactional Resources***
Transitions	Hedges
Frame markers	Boosters
Endophoric markers	Attitude markers
Evidentials	Self mentions
Code glosses	Engagement markers

The definitions and examples of each category are as follows:

I. **Interactive metadiscourse** refers to elements that are used to help the writer organize the discourse and arguments in a way that they convey the writer's intended meaning. The main subcategories or 'resources' that constitute this major category are discussed below:

1. ***Transitions*** are the pragmatic connections used for improving ideas and arguments in the text (e.g., *in addition, but, thus, and*).
2. ***Frame markers*** are the devices referring to discourse acts, sequences, or text stages. They help the writer shift the topic, label the subject matter, and put information in the frames to make it clear (e.g., *finally, to conclude, my purpose is*).
3. ***Endophoric markers*** refer to the information mentioned in other parts of the text (e.g., *noted above, see fig 1, in section 2*).
4. ***Evidentials*** are the sources of the information mentioned in the text which "establish an authorial command of the subject" (Hyland, 2005, p. 51) (e.g., *according to X, Z states*).
5. ***Code glosses*** help the reader get the meaning intended by the writer. They help the writer elaborate, explain, or rephrase a mentioned subject to make it more understandable for the reader (e.g., *namely, such as, in other words*).

II. Interactional metadiscourse, which is the second major category, reveals the writer's feelings, attitudes and degree of commitment toward the text. The writers use interactional metadiscourse elements to influence the readers by their interventions within the text. As it was mentioned before, there are five subcategories under the interactional metadiscourse category, as follows:

1. ***Hedges*** show the uncertainty of the writer's stance toward the statements. Hedges reflect the extent to which a writer takes on responsibility for the presented idea (e.g., *might*, *perhaps*, *possible*).
2. ***Boosters*** are the metadiscourse elements that show the author's certainty and reveal the writer's emphasis on the presented idea (e.g., *in fact*, *definitely*, *it is clear that*).
3. ***Attitude markers*** express the attitude of the writer toward the ideas presented in the text (e.g. *unfortunately*, *I agree*, *surprisingly*).
4. ***Self-mention markers*** refer to the explicit signals of the author's presence in the text. By self-mention markers, the writers increase the intimacy with their readers and communicate with them closely (e.g., *I*, *we*, *me*, *our*).
5. ***Engagement markers*** are used by the author to address the reader explicitly (e.g., *consider*, *note*, *you can see that*).

Concordance software program

The *AntConc 3.2.1* text concordance software program was used in this study. This program is an effective text mining tool that helps user look for words or phrases in a corpus. Appendix gives a clearer picture of the main page of *AntConc 3.2.1* program which shows the result of searching the word "therefore" in 30 text files.

Procedure

Since metadiscourse is an open-ended category and there is no agreed upon list that can be representative of all metadiscourse items, making a list of metadiscourse items was vital for conducting this study. For finding metadiscourse elements and classifying them into appropriate subcategories, a sample of eight articles, two from each corpus, was selected and analyzed. As a result of this word by word analysis, which was based on the model proposed by Hyland & Tse outlined above, a list of 580 metadiscourse elements was obtained and then classified into ten different subcategories. Some high-frequency examples for each subcategory of metadiscourse extracted from the corpora are presented below:

- **Transitions:** although, hence, however, since, so, yet, and, also, moreover
- **Frame markers:** another, first of all, here, in regard to, in summary, turn to, to repeat
- **Endophoric markers:** as follows, previously, in this chapter, referred to, the list below
- **Evidentials:** (19--), according to, cf., cited, following, in a later article, quote
- **Code glosses:** in fact, like, namely, such as, that is, which means, what I am calling
- **Hedges:** almost, argue, claim, fairly, from my perspective, in most cases, perhaps
- **Boosters:** actually, believe, distinguish, it is clear, emphasized, obviously, the fact that
- **Attitude markers:** appropriate, convincing, easily, hopeful, interesting, it is better, prefer
- **Self mentions:** author, I, in my case, my, our, we, writer
- **Engagement markers:** (See...), Allow…, Consider…, Let…, Look at…, Note that

Every corpus was then searched electronically for all the 580 metadiscourse elements by the *AntConc 3.2.1* program. Fifteen per cent of the identified cases were then randomly selected and checked manually in their contexts and were labeled either as metadiscourse or proposition. Then, the obtained figure, as a proportion of the sample size, was multiplied by the total number of cases in each corpus. This final figure represented the occurrence of a particular metadiscourse element in the corpus. To ensure the reliability of the analysis, all the procedures were carried out separately by another rater and an inter-rater reliability index of 0.87 (Kappa) was obtained.

