The Asian ESP Journal

Metadiscourse in Academic Prose: A Contrastive Analysis of English and Persian Research Articles

Gholam Reza Zarei

Isfahan University of Technology, Iran

Sara Mansoori

Islamic Najafabad Azad University, Iran

Bio Data:

Dr Gholam Reza Zarei received his Ph.D. in Applied Linguistics from Isfahan University, Iran, in 2001. He is currently teaching different courses at both undergraduate and graduate levels. His research interests include discourse analysis, research, genre analysis and language teaching methodology.

Sara Mansoori has an MA in TEFL. She is now teaching English skill courses at undergraduate level at Azad University of Najafabad. Her areas of research include contrastive analysis, genre analysis and ESP.

Abstract

The present study was carried out to compare and contrast the use of metadiscourse elements in Persian and English research articles. The research tried to find out how English and Persian made use of metadiscourse elements, and whether the two languages differed in using metadiscourse resources in academic texts. The corpus used in this study, which was analyzed based on Hyland and Tse (2004) taxonomy, comprised 19 articles and 102,293 words in the two languages, English and Persian. The intralingual analysis showed that both Persian and English used interactive resources more than interactional ones, emphasizing the significance of text coherence over interpersonal function of language in the academic genre. Compared with English, Persian capitalized on more interactive resources, which shows that Persian puts a premium on textuality at the expense of reader involvement, hence, being comparatively less reader responsible. The results support the interlingual rhetorical differences in the use of metadiscourse resources to sustain solidarity with the readers and also to convey the intended propositional message (Mauranen, 2001; Valero-Garces, 1996; Blogojevic, 2004).

Keywords*:* Metadiscourse, Propositional content, Academic text, Persian language, English language

Introduction

Metadiscourse plays a pivotal role in organizing discourse and also in engaging the audience, extending the importance of meaning beyond the ideational to interpersonal and textual functions. As an interactive and rhetorical character of academic writing, metadiscourse establishes social and communicative engagement between writer and reader focusing on "those aspects of the texts which explicitly refer to the discourse or the writer's stance towards either its content or the reader" (Hyland, 1998a: 438). In other words, academic writers generate texts as much to represent some external reality as to display their attitudinal positions in relation to the external reality and the recipients thereof. Thus, metadiscourse represents some internal stylistic map whereby an external reality or message is created and conveyed.

One important aspect of academic communication relates to the dichotomy of the external world knowledge, usually put as propositional knowledge, and the internal world knowledge construed as metadiscourse (Vande Kopple, 1985). To show the difference, Crismore, Markhanen, and Steffenson (1993) assert that the linguistic material not contributing to the ideational or propositional content is taken as metadiscourse since it assists the reader in organizing, interpreting, and evaluating the given information.

Though the distinction seems viable and useful for practical and pedagogical purposes, some researchers believe that the dividing line to be drawn between the two appears to be blurred (e.g., Hyland & Tse, 2004, p. 160). It is very difficult to separate the two levels of meaning while it is claimed that meaning as such is the recombination or re-synthesis of various elements functioning together. That is, if 'meaning' results from the integration of different ideational, contextual, textual, and interpersonal elements, for stronger reasons it sounds illogical to speak of separate layers of meaning and claim that metadiscourse is sharply distinct from ideational meaning. Similarly, Crismore and Farnswarth (1990), while ignoring the idea of non-propositional meaning as metadiscourse, incorporate into their classifications referential, informational metadiscourse, implying that the two sides of meaning can be represented under one umbrella to emphasize the integrative nature of meaning. Therefore it will be of no surprise if we find a piece of discourse serving both functions. This argument, in line with Hyland (1998a), is provided to rule out the possibility of relegating metadiscourse to a secondary position, but to take it as an obligatory process of communicating meaning. Though the ambiguous status of metadiscourse as being propositional or non-propositional is still to linger on, the subject is not to be negatively affected or abandoned in the case of practical and contrastive analyses.

The second significant point of concern in the study of metadiscourse is the interaction that is to be established between writer and reader in academic texts. As opposed to the use of language in reference to the external world, metadiscourse is also utilized to manage the *role* the writer adopts in relation to the content and reader. This role is usually viewed as *textual* indicating how carefully a text is encoded to achieve coherence and organization, and also as *interpersonal* used to help writers express their attitudinal and personal reactions towards the readers (Halliday, 1994). This latter metadiscoursive function is believed to be a predominantly encompassing feature which also subsumes textual function as well. Hyland (2004) argues that textual function does not make a very clear and independent category, but it creates the conditions for both propositional and interpersonal aspects to materialize the sequential integrity of the text. Therefore, this view finds metadiscourse not so much of textual nature as of interpersonal function. As Hyland (2004) says, "metadiscourse is interpersonal in that it takes account of the reader's knowledge, textual experiences, and processing needs and that it provides writers with an armory of rhetorical appeals to achieve this" (p. 161).

