

Interactional Metadiscourse Markers in Academic Research Article Result and Discussion Sections

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ABSTRACT

The research article is one of the widely practiced genres of communication among members of academic discourse community to contribute their own new knowledge and get acceptance from the audience. A generic analysis of research articles can cover a wide variety of issues; among them rhetorical features. As argued by Hyland (2004), a valuable means of exploring academic writing and of comparing the rhetorical features and preferences of different discourse communities is through metadiscourse analysis. Metadiscourse is an aspect of language which provides a link between texts and disciplinary cultures, helping to define the rhetorical context by revealing some of the expectations and understandings of the audience for whom a text is written. Differences in metadiscourse patterns may prove to be an essential means of distinguishing discourse communities (Hyland, 1998). The present paper focused on interactional metadiscourse markers in the result and discussion section of academic research articles across four disciplines, namely, English Language Teaching, Civil Engineering, Biology, and Economics. Sixteen research article result and discussion sections (4 from each discipline) were sourced from four leading international journals for analysis. Results revealed that there were worth-pointing differences, but not statistically significant differences excepting in terms of boosters, between disciplines in the use of interactional metadiscourse markers. Similarities and differences are explained by way of an explication of genre features in terms of contextual configuration and genre specific needs dealing with applied metadiscourse markers by discipline.

Keywords: metadiscourse; interactional metadiscourse markers; genre; academic research articles

INTRODUCTION

Getting entry into any discourse community can be fulfilled through defining its particular established goals (Bizzell 1992) and being aware of and competent in its writing practices (Hyland & Hamp-Lyons 2002). A discourse community possesses the following features mentioned by Swales (1990): 1) Determined and fixed set of common public aims; 2) Mechanisms and approaches for its members to communicate with each other; 3) One or more genres in the communicative assertions of its goals; 4) And a threshold level of members with an appropriate degree of relevant content and discursive expertise.

Swales (1990) describes further that there are plenty of established ways for any discourse community to contribute information which give rise to different genres. The defining characteristic of a genre is the communicative purpose it fulfills. This communicative purpose is reflected in the rhetorical structure or organisation of the genre. To Bruce (2005), genres are of two types, social and cognitive. He figures out research article

(henceforth RA) as a social genre employed as a communicative way among members of a specific discourse community.

Through writing RAs, writers attempt to incorporate their claims and argumentations into the disciplinary accordance (Hewings 2006). As an academic genre of communication, in any particular field of knowledge, RAs communicate information based on the accepted way and ideology of that field. That is why, among particular genres, they are mostly considered as an important methodological issue in a discipline. An accepted or published RA is of much worth to an academic as it shows acceptance in the discourse community and a means to build up scholarship in the field. Hence, it is important for writers (especially aspiring ones) to have a clearer view towards the genre of RA (Hyland 1998, p. 439).

Bazerman (1988, p. 46) remarks that articles from different disciplines vary in their representation of the subject matter, the audience, and the authors themselves, to the extent that “each text seems to be making a different kind of move in a different kind of game”. A generic analysis of RAs can cover a wide variety of matters such as rhetorical features. An essential part of rhetorical features of RA is shaped through metadiscourse that is used to make the text persuasive and reader-friendly, and it also helps authors to arrive at audiences (Hyland 2005). Hyland asserts that metadiscourse markers are facilitating tools in social communication which contribute to making knowledge within discipline and owing to the differential characteristics of the discipline, the application of metadiscourse is various in different disciplines (2005, p. 143)

The notion of metadiscourse has been defined by a number of scholars. Williams (1981) takes it as “writing about writing, whatever does not refer to the subject matter being addressed” (p. 212). In Vande Kopple (1985) words, metadiscourse is “the linguistic element which does not add propositional content, but rather signals the presence of the author in the text” (p. 83). Mauranen (1993, p. 8) and Crismore et al. (1993, p. 40) take roughly the same stance referring metadiscourse to linguistic material in the text that goes beyond the propositional content which adds nothing to the subject matter but guides the listener or reader through organising, interpreting, and as well as evaluating the information mentioned.