Statistical analysis

A descriptive analysis method was used to capture possible differences in the use of metadiscourse elements in the research articles written by non-native (Iranian) and native English authors in applied linguistics and civil engineering. To compare the data gathered from these four groups, the non-parametric statistical test of Chi-square was applied. For analyzing the results by Chi-square test, the

Alpha level for statistical significance was set at 0.05. Moreover, since the two corpora were compared in every step, the degree of freedom for all comparisons was 1. If the Chi-square observed value exceeded the critical value of 3.84 at 1 degree of freedom, it would be concluded that there is a significant difference among the analyzed corpora in using metadiscourse elements (Hatch & Farhady, 1982).

Results and Findings

In order to present a clearer picture of the metadiscourse elements and their frequency of use in the research articles, the number of the total words as well as the number of metadiscourse elements in each corpus are presented in Table 4.

Table 4. *Number of Total Words and Metadiscourse Elements in Each Corpus*

	Corpus 1 IRN-AL	Corpus 2 ENG-AL	Corpus 3 IRN-CE	Corpus 4 ENG-CE
Number of total words	152,800	232,140	137,660	141,130
Number of Meta-discourse Elements	10,032	15,369	6,586	6,849

(IRN=Iranian, ENG=English, AL=Applied linguistics, CE=Civil engineering)

As it was mentioned before, chi-square test was run to find out any significant differences between the corpora written by the four groups of writers from the two disciplines and the two languages in terms of the use of metadiscourse items in written English RAs. Table 5 displays the chi-square values obtained from each comparison.

Table 5. *Chi-square Values Obtained for the Comparisons between every two Corpora*

	IRN-AL & ENG-AL	IRN-CE & ENG-CE	IRN-AL & IRN-CE	ENG-AL & ENG-CE
Chi-square Value	0.010	0.319	378.926	469.227

As can be seen, the chi-square value of the first two comparisons was lower than the critical value of 3.84 at 1 degree of freedom and 0.05 level of significance which proves that there was no significant difference between Iranian and English writers in both applied linguistics and civil engineering in terms of the frequency of occurrence of metadiscourse elements in RAs. However, in the next two comparisons, the computed Chi-square value - which was greater than the critical value of 3.84 - indicates that there is a significant difference between Iranian applied linguists and civil engineers as well as English writers in applied linguistics and civil engineering in the frequency of occurrence of metadiscourse subcategories in English RAs.

To give an overall clear picture of the frequency of metadiscourse subcategories used in each corpus, the density of metadiscourse and its ten subcategories per 10,000 words for the two disciplines and the two languages are presented in Table 6.

Table 6. *The Frequency of Metadiscourse Elements per 10,000 Words*

Metadiscourse Types	Number of metadiscourse per 10,000 words			
	Corpus 1 IRN-AL	Corpus 2 ENG-AL	Corpus 3 IRN-CE	Corpus 4 ENG-CE
Transitions	150	149	140	146
Frame Markers	31	28	18	15
Endophoric Markers	39	32	86	74
Evidentials	103	135	55	21
Code Glosses	42	40	24	27
Hedges	194	178	98	122
Boosters	56	41	26	36
Attitude Markers	18	25	11	14
Self Mention	7	14	12	23
Engagement Markers	17	20	8	8
sum (MD/total words)	**657**	**662**	**478**	**485**

As shown in Table 6, IRN-AL and ENG-AL used 657 and 662 metadiscourse elements, respectively, in every 10,000 words; that is, for both corpora the frequency of occurrence of metadiscourse was about one per every fifteen words. This table also shows that IRN-CE and ENG-CE employed 478 and 485 metadiscourse elements, respectively, in every 10,000 words. This means that the frequency of metadiscourse occurrence for both corpora was about one in every twenty words. Therefore, the most important finding here is that authors in applied linguistics used more metadiscourse elements than authors in civil engineering. Moreover, applied linguists in both languages used code glosses, evidentials, frame markers, attitude markers, boosters, engagement markers and hedges more than civil engineers, while civil engineers employed endophoric markers and self-mentions more than applied linguists in their writings. Transition markers were used almost equally by the two groups of writers.

To investigate any significant differences between the four groups of writers in using the ten subcategories of metadiscourse, their RAs were compared and analyzed by the chi-square test shown in Table 7.