Interpersonal function of metadiscourse is assumed to be variable across cultures and disciplines, making variable demands on the part of the reader to understand the message. Some cultures may leave much of the message to be decided by the reader whereas some others may go to great lengths providing a reader-friendly context. This important issue is based on Greenberg's language typology of writer's vs reader's responsibility for effective communication. Some authors (e.g. Hinds, 1987) have theorized that metadiscourse as part of academic rhetoric presupposes the writer's responsibility for the effective conveyance of message. In the same line of thinking, Hyland (1998a) stresses the independence of metadiscourse as intimately linked to the norms and standards of special cultural and professional communities. Furthermore, the distinctive characteristics of genre or culture are believed to prompt writers to capitalize on varying degrees of metadiscourse in regard to their addressees (Crismore & Farnswarth, 1990; Hyland & Tse, 2004). For example, while English academic discourse relies on the writer's responsibility to provide appropriate transition statements for the reader's convenient tracking of the writer's logic, some other cultures such as Japanese, Korean, and Chinese display an opposite trend, giving over much of the responsibility to the reader to grasp the writer's intention (Clyne, 1987; Mauranen, 1993; Swales, 1990; Blagojevic, 2004).

Irrespective of the controversies over the status quo of metadiscourse, an interest is growing in writing conventions across different cultures and professional activities. Mauranen (1993) attributes such growing significance to the inherent paradox involved in metadiscourse, and claims that scientific texts are at the same time culturally independent and culturally variable, signifying the specificity of genre and distinctiveness of rhetoric or national cultures. Taken as a critical feature of

good native and learner language writing (Intraprawat & Steffenson, 1995), metadiscourse is an essential, yet neglected aspect of language use in general and in academic contexts in particular. This appears more so in the contrastive studies between Persian and English languages, where intelligibility of communication through proper cultural norms, values, and assumptions to trail the path to academic promotions finds most significance. In order to cast light on the issue of metadiscourse, the present study attempts to explore and gain insight into the way metadiscourse as an important rhetorical feature of language is realized in Persian and English academic writings.

Review of literature

In recent years there has been a growing interest in text genre analysis. The studies on genre analysis are varied and vast (Yates & Orlikowski, 1992; Miller, 1994; Kearsey & Turner, 1999; Bhatia, 1993; Connor, 1996, 2000). A great deal of research on genre has been devoted to the study of academic texts, especially research articles as a high stakes genre. These studies have analyzed different elements in different parts of research articles, e.g., genre of the discussion sections in articles and dissertations (Hopkins, 1988); abstract section (Hyland, 2000; Samraj, 2005); results (Brett, 1994 & Williams, 1999); discussions (Holmes, 1997); and discussions and conclusions (Yang and Allison, 2003).

Metadiscourse, as an important rhetorical aspect of academic genre, has also received significant attention. Some of the metadiscourse studies have concentrated on intralingual aspects. As a recent example, Hyland (2004) examined the purposes and distributions of metadiscourse in a corpus of 240 doctoral dissertations and master's theses of six academic disciplines and showed that writers used slightly more interactive than interactional forms. Also Perez–Llantada (2003) made it clear that Hyland's taxonomy of textual and interpersonal types of written metadiscourse techniques in the academic speech can be approached from two convergent perspectives: cognitive theory and pragmatics. That is, textual metadiscourse focuses on the processing of production and processes of speech, and interpersonal metadiscourse allows the audience to understand speakers' implications and presuppositions as well as speaker's stance while considering the social framework of the speech act. Other studies have focused on the interlingual analysis of metadiscourse elements. Blagojevic (2004) carried out a contrastive study of academic articles written in English by English and Norwegian native speakers. The results showed that though there were some differences in the way English and Norwegian writers used metadiscourse, and sometimes displayed certain preferences, Norwegian metadiscoursal model did not differ greatly from that of English native speakers. In another study, Dahl (2004) took a contrastive approach and investigated writers' appearance in three languages including English, French, and Norwegian and three disciplines. He concluded that the language

variable was the most important one within economics and linguistics where English and Norwegian showed very similar patterns, using much more metatext than French, but within medicine, all three languages displayed a uniform pattern of little metadiscourse.

