Journal of English for Academic Purposes 20 (2015) 135–148

Contents lists available at ScienceDirect

Journal of English for Academic Purposes

journal homepage: www.elsevier.com/locate/jeap

The use of metadiscourse for knowledge construction in Chinese and English research articles

Congjun Mu [a, *], Lawrence Jun Zhang [b], John Ehrich [c], Huaqing Hong [d]

[a] College of Foreign Languages, Shanghai Maritime University, China
[b] Faculty of Education, University of Auckland, New Zealand
[c] Faculty of Education, Monash University, Australia
[d] Nanyang Technological University, Singapore

ARTICLE INFO

Article history:
Received 10 July 2014
Received in revised form 15 September 2015
Accepted 16 September 2015
Available online xxx

Keywords:
Metadiscourse
Knowledge construction
EAP
English research articles
Chinese research articles

ABSTRACT

The purpose of this study is to compare the usage of metadiscourse in English and in Chinese research articles (RAs) published in applied linguistics journals and to investigate how metadiscourse may contribute to knowledge construction in RAs. A small corpus in each language was built consisting of 20 journal articles in English and another 20 in Chinese. In order to highlight metadiscourse features, an established model of metadiscourse was adopted to annotate both Chinese and English articles. It was found that there are generally more metadiscourse features in the English sub-corpus than in the Chinese sub-corpus. While both English sub-corpus and Chinese sub-corpus were found to use statistically significantly more interactive metadiscourse resources (organising discourse) than interactional metadiscourse resources (indicating writers' attitude and stance to themselves, text and audience), the English sub-corpus employed statistically significantly more interactional metadiscourse features than the Chinese sub-corpus. Implications of this study are discussed for both English and Chinese academic writing, including the teaching of English writing as a second language (L2).

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

In the past three decades there has been growing interest in the metadiscourse features of research articles (RAs) (e.g., Del Saz-Rubio, 2011; Hyland, 1998, 2005a, 2007; Loi & Lim, 2013; Mur-Dueñas, 2011; Peterlin, 2005). Metadiscourse refers to the devices or resources which writers use to organise the discourse, engage the audience, and signal the writer's attitude. We define metadiscourse by following Hyland (2005a), namely, it is "the cover term for the self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or speaker) to express a viewpoint and engage with readers as members of a particular community" (p. 37). Historically, metadiscourse has derived from Halliday's three macrofunctions of language: Ideational, interpersonal, and textual. Each text is an integrated expression of these three kinds of functions (Vande Kopple, 1985). Earlier researchers such as Crismore and Farnsworth (1989) and Vande Kopple (1985) divided metadiscourse into textual and interpersonal. Recently, Hyland and Tse (2004) argue that "all metadiscourse is interpersonal in that it takes account of the readers' knowledge,

* Corresponding author. College of Foreign Languages, Shanghai Maritime University, 1550 Hai Gang Avenue, Pudong New Area, Shanghai, China.
E-mail addresses: congjun.mu@gmail.com (C. Mu), lj.zhang@auckland.ac.nz (L.J. Zhang), john.ehrich@monash.edu (J. Ehrich), huaqing.hong@gmail.com (H. Hong).

http://dx.doi.org/10.1016/j.jeap.2015.09.003
1475-1585/© 2015 Elsevier Ltd. All rights reserved.

textual experience, and processing needs and that it provides writers with an armoury of rhetorical appeals to achieve this" (p. 161). Hyland and Tse divide metadiscourse resources into interactive and interactional dimensions based on their functions in the text. The former includes such sub-categories as transition markers, frame markers, endophoric markers, evidentials, and code glosses; and the latter includes hedges, boosters, attitude markers, self-mentions, and engagement markers. The significance of metadiscourse in academic writing is widely recognised, as it is the means of "facilitating the social interactions which contribute to knowledge production within academic disciplines" (Hyland, 1998, p. 438) and "reflecting writers' attempts to negotiate academic knowledge in ways that are meaningful and appropriate to a particular disciplinary community" (Hyland, 1998, p. 440). Metadiscourse usage varies in different languages and different disciplines. For example, Dahl (2004) finds that English and Norwegian scholars employ much more metadiscourse features than their French counterparts when writing RAs in the fields of economics and linguistics. The different metadiscourse features demonstrate different rhetorical traditions. As Dahl (2004) indicates, the French tradition favours less visible and direct authorial presence in writing than the Anglo-Saxon and the Scandinavian tradition does. Thus, understanding metadiscourse features in RAs will be a useful approach to exploring how knowledge is constructed in research articles across languages and cultures.

In this paper, we focus on cross-linguistic metadiscourse features with specific reference to RAs published in English and in Chinese in the field of applied linguistics. To date, numerous studies have identified differences and similarities in the use of metadiscourse between different languages: English and Brazilian Portuguese (Hirano, 2009), English and Finnish (Mauranen, 1993), English and Spanish (Moreno, 1997; Mur-Dueñas, 2011; Soler, 2011; Vergaro, 2011), English and Iranian (Simin & Tavangar, 2009), English and Slovene (Peterlin, 2005), English and Persian (Zarei & Mansoori, 2007) and English, French and Norwegian (Dahl, 2004). Among these cross-linguistic studies of metadiscourse, the comparison between English and Spanish has been done relatively thoroughly. Less common, however, are cross-linguistic comparisons of metadiscourse features between English and Chinese RAs. Two recent exceptions are Hu and Cao (2011) and Loi and Lim (2013). While these two studies provide valuable information on specific aspects of metadiscourse features across English and Chinese RAs, their focus has been somewhat limited. For example, Hu and Cao (2011) only compared the use of hedging and boosting devices in the abstracts of applied linguistics articles, whereas Loi and Lim (2013) reported on the similarities and differences of metadiscourse usage in the introduction sections in English and Chinese RAs. By contrast, the present study systematically examines metadiscourse usage across English and Chinese RAs in their totality based on self-built corpora. This approach will significantly contribute to the field of cross-cultural research in English for Academic Purposes (EAP) and second language writing.

We chose to examine RAs in the discipline of applied linguistics for the following reasons. First, the data used in Hu and Cao (2011) were collected from applied linguistics RA abstracts, so we do not know the extent to which metadiscocurse features differ across English and Chinese Applied Linguistics RAs. Second, Chinese writers, especially applied linguists, have recently shown a strong tendency to publish RAs in international refereed journals in English in order to secure recruitment, reappointment, promotion or other employment-related benefits in China. Thus, we believe that studying cross-cultural differences in metadiscourse features will facilitate understanding the challenges that Chinese authors, especially applied linguists face when trying to publish in English in international journals. With these concerns in mind, we intend to answer the following research questions:

1. What are the similarities and differences in the use of metadiscourse between English and Chinese applied linguistics RAs?
2. How do international applied linguists and Chinese applied linguists choose interactional metadiscourse resources in their RAs?

2. Literature review

2.1. Knowledge construction and metadiscourse in RAs

There is consensus in the international discourse community that it is necessary to keep "a balance between objective information, subjective evaluation and interpersonal negotiation as a powerful persuasive factor in social construction of knowledge and gaining community acceptance for their claims" (Abdollahzadeh, 2011, p. 294). Writers of RAs need to present their claims carefully, precisely, and honestly to meet discourse community expectations and to gain acceptance for their statements (Hyland, 1996, p. 477) and they do not simply generate articles that discuss social or natural realities but use language to recognise, construct, and negotiate social relations. The view that RAs are simply factual and impersonal has changed, and writing is considered a "social engagement" in which writers interact with their readership, not only to convey messages, but to facilitate understanding (Amiryousefi & Rasekh, 2010; Hyland, 1998). Writers contribute actively to knowledge construction and "their choices regarding how propositional information should be presented connect them to the broad inquiry patterns and knowledge structures of their disciplines and reveal something of the ways that academic communities comprehend the things they probe and construct suitable writer–reader relation" (Hyland & Tse, 2004, p. 174). Therefore, by calling on the shared understandings of the discourse community, writers accord the reader a position of membership in their RAs. Writers articulate their individuality, authority, and concerns as well as their relationships to the

subject matter and they also relate to readers by using certain strategies in their RAs. These strategies, which include deliberated uses of words, phrases, main clauses, and even punctuation and typographic marks, are referred to as metadiscourse (Abdollahzadeh, 2011; Crismore & Farnsworth, 1989; Hyland, 2005a; Vande Kopple, 1985).