Table 7. *Chi-square Values for the Comparison between the Ten Sub-categories of Metadiscourse*

	IRN-AL & ENG-AL	IRN-CE & ENG-CE	IRN-AL & IRN-CE	ENG-AL & ENG-CE
Transitions	0.117	1.37	3.40	0.809
Frame Markers	3.30	3.66	53.78	70.61
Endophoric Markers	14.05	13.42	365.60	318.81
Evidentials	72.24	225.60	198.21	1252.87
Code Glosses	1.11	1.49	65.1	44.82
Hedges	13.84	36.92	438.00	177.72
Boosters	46.42	19.44	148.16	6.26
Attitude Markers	17.60	5.54	20.97	43.00
Self Mentions	40.70	50.43	18.63	40.21
Engagement Markers	3.40	0.239	41.79	83.17

The quantitative data in Table 7 indicates that there is not any significant difference between Iranian and native English applied linguists in the use of code glosses, frame markers, transition markers and engagement markers since the Chi-square value for these subcategories is lower than the critical value of 3.84 at 1 degree of freedom and 0.05 level of significance. However, there was a significant difference between the Iranian and English-speaking applied linguists in the use of endophoric markers, boosters, hedges, evidentials, attitude markers, and self-mentions.

The results indicated that there was not any significant difference between Iranian and English-speaking civil engineers in the use of code glosses, frame markers, transition markers and engagement markers, since the Chi-square value for all of these elements was lower than the critical value. However, the findings showed significant differences between Iranian and English-speaking civil engineering writers in using attitude markers, endophoric markers, evidentials, boosters, self-mentions, and hedges.

Regarding the RAs written by Iranian applied linguists and civil engineers, the analysis, as presented in Table 7, indicated that the amount of Chi-square values was greater than the critical value of 3.84, pointing to the fact that there are significant differences between Iranian writers in applied linguistics and civil engineering disciplines in using metadiscourse subcategories.

Discussion

The findings of the present study supported the view that metadiscourse is a universal feature of academic writing. The four groups of writers from the two disciplines and the two languages used all the subcategories of metadiscourse in their articles. The high frequency of metadiscourse elements in the four sub-corpora clearly showed the role they play in arranging information and directing the reader through the text to convey the writer's message. The results of the statistical analyses also indicated that the metadiscourse subcategories were used with different frequencies and patterns

across the two disciplines and languages. For the sake of clarity, these differences will be discussed below in two separate sections: discipline-based and language/culture-based differences.

Discipline-Based Differences

The findings of the present study revealed that writers from the two disciplines were significantly different in applying metadiscourse elements. Applied linguists used metadiscourse elements more than their colleagues in civil engineering. This difference can be assigned to the difference in the attributes of soft and hard disciplines in expressing ideas in written texts. Writing in the engineering domain is writing about scientific facts obtained from mathematical calculations, formulas, and technical experiments, while in applied linguistics authors mostly write about the external world using statements influenced and colored by their experiences and personal points of view. While writers in hard disciplines share their findings with their readers in the form of "quantitative empirical" information (Harwood, 2009), writers in soft disciplines put forward arguments to support their findings (Becher & Trowler, 2001; Charles, 2007). Besides this point, engineering scholars address a more specific audience. An engineering text is usually written for scholars, students and experts who have similar expertise and knowledge (Bazerman, 1985; Myers, 1989). Such an audience needs less guidance or persuasion than the wide audience of soft disciplines. These differences show that disciplines are distinguishable not only by their areas of studies, but also by the way propositional and non-propositional parts of the text are arranged to express writers' intended ideas and information in order to communicate with other members of the community.

In line with this argument, the present study revealed that research articles in applied linguistics targeted a wider audience than the research articles in civil engineering. The following excerpts that are extracted from the two applied linguistic corpora can support this assumption.