In Iran, Marandi (2003) performed a contrastive study of the use of metadiscourse in Persian/English master's theses across three groups: native (Iranian) speakers of Persian, non-native (Iranian) speakers of English, and native (British) speakers of English. The introductions and discussions of these were compared for the amount and types of metadiscourse used based on a slightly revised taxonomy of metadiscourse suggested by Crismore, Markkanen, and Steffensen (1993). She showed that different groups used metadiscourse types differently. More specifically, they used *connectives, hedges, attributors*, and *persona markers* differently from one another. Also, she concluded that native speakers of Persian used *connectives* the most, whereas native speakers of English used them the least. While native speakers of both Persian and English used more *connectives* in their introductions than in their discussions, non-native speakers of English used fewer *connectives* in their introductions than in their discussions.

This study by Marandi (2003) seems to be the only one focusing on Persian and English differences. As Marandi's study reveals potential differences between Persian and English, it is necessary to investigate the issue further so as to come up with a better picture for the metadiscoursal differences between the two languages.

Research purpose

Prompted by the fact that metadiscourse can be used to convey a message and create solidarity between the writer and reader, that it can be linked to the norms and expectations of a particular culture, and that it is genre-based, the present study was carried out to investigate the use of metadiscourse resources in English and Persian research articles. More specifically, the study tried to perform an inter/intra–lingual contrastive analysis between the two languages, using two distinct disciplinary corpora, namely, applied linguistics, and computer engineering.

Corpus and justification

The corpus consisted of two languages, namely, English and Persian. English was selected because it is used as an academic lingua franca for the international relationship nowadays, and academics are required to develop a good command of that language to function properly in the required contexts. Persian was selected because it is most probable that Iranians are subject to their first language interference, which may lead to the breakdown or misinterpretation of communication. L1 influence on L2 has already been shown to be a problem. Chelala (1982) identified 10 unsuccessful strategies

employed by L2 writers and concluded that using L1 to compose in L2 was somewhat more counterproductive than productive. Also, Kaplan (1966) compared writing samples in English from speakers of Arabic, Romance, and Oriental languages and claimed that each group displayed rhetorical characteristics expressing its native discourse "logic" not acceptable in standard English writing. The comparison and contrast of the two languages can help us discover and take care of the differences which may pose a threat to clear understanding.

The articles were selected from well–known, refereed, and recently published journals (2004, 2005, & 2006). In order to investigate different writings, hence balancing out the problem of idiosyncrasy and particularity of writers' styles, the articles were randomly picked and care was taken not to include the same writers more than once. Articles whose authors were native speakers of English and Persian were selected for the analysis. In the case of multiple authorship, at least one author was a native speaker or a member of an academic staff in the U.S or U.K for English articles and a native speaker of Persian for the Persian research articles. The use of one native author in the case of English articles was a minimum criterion to ensure the use of standard English writing.

Moreover, the articles in both languages were selected from two disciplines, Applied Linguistics and Computer Engineering, to represent two general streams of the humanities and non–humanities. Another point of concern was to include a variety of subjects which could help remove the problem of one single topic influencing the generalizability of the results. All this was done to make the corpus as representative as possible. However, it must be borne in mind that the results are to be very cautiously interpreted or generalized due to the limited scope and limitations of the study.

The corpus used in the study consisted of 19 articles (9 English & 10 Persian articles) and 102,293 words in the two languages, with English comprising 50,602 words and Persian 51,691 words. The names of articles and their respective journals, languages, and disciplines appear in the appendix.

Data Analysis

This study draws on the model of metadiscourse suggested by Hyland and Tse (2004) for data analysis. This model suits our purpose best since it is supposed to move away from previous treatments of metadiscourse towards a model that can capture the underlying principles of academic writing. To this end, Hyland and Tse (2004) claim that metadiscourse needs to be conceptualized as an interpersonal feature of communication, which stands in sharp contrast to Crismore's (1989), and Williams' (1999) views that metadiscourse contributes towards either propositional or interpersonal functions. Furthermore, unlike Mauranen (1993) and Bunton (1999) who see metatext as the writer's self-awareness of text, Hyland and Tse (ibid) believe that 'metadiscourse represents the writer's awareness

of the unfolding text as *discourse*: how writers situate their language use to include a text, a writer and a reader' (p. 167). To justify the model for academic contexts, the two writers conclude:

> The framework we have suggested offers a comprehensive and pragmatically grounded means of investigating the interpersonal resources academics deploy in securing their claims. But while we believe this provides both a theoretically more robust model and a more principled means of identifying actual instances, we recognize that no taxonomy can do more than partially represent a fuzzy reality. (Hyland & Tse, 2004, p.175)

The model, which is presented below, is specifically named 'a model of metadiscourse in academic texts'.