Hyland (2004) views metadiscourse as “self-reflective linguistic expressions referring to the evolving text, to the writer, and to the imagined readers of that text” (p. 133). In his words, it is based on a view of writing as a social and communicative engagement and, in academic contexts, shows the ways writers project themselves into their argumentation in order to control their interactive intentions and signal their perspectives and commitments (2005, p. 14).

A number of studies have been incorporated to the notion of metadiscourse in academic RAs disciplinarily and cross-disciplinarily. (Abdi 2002, Abdollahzadeh 2011, Harwood 2005, Hyland 1998, 2007, Hyland & Tse 2004, Khedri et al. (in press), Millan 2010, Vazquez & Giner 2008). Among them, Harwood (2005) conducted a qualitative corpus-based study of self-promotional *I* and *we* in academic writing across four disciplines while Vazquez and Giner (2008) worked on the use of epistemic markers as hedging rhetorical strategies in English RAs in three fields. Abdollahzadeh (2011) worked on hedges, emphatics, and attitude markers as three types of interactional metadiscourse markers included 60 conclusion sections of applied linguistics RA.

Most studies have focused on either different disciplines other than what are concerned in the present research, different rhetorical sections of RA like discussion (Abdi 2002) or conclusion (Abdollahzadeh 2011), or even on some, not all, types of interactional metadiscourse markers. By reviewing the existing literature, it was found that studies on metadiscourse in the genre of RA are extremely low. The scarcity is felt even greater when it comes to the status of interactional metadiscourse markers across various disciplines, and

also how these linguistic features are manifested in different rhetorical sections of RA, especially in the result and discussion sections. Therefore such a lack motivated the researchers to shed more light on interpersonality in academic writing investigating how interactional metadiscourse markers, based on Hyland's (2005) distinction, are manifested in the result and discussion sections of RAs across four different disciplines.

METHOD

Following Grabe (1987) and Paltridge (1996), the corpus selection was based on three standards: genre, ESP, and the type of text. Following Swales' (1990), Mauranen's (1993), and Connor's (1996) argument that RAs act as a genre, the academic RA was chosen to meet the first standard. To meet the second, RAs were just only picked from four disciplines belonged to the two main fields of knowledge, as categorised by Becher (1989), soft sciences and hard sciences. This study was narrowed down and focused solely on the result and discussion sections of RAs, where writers have the opportunity of running more words by their own on interpreting their findings and putting them into discussion. So, the persuasive and argumentative nature of these two rhetorical sections is likely more relevant for the identification of the linguistic features, particularly metadiscourse markers, preferred by writers from different disciplinary communities.

So, the corpus used in this study consists of a sample of sixteen result and discussion sections of RAs in four disciplines (4 from each discipline), namely, English Language Teaching (ELT) and Economics (Eco) representing soft sciences, and Biology (Bio) and Civil Engineering (CE) representing hard sciences (based on Becher's, (1989) taxonomy). All selected articles have been published in two consecutive years, 2009 and 2010, and were sourced from four internationally reputed referred journals published by University Putra Malaysia including Social Sciences and Humanities, Economics and Management, Tropical and Agricultural Sciences, and Science and Technology. These journals are indexed in Scopus.

Sixteen RAs in each field of study were selected randomly from the identified journals and they were given to some experts in each discipline to confirm the disciplines. Only experimental articles which included Introduction, Method, Result and Discussion (IMRD) rhetorical sections proposed by Swales (1990), were picked up from the identified journals. Experimental article, as Jalilifar (2009) says, is a genre which signals the developmental stages of documenting a scientific experiment. It possesses an unchanged format and consists of several subparts such as introduction, literature review, methodology, results, discussion, and conclusion. This type of genre is usually employed by researchers in applied sciences, psychology, and hard sciences, and the list goes on (p. 9).