> (1) More importantly, he found that children were not as prone to language loss after surgeries on their left hemispheres, and were more likely to resume their normal language control after such operations. (IRN-AL)

> (2) Humans, of course, are capable of all three actions, whereas other primates—at least in the wild—are able to emulate and mimic, but not imitate. (ENG-AL)

> (3) However, it would seem likely that the rules for some grammatical structures will require more extensive and technical metalanguage than the rules for other structures. (ENG-AL)

Apart from this point, the RAs in the two disciplines also appeared to show variations in the use of other subcategories of metadiscourse. Code glosses, evidentials, frame markers, attitude markers, boosters, engagement markers, and hedges were used with a higher frequency by applied linguists compared to civil engineers. This result is in line with the findings of other studies such as Dafouz-Milne, 2008; Harwood, 2009; Hyland, 1998, 2004; and Hyland & Tse, 2004. Among the subcategories with higher frequency in RAs written by applied linguists, attitude markers stand out. The higher frequency of this subcategory in articles written by applied linguists seems quite justifiable considering the differences between soft and hard disciplines in transferring the required ideas and information. Scholars in soft disciplines project their attitudinal positions, subjective ideas, and personal feelings more than their colleagues in hard disciplines to persuade their broad audience to accept the presented idea. The following examples contain the writers' expression of their personal ideas about the content of their articles in applied linguists:

> (4) After I applied the Readability formula […], *to my surprise*, I found that there was a logical sequencing of the texts according to the obtained text difficulty. (IRN-AL)

> (5) *What is unexpected* is that, *like* the other teachers, his second most frequent pedagogical thought category was Knowledge of the Students. (ENG-AL)

(6) *It is worth mentioning that* the current research was carried out in an educationally marked system in which traditional view of reading dominates EFL classes. (IRN-AL)

The results of the study also showed a great difference between the two disciplines in using evidentials. The findings confirmed that the RAs in soft disciplines contained much more evidentials than hard disciplines. The reason for this higher frequency can be related to the nature of the disciplines again. Soft disciplines are more context-dependent and the writers in such disciplines frequently refer to the previous research. The writers of soft disciplines have to use evidentials as overt intertextual connections to support their opinions. In other words, they frame their argument with scientific evidence from the literature (Becher, 1989). This is in contrast with hard disciplines in which the researchers instead use formulas or lab experiments as evidence to support their ideas and findings. Examples (7) and (8) show that applied linguists use evidentials as evidence for the accuracy of the ideas they express.

(7) *According to Ellis et al. (2001),* pre-emptive focus on form deals with a problem similar to reactive focus on form. (IRN-AL)

(8) Moreover, examinees may well act out roles according to inaccurate beliefs about those roles *(Golato, 2003; Kasper and Dahl, 1991)*. (ENG-AL)

However when it comes to endophoric markers, the results indicate that civil engineers used this category more than applied linguists. This is in agreement with Hyland & Tse's (2004) finding that postgraduate students from computer science and electronic engineering used this subcategory more than students from applied linguistics. This higher frequency depicts the writing style of engineering discipline in which arguments are developed mostly by referring to graphs, figures, formulas and tables mentioned in other parts of the same paper. The following examples are taken from the two civil engineering corpora to show textual references:

(9) The first term of *above equation* denotes the classical finite element approximation and the second term indicates the enrichment function considered in X-FEM. (IRN-CE)

(10) With a total of four such mechanisms, four candidate combinations of active mechanisms exist, summarized in *Table 1*. (ENG-CE)

(11) *Figure 3* shows the strain and strain rate of the superalloy powders as a function of temperature during non-isothermal sintering. (IRN-CE)

(12) The performance graph *(Fig. 13)* shows the best fitness graph for the short span system. (ENG-CE)

Language-Based Differences

In terms of using metadiscourse as a whole, Iranian writers showed no difference with their English-speaking counterparts in both disciplines. In other words, L1 and L2 writers showed similar frequency in using metadiscourse items, while the two groups were expected to use different percentages of metadiscourse due to their cultural differences. This similarity in the use of metadiscourse elements as a whole can be attributed to the fact that the majority of L2 writers in this study, i.e., Iranian linguists and engineers, were university professors who had studied in English-speaking countries. Another important reason for the similarity between L1 and L2 writers in this case is that in scientific communities, English-speaking writers are considered authorities due to their publications and as a result their writing style becomes a model for other writers who wish to publish their articles in international journals.

Despite these similarities in the use of metadiscourse elements by the two groups of writers, the findings revealed that Iranian and English-speaking authors had differences in using some

subcategories of metadiscourse, especially evidentials, self-mentions, boosters, and hedges. These subcategories will be briefly discussed below.

In the case of evidentials, the results showed a higher frequency in articles written by English applied linguists. Hyland (2005) argues that "Anglo-American academic English tends to employ more, and more recent, citations" (p.117). He also believes that for Western writers, evidentials play the crucial role of persuasion in the social context of writing which is used as a means to provide justification for arguments (Hyland, 1999).