Table 1: Hyland and Tse (2004) taxonomy of metadiscourse

Interactive Resources: They help to guide reader through the text:	
a) Transitions (T): express semantic relation between main clauses. Examples: in addition, thus, but, and ***b) Frame Markers (Fm):*** refer to discourse acts, sequences, or text stages. Examples: finally, to conclude, my purpose here is to ***c) Endophoric Markers (En):*** refer to information in other parts of the text. Examples: noted above, see figure, in section ***d) Evidential Markers (Ev):*** refer to sources of information from other texts. Examples: according to X/(Y, 1990)/Z states ***e) Code glosses (Co):*** help readers grasp functions of ideational material. Examples: namely, e.g., such as, in other words	
Interactional Resources: involve the reader in the argument:	
a) Hedges (H): withhold writer's full commitment to proposition. Examples: might, perhaps, possible, about ***b) Boosters (Bo):*** emphasize force or writer's certainty in proposition. Examples: in fact, definitely, it is clear that ***c) Attitude Markers (Am):*** express writer's attitude to proposition. Examples: unfortunately, I agree, surprisingly ***d) Engagement Markers (En)***: explicitly refer to or build relationship with reader. Examples: consider, note that, you can see that ***e) Self-mentions (Sm):*** explicitly refer to authors. Examples: I, we, my, your	
The shortened forms of categories enclosed in parentheses will appear in the analysis.	

To carry out the analysis, the information related to the journal, site, article outline, authors' names, acknowledgements, and reference were deleted and only the abstract, introduction, methodology, discussion, and conclusion to be analyzed remained. The remaining parts were read and analyzed carefully for metadiscourse categories, based on Hyland and Tse's (2004) taxonomy. The two researchers cross-compared their findings to ensure that metadiscourse categories were correctly determined. Finally the findings were subjected to statistical analysis.

Results and Discussions

Metadiscourse studies can demonstrate important features of the language which facilitate communication in different cultures and professional communities. Therefore, this study investigated the use of metadiscourse in two languages, English and Persian, through two disciplines, computer engineering and applied linguistics as representative of academic studies. More clearly, the present study was intended to reveal how metadiscoursal resources are used and dispersed across the two academic languages.

The analysis of total corpus showed there were 6,146 metadiscourse elements in 102,293 words, that is, there was one metadiscourse element in almost 16 words. This was almost one per 18 for the English corpus (total English corpus 50,602 words), and one in almost 15 for the Persian corpus (total Persian corpus 51,691 words). In other words, the total percentage of metadiscourse use for the Persian language is 6.49 while it is 5.54 for the English language (Table 2). Note that the percentages are based on the total number of metadiscourse items identified in relation to the total number of words used in each corpus. The above-stated finding reveals that academic texts are made up of a proportionally large number of metadiscourse items. Thus metadiscourse needs to be taken into account more seriously when an academic text aims at high standards of intelligibility and communication. Also, this shows that the explicit use of metadiscourse for either smooth shifting of propositional information or involving the reader in the argument is necessary. Another implication is that the idea considering metadiscourse as just marginal to the texts (Crismore & Farnsworth, 1990) is simply not plausible. Thus, if a text is dependent on metadiscourse elements to such a large extent, it cannot achieve the high expectations of quality without due attention to the linking role of metadiscourse.

Further analysis of the two dimensions of metadiscourse as shown in the following table (Table 2) shows that Persian made use of "interactive resources" more than "interactional ones" (5.05% vs. 1.4%, respectively). The English language also used "interactive resources" more than "interactional elements (3.7% vs. 1.8%, respectively). This finding can indicate the significance of textual congruity over explicit interpersonal relations with audience. While Persian and English both relied more on

"interactive resources" than "interactional ones", Persian manages to overtake English in the "interactive part", but remains lower in the "interactional section". On the whole, the statistical analysis shows that the differences between the two languages are statistically significant (see Table 2). The fact that the difference between the two languages is more salient in the use of "interactive items" may show that Persian tends to go to greater lengths establishing coherence in the text, hence providing more guidance for the reader to comprehend the purpose of the text. However, English remains slightly more faithful to the involvement of the reader in the text (more use of interactional resources), that is, the writers in English are inclined to have a closer association with the reader. It is likely the predominance of this feature in English can somehow compensate for the decreased utilization of 'interactive elements', hence striking the balance between the textual and interpersonal functions of the language.