Considering the common belief among scholars that metadiscourse is an inborn fuzzy and functional category and that expressions containing metadiscourse strategies can be multifunctional and context dependent (Adel 2006), the analysis followed Hyland's (2005) proposed taxonomy. A rigorous analysis was conducted taking the functional meaning into account. All articles were put into Rich-text format to search interactional metadiscourse markers electronically using MonoConc Pro 2.2, a text analysis and concordance program. Next, all illustrations were carefully analysed individually and manually based on the context in which they occur in order to be certain about their functions as metadiscourse. Then, since the quantity of data in each discipline may not the same due to length, the number of metadiscourse elements was computed per 1000 words to allow comparison across corpora of unequal sizes. Finally, to scrutinise the statistically significant differences between disciplines

in concern, Chi-square analysis was run on the data.

Furthermore, to counter the threat of unreliability and misinterpretation in the analysis, and to verify the interpretations, agreement on the method of analysis was reached on a small sample- 4 RAs from the corpus (1 from each discipline) through member verification. The initial analysis was double-checked by an experienced researcher in applied linguistics working independently.

RESULT AND DISCUSSION

As it is seen in the above table, the total number of words in hard sciences is 485 words more than that of in soft sciences, meaning that RA writers in hard sciences used more words to convince readers about findings. This was unexpected as the researchers premised that the soft sciences would use more words. Put in another way, texts written in soft fields of knowledge appear not conform to Hyland's (2005) opinion that soft sciences disciplines are more interpretative than [hard] sciences and claims are more reliant upon discussion and argument than on certainty in the procedures applied to set up facts. He came to the above conclusion by analysing the whole sections of RA while we analysed only two rhetorical sections including the result and discussion sections. Swales (1990) believes that these two sections are parts that writers has the opportunity to speak more about their findings and justify their argumentations leading to higher density of word usage. Therefore, the discrepancy in the number of words appears to suggest Hyland's assertion is contestable. Topic discussion in the hard sciences could be more abstract compared with the soft sciences and thus may require the use of more words to convey the information and to persuade the audience to accept the findings.

TABLE 1. Number of words in result and discussion sections of RA

	ELT	Eco	Bio	CE
Article 1	2316	1089	1585	1120
Article 2	999	853	1512	1069
Article 3	720	829	915	981
Article 4	706	477	717	575
Total	4741	3248	4729	3745

Table 2 presents the frequency analysis of interactional metadiscourse markers in each discipline. It showed that not all interactional metadiscourse markers were used by the academic RA writers in both fields of knowledge, excepting the economists. Amongst analysed markers, boosters were the most frequent markers employed by both groups of authors and hedges as the second most. This is compatible with Abdi's (2002) findings. He, however, found more hedges than boosters in his corpus. Attitude markers figured out to be the third most frequent features compared with the other two interactional elements, engagement markers and self-mentions. Neither engagement markers nor self-mentions occurred, even as a single token, in RAs written in hard fields of knowledge whereas 2 cases (0.61 per 1000 words) of engagement markers and 11 cases (3.19 per 1000 words) of self-mentions were realized in RAs written in soft fields of knowledge. The absolute number of interactional metadiscourse markers in soft fields was by far, more than that in their counterparts in hard fields. The similarities and differences in functions across sciences for each marker are described below following table 2.

HEDGES

To Hyland and Tse (2004), hedging devices signal authors' unwillingness to express propositional content categorically. They function as an escape route for the writers to avoid committing to ongoing information fully and yet leaving the door only half-closed for mitigation. Through such uncertainty markers, writers indicate a well-considered commitment to the truth-value of a proposition. In the same vein, Abdollahzadeh (2011) comments that by using hedges, writers are able to decrease their responsibility which they may encounter while expressing a proposition.