Metadiscourse plays a significant part in knowledge construction through managing the communications between writers and readers who often come from the same discourse community, interested in sharing cultural, academic, and rhetorical practices (Hu & Cao, 2011; Hyland, 2005a). The use of metadiscourse not only helps writers to advance their arguments but also serves to showcase their competence within the discourse community. For example, writers may use *transition markers* to present their arguments and guide readership. These arguments are then embedded in networks of references using *evidentials* (Del Saz-Rubio, 2011). They also employ *endophoric markers* to indicate section structure and to locate data (Lim, 2011). Brett (1994) argues that new knowledge claims are usually made in the Results section of RAs and the sociologists were found to use "comment" including *hedging* "to urge and persuade the reader … beyond the mere presentation of numbers" (p. 55). Nwogu (1997) found that in the Introduction section the temporal and locative adverbials (*frame markers* in metadiscourse) are employed to signal the commencement of information acting as background while in the Results section the *hedging* devices are used to account for observations made (p. 131). Hyland (1996), after analysing a corpus of 26 research articles in cell and molecular biology, identifies three principal functions of *hedging* in science. Firstly, writers could organise their ideas more precisely, qualifying their claims appropriately. Secondly, writers could avoid "face-threatening" with *hedging* even though their statements are proven wrong. Finally, *hedging* could help writers to show their deference and respect for colleagues when presenting their claims. In sum, writing RAs, as a social activity instead of individual process, involves a variety of participants including the audience, the reviewers and writers' colleagues contributing to new knowledge construction. Armed with metadiscourse knowledge, writers could develop a more cohesive and precise discourse and a good relationship with the audience, which will facilitate readers' acceptance of their claims.

2.2. Intercultural comparative study of metadiscourse in RAs

Different epistemological and social assumptions of discourse communities are usually manifested in RAs. These differences in knowledge construction result in variation in how knowledge is arranged within texts and across cultures. Thus, the use of metadiscourse (and accompanying conventions of such usage) varies from one language and culture to another. Previous intercultural studies have confirmed that metadiscourse in RAs differ according to the authors' cultural background (e.g., Mauranen, 1993; Moreno, 1997). For example, in a comparative study, Mauranen (1993) found that native speakers of Finnish used few text connectives in economics text in Finnish, while native speakers of English, in similar kinds of texts, used many connectives. In Zarei and Mansoori's (2010) study, Persians were found to value more interactive metadiscourse such as *transitions* and *code glosses* and relied less on the establishment of a relationship with the readers than English authors. By contrast, English authors showed less dependence on metadiscourse resources in general. Furthermore, their interactional metadiscourse use revealed slightly more *hedges* and *engagement markers* than their Persian counterparts. Hu and Cao's (2011) study indicated that abstracts published in English-medium journals featured markedly more *hedges* than those published in Chinese-medium journals. Abdollahzadeh (2011) compared the interpersonal metadiscourse features in 60 Conclusion sections of Applied Linguistics articles written in English by Anglo-American and Iranian academic writers. He found that English writers and Iranian writers used metadiscourse for different purposes:

> English writers used *emphatics* to stress the significance and contributions of their findings, boost the current knowledge and scholarship, emphasize the results to elicit a positive evaluation of the same results by the readers, and stress the need for further research on the topic to consolidate its research base. In contrast, Iranian authors used *boosters* to highlight common knowledge in support of their findings, and stress findings which support their initial hypotheses. (Abdollahzadeh, 2011, p. 293)

However, other studies have found less distinct differences in the use of metadiscourse in RAs by authors of English and other national cultures. For example, Dahl (2004) reported that English and Norwegian RAs showed very similar patterns, using much more metatext than French. Loi and Lim (2013) found that the introduction sections of RAs by both English and Chinese authors used far more interactive metadiscourse features than interactional discourse. Although research in intercultural rhetoric has often produced the above-mentioned conflicting findings concerning metadiscourse features, the idea that cultural differences can lead writers to employ different metadiscourse resources is now widely accepted (Hyland, 2002). Therefore, we investigated the metadiscourse features in RAs by English and Chinese authors to identify any similarities and differences. As yet, we are unaware of any English/Chinese cross-cultural study which has investigated metadiscourse features in RAs except Hu and Cao's (2011) and Loi and Lim's (2013) studies focussing on the abstracts and the introductions of RAs respectively.

3. Methodology

3.1. Corpora

In order to compare metadiscourse features in RAs written in English and those written in Chinese, a corpus in each language (RAs in English and RAs in Chinese) was compiled based on the principles of *Tertium of Comparationis* such as genre, subject matter, level of writers' expertise, among other things (see Connor & Moreno, 2005). First, we selected refereed

articles from a list of reputable journals. The international journals were those that were included in the Social Sciences Citation Index (SSCI) and the Chinese journals were those included in the China Social Sciences Citation Index (CSSCI). The final English-medium journals chosen were (a) *English Language Teaching Journal* (ELTJ), (b) *Journal of Second Language Writing* (JSLW), (c) *English for Specific Purposes* (ESP), and (d) *Journal of English for Academic Purposes* (JEAP). The Chinese-medium journals were (a) *Journal of Foreign Languages* (JFL), (b) *Modern Foreign Languages* (MFL), (c) *Foreign Languages Research* (FLR), (d) *Foreign Language Education* (FLE). Second, we managed to maintain the homogeneity of the data and located the articles on L2 learning, which was a topic similar to the one in research articles published in other English-medium journals. From each journal five articles published between 2002 and 2006 were selected to form the corpora (See the lists of both English and Chinese RAs titles in Appendix A). All the articles in the corpora were empirical ones with the sections of introduction, research design or methods, results (and discussion) and conclusion. We selected RAs where the authors are either native speakers of English or affiliated within English-speaking institutions in the case of the sub-corpus in English, and the authors are based at a university in China in the case of the sub-corpus in Chinese. As those RAs have been accepted by the prestigious journals after a rigid reviewing process, we consider them representing linguistic features in their respective languages. The final corpora consisted of 40 RAs published in international English language journals (122,828 words) and national journals in Chinese (13,7051 characters) as indicated in Table 1.

3.2. Analysis of corpora using Hyland's, 2005a model

There are several models of metadiscourse. For example, Crismore (1984) divided metadiscourse into informational metadiscourse and attitudinal metadiscourse. However, this model does not clarify the specific sub-categories of metadiscourse. Steffensen and Cheng (1996) also proposed two kinds of metadiscourse. One involves textual metadiscourse which includes textual markers with logical connective, sequencers, reminders and topicalisers, and interpretive markers with code glosses and illocutionary markers. The other involves interpersonal metadiscourse including hedges, certainty markers, attributors, attitude markers and commentaries. Both Crismore's (1984) and Steffensen and Cheng's (1996) models adopted Halliday's concepts of interpersonal and textual metafunctions of language. However, according to Hyland and Tse (2004), all metadiscourse is interpersonal, so the differentiation between the textual and interpersonal metadiscourse has become unnecessary.

After deliberations among members of the research team, we decided to use Hyland's (2005a) model of metadiscourse (see Table 2). First, our study adopts a genre-based approach. That is, it aims to investigate the similarities and differences in metadiscourse features between RAs in the discipline of applied linguistics. Because Hyland's model is genre-based and has been established from a large corpus of RAs, it was considered appropriate for our study. Second, Hyland's model reflects the latest development in the methodological approaches to metadiscourse analysis and is simple, clear and inclusive (Abdi, Rizi, & Tavakoli, 2010). Third, Hyland's model builds on previous taxonomies and reorganises the categories of metadiscourse more accurately. Last and more importantly, Hyland's model has been used in recent studies such as Loi and Lim (2013), McGrath and Kuteeva (2012), Del Saz-Rubio (2011) and Abdi et al. (2010). Table 2 indicates the categories adopted for analysing the metadiscourse features in our study.