Table 2: The analysis of metadiscourse resources in each language

Languages	Total words	Metadiscourse Freq.	Interactive	Interactional	Total
English	50602	2804	3.7%	1.8%	5.54%
Persian	51691	3342	5.05%	1.4%	6.46%
Z-test	**********	**********	10.42	5.20	******

P<0.01 Critical: 1.96

A closer investigation of the two languages is possible if *subcategories* of the metadiscoursal elements are also taken into account. As Table 3 shows, the two languages differ in the way they prioritize the respective subcategories. English language capitalizes maximally on the 'transitions' (.87%) and minimally on the 'attitude markers' (.07%). Persian also uses 'transitions' (1.62%) as the first priority, which is more frequent than its English counterpart, but unlike English uses 'engagement markers' (.03%) as the last. As a general rule, it seems that both languages find 'transitions' central to academic writing, though Persian writers make more of an attempt to ensure that readers can recover their intentions. It is interesting indeed to notice that English writers, as far as this small-scale study indicates, make the least use of 'attitude markers', which may support the conviction that academic writing requires a high degree of detachment and objectivity (Stapleton, 2002). On the other hand, Persian writers resort to their own attitudinal positions more (Persian use of 'attitude marker' is .13%). In fact, Persian writers seem to voice their ownership to the findings more conspicuously.

Furthermore, it is revealed below (Table 3) that English assumes the second place for 'evidentials' whereas Persian relegates 'evidentials' down to the fifth position, indicating one more time that English provides a stronger ground for the *documentation* of the information. Likewise, English

makes equal use of 'code glosses' and 'hedges', both appearing in the third position while Persian separates the two, with 'code glosses' ranking second and 'hedges' standing eighth. The juxtaposition of the two in English seems well justified. Since code glosses are supposed to provide interpretation for the findings, the English writers have taken cautionary measures so as not to sound biased, by using the same amount of hedging to soften the force of their interpretation. On the contrary, Persian writers at the same time have offered more comments (use of more code glosses) and have dared to be less conservative by using less hedging. This finding can be cautiously taken as a partial indication that Persian writers of academic research articles try to speak more persuasively, hence casting doubt over the belief that academic writing is universally impersonal (Stapleton, 2002). Another feature which also stands out between the two languages is the cautious employment of 'boosters' (.3%) appearing in the eighth place by the English writers and the larger use of that subcategory (.63%), two times more than English, occurring in the fourth place by the Persian writers, again demonstrating more involvement and stronger position of the writer in Persian texts. Persian writers' increased use of boosters can indicate that they consider the findings of their research as largely monolithic and reliable while English writers exercise conservativism, leaving their findings to be interpreted by the audience.

On the whole, the results show that Persian writers have used metadiscourse elements more, and z-tests show that the differences are statistically significant for all subcategories except for 'endophoric markers'. Persian writers' larger reliance on the metadiscourse elements cannot always be taken as a positive indication of facilitating communication particularly if they want to write in a different language for readers of linguistically disparate backgrounds (Martin, 2003). On the contrary, the relatively higher use of metadiscourse may affect the preciseness and conciseness of propositional relationships, making them subject to extreme subjective interpretations by speakers of another language.

Table 3: The detailed analysis of metadiscourse subcategories in each language

		Metadiscourse										
		Interactive				Interactional						
Languages	No. of words	T	Fm	En	Ev	Co	H	Bo	Am	Eng	Sm	Total
English	50602	0.87	0.65	0.56	0.86	0.76	0.76	0.3	0.07	0.16	0.50	5.54
Persian	51691	1.62	0.88	0.54	0.62	1.38	0.27	0.63	0.13	0.03	0.33	6.46
Total	*****	2.49	1.54	1.1	1.48	2.14	1.03	.93	.2	.19	.83	12
Z-tests	*****	10.86	4.45	0.30	4.56	9.55	10.79	7.57	2.97	6.84	4.22	6.21

P< 0.01 Critical: 1.96

Conclusion

The results of this study suggest that the use of metadiscourse in English and Persian research articles may reflect the conventions each discourse community has to rely on. That is, metadiscourse provides

a link between texts and community cultures, defining the rhetorical context which is created to conform to the expectations of the audience for whom the text is written. As Hyland (2004) concludes, the importance of metadiscourse lies in the part it has in explicating the context for interpretation, revealing one way in which *acts of communication* define and maintain social groups. The results obtained in the present study also show that Persian writers of research articles relatively preferred to outperform their English counterparts by using more metadiscourse elements. The differences can distinguish Persian writers as using *overt* acts of communication from English writers as resorting to the *covert* acts of expression.