E.g. 1: This could possibly be attributed to many factors such as...[CE]

E.g. 2: As a result, the declining energy stored is likely to be measured in its lower CI value. [Bio]

Results of frequency analysis identified that elements which carry the meaning of hedges are manifested more or less identically in all disciplines, though a little more in soft sciences disciplines, 144 tokens (35.68 per 1000 words) while 139 tokens (32.28 per 1000 words) in hard-knowledge fields respectively. This finding is in line with those gained by Hyland (2004) and Abdi (2002) where they found that hedges are used more in soft sciences. On the other hand, the similarity between two sciences can be justified considering the manner of authors in both sciences in the case of article writing to display their humility and deference to readers by allowing them to get involved and intrude their alternative voices. As illustrated in table 2, amongst interactional metadiscourse markers, after boosters, hedges were the second most frequent markers and this high use could mean that writers of both sciences are conscious about the critical significance of distinction between fact and idea in academic writing, and need to withhold full commitment to the ideational information, thus manipulating information load cautiously.

BOOSTERS

Boosting tools permit writers to close down alternatives and express certainty in what they say, such as: *it is clear that, definitely, obviously*, etc. By using boosting devices, writers are able to display more fully their empowerment to assert and make claims. In doing so, they exercised an option of stressing shared knowledge between readers and themselves as a pre-requisite for reaching identical and firm conclusions (Hyland 2005, pp. 52-53).

E.g. 3: ..., it is obvious that there is a significant difference between the pre test and post test...[ELT]

E.g. 4: Table 2a to 2d clearly demonstrate that there are long run relationship amongst...[Eco]

In spite of the similarity in applying tentative language, both majors of field were statistically discrepant in the use of boosters. They occurred much more in the soft fields, 256 tokens (62.7 per 1000 words) in soft disciplines and 163 tokens (38.76 per 1000 words) in hard disciplines. It was revealed that soft sciences authors expressed their argumentations about the propositional content with a much higher degree of certainty in comparison with hard science authors leaving little room for their addresses to mediate alternative voices and opinions. The high use of boosters in soft disciplines has been stressed by Hyland (2005, p. 145) who found that boosters along with hedges presented about 2.5 times more in the

humanities and social science papers than sciences. He goes further saying that in some parts of the RAs such as methodologies and results the writer(s) in the soft fields use more boosters as they need to emphasise the significance of their work in face of alternative interpretations especially when such interpretations can be subjective and not truly experimental in nature. He adds that they need to eliminate possible alternative voices, terminating these voices by using boosters emphasising the strength of their commitment and convincing the reader by speaking forcefully about their results (2005, p. 146).

ATTITUDE MARKERS

These markers show writers' influential, not epistemic, viewpoint and attitude towards propositional content. Through attitude markers the writers conveyed their personal feelings such as surprise, agreement, importance, obligation, frustration, and so on. Attitude markers can be characterised through lexical choices such as attitude verbs (*agree, prefer*), sentence adverbs (*unfortunately, hopefully*), and adjectives (*appropriate, remarkable*) (Hyland 2005, p. 53).

E.g. 5: It is important to note that the railway traffic was not affected during the construction period. [CE]

Referring to table 2, writers in Eco and ELT used 69 cases (17.17 per 1000 words) while their cognates in Bio and CE used fewer attitude markers, especially in Bio, getting to 50 tokens (12.34 per 1000 words). This figure constitutes about 30% of attitudinal metadiscourse and RA writers in the two fields demonstrate a significant need to give such interpretation individually, contributing to an authorial persona. At the same time, the writers build up a relationship between the disciplinary community they belong to. Hyland (2005) comments that in hard sciences, more burden is often put on research practices and the methodology, procedures, and equipment applied to do the research. Hence, these writers shed more light on demonstrable generalisations with less emphasis on individual interpretations. Conversely, soft sciences authors more often than not, cannot claim their findings to be based on proven quantitative methods; causing them to evaluate their arguments more explicitly. In all, attitude markers are more predominant in the soft fields in getting across a text to be convincible in the eyes of readers and also to set up authorial credibility, establish critical viewpoint, and create disciplinary awareness (pp. 150-151).

ENGAGEMENT MARKERS

Engagement markers orient to audiences in an explicit way. To do so, writers either call their attention selectively or engage them as participants in the discourse (Hyland & Tse 2004, p. 168). Engagement markers can be exemplified through a number of ways like reader pronouns, personal asides, questions, and directives (Hyland 2005, p. 154).