In this model, the interactive metadiscourse can be categorised and defined as follows:

- *Transitions* express the relationship between discourse units (i.e. sentences or paragraphs), including such sub-categories as additive, contrastive, summative, causative and conditional markers.
- *Frame markers* refer to sequences and stages comprising sequential, temporal and selective markers.
- *Endophoric markers* refer to previous or subsequent text including anaphoric or cataphoric markers.
- *Evidentials* refer to the information from the other sources. In RAs, writers use *evidentials* to establish themselves in their discipline by presenting the way in which they build on existing knowledge (Hyland, 1998).
- *Code gloss* means elaboration. Both discourse and typographical markers such as parentheses and colons are included in the analysis because the latter is common in the current corpora to explain or provide examples, even though it is controversial to include it in the metadiscourse (Mur-Dueñas, 2011; Zarei & Mansoori, 2007).

The interactional metadiscourse categories are analysed as the following:

- *Hedges and boosters* convey the author's epistemic attitude towards the proposition and they are employed to either heighten or downplay their commitment to the proposition, its scope of applicability or its relevance (Hu & Cao, 2011; Hyland, 1996, 2005a; McGrath & Kuteeva, 2012).

Table 1
Description of the corpus.

	English sub-corpus	Chinese sub-corpus
No. of RAs	20	20
No. of journals from which RAs were taken	4	4
Length of texts (range)	3341–10,694	4281–10,060
Average length of RA	6141	6853
Total number of words/characters	122,828	137,051

Table 2
An interpersonal model of metadiscourse (Hyland, 2005a).

Category	Function	English examples	Chinese examples
Interactive	**Help to guide the reader through the text**		
Transitions	Express relations between main clauses	In addition; however; thus; therefore	不仅 … 也 … (not only … but also …), 进一步(furthermore), 不是 … 而是 … (instead), 因此(therefore)
Frame markers	Refer to discourse acts, sequences or stages	Finally; in sum; aim	首先(first), 其次(second), 对 … 来说(in terms of …), 近年来(in recent years)
Endophoric markers	Refer to information in other parts of the text	As noted above; below; in the following section	下文 (in the following), 上述(mentioned above)
Evidentials	Refer to information from other texts	According to X; as … points out	… 研究显示(… study indicated), 根据(according to)
Code glosses	Elaborate propositional meaning	Namely; e.g., such as; parenthesis(); in other words	即(i.e.), 如(e.g.), 换言之(in other words), 是指(refer to), 定义为(can be defined), ()
Interactional	**Involve the reader in the text**		
Hedges	Withhold commitment and open dialogue	Might; perhaps; possibly; somewhat	一定程度上(to some extent), 可能(may, might), 似乎(seem), 试图(attempt)
Boosters	Emphasize certainty or close dialogue	In fact; definitely; must	尤其是(particularly), 值得一提的是(worth mentioning), 强调(emphasize), 甚至(even)
Attitude Markers	Express writer's attitude to proposition	Unfortunately; agree; hopeful	遗憾的是(unfortunately), 重要的是(importantly)
Self-mentions	Explicit reference to author(s)	I; we; my; me; our	我们(exclusive we), 笔者(the writer)
Engagement markers	Explicitly build relationship with reader	consider; note; suppose	我们(inclusive we), 请看(see)

- *Attitude markers* express writers' attitude to the proposition, pertaining to the writer's "affective rather than epistemic" attitude to the material (Hyland, 2005b, p. 180).
- *Self-mentions* are explicit reference to the author(s). Here 'we' includes exclusive 'we' and inclusive 'we' which are common in Chinese sub-corpus in particular. The former is categorised into *self-mentions* and the latter ascribed to *engagement markers*.
- *Engagement markers* involve the reader in the text directly including personal pronouns, question forms, directives and asides (Hyland, 2005a, b; Hyland & Tse, 2004; Mur-Dueñas, 2011).

3.3. Procedure and reliability

In order to obtain the total number of instances for each metadiscourse feature, coding was conducted manually using the programme Nvivo10 (QSR International, 2010). We did encounter a number of problems in the coding process. One of the difficulties was how to count the number of the occurrences of the metadiscourse in a phrase. For example.

(1) Perhaps the most common approach is when an experienced student assists one or more learners (tutees) out of class time in content or strategy training. (See for example Beasley 1997 and Rafoth 1998.) (E0003)

"See for example Beasley 1997 and Rafoth 1998" can be an *engagement marker* as a phrase, but we count "see" as one *engagement marker*, "for example" as a *code gloss* and "Beasley 1997 and Rafoth 1998" as two *evidentials*. Thus, there are four occurrences of metadiscourse in this phrase.

Another difficulty was to separate inclusive 我们(we) from exclusive 我们(we) because the line between them is quite blurred. For example.

(2) 因此我们选择了同样的体裁——学生的ESL作文, 作为本次的调查样本。 (C0001)

[Thus, we selected the same genre—the students' ESL compositions as the data for this investigation.]

(3) 我们同时还应该注意的是: (C0019)

[At the same time we should note:]

In the above two Chinese sentences, both 我们(we) are first person pronouns plural possibly referring to the writer or the writers or even including the audience. However, in the example (3), 我们(we) is followed by the modal verb应该(should), engaging the audience. Hence, we decided to annotate我们(we) before modal verbs like应该(should) and 必须(must) as inclusive *we*. Furthermore, as Hyland's (2005a) metadiscourse model was established on an English corpus, we tried to identify

Chinese metadiscourse features corresponding with English ones. However, some Chinese instances of metadiscourse such as 认为 can be understood as more than one English equivalents, which can mean *argue* (*hedge*), *think* (*attitude marker*) and *believe* (*booster*). Thus, we always annotated Chinese metadiscourse resources according to the context and kept our above decisions consistently as much as possible throughout the corpus analysis. A list of metadiscourse features identified in the corpora is provided in Appendix B.

To ensure the reliability of the annotation, we partially annotated the corpus and discussed any inconsistencies detected during the coding phases. Additionally, a coding reliability coefficient of 0.86 indicated a high level of inter-rater reliability and suggested a satisfactory level of agreement between coders on the categorisation of the metadiscourse features. Finally, chi square analysis was undertaken on the metadiscourse sub-corpora to determine if there were any statistically significant differences between the frequency of the English and Chinese metadiscourse features.

4. Results and discussion

To answer our research questions both statistical and textual analyses were conducted. Statistical analysis involved the calculation and comparison of the occurrences of metadisourse features in both English and Chinese RAs. Statistical tests using chi square analysis were then conducted on the occurrences of the English and Chinese metadiscourse features to determine any significant differences (see Table 3).

According to the results of the chi square test of independence, there is a significant relationship between the occurrences of metadiscourse features in English sub-corpus and in Chinese sub-corpus ($X^2 = 414.2$, df = 9, $p < 0.001$). Detailed analysis of the metadiscourse features is presented in 4.1.

In our textual analysis in 4.2, we focused on interactional metadiscourse features identified as different in Chinese and in English RAs as Hu and Cao (2015) argued that they lied "at the very core of academic communication" and provided RA writers a variety of means of "negotiating knowledge claims" (p. 13). In line with our research questions we present the following analysis.

4.1. What are the similarities and differences in the use of metadiscourse between English and Chinese RAs?

To begin with, we would like to demonstrate the similarities of the occurrence of metadiscourse appeared in English sub-corpus and in Chinese sub-corpus. As is shown in Table 3, the raw number of interactive metadiscourse features is more than that of interactional ones both in English sub-corpus (4781 > 3176) and in Chinese sub-corpus (2318 > 975). This result is

Table 3
Crosstabulation of the chi square test of independence (n = 11,250).