In using the self-mention subcategory, the results showed that English writers used self- mention more than Iranian writers. This is in line with the argument made by some researchers (e.g., Ohta, 1991; Scollon, 1994) that Asian students prefer to use collective ways for expressing identity or opinion. They usually avoid self-mention to hide direct involvement in the text as the writer. Similarly, in Iranian culture, students and writers are advised to avoid direct involvement in their writings. Students are sometimes instructed by teachers in Persian essay classes to be more formal and polite by avoiding self mention in their written texts. This self-mention avoidance is even evident in spoken language when Iranian speakers use the inclusive "*we"* instead of "*I"* to be more polite and modest. This cultural difference seems to be reflected in using self-mention signals in research articles. The following examples illustrate the difference between the two languages in the use or avoidance of self-mention signals.

(13) The class was observed during their studies at IELTS level 4 and level 5. In this private language school, the observed class met twice per week, and every session lasted 90 minutes. (IRN-AL)

(14) *I* chose students from the Readiness program because these were most accessible to *me*, and *I* selected five students representing different levels… . (ENG-AL)

(15) To overcome these inconveniences, the extended finite element method is employed to remove the mesh conforming to the boundary conditions. (IRN-CE)

(16) The forces required for perforation with the particular lozenge tool *we* employed were lowest of all the tools *we* investigated. (ENG-CE)

With regard to the use of boosters by Iranian and English-speaking applied linguists, the findings are in harmony with Hinkel's (2002) argument that many languages and cultures use boosters to exaggerate and overestimate their statements. It seems that Eastern people are not as tentative and cautious as those in the Western countries in making claims. This also seems true about Iranian culture. The examples below are extracted from Iranian applied linguistics corpus:

(17) *No doubt*, a course book is looked upon as an *indispensable* vehicle for foreign language acquisition whose validity and significance are *seldom* impugned. (IRN-AL)

(18) *Clearly*, for younger learners, the designers need to place more emphasis on grammar. (IRN-AL)

However, this explanation does not apply to the Iranian engineers who used fewer boosters than English-speaking engineers. This lower frequency can be related again to the previously mentioned shortages faced by engineering discipline.

Another interesting language-based difference concerned the use of hedges by the two groups. Contrary to our expectations, the Iranian applied linguists used hedges more than their English counterparts. It was unexpected because being decisive and firm in stating one's opinion is an aspect of Iranian culture. Iranians usually express their propositions with some degree of confidence (Hofstede, 1977). In this study, as stated before, all of the writers in applied linguistics are teachers and scholars who probably consider hedging as a device for being more effective while addressing the English audience. It seems that this overuse of hedges is the consequence of their awareness of the

differences between the two languages in using hedges. The following examples illustrate this awareness.

(19) This *may* help us to *claim* that conscious grammar knowledge *could* not be activated in order to pronounce the long vowels appropriately in real communication. (IRN-AL)

(20) *It is also possible* that cultural differences in the norms of classroom conduct in general and in the predisposition to ask questions in particular *could* affect the number of LREs. (IRN-AL)

Conclusion

The findings of this study support and highlight some interesting factual points about metadiscourse elements in written texts. First of all, this study confirms the idea of universality of metadiscourse (Bartholomae, 1986). Metadiscourse is a crucial and inseparable part of language used by writers across languages or cultures, disciplines, genres, etc. Metadiscourse and its subcategories are rhetorical devices which help writers to transfer the informative content of the text, to respond to the reader's need for elaboration and involvement, and to provide sufficient clues through the text for the reader to get the writer's intention. The study also confirmed the vital role that metadiscourse elements play in academic genres (Swales, 1990). The frequency of metadiscourse in academic texts reveals that academic writing is not an impersonal monologue in which propositional contents are chained one after another by the writer without considering interaction with the audience. The study also highlighted the impact of first language on the use of metadiscourse in second language. Although the two groups of writers with different language backgrounds (English and Persian) used metadiscourse elements with similar frequencies, they showed variation in using some subcategories of metadiscourse. The final concluding remark is the influence of discipline on the use of metadiscourse in written texts. The discipline can influence the frequency of metadiscourse items and the patterns of their use. The two groups of writers from the two disciplines showed various preferences in applying metadiscourse types based on their propositional contents, argumentations and audience.

It should be added here that although the differences across the disciplines and languages caused remarkable diversity in applying metadiscourse types by the writers, this diversity was less than our expectations. We believe that this unexpected result was due to the L2 writers' expertise in English language, their familiarity with Standard English, and their academic careers and activities. It is assumed that conducting a similar study with undergraduate and graduate university students will probably show more differences.