The observed differences between the two languages go contrary to the idea of the universal scientific discourse propounded by Widdowson (1979). Thus, on the basis of these findings, various discourse communities may need to opt for one or another rhetorical pattern in the case of having certain readership. As a case in point, Persian writers of English academic articles addressing native English readers *may* need to tone down their overuse of interactive and scale up their underuse of interactional metadiscourse elements in order to arrive at a balanced view of communication based on the observed standards. Of course, the standards must not be interpreted in the rigid sense and as hard and fast rules, but as 'general tendencies' which could soften the interlingual differences, leading to more intelligible contexts for communication. Nor is this to claim that only one strict standard exists or is always desired but as Martin (2003) implies, academic discourse communities wishing to communicate new knowledge to other members of the academic community with a different language essentially need to have their research published in the English language, whose native textual organization and linguistic features are predominantly taken as the frame of reference by non natives. In this way, academic communities of different linguistic backgrounds may face minimum rhetorical differences, hence avoiding the possible breakdown of communication (Martin, 2003; Connor, 1996). Thus one important implication of the present study for prospective writers can be the fact that English academic genre represents a so–called writer–oriented, or viewed from the opposite angle, reader responsible genre in comparison with Persian. Of course, it is very important to notice that writer or reader responsibility is a relative feature. In other words, a language may be writer responsible in comparison with one language and reader responsible in comparison with another language.

In addition to having distinct genre-based norms, the two languages studied here can be considered as indicating that metadiscourse is a stylistic device representing a socio-cultural rhetoric as well. A socio-cultural rhetoric necessarily attempts to account for the *functions* which a language is to serve, and also the ways those functions are to be appropriately achieved. As regards the present study, it

must be asserted that both English and Persian languages made the textual *function* of language their primary goal, but Persian differed in making more use of this function. This shared feature, taken on a general level, may reveal that some degree of pragmatic overlap can be expected of the same genre that aims to achieve similar academic objectives. Persian and English demonstrate that different *ways* of communication tend to define the two languages. This finding reaffirms the position, already taken by Hyland (2004), that effective writing in different cultures involves a different culture-oriented deployment of resources to represent text and reader.

To elaborate, it needs to be stated that language utilizes certain linguistic forms and conventions which are encoded by the socio-cultural system of communication (Halliday, 1994). That is, all language use is a social and communicative act in which mutual cooperation and assistance are provided between the producer and receiver of the language to exchange information. As the present study showed in the case of metadiscourse use, such mutual cooperation can be differently designated and distinctively realized in different languages. It is through the lenses of the socio-rhetorical framework that some languages produce writer-based prose and others prefer reader-oriented one (Blagojevic, 2004). In this vein, metadiscourse is not an autonomous stylistic feature of language dissociated from the social texture, which can be used, reused, or left unused at will by the writers. It is an essential device which can be created out of the contextual requirements, intimately linked to the expectations of a particular professional community, and superordinately determined by the cultural norms of a given language.

Of course it must be borne in mind that the present study focused on the quantitative analysis of metadiscourse differences between two languages, and did not attempt to further investigate and determine the exact socio-cultural factors which might underlie the observed differences. Thus the findings can be attributed to the fact that rhetorical variation across languages depends both on the social origin and the activity (e.g. research articles) in which one is engaged. This diatypic variation is very well supported in the systemic-functional framework (Halliday, 1994) where language use is viewed as a configuration of the semantic resources which members of a culture associate with a situation type. The same idea is also upheld by Kaplan (1966) and Mauranen (2001). They both emphasize that rhetorical variation across languages in general, and academic communities in particular, can be accounted for by the socio-cultural aspects of the languages. This important relationship needs to be investigated and explored further through additional studies focusing directly on the underlying patterns which are likely to give rise to the differences.

References

Bhatia, V. J. (1993). *Analyzing genre: Language use in professional setting*. Longman: New York.

Blagojevic, S. (2004). Metadiscourse in academic prose: A contrastive study of academic articles written in English by English and Norwegian speakers. *Studies about Linguistics*, *5*, 1–7.

Brett, A. (1994). Genre analysis of the results section of sociology articles. *English for Specific Purposes*, *13*, 47–59.

Bunton, D. (1999). The use of higher level metatext in PhD theses. *English for Specific Purposes, 18*, 41–56.

Chelala, S. I. (1982). *The composing process of two Spanish speakers and the coherence of their texts: A case study*. Unpublished doctoral dissertation, New York University.

Clyne, M. (1987). Cultural differences in the organization of academic texts. *Journal of Pragmatics, 11(2),* 211-247.

Connor, U. (1996). *Contrastive rhetoric: Cross-cultural aspects of second language writing*. Cambridge: Cambridge University Press.

Connor, U. (2000). Variation in rhetorical moves in grant proposal of US humanists and scientists. *Text, 20* (1)*,* 1-25.

Crismore, A. (1989). *Talking with readers: Metadiscourse as rhetorical act.* New York: Peter Lang.