		English sub-corpus		Chinese sub-corpus		p-value
		Raw number	Per 10,000 words	Raw number	Per 10,000 characters	
Interactive						
Transitions	Observed	2253	183.4	913	66.6	0.000
	Expected	2239		927		
Evidentials	Observed	1040	84.7	475	34.7	0.000
	Expected	1072		444		
Frame markers	Observed	549	44.7	464	33.9	0.000
	Expected	717		297		
Code glosses	Observed	549	44.7	292	21.3	0.000
	Expected	595		246		
Endophoric markers	Observed	390	31.8	174	12.7	0.000
	Expected	399		165		
Total	Observed	4781	389.2	2318	169.1	0.000
	Expected	5021		2078		
Interactional						
Hedges	Observed	1618	131.7	328	23.9	0.000
	Expected	1376		570		
Boosters	Observed	642	52.3	288	21	0.000
	Expected	658		272		
Self-mentions	Observed	365	29.7	264	19.3	0.000
	Expected	445		184		
Engagement markers	Observed	330	26.9	68	4.96	0.000
	Expected	282		117		
Attitude markers	Observed	221	18	27	1.97	0.000
	Expected	175		73		
Total	Observed	3176	258.6	975	71.1	0.000
	Expected	2936		1215		
Overall total		7957	647.8	3293	240.3	0.000

For those shaded numbers, the observed number is usually greater than the expected number.

consistent with Loi and Lim's (2013) findings. Hyland (2005a) explains the predominance of interactive metadiscourse features in RAs due to their role of "guiding the reading process by indicating discourse organization and clarifying propositional connections and meanings" (p. 92). Therefore, both English and Chinese academic writers used a large number of *transitions* which is one of the most frequently appeared interactive metadiscourse features in both English sub-corpus and Chinese sub-corpus.

Following *transitions*, *evidentials* is another one of the most frequently appeared interactive metadiscourse features in both English sub-corpus and Chinese sub-corpus. In Loi and Lim's (2013) study, *evidentials* was found to be the most frequently used metadiscourse feature, perhaps because their data focused only on the introduction sections of the RAs. In such introduction sections it is common for authors to cite as much evidence as possible to support their arguments. However, the employment of considerable *evidentials* both in English sub-corpus and in Chinese sub-corpus in the present study has shown the generic feature of academic texts to justify their arguments and novelty of their research.

The most frequent sub-category of interactional metadiscourse was *hedges* both in English sub-corpus and in Chinese sub-corpus, demonstrating the necessity of expressing proper precision in academic genre and also showing academic writers' caution and modest (Hyland, 2005a). The least frequent interactional metadiscourse features were *engagement markers* and *attitude markers*. The reason why the less usage of these two features is that the academic genre needs to be objective and impersonal in persuasion. In short, as an academic genre both English RAs and Chinese RAs used more interactive metadiscourse features than interactional ones to construct knowledge explicitly. English RAs and Chinese RAs have something in common in employing such sub-categories as *transitions* for guiding readers, *evidentials* for justification of the arguments, *hedges* for making space for alternative positions, and less use of *attitude* and *engagement markers* for keeping neutrality in persuasion.

Although there are some similarities in the usage of metadiscourse features between English RAs and Chinese RAs, English sub-corpus differs from Chinese sub-corpus with regard to the occurrences of metadiscourse features in the current investigation. Firstly, metadiscourse features are significantly more common in English than in Chinese RAs (e.g., the overall total frequency of English metadiscourse is 647.8 per 10,000 words while it is 240.3 per 10,000 characters in Chinese, $p < 0.001$). This result is generally consistent with most of the previous comparative studies concerning metadiscourse (e.g., Loi & Lim, 2013; Mauranen, 1993; Mur-Dueñas, 2011; Peterlin, 2005). It appears that authors of English RAs use three times more metadiscourse resources to organise their ideas and interact more with their imagined audience than authors of Chinese RAs do. We agree with Mur-Dueñas' (2011) explanation that writers of international RAs in English are under more pressure to publish their findings in international journals and consequently face a culturally diverse readership. Hence it is necessary for them to explicate their ideas explicitly. However, similar to Mur-Dueñas' Spanish writers, Chinese writers share more background knowledge when addressing the local discourse community. Thus, this shared knowledge may account for a reduced reliance on metadiscourse features.

Secondly, based on the results of the chi square test of independence (see Table 3), comparatively speaking, Chinese RAs tended to use more interactive features (observed count 2318 > expected count 2078, $p < 0.001$) while English RAs tended to use more interactional features (observed count 3176 > expected count 2976, $p < 0.001$). This result demonstrates that English writers paid more attention to the interaction with the audiences than Chinese writers did (Loi & Lim, 2013). Analysis of the sub-categories of interactive metadiscourse revealed a less distinct pattern of results. Among the five subcategories, English RAs used significantly more *transitions* than Chinese RAs (observed count 2253 > expected count 2239, $p < 0.001$). However, Chinese RAs used more of the rest sub-categories of interactive metadiscourse than English RAs. Particularly, our finding that Chinese RAs had stronger intention to use *evidentials* than English RAs (observed count 475 > expected count 444, $p < 0.001$) may be contradictory to the popular stereotype of uncritical image for Chinese academic writing (Hyland, 2005a). As Bloch and Chi (1995) pointed out, Chinese authors also used citations to provide background, support claims and criticise other studies. Thus, we could conclude that Chinese RAs (at least Chinese applied linguistics RAs) paid much attention to the sources of information in RAs. Perhaps, RAs in the Chinese sub-corpus were written by Chinese applied linguists who have been immersed in the English language for years. Hence, it is possible that such familiarity with the English language may have had an impact or influence when writing in their native Chinese (Shi, 2002).

Thirdly, as above mentioned, in contrast to interactive metadiscourse, the English sub-corpus displayed a significantly higher rate of inclusion of interactional metadiscourse features than in the Chinese sub-corpus. This indicates a stronger interaction between the establishment of the writer and the reader in English RAs than in Chinese RAs within the discipline of applied linguistics. Results suggest that international English RAs more strongly emphasise the role of authors and readers in the negotiation of new scientific knowledge. Similar to Hu and Cao's (2011) study, the present investigation found that English RAs tended to use *hedges* (observed count 1618 > expected count 1376, $p < 0.001$) while Chinese RAs tended to use *boosters* (observed count 288 > expected count 272, $p < 0.001$) in academic writing. According to Hu and Cao (2011), Chinese traditional rhetoric regarded writing as a means of "knowledge telling" rather than "knowledge construction". Chinese writers are "less compelled than their Anglo-American counterparts to hedge their positions or qualify knowledge claims but more likely to perceive a need to assume a tone of certainty so as to convey authority and credibility" (p. 2805).

It is interesting that Chinese RAs were found to have stronger tendency to use *self-mentions* than English RAs (observed count 264 > expected count 184, $p < 0.001$). This finding seems to be inconsistent with the previous cross-cultural studies (e.g., Loi & Lim, 2013; Scollon, 1994). For example, Chinese scholars originate from a culture of collectivism and therefore may not feel so comfortable putting themselves forward in their writing. However, the first person pronoun plural rather than the

first person pronoun single were used in Chinese sub-corpus to avoid subjectivity. This will be further discussed in the next section. For another two sub-categories of interactional metadiscourse, *engagement markers* and *attitude markers* occurred more frequently to English sub-corpus than to Chinese sub-corpus.

4.2. How do international applied linguists and Chinese applied linguists choose interactional metadiscourse resources in their RAs?

In the last section we compared and discussed the similarities and differences in the use of metadiscourse features between the RAs in an English and Chinese sub-corpus using a quantitative methodological approach. In what follows, we mainly employ textual analysis to examine how English and Chinese RAs construct their knowledge through their choice of metadiscourse strategies.

As the interactional metadiscourse features of the RAs in the English sub-corpus were significantly greater than those in the Chinese sub-corpus, we analysed the subcategories of interactional metadiscourse individually. First, we compared the two groups of RAs to see how *hedges* were adopted for constructing knowledge. As research has already shown, writers use *hedges* to show humility and respect to readers and offer some room for readers to disagree with them (Abdollahzadeh, 2011; Gillaerts & Van de Velde, 2010; Hyland, 1996). They hedge arguments in order to gain acceptance and harmony from their readership, and it appears that both Chinese and English authors were aware of this. However, they used them in different ways; *hedges* in the English sub-corpus were mainly used to make inferences or conclusions, for example:

(4) There were only a small number of tutees and faculty available to participate in this study and we *could* have obtained richer data had we increased this number. (E0003)

In the Chinese sub-corpus, *hedges* were mainly used to show the writer's humbleness, for example:

(5) 本文将学习者语料库和本族者语料库中的have一词的用法做了详细的归类、附码、分析和总结,*试图*探索中国不同水平的英语学习者和本族语者have用法有何不同,这些不同是由什么原因造成的。(C0010)

[By categorizing, annotating, analyzing and comparing the usage of *have* in ESL learners corpus and in NES corpus, this paper *attempts* to explore the differences in using *have* between Chinese ESL learners at different levels and Native English speakers.]

