Interactive and Interactional Markers in ISI and Non-ISI Applied Linguistic Journal Articles Written by Iranian Authors: A Contrastive Meta-Discourse Analysis of Method Section

Farid Ghaemi *
Assistant Professor of TESL/TEFL, ELT Department, Islamic Azad University- Karaj Branch
Giti Sabadoust
PhD Candidate, ELT Department, Islamic Azad University- Karaj Branch

Abstract

Meta-discourse as a self-reflective linguistic tool has received considerable attention in recent years. Besides, it plays a leading role in exploring variations in the way authors pen a manuscript. The present study aims at investigating variations in the use of both interactive and interactional meta-discourse markers among ISI and non-ISI articles written by Iranian authors in the field of Applied Linguistics. The corpora in the present study comprised a total of 8 Research Articles (RAs) in ISI and non-ISI journals published in 2016 and 2017. We described the distribution of interactive and interactional markers in Method sections using Hyland's (2005) model as a framework. The results of the quantitative analysis disclosed that genre expectations of journals had a determining role in the writers' choice of some meta-discourse markers. Owing to this fact, similarities were found in the use and distribution of meta-discourse markers across ISI and non-ISI data. In addition, a significant difference was found between the types of interactive meta-discourse markers as used in ISI and non-ISI journals. Moreover, the findings revealed similarities in employing the type of interactional meta-discourse markers in our corpora. Our study may promise some pedagogical implications for material development and English for Specific Purposes (ESP).

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* Assistant Professor of TESL/TEFL, ELT Department, Islamic Azad University- Karaj Branch
 Email: *ghaemi@kiau.ac.ir*

1. Introduction

Over the last decades, publication of articles in academic journals has become a worldwide desire for research scholars (Sayfouri, 2009). Recently, more value is given to the articles published in internationally-recognized, high standard journals. English and its dominance as the international language of research (Swales, 2004), has played a major role in establishing the language for research publication purposes in many disciplinary fields (Ghadyani & Tahririan, 2015).

As Hyland states "academic publication now dominates the lives of academics across the globe who must increasingly submit their research for publication in high profile English language journals to move up the career ladder" (2016, p.58). In order to organize a text and to make it more comprehensible for the intended readers different resources are employed (Gholami & Ilghami, 2016). Second language users must invest more time, effort and money in learning text organization and may experience greater difficulties when writing in English. Whereas, Native English speakers are steps ahead since they acquire the language naturalistically (Hyland, 2016). Applied linguists are looking for evidence of greater interactivity in academic prose, so that it would be plausible to identify the ways that writers craft an inclusive relationship with their readers across different academic genres (Hyland & Jiang, 2017).

So far, various spoken and written genres including textbooks, journal articles, theses, dissertations and conference presentations have been investigated from the perspective of meta-discourse (Jiang & Hyland, 2016; Zare, & Tavakoli, 2016; Ghadyani & Tahririan, 2015; Ozdemir, & Longo, 2014; Fu, 2012; Hyland, 2010; Sayfouri, 2009). For a successful discourse community membership, novice writers need to become aware of meta-discourse markers (MMs) in various academic genres among different disciplines (Abdi, 2002). As the literature in the area of contrastive genre analysis suggests, no study has been conducted in the field of applied linguistic to account for meta-discourse variations in ISI and non-ISI journals written by Iranian authors.

In written genres there might be differences in the rhetorical pattern of the same text written in different languages (Kuhia &Mojood, 2014). For a successful discourse community membership, novice writers need to become aware of meta-discourse markers (MMs) in various academic genres of their disciplines. Logically, there should be a particular genre convention in terms of the use and distribution of meta-discourse markers in ISI and non-ISI Journals. On the other hand, the findings of contrastive rhetoric revealed that native and non-native speakers differ in using meta-discourse markers (Atai & Fallah, 2005). Thus far, not many studies have been conducted on method

sections of Applied Linguistic RAs regarding meta-discourse analysis. Therefore, research on meta-discourse structures in Applied Linguistics provides native and non-native researchers with information on the type and distribution of meta-discourse markers in method sections of RAs.

2.   Literature Review
2.1 Genre Analysis

As a pedagogically effective tool for interpretation of academic texts in their social contexts (Hyland, 2006), genre analysis and the conventions of this so-called discourse approach (Bhatia, Candlin & Jenson, 2002) are strongly influenced by discourse community (Biber, Connor, Upton, 2007). The main purpose of genre analysis is to describe the communicative purpose of a text both in terms of internal discourse units and writers' choices (Hyland, 2006). Generic knowledge is a must for academic writers who had better develop the skills of general writing, general generic, blending and creating generic forms (Bhatia, 1999). The pedagogical value of generic analysis has been voiced by researchers who believe that students (novice writers) must be capable of producing and understanding the nature of different type of texts as well as differentiating between text types (Dudley-Evans & Hopkins, 1988). The wider growth of discourse analysis shedding light on the organization of discourse in the late 19th century shifted the line of researches from lexico-grammatical features to the analysis of text-genre (Bhatia, 2004).

2.1.1 Meta-discourse Analysis

 In current discourse analysis and English for Academic Purposes, meta-discourse is a widely used term but not always used to refer to the same thing (Hyland, 2010). As Hyland states, "(…) the concept of meta-discourse grew out of the pioneering work of Vande Kopple (1985), Crismore, (1989), and others to balance earlier views of discourse that saw texts as largely propositional and expository, merely serving to convey 'content.'" (2015, p.1). As a way of understanding the rhetorical negotiations involved in academic writing, meta-discourse has received considerable attention in recent years (Jiang & Hyland, 2016). According to Hyland, "for some, it is a concept restricted to elements which refer to the text itself, looking inward to those aspects of a discourse which help organize the text as text. For others, those taking an "interactional" position, a writer's commentary on his or her unfolding text represents a coherent set of interpersonal options" (2010, p.125).