Acknowledgement

The authors wish to extend their gratitude to Professor Hyland for his invaluable consultation and advice on the methodological procedure of this research.

References

Bartholomae, D. (1986). Inventing the universality. *Journal of Basic Writing*, 5, 4-23.

Bazerman, C. (1985). Physicists reading physics: Schema-laden purposes and purpose-laden schema. *Written Communication, 2* (1), 3-23.

Becher, T. (1989). *Academic tribes and territories: Intellectual inquiry and the cultures of disciplines*. Milton Keynes: Oxford University Press.

Becher, T., & Trowler, P. (2001). *Academic tribes and territories* (2nd ed.). Buckingham: The Society for Research into Higher Education and Open University Press.

Camiciottoli, C. B. (2003). Metadiscourse in ESP reading comprehension: An exploratory study. *Reading in a Foreign Language, 15*, 28-44.

Charles, M. (2007). Argument or evidence? Disciplinary variation in the use of the Noun *that* pattern in stance construction. *English for Specific Purposes, 26* (2), 203-218.

Dafouz-Milne, E. (2008). The pragmatic role of textual and interpersonal metadiscourse markers in the construction and attainment of persuasion: A cross-linguistic study of newspaper discourse. *Journal of Pragmatics, 40*, 95-113.

Harwood, N. (2009). An interview-based study of the functions of citations in academic writing across two disciplines. *Journal of Pragmatics, 41*, 497–518.

Hatch, E., & Farhady, H. (1982). *Research design and statistics for applied linguists*. Rowley, Massachusetts: Newbury House.

Hinkel, E. (2002). Second language writers' text. *Journal of Pragmatics, 27*, 361-86.

Hofstede, G. (1977). *Cultures and organizations: Software of the mind*. New York: McGraw-Hill.

Hyland, K. (1998). Persuasion and context: The pragmatics of academic metadiscourse. *Journal of Pragmatics, 30*, 437-55.

Hyland, K. (1999). Talking to students: Metadiscourse in introductory textbooks. *English for Specific Purposes, 18* (1), 3-26.

Hyland, K. (2000*). Disciplinary discourses: Social interactions in academic writing*. London: Longman.

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

Hyland, K. (2005). *Metadiscourse*. London: Continuum.

Hyland, K. & Tse, P. (2004). Metadiscourse in academic writing: A reappraisal. *Applied Linguistics, 25* (2), 156–177.

Intaraprawat, P. & Steffensen, M. (1995). The use of metadiscourse in good and poor ESL essays. *Journal of Second Language Writing, 4* (3), 253–272.

Kramsch, C. (1993). *Context and culture in language teaching*. Oxford: Oxford University Press.

Mauranen, A. (1993). Contrastive ESP rhetoric: Metatext in Finnish-English economics texts. *English for Specific Purposes, 12*, 3–22.

Myers, G. (1989). The pragmatics of politeness in scientific articles. *Applied Linguistics, 10*, 1-35.

Ohta, A. (1991). Evidentiality and politeness in Japanese. *Issues in Applied Linguistics, 2* (2), 183-210.

Scollon, R. (1994). As a matter of fact: The changing ideology of authorship and responsibility in discourse. *World Englishes, 13*, 34-46.

Steffensen. M. S., & Cheng, X. (1996). Metadiscourse and text pragmatics: How students write after learning about metadiscourse. *Pragmatics and Language Learning, 7*, 153-170.

Swales, D. M. (1990). *Genre analysis: English in academic and research setting*. Cambridge: Cambridge University Press.

Authors:

Mohammad Hossein Keshavarz is currently professor of Applied Linguistics at Near East University, Nicosia, North Cyprus. He is the founding editor of IJAL and has published on various topics in Applied Linguistics and ELT in a number of international journals including Language in Society, International Journal of Applied Linguistics, Journal of Research in Psycholinguistics, International Journal of Bilingualism, Educational Research, Communication Disorder Quarterly, and Reading in a Foreign Language. His research interests include first and second language acquisition, sociolinguistics, contrastive & error analysis, and phonology.

Zahra Kheirieh has a B.A. in English Language from Kashan University and an M.A. in TEFL from Khatam University, Tehran. She currently works as an educational assistant in Edmonton Public School, Edmonton, Canada. Her research interests include discourse analysis, sociolinguistics, language learning, and bilingualism.

Appendix

AntConc 3.2.1