Chinese cultural members dislike overt displays of confidence whereas modesty and respect are considered to be virtues. In contrast, individualism and the ownership of ideas in the West are taught and considered appropriate for both the author and their readership (Abdollahzadeh, 2011; Scollon, 1994). It is possible that the writers of RAs were employing the use of interactional metadiscourse features respective to their culture beliefs. For example:

(6) For example, in (2), though the meaning expressed in the revision *probably* reflects the writer's original intention, the faulty tense use made the original difficult to comprehend. (E0020)
(7) 这*可能在一定程度上*反映了中国大学生英语词汇学习主要还是以课本和课堂学习为习得主渠道。(C0013)

[This *may in some degree* show that Chinese college students acquired English vocabulary mainly by means of textbook and classroom learning.]

The example (6) shows that the writer is rather confident of the speculation that the meaning expressed in the revision reflects the writer's original intention, which might not necessarily be true. However, in the example (7), the writer believes that textbook and classroom learning are major means for Chinese students to acquire English vocabulary, using “may” and “in some degree” to show his or her respect to the audience.

Next, we investigate how English and Chinese writers used *boosters*. English writers used *boosters* for several purposes: to stress the significance and contributions of their findings, and to boost their current knowledge and scholarship:

(8) *In fact*, many have argued that, for both L1 and L2 academic writers, copying from source texts is a necessary phase through which developing writers *must* pass before they acquire more sophisticated ways of integrating sources into their writing. (E0019)
(9) This genre was *certainly* not a new or *particularly* difficult one for these students, who were highly literate in their own language and had previously read biographies, autobiographies, and other narrative writing. (E0018)

Authors of Chinese RAs used *boosters* to highlight common knowledge in support of their findings, and to stress findings which support their initial hypotheses:

(10) *事实上*, 这种方法并没有使他们成功猜测词汇。(C0011)

[*In fact*, this method did not help them succeed to guess the meaning of the words.]

(11) *很明显*, 这些问题固然对训练语言技能有所帮助, 但对学生的思维能力并没有多大的挑战性。(C0002)

[*Obviously*, these questions were helpful for language skills training, but they did not challenge the students' thinking ability.]

Attitude markers were found much more in the English sub-corpus than in the Chinese sub-corpus as is shown in 4.1. However, we found little difference in using *attitude markers* between Chinese RAs and English RAs except that few *attitude markers* were employed in Chinese sub-corpus. For example.

(12) *Unfortunately* as one set of problems are overcome, more appear: (E0006)
(13) 但*遗憾的是*,较多的语法错误和由于缺少写作策略训练而造成的语篇层面的错误使文章黯然失色((C0016)

[But *unfortunately*, their papers are unintelligible because there are too many grammatical mistakes and disorganized discourse due to lack of writing strategy training.]

Then, we would like to discuss the use of the metadiscourse features of *self-mentions* and *engagement markers* in the English and Chinese sub-corpuses. Though the two corpuses differed little in using inclusive "we" as *engagement*, Chinese authors used exclusive "we" in their writing to express their authorial voice. That is, they seemed more reluctant to make use of their personal voice than their professional counterparts (Moreno, 2004). We found that Chinese writers avoided mentioning themselves as an individual for the purposes of avoiding the possible responsibility and also, to show their modesty (see earlier findings, as reported in Hyland (2002), of other L2 writers of similar cultural backgrounds).

(14) *我们*将学生实验前后回答问题的次数和提问的次数做了统计,实验前平均每节课回答20 个问题,提问次数为0; 实验后平均提问48 个问题,回答20 次。(C0006)

[*We* counted the frequency of questions asked and answered by the students in every class and found that before the experiment the students asked no question and answered about 20 questions in average in every class while after the experiment they asked about 48 questions and answered in average about 20 questions in every class.]

In the example (14), the RA uses 我们 (we) instead of 我 (I) even though there is only one author for this RA. To avoid using "I", the author of the RA even uses本文作者(the author of this paper) in the following example:

(15) *本文作者*从2004 年10月到2005 年12月通过转变学习观念、建立评估机制、组建学习小组、优化课堂教学结构等环节实现了大学英语课堂提问主体的转换。(C0006)

[*The author of this paper* facilitated the students to become active in asking questions in the college English classroom by means of changing their learning ideas, adopting new assessment systems, helping them form learning groups and prioritizing teaching organizations from October, 2004 to December, 2005.]

However, the first person pronoun single was found rather popular in English sub-corpus. For example.

(16) However, *I* count only citations which use a reporting clause with that-complement and *I* use Shaw's procedure of categorising follow-on sentences according to the form of the original citation. (E0008)

These examples suggest that authors of Chinese RAs consciously avoided the most authoritative functions and sought to play down ownership and responsibility for their views. We speculate that these scholars were taught that when presenting themselves in writing it was safer and more objective to argue for one's viewpoint without the use of the first person pronoun singular though the first person plural is acceptable as is mentioned in 4.1. Both Ohta (1991) and Scollon (1994) also suggested that the use of first person pronouns was largely unacceptable in the traditions of Asian cultures because of its association with individual rather than collective identity. However, authorship in academic writing in English both carries a culturally constructed individualistic ideology and places the burden of responsibility for the truth of an assertion heavily on the shoulders of the writer.

5. Conclusions and pedagogical implications

This study has investigated the similarities and differences of metadiscourse employment in applied linguistics RAs through both a quantitative and a qualitative analysis of the English sub-corpus and the Chinese sub-corpus discussed above. It was found that both English RAs and Chinese RAs used more interactive than interactional metadiscourse features for the purpose of explicit expression which is one of the generic features of academic writing. The considerable usage of such sub-categories of metadiscourse features as *transitions*, *evidentials* and *hedges* both in English and in Chinese sub-corpus has further demonstrated the unique characteristics of academic genre. However, a quantitatively statistical analysis of the data has shown that English RAs differed in the employment of metadiscouse features from Chinese RAs. For example, English RAs tended to use more interactional metadiscourse features to involve the audience in the text. In particular, *hedges* were preferred in English RAs to qualify the claims when making the inferences. In contrast, the statistical analysis shows that

Chinese RAs tended to use more *evidentials*, demonstrating Chinese RAs (or at least Chinese Applied Linguistics RAs) paid much attention to citing resources in academic writing. Also, Chinese RAs were found to prefer using *boosters* and *self-mentions*. They used *boosters* to convey their authority and certainty of knowledge. The writers of Chinese RAs referred to themselves by exclusive "we" rather than individual "I", indicating cultural influence of collectivism.

Given the findings reported above, we think that this study has several implications for the teaching of EAP and second language writing. Due to the critical nature and the significance of metadiscourse in guiding readers through writing and establishing relationships between readers and writers, novice writers and ESL writers in particular should be explicitly taught how to use metadiscourse in their academic writing. This is particularly of relevance to those teachers who work with EAP students of Chinese as a first language. An intercultural metadiscourse analysis, such as the one described here can be used by EAP teachers to foster students in the development of a metacognitive awareness about their own culture's writing conventions. Such awareness can facilitate the observation of other cultures' conventions (Vergaro, 2004). Teachers' efforts to raise awareness of these intercultural differences in metadiscourse among Chinese student writers or EAP students will have a long-term benefit. Once equipped with such knowledge the students will be able to make informed choices about whether (and when) to conform to the expectations of the target audiences for conveying their thoughts and meanings successfully (Mauranen, 1993).