Crismore, A., & Farnsworth, R. (1990). Mr. Darwin and his readers: Exploring interpersonal metadiscourse as a dimension of ethos. *Rhetoric Review*, *8* (1), 91–112.

Crismore, A., Markkanen, R., & Steffensen, M. (1993). Metadiscourse in persuasive writing: A study of texts written by American and Finnish university students. *Written Communication, 10* (1)*,* 39–71.

Dahl, T. (2004). Textual metadiscourse in research articles: A marker of national culture or of academic discipline?. *Journal of Pragmatics, 36,* 1807–1825.

Halliday, M. A. K. (1994). *An introduction to functional grammar* (2nd ed)**.** London: Edward Arnold.

Hinds, J. (1987). Reader versus writer responsibility: a new typology. In: U. Conner, R. Kaplan. (Eds.), *Writing across languages: Analysis of L2 texts* (pp.141–152). Reading, M.A.: Addison–Wesley

Holmes, R. (1997). Genre analysis in the social sciences: An investigation of the structure of research article discussions in three disciplines. *English for Specific Purposes*, *16*(4), 321-337.

Hopkins, A. (1988). A genre based investigation of the discussion sections in articles and dissertations. *English for Specific Purposes*, 7, 113-122.

Hyland, K. (1998a). Persuasion and context: The pragmatics of academic metadiscourse. *Journal of Pragmatics, 30,* 437–455.

Hyland, K. (1998b). Exploring corporate rhetoric. Metadiscourse in the CEO's letter. *Journal of Business Communication, 35*(2), 224-245.

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

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

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

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

Intraprawat, P., & Steffensen, M. (1995). The use of metadiscourse in good and poor ESL essays. *Journal of Second Language Writing*, *4* (3), 253–72.

Kaplan, R. B. (1966). Cultural thought patterns in intercultural communication. *Language Learning, 16* (1), 11-20.

Kearsey, J., & Turner, S. (1999). Evaluating textbooks: The role of the genre analysis. *Research in Science & Technological Education, 17*, 35.

Marandi, S. (2003). Metadiscourse in Persian and English master's thesis: A contrastive study. *Iranian Journal of Applied Linguistics*, *6*(2)*,* 23–42.

Martin, P. M. (2003). A genre analysis of English and Spanish research paper abstracts in experimental social sciences. *English for Specific Purpose, 22,* 25-43.

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

Mauranen, A. (2001). Descriptions or explanations? Some methodological issues in contrastive rhetoric. In Hewings, M. (Eds.), *Academic Writing Context* (pp.43–54). University of Birmingham.

Miller, C. (1994). Genre as Social Action. *Quarterly Journal of Speech, 70*, 151-67. (Reprinted in *Genre and the New Rhetoric* [Eds. A. Freedman & P Medway] London: Taylor and Francis).

Perez–Llantada, C. (2003). Communication skills in academic monologue discourse: Empirical and applied perspective. *Circle of Linguistics Applied to Communication/ Círculo de Lingüística Aplicada a la Comunicación, 15,* 1576–4737.

Salager- Mayer, F. (1990). Discoursal flaws in medical English abstracts: A genre analysis per research- and text-type. *Text, 4*, 365-384.

Samraj, B. (2005). An exploration of a genre set: Research article abstracts and introductions in two disciplines. *English for Specific Purpose, 24,* 141-156

Stapleton, P. (2002). Critiquing voice as a variable pedagogical tool in L2 writing: returning the spotlight to ideas. *Journal of Second Language Writing, 11* (3), 177-190.

Swales, J. (1990). *Genre analysis. English in academic and research settings.* Cambridge: Cambridge University Press.

Valero-Garces, C. (1996). Contrastive ESP rhetoric: Metatext in Spanish-English economics texts. *English for Specific Purposes, 15* (4)*,* 279-294.

Vande Kopple, W. J. (1985). Discourse about discourse. *College Composition and Communication, 36,* 82–93.

Yang, R. & Allison, D. (2003). Research articles in applied linguistics: moving from results to conclusions. *English for Specific Purposes*, *22*, 365–385.

Yates, J. & Orlikowski, W. J. (1992). Genres of organizational communication: A structurational approach to studying communication and media. *Academy of Management Science Review, 17(*2), 299-326.

Widdowson, H. G. (1979). The description in scientific language. In H. G. Widdowson (Ed.), *Explorations in applied linguistics* (pp. 57-61). Oxford: Oxford University Press.

Williams, I. A. (1999). Results sections of medical research articles: analysis of rhetorical categories for pedagogical purposes. *English for Specific Purposes*, *18*, 347–366.