E.g. 6: We can see that labor productivity in Malaysian manufacturing sector is still very much depending on labor... (Eco)

It is obvious that engagement markers show different ways that writers can involve readers with the arguments by making a connection through advanced acknowledgement. This means giving signals as to connecting writers' earlier experiences with specific texts to the intended readers. It could be in the form of a possible prediction as to how the readers' feedback will be to their discourse. Writers on the same wavelength as the reader could make use of the appropriate persuasive tools to interpret the discourse and anticipate possible

objections from the audience. Therefore, this type of addresses' evaluation is of a great help to the writer in making his line of reasoning more akin to that of the reader to achieve concordance. Similar to other markers, engagement markers also signal the way through which language is used to connect to preferred cultural and institutional settings in such generic social communication (Hyland 2005, p. 151). Our findings marked that, no case of engagement markers showed up in three disciplines with some infrequent use in Eco, 2 tokens 0.61 (per 1000 words). This lack of occurrence is not something odd as, in our study; we only included two rhetorical sections of the RA, namely, result and discussion. In these two sections, we make judgment mainly reliant on the findings of studies which could mean that visuals such as figures are likely to "talk" more and this characteristic could predominate over prose expression thus resulting in economy of extended writing.

SELF-MENTIONS

The strategic application of self-mention in RA writing provides an opportunity for authors to assert their authorial persona by stating their strong beliefs and ideas, putting emphasis on their contribution to the field, as well as seeking recognition for their endeavor (Kuo, 1999).

E.g. 7: Besides new evidence in trade and tourism relationship, our results seem to be consistent with previous papers. [Eco]

E.g. 8: In this study, the researchers conclude that revision should form a fundamental part of writing pedagogy. [ELT]

The interesting point is that there was no presence of self-mentions in the whole corpus of Bio and CE used in this study. This being the case, it could be inferred that no element signals the authorial identity or writers' presentation metadiscursively of this nature. There were just a few cases of such attempts in ELT (2 tokens) and Eco (9 tokens), altogether 3.19 per 1000 words, leading to the conclusion that there is only very faint presence of writers exercising the rhetorical stance.

The above-mentioned findings partially supported Hyland's (2001; 2005) viewpoint which argues that RA discourse in hard sciences are able to downplay their personal representation in their research. They do it with the aim of shedding more light on the phenomena under investigation, emphasising the matter of replicating research activities, and also the generalisation of results. The purpose of adopting less intrusive and personal writing format by RA writers in hard fields of knowledge, to Hyland (2005), is that they see themselves as more removed from exerting an influence on the findings of the study. Acting so, they strengthened the reality of their argumentations through objective portrayal with their voice subordinated to that of essence.

Conversely, following Hyland (2005), entities in soft sciences are utterly more specific, but less exactly evaluative, and less clear-cut. In this sense, setting up a suitably authorial persona and keeping an influential degree of personal intrusion and involvement with addresses can be of use strategies in forging links and relationships between entities. He further describes that in achieving the desired communication, marking a boundary between writers' own work and others and making a self-reputation in their texts as well are all feasible via self-mentioning features. Accordingly, one of the characteristics of humanities and social sciences is that writers can individualise their authorial identities and what they need to state using self-mentions. In all, in the present research, results relate to self-mentions in both soft and hard sciences are in line with Hyland's (2005) assertions.

TABLE 2: Frequency analysis of interactional metadiscourse markers in each discipline per 1000 words

	Soft sciences				Total	Hard sciences				Total
	<i>ELT</i>		<i>Eco</i>			<i>Bio</i>		<i>CE</i>		
	<i>Row No.</i>	<i>Per 1000 words</i>	<i>F</i>	<i>Per 1000 words</i>		<i>Row No.</i>	<i>Per 1000 words</i>	<i>F</i>	<i>Per 1000 words</i>	
<i>Hedges</i>	89	18.75	55	16.93	35.68	87	18.4	52	13.88	32.28
<i>Boosters</i>	166	35	90	27.7	62.7	86	18.2	77	20.56	38.76
<i>Attitude markers</i>	42	8.86	27	8.31	17.17	18	3.80	32	8.54	12.34
<i>Engagement markers</i>	*	*	2	0.61	0.61	*	*	*	*	*
<i>Self-mentions</i>	2	0.42	9	2.77	3.19	*	*	*	*	*
Total					119.35					83.38