The findings of this study may also help to enhance the chances of acceptance of articles by Chinese academics intending to write in English for international journals. The current study recognises that English RAs and Chinese RAs employed metadiscourse in different ways with regard to interactional metadiscourse particularly. That is to say, the different ways of metadiscourse usage indicates two different rhetorical preferences between English and Chinese. As the native rhetorical preference may influence ESL writing negatively (Connor, 1996, 2011), Chinese scholars' manuscript with native rhetorical features might puzzle editors and reviewers, leading to rejections. Thus, Chinese scholars, aware of the different features between English and Chinese metadiscourse, will be empowered to write a more acceptable RA for English-medium journals to English readers' expectation.

Despite our claims made so far, we have to point out two main limitations of our study. First, the relatively small size of the corpora suggests caution when interpreting our findings. We recommend that future research use a larger corpus so that our findings can be further verified. Second, as we studied the metadiscourse features in an entire research article, we are not clear about the distribution and the function of metadiscourse resources in different sections of RAs. Therefore, a further research study is needed to explore the specific roles of metadiscourse resources in different parts of an RA.

Acknowledgements

The authors would like to thank the anonymous reviewers for their suggestions. This study was partially supported by the grant from the Chinese National Social Science Fund (14BYY151).

Appendix A

List of 20 English RAs titles in the corpus.

E0001. Brandt, C. (2006). Allowing for practice: A critical issue in TESOL teacher preparation *ELT Journal, 60*(4), 355–364
E0002. Ibrahim, N. & Penfield, S. (2005). Dynamic diversity: new dimensions in mixed composition classes. *ELT Journal, 59*(3), 217–225.
E0003. Mynard, J. & Almarzouqi, I. (2006). Investigating peer tutoring. *ELT Journal, 61*(1), 13–22.
E0004. Murphy, J. (2003). Task-based learning: The interaction between tasks and learners. *ELT Journal, 57*(4), 352–360.
E0005. Tardy, C. & Snyder, B. (2004). 'That's why I do it': Flow and EFL teachers' practices. *ELT Journal, 58*(2), 118–128.
E0006. Harwood, N. (2005). 'I hoped to counteract the memory problem, but I made no impact whatsoever': Discussing methods in computing science using *I. English for Specific Purposes, 24*, 243–267.
E0007. Cortes, V. (2004). ESP-Lexical bundles in published and student disciplinary writing: Examples from history and biology. *English for Specific Purposes, 23*, 397–423.
E0008. Charles, M. (2006). Phraseological patterns in reporting clauses used in citation: A corpus-based study of theses in two disciplines. *English for Specific Purposes, 25*, 310–331.
E0009. Flowerdew, J. (2003). Signalling nouns in discourse. *English for Specific Purposes, 22*, 329–346.
E0010. Paltridge, B. (2002). Thesis and dissertation writing: An examination of published advice and actual practice. *English for Specific Purposes, 21*, 125–143.
E0011. Allison, D. (2004). Creativity, students' academic writing, and EAP: exploring comments on writing in an English language degree programme. *Journal of English for Academic Purposes, 3*, 191–209.
E0012. Woodward-Kron, R. (2002). Critical analysis versus description? Examining the relationship in successful student writing. *Journal of English for Academic Purposes, 1*, 121–143.
E0013. Cargill, M & O'Connor, P. (2006). Critical analysis versus description? Examining the relationship in successful student writing. *Journal of English for Academic Purposes, 5*, 207–221.
E0014. Charles, M. (2003). 'This mystery … ': A corpus-based study of the use of nouns to construct stance in theses from two contrasting disciplines. *Journal of English for Academic Purposes, 2*, 313–326.
E0015. Clark, M. K & Ishida, S. (2005). Vocabulary knowledge differences between placed and promoted EAP students. *Journal of English for Academic Purposes, 4*, 225–238.
E0016. Liu, L. (2002). Student/teacher interaction via email: the social context of Internet discourse. *Journal of Second Language Writing, 11*, 117–134.

E0017. Bitchener, J., Young, S & Cameron, D. (2005). The effect of different types of corrective feedback on ESL student writing. *Journal of Second Language Writing, 14*, 191–205.
E0018. Chandler, J. (2003). The effic of various kinds of error feedback for improvement in the accuracy and fluency of L2 student writing. *Journal of Second Language Writing, 12*, 267–296.
E0019. Keck, C. (2006). The use of paraphrase in summary writing: A comparison of L1 and L2 writers. *Journal of Second Language Writing, 15*, 261–278.
E0020. Williams, J. (2004). Tutoring and revision: Second language writers in the writing center. *Journal of Second Language Writing, 13*, 173–201.

List of 20 Chinese RAs titles in the corpus.

C0001. 方丽青. (2005). ESL作文中的修辞模式表现类型研究. *外国语, 1*, 48–52.
Fang, Liqing. (2005). A Study of Rhetoric Patterns in ESL Writings. *Journal of Foreign Languages, 1*, 48–52.
C0002. 文秋芳、刘润清. (2006). 从英语议论文分析大学生抽象思维特点. *外国语, 2*, 49–58.
Wen, Qiufang & Liu, Runqing. (2006). An Exploratory Study on Features in English Majors' Abstract Thinking in English Argumentative Compositions. *Journal of Foreign Languages, 2*, 49–58.
C0003. 刘思、刘润清. (2005). 对"道歉语"的语用定量研究. *外国语, 5*, 17–23.
Liu, Si & Liu, Runqing. (2005). A Quantitative Study of Apology Phrases. *Journal of Foreign Languages, 5*, 17–23.
C0004. 唐丽萍. (2004). 学术书评语类结构的评价分析. *外国语, 3*, 35–43.
Tang, Liping. (2004). An APPRAISAL Analysis on the Generic Structure of Academic Review. *Journal of Foreign Languages, 3*, 35–43.
C0005. 许余龙. (2003). 语篇回指的认知语言学研究与验证. *外国语, 2*, 17–24.
Xu, Yulong. (2003). Discourse Anaphora Resolution: Testing a Cognitive Linguistic Model. *Journal of Foreign Languages, 2*, 17–24.
C0006. 屈社明. (2006). 大学英语课堂提问主体转换的实验研究. *外语教学, 27(5)*, 64–66.
Qu, Sheming. (2006). An Experimental Research into the Questioning Role Change in College English Teaching. *Foreign Language Education, 27(5)*, 64–66.
C0007. 赵秀凤. (2004). 英汉名词词组结构差异对英语写作语体风格的影响 ——一项实证研究. *外语教学, 25(6)*, 55–57.
Zhao, Xiufeng. (2004). Structural Difference of Nominal Groups Between Chinese and English and Its Influence on Chinese Students'Styles in English Writing——A Positivist Research. *Foreign Language Education, 25(6)*, 55–57.
C0008. 李炯英. (2002). 中国学生二语学习策略的观念与运用——一项实证研究. *外语教学, 23(1)*, 42–49.
Li, Jiongying. (2002). An Empirical Study on Learning Strategies of Chinese ESL Learners. *Foreign Language Education, 23(1)*, 42–49.
C0009. 莫俊华. (2005). 中国学生在议论文写作中使用因果连接词的语料库研究. *外语教学, 26(5)*, 45–50.
Mo, Junhua. (2005). A Corpus-based Study of the Use of Causal Connectives in Chinese EFL Learners' Argumentative Writings. *Foreign Language Education, 26(5)*, 45–50.
C0010. 杨贝. (2003). 中国英语学习者与本族语学生写作中HAVE用法比较. *外语教学, 24(2)*, 77–80.
Yang, Bei. (2003). Usage Contrast of Have Between the Writing of Chinese Learners of English and Native English Speakers. *Foreign Language Education, 24(2)*, 77–80.
C0011. 丁怡. (2006). 外语善学者和不善学者英语词汇学习策略对比研究. *外语研究, 6*, 47–50.
Ding, Yi. (2006). A Comparison of Learning Strategies Used by Good Learners and Poor Learners of English Vocabulary. *Foreign Languages Research, 6*, 47–50.
C0012. 林莉兰. (2006). 网络自主学习环境下学习策略与学习效果研究-英语听力教学改革实验. *外语研究, 2*, 39–45.
Ling, Lilan. (2006). Students' Learning Strategies in the Web-based Self-access Learning Environment: an Experiment on English Listening Instruction. *Foreign Languages Research, 2*, 39–45.
C0013. 李晓陆. (2004). 习得模式对深度习得的影响-一项基于中国大学生英语词汇习得状况的实证研究. *外语研究, 5*, 61–65.
Li, Xiaolu. (2004). The effect of the mode of acquisition on deep acquisition: An empirical study of Chinese college students' vocabulary acqisition. *Foreign Languages Research, 5*, 61–65.
C0014. 袁凤识、肖德法. (2004). 英语专业和非英语专业学生课堂表现差异研究. *外语研究, 4*, 47–51.
Yuan, Fengshi & Xiao, Defa. (2004). A Study of Differences in Classroom Behaviours Between English and Non-English Majors. *Foreign Languages Research, 4*, 47–51.
C0015. 张继东、刘萍. (2005). 中国大学生英语写作中的使役结构 及相应的词化现象调查与分析. *外语研究, 3*, 35–39.
Yuan, Fengshi & Xiao, Defa. (2005). A CLEC-Based Survey & Analysis of Causative Verb Structures & Their Lexicalized Verbs. *Foreign Languages Research, 3*, 35–39.
C0016. 刘东虹. (2004). 写作策略与产出性词汇量对写作质量的影响. *现代外语, 27*(3), 302–310.
Liu, Donghong. (2004). The Influence of Writing Strategies and Productive Vocabulary Size on Writing Quality. *Modern Foreign Language, 27*(3), 302–310.
C0017. 吴红云、刘润清. (2004). 写作元认知结构方程模型研究. *现代外语, 27*(4), 370–377.
Wu, Hongyun & Liu, Runqing. (2004). Investigating the Effects of Metacognition in EFL Writing: A Structural Equation Modelling Approach. *Modern Foreign Language, 27*(4), 370–377.
C0018. 葛冬梅、杨瑞英. (2005). 学术论文摘要的体裁分析. *现代外语, 28*(2), 138–146.
Ge, Dongmei & Yang, Ruiying. (2005). A Genre Analysis of Research Articles Abstracts. *Modern Foreign Language, 28*(2), 138–146.
C0019. 董燕萍. (2003). 中国语用学研究状况与发展方向. *现代外语, 26*(4), 332–338.
Dong, Yanping. (2003). The Chinese Ways of Thinking and Linguistic Research in China. *Modern Foreign Language, 26*(4), 332–338.
C0020. 常辉、马炳军. (2006). 中国学生对-s和is的习得研究. *现代外语, 29*(3), 265–274.
Chang, Hui & Ma, Bingjun. (2006). A study on the acquisition of -s and is by Chinese learners of English. *Modern Foreign Language, 29*(3), 265–274.