Appendix

Research Articles Analyzed in the Study

English Computer engineering articles

1-Bathe, K. J. & Baig, M. M. I. (2005). On a composite implicit time integration procedure for nonlinear dynamics. *Computers and Structures*, *83* (31-32)*,* 2513-2524.

2-Kallath, D. (2005). Trust in trusted computing- the end of security as we know it. *Computer Fraud and Security*, *2005* (12)*,* 4-7.

3-Karayiannis, N. & Nadella, S. (2006). Power-conversing routing of ad hoc mobile wireless networks based on entropy–constrained algorithms. *Ad Hoc Networks, 4* (1), 24-35.

4-Verma, A., Sawant, H. & Tan, J. (2006). Selection and navigation of mobile sensor nodes using a sensor network. *Pervasive and Mobile Computing*, *2* (1)*,* 65-84.

5-Yuan, Y., Yang, Z., He, Z. & He, J. (2006). An integrated energy aware wireless transmission system for QoS provisioning in wireless sensor network. *Computer Communications*, *29* (2)*,* 162-172.

English Applied Linguistics articles

1-Davis, A. (2006). What do learners really want from their EFL course?. *ELT Journal, 60* (1), 3-12.

2-Halleck, G. (2006). Rhetorical moves in TESOL conference proposals. *Journal of English for Academic Purposes, 5* (1)*,* 70-86.

3-Liu, L. (2005). Rhetorical education through writing instruction across cultures: A comparative analysis of select online instructional materials on argumentative writing. *Journal of Second Language Writing*, *14* (1), 1-18.

4-North, S. (2005). Disciplinary variation in the use of theme in undergraduate essays. *Applied Linguistics*, *26* (3)*,* 431-452.

Persian Computer engineering articles

1-Abdi, J., Rashidi, F., Locs, K., & Khaki Sedigh, A. (2005). Talfighe hambaft va yadgiri atefi tafavot zamani dar mohandesi kontrol. [The homotexture mixture and the time difference of emotional learning in control engineering]. *Science and Research Journal of Sharif, 30,* 13-21.

2-Ghasemaghai, N. (2004). Mozo bandi matn hai motarakem. [Categorizing of dense texts]. *Research Journal of Esfahan University*, *21* (1)*,* 138-154.

3-Ghasem Sani, GH. R. & Namzi, M. (2004). Raveshi jadid barai hale masaele erzaye mahdoodiyat. [A new method for solving constraint satisfaction problems]. *Esteghlal*, *23* (1), 1-11.

4-Hejazi, M.R., Miriyan, M., Neshatiyan, K., Ofoghi, B. R., & Doroodi, E. (2004). System porsesh va pasokh mobtani bar hasten shenasi barai hoze mokhaberat va daste bandi khodkare mostanadat. [Question answering system based on ontology for telecommunication domain with automatic retrieving and categorizing capability]. *Science and Computer Engineering*, *2* (1)*,* 1-17.

5-Mehrabi, B., Movahedinia, N., & Ghasemaghai, N. (2005). Tarahi yk kar gozare nazere web ba tavanaye sarande hoshmand. [Designing a web server with intelligent filtering capability]. *Research Journal of Esfahan University*, *21* (1)*,* 125-138.

Persian Applied Linguistics articles

1-Alavi, S.A. (2004). Naghshe daneshe grammar va vajegan dar test khandan va darke matlab. [The role of grammar and word knowledge in reading and comprehension test]. *Journal of the Foreign Language Research of Tehran University*, *17*, 93-114.

2-Amiri Khorasani, A., & Alinejad, M. (2005). Baresi moshkelate tadrise zabane farsi be ghire farsi zabanan va eraye chand rahkar. [The investigation of the problems of teaching Persian to the non-Persian and presentation of some solution]. *Journal of the Humanities and Literature Faculty of Mashhad University*, *149*, 50-23.

3-Parhizgar, M. R. (2004). Mani shenasi pisholgoyi: Negaresh va Azmayesh. [Proto-typical semantics: Theory and practice]. *Journal of the Humanities and Sociology of Shiraz University*, *21*(1), 12-20.

4-Safavi, K. (2005). Negahi be nazareye hoze hai manayi az manzare nezame vajegane farsi. [A look at the field theory from the point of view of morphological system of Persian Language]. *Journal of the Humanities and Sociology of Shiraz University*, *21* (1), 1-11

5-Shahnaseri, Sh. (2004). Hanjar hai vajegani dar taamolate kalami dokhtarane nojavan. [Morphological manners in speech interactions of adolescent girls]. *Journal of Persian Language and Literature and Foreign Languages of Allame Tabatabai University*, 9-26.