Overall, table 3 presents results of Chi-square analysis. As the table indicates, there is no statistically predominant difference between soft and hard fields of knowledge in terms of interactional metadiscourse markers excepting boosters. Such a variation means that soft sciences authors signal more dispositions towards claiming their discourses with a higher degree of certainty leaving very little space for readers' possibly alternative opinions. Given the results, there is insufficient evidence to conclude that interactional metadiscourse markers are differently used according to discipline.

TABLE 3: Chi-square analysis of interactional metadiscourse markers across disciplines

	Soft Disciplines	Hard Disciplines	Xvalue	df	P
Hedges	35.68	32.28	0.235	1	0.6276
Boosters	62.7	38.76	5.647	1	0.0175
Attitude markers	17.17	12.34	0.862	1	0.3532
Engagement markers	0.61	*	1.000	1	0.3173
Self-mentions	3.19	*	3.000	1	0.0833

CONCLUSION

Interactional metadiscourse features pave the way for writers to interact with readers, get access to them, and signal their truth-value about current propositional information. To fulfill these objectives, writers must intrude more into the text with the help of interactionally metadiscursive strategies. As Hyland (2005) remarks, interactional metadiscourse elements play a crucial role in contributing new knowledge and making academic claims. However these metadiscoursal devices display significant conventional channels of encoding meaning that guide and provide a clearer interpretive situation, representing how authors and audiences interact with each other and involving a culture of communication in their own genre through texts (p. 156).

The results reported that there are some similarities and differences across four selected disciplines in terms of using interactional metadiscourse markers. The most

significant differential area referred to boosters that were so prevalent among soft sciences authors used to signal their full commitment towards the thoroughness and preciseness of propositional information. Some other interesting outcomes found in the corpus are the non-existence of engagement markers in ELT as soft discipline and the lack of presence of engagement markers and self-mentions in two hard fields. Findings of this study can serve to give some information on interactional metadiscourse markers use specifically in RAs related to ELT, Eco, Bio, and CE disciplines. To note is the lack of a significant difference between disciplines with boosters deemed more important in soft sciences than in hard sciences. The data provide a linguistic mapping of interactional metadiscourse markers that give access to information about generic practices in terms of attaining tailored public goals, norms, and conventions and the need to use them in a manner that would aid writers to and find a space for publication in international leading journals. In other words, it marks the rite of passage into a particular disciplinary community, satisfying the stringent rules of membership through recognized publication and establishing a voiced academic identity among peers.

Overall, in the current research, we presented a cross-disciplinary picture of interpersonality in academic writing accentuating interactional metadiscourse markers in the genre of RA. Exploring the linguistic realizations in various rhetorical sections of RAs across variant disciplines can equip us with valuable insights regarding the standards and norms of argumentation in academic writing. Such a cross-disciplinary study may be of value for novice RA writers belonged to the selected disciplines in this study to identify and map linguistic features like metadiscourse markers and in turn to get mastery over generic practices and disciplinary cultures represented in the formal properties. To add on, Bahtia (1997) remarks that exposing inexperienced writers to the established conventions of a particular genre such as RA and also the reasons supposed to bring about such conventions in the social endeavors of a community is quite of use. Such claims need to be further investigated in terms of the manifestation of metadiscourse markers, both interactive and interactional, in other rhetorical sections such as introduction, methodology, and conclusion among different fields in order to achieve more plausible and attestable insights. In this vein, some scholars believe, research has clarified that the communicative aim of the various rhetorical sections influence the degree of uncertainty, flexibility, writers' involvement, authorial persona, and attitudinal language characterized by different linguistic expressions (Abdollahzadeh 2001, Hopkins & Dudley-Evans 1988, Salager-Meyer 1994).

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