Appendix B

1. Metadiscourse features in the English sub-corpus

Interactive metadiscourse categories

Transitions:. Also; as well; additionally; in addition; in addition to; moreover; furthermore; as a result; as a consequence; consequently; on one hand … on the other hand …; for one thing …; on the other side of coin; not just(merely, only) … but also …; yet; however; whereas; although; despite; while; in contrast; instead of; while; nevertheless; thus; thereby; so; therefore; because; hence; because of; due to; given.

Frame markers:. First; first of all; in the first place; to begin with; second; another factor; then; finally; in the end; in closing; in sum; in short; in brief; to summarize; since, in most (some, many) cases; in the case of; in this case; given that context; in such context; over a period of time; in recent years; in the past decade; at the same time; by the 1990s; sometimes; during …; more recently; over the years; today; now; to speak of; in what follows; in the following; in terms of; as for; with regard to; as far as … concerned; would like to; intend to; aim; seek to; in specific terms; from … perspective; so(by, thus)far; in this discussion.

Endophoric markers:. Below; above; as follows; as discussed above; cited above; mentioned above; as exemplified above; in the following section; as has already been mentioned; as noted above.

Evidentials:. According to; in line with; as … points out; following …; as … shows (explains, argues); as shown in Table.

Code gloss:. Such as; for example(instance); e.g.; that is; to put it another way; namely; in a similar vein(manner); in other words; i. e.; likewise; similarly; or; say; is defined as; referred to as; parenthesis()

Interactional metadiscourse categories:

Hedging:. Perhaps; might; may; could; would; probably; possibly; likely; slightly; seem; almost; tended to; somewhat; at least; to some degree; suggest; appear; indicate; to a limited extent; in a sense; comparatively; approximately; tentatively; seemingly.

Boosters:. Particularly; especially; of course; in particular; in fact; in effect; do(es); indeed; specifically; extremely; actually; obviously; apparently; clearly; certainly; definitely; at any rate; exactly; as a matter of fact; demonstrate; show; should; must; believe; think.

Attitude markers. Unfortunately; it is important (necessary, true, impossible, essential, difficult); more(most) importantly; interestingly; most interestingly; it was surprising; needless to say; undoubtedly; agree; prefer; appropriate; expected; hopeful; striking; admittedly; significantly; incidentally.

Self-mentions. Exclusive we; our; us; I; me; my.

Engagement markers:. Inclusive we; see …; suppose; see appendix; consider; note; must.

2. Metadiscourse features in the Chinese sub-corpus

Interactive metadiscourse categories

Transitions:. 一方面 … 另一方面; 此外; 除 … 之外; 另外; 进一步; 并且; 而且; 不仅 … 而且(更, 还); 既不 … 也不 …; 不论 … 还 …; 既 … 也 …; 也; 虽然(尽管) … 但是 …; 不是 … 而是 …; 并非 … 而是 …; 不过; 反之; 否则; 然而; 相反; 可是; 而; 之所以 … 是因为 …; 因为 … 所以 …; 因此; 由于; 鉴于; 只有 … 才 …

Frame markers:. 第一 …, 第二 … .; 一 …, 二 …; (A) …, (B) …; ① …, ② …; 首先, 其次 (接着, 再则); 先 … 再 …; 综上所述; 总而言之; 总体来说; 总之; 从 … 的角度(视角)来看; 对 … 而言(来说); 就 … 来讲; 从 … 讲; 在 … 的前提下; 在 … 领域(方面); 在 … 情况下(过程中); 当 … 时; 到目前为止; 迄今为止; 目前; 至此; 近年来; … 年代以来; 最近; 近来; 与此同时; 同时.

Endophoric markers:. 下面; 以下; 上述; 在下一节里; 以上所述.

Evidentials:. 据此; 根据; 按照; 由 … 看出; … 指出; … 表明; 由此看来; … 论述道; 从 … 可见; … 的研究显示.

Code gloss. 定义为; 即; … 是 …; … 指 …; 或者(说); 相当于; 意味着; 那就是; 意思是说; 同样; 换言之; 也可以说; 换句话说; 这就是说; 例句 …; 例如; 比如; 正如; 诸如; 譬如; 更具体地说.

Interactional metadiscourse categories:

Hedging:. 可能会; 也许; 很有可能的是; 似乎; 在很大 (某种, 一定)程度上; 尝试; 试图; 如果 … 就 …; 一般情况下; 一般而言; 一般; 往往; 几乎; 大致; 基本上; 恐怕; 认为.

Boosters:. 实际上; 事实上; 其实; 确实; 的确; 尤其(特别)是; 正是; 甚至; 当然; 着重强调; 需要指出的是; 值得一提的是; 严格来说; 很明显; 显然; 明确地; 必须; 应该.

Attitude markers. 遗憾的是; 必然; 一定会; 从根本上讲; 实事求是地说; 重要的是.

Self mentions. Exclusive我们; 笔者; 本文作者.

Engagement markers:. Inclusive我们; 请看; 再看; 见后; 下面分而述之(详细探讨); 先看下面的例句; 必须; 应该.

References

Abdi, R., Rizi, M. T., & Tavakoli, M. (2010). The cooperative principle in discourse communities and genres: a framework for the use of metadiscourse. *Journal of Pragmatics, 42*, 1669–1679.
Abdollahzadeh, E. (2011). Poring over the findings: interpersonal authorial engagement in applied linguistics papers. *Journal of Pragmatics, 43*, 288–297.
Amiryousefi, M., & Rasekh, A. E. (2010). Metadiscourse: definitions, issues and its implications for English teachers. *English Language Teaching, 3*, 159–167.
Bloch, J., & Chi, L. (1995). A comparison of the use of citations in Chinese and English academic discourse. In D. Belcher, & G. Braine (Eds.), *Academic writing in a second language: Essays on research and pedagogy*. Norwood, NJ: Ablex.
Brett, P. (1994). A genre analysis of the results section of sociology articles. *English for Specific Purposes, 13*, 47–59.
Connor, U. (1996). *Contrastive rhetoric: Cross-cultural aspects of second-language writing*. New York: Cambridge University Press.
Connor, U. (2011). *Intercultural rhetoric in second language writing*. Ann Arbor, MI: University of Michigan Press.
Connor, U. M., & Moreno, A. I. (2005). Tertium comparationis: a vital component in contrastive research methodology. In P. Bruthiaux, D. Atkinson, W. G. Eggington, W. Grabe, & V. Ramanathan (Eds.), *Directions in applied linguistics: Essays in honor of Robert B. Kaplan* (pp. 153–164). Clevedon, England: Multilingual Matters.
Crismore, A. (1984). *The case for a rhetorical perspective on learning from texts: Exploring metadiscourse* (p. 26). Indiana University. ED257035.
Crismore, A., & Farnsworth, R. (1989). Mr. Darwin and his readers: exploring interpersonal metadiscourse as a dimension of Ethos. *Rhetoric Review, 8*, 91–112.
Dahl, T. (2004). Textual metadiscourse in research articles: a marker of national culture or of academic discipline? *Journal of Pragmatics, 36*, 1807–1825.
Del Saz-Rubio, M. M. (2011). A pragmatic approach to the macro-structure and metadiscoursal features of research article introductions in the field of agricultural sciences. *English for Specific Purposes, 30*, 258–271.
Gillaerts, P., & Van de Velde, F. (2010). Interactional metadiscourse in research article abstracts. *Journal of English for Academic Purposes, 9*, 128–139.
Hirano, E. (2009). Research article introductions in English for specific purposes: a comparison between Brazilian Portuguese and English. *English for Specific Purposes, 28*, 240–250.
Hu, G., & Cao, F. (2011). Hedging and boosting in abstracts of applied linguistics articles: a comparative study of English- and Chinese-medium journals. *Journal of Pragmatics, 43*, 2795–2809.
Hu, G., & Cao, F. (2015). Disciplinary and paradigmatic influences on interactional metadiscourse in research articles. *English for Specific Purposes, 39*, 12–25.
Hyland, K. (1996). Nurturing hedges in the ESP curriculum. *System, 24*, 477–490.
Hyland, K. (1998). Persuasion and context: the pragmatics of academic metadiscourse. *Journal of Pragmatics, 30*, 437–455.
Hyland, K. (2002). Authority and invisibility: authorial identity in academic writing. *Journal of Pragmatics, 34*, 1091–1112.
Hyland, K. (2005a). *Metadiscourse*. New York, NY: Continuum.
Hyland, K. (2005b). Stance and engagement: a model of interaction in academic discourse. *Discourse Studies, 7*, 173–192.
Hyland, K. (2007). Applying a gloss: exemplifying and reformulating in academic discourse. *Applied Linguistics, 28*, 266–285.
Hyland, K., & Tse, P. (2004). Metadiscourse in academic writing: a reappraisal. *Applied Linguistics, 25*, 156–177.
Hyland, K., & Tse, P. (2005). Hooking the reader: a corpus study of evaluative that in abstracts. *English for Specific Purposes, 24*, 123–139.
Lim, J. M. H. (2011). 'Paving the way for research findings': writers' rhetorical choices in education and applied linguistics. *Discourse Studies, 13*, 725–749.
Loi, C. K., & Lim, J. M.-H. (2013). Metadiscourse in English and Chinese research article introductions. *Discourse Studies, 15*, 129–146.
Mauranen, A. (1993). Contrastive ESP rhetoric: metatext in Finnish-English economics texts. *English for Specific Purposes, 12*, 3–22.
McGrath, L., & Kuteeva, M. (2012). Stance and engagement in pure mathematics research articles: linking discourse features to disciplinary practices. *English for Specific Purposes, 31*, 161–173.
Moreno, A. I. (1997). Genre constraints across languages: causal metatext in Spanish and English RAs. *English for Specific Purposes, 16*, 161–179.
Moreno, A. I. (2004). Retrospective labeling in premise–conclusion metatext: an English–Spanish contrastive study of research articles on business and economics. *Journal of English for Academic Purposes, 3*, 321–339.
Mur-Dueñas, P. (2011). An intercultural analysis of metadiscourse features in research articles written in English and in Spanish. *Journal of Pragmatics, 43*, 3068–3079.
Nwogu, K. N. (1997). The medical research paper: structure and functions. *English for Specific Purposes, 16*, 119–138.
Ohta, A. S. (1991). Evidentiality and politeness in Japanese. *Issues in Applied Linguistics, 2*, 183–210.
Peterlin, A. P. (2005). Text-organizing metatext in research articles: an English–Slovene contrastive analysis. *English for Specific Purposes, 24*, 307–319.
QSR International. (2010). *NVivo (Version 10)* [Computer software]. Melbourne, Australia: Author. Retrieved from www.Qsrinternational.com.
Scollon, R. (1994). As a matter of fact: the changing ideology of authorship and responsibility in discourse. *World Englishes, 13*, 34–46.
Shi, L. (2002). How Western-trained Chinese TESOL professionals publish in their home environment. *TESOL Quarterly, 36*, 625–634.
Simin, S., & Tavangar, M. (2009). Metadiscourse knowledge and use in Iranian EFL writing. *Asian EFL Journal, 11*, 230–255.
Soler, V. (2011). Comparative and contrastive observations on scientific titles written in English and Spanish. *English for Specific Purposes, 30*, 124–137.

Steffensen, M. S., & Cheng, X. (1996). Metadiscourse and text pragmatics: how students write after learning about metadiscourse. In L. F. Bouton (Ed.), *Pragmatics and language learning: Monograph series* (Vol. 7, pp. 153–170). Washington DC: ERIC Clearinghouse Microfiches.
Vande Kopple, W. J. (1985). Some exploratory discourse on metadiscourse. *College Composition and Communication, 36*, 82–93.
Vergaro, C. (2004). Discourse strategies of Italian and English sales promotion letters. *English for Specific Purposes, 3*, 181–207.
Vergaro, C. (2011). Shades of impersonality: rhetorical positioning in the academic writing of Italian students of English. *Linguistics and Education, 22*, 118–132.
Zarei, G. R., & Mansoori, S. (2007). Metadiscourse in academic prose: a contrastive analysis of English and Persian research articles. *The Asian ESP Journal, 3*, 24–40.
Zarei, G. R., & Mansoori, S. (2010). A contrastive study on metadiscourse elements used in humanities vs. non-humanities across Persian and English. *English Language Teaching, 4*, 42–50.

Congjun Mu, PhD, professor at Shanghai Maritime University. His current research interests cover EAP, metadiscourse analysis and second language writing. His articles have appeared in such international refereed journals as *Studies in Second Language Acquisition, Journal of Second Language Writing, Language Awareness, TESL-EJ* and *The Journal of Asia TEFL*. He is the principal investigator of a large-scale project on Chinese scholars' ERPP writing from the perspective of intercultural rhetoric.

Lawrence Jun Zhang, PhD, Professor of Linguistics and Education and Associate Dean, University of Auckland. He has published extensively in leading international journals such as *Language Awareness, Language & Education, Journal of Second Language Writing, Instructional Science, Journal of Psycholinguistic Research, TESOL Quarterly, and British Journal of Educational Psychology*.

John Fitzgerald Ehrich completed his PhD in Psycholinguistics from Queensland University of Technology, Australia, in 2008. His research interests are in second language acquisition, experimental psychology, literacy, bilingualism, immigrants' language learning and settlement experiences, and educational leadership.

Huaqing Hong is a full-time Research Scientist with National Institute of Education, Nanyang Technological University, Singapore. His research interests include corpus linguistics, computational linguistics, discourse analysis and translation studies. He has been working on corpus-based education research for 7 years and leading several government-funded corpus projects in last few years.