      In the interactive model, meta-discourse is considered as an umbrella term for the range of devices writers utilize to explicitly organize their texts, engage readers, and signal their attitudes for their audience and their material (Hyland, 2010). In Hyland and Tse's words, "meta-discourse thus offers a means   of   conceptualizing   communication   as   social   engagement.   It

illuminates some aspects of how we project ourselves into our discourses by signaling our attitude towards both the content and the audience of the text" (2004, p.127).

Meta-discourse has been involved in written genres in text analysis such as properties of text, participant interactions, cross-cultural variations, and etc. (Hyland & TSE, 2004). On the one hand, such features help researchers to relate a text to its context. On the other hand, they make a huge contribution to see how readers connect, organize, and interpret materials in a way which is preferred by the writer with regard to the understandings and values of a particular discourse community (Hyland, 2010). Writers use meta-discourse to give directions to their readers and display a suitable professional persona in order to convince their readers (Hyland, 1998). As such, meta-discourse is an important feature of persuasive writing (Hyland, 1998). Generic variations in terms of meta-discourse derive from genre-specific features across different texts (Kawase, 2015). According to Kuhi and Mojood, "an author who articulates meaning must consider its social influence and the impact that it has on those who interpret the meaning, the readers who are the audiences for the communication" (2014, p.1047). In an attempt Hyland (2005) proposed a framework for meta-discourse analysis in terms of interactive and interactional markers which is explained as follows.

2.2 Classification of Meta-Discourse Markers

According to Hyland (2010) the interpersonal dimension of language has two elements which can be distinguished for analytical purposes and is referred to as interactive and interactional resources by Hyland. Interactive resources are concerned with ways of organizing discourse to anticipate readers' knowledge. In other words, they reflect the writer's assessment of what needs to be made explicit in order to constrain and guide what can be recovered from the text (Hyland, 2010). In accordance with the findings of Jiang and Hyland, "writers use interactive devices to either weave chunks of information together (transitions, frame markers, and endophoric markers) or provide elaboration on propositional content (code glosses and evidentials)" (2016, p.3).

According to Hyland (2005), interactional meta-discourse is a feature of argumentative and persuasive genres. Interactional resources "concern the writer's efforts to control the level of personality in a text and establish a suitable relationship to his or her data, arguments and audience, marking the degree of intimacy, the expression of attitude, the communication of commitments, and the extent of reader involvement" (Hyland, 2010, p.128).

Based on the abovementioned grounds and in accordance with Hyland's (2005) encompassing model, the researchers take meta-discourse as a set of features which helps to explain in turn the working of interactions

between text producers and their texts as well as text producers and users. Thus, this study is conducted to contribute to the evaluation of Applied Linguistic journals written by Iranian authors. Furthermore, it would form the strong basis of understanding RAs in terms of interactive and interactional meta-discourse markers (Hyland, 2005). Such an understanding promises to exploit the outcomes for attaining pedagogical goals and planning appropriate materials and eventually equip Applied Linguistic scholars with variations in the use of MMs among ISI and non-ISI journals. Considering the goals of our study, we boiled down with the following research questions:

1. Is there any significant difference in the number of interactive and interactional meta-discourse markers used in Applied Linguistic ISI and non-ISI Journal articles written by Iranian authors?
2. Is there any significant difference between the types of interactive meta-discourse markers used in ISI and non-ISI Applied Linguistic Journal articles written by Iranian authors?
3. Is there any significant difference between the types of interactional meta-discourse markers used in ISI and non-ISI Applied Linguistic Journal articles written by Iranian authors?

3. Method
3.1   Corpus

This study examined Method sections of Applied Linguistic ISI and non-ISI journal articles, having the standard IMRD structure (Swales, 1990), and published in 2016 and 2017. Implementing the specific rhetorical styles of the journal writers and editors, contribute to what we linguistically call ISI journals (Ghadyani & Tahririan, 2015). As a result, these journals publish articles with the highest quality in terms of content and rhetorical styles (Ghadyani & Tahririan, 2015). The degree of prestige and credibility of such an academic genre was considered as the justification behind selection of ISI journals (Ghadyani & Tahririan, 2015).

First, a comprehensive list of journals published in the field of applied linguistics was collected by the researchers. Afterwards, the criteria of journal selection namely representativeness, reputation, and accessibility was taken into account (see Nwogu, 1997). Then, eight articles published in 2016 and 2017 were randomly selected from the archive of ISI and non-ISI Applied Linguistics journals (see Appendix A). In order to control for the possible effect of style, the articles were selected from those written by different authors. Thus, two groups of applied linguistic journal articles written by Iranian authors constituted the corpus of the study as follows: (a) ISI applied linguistic journals (b) Non-ISI applied linguistic journals. In fact, each of these categories consisted of four articles which were selected from ISI Native journals and non-ISI journals respectively. They were all written

by Iranian authors and were published in 2016 and 2017. To choose the RAs from selected journals, they were controlled for having the method section.

Table 1

A model of meta-discourse in academic texts (Hyland, 2005, 49)

category	function	examples
Interactive	Help to guide reader through text	Resources
Transitions	express semantic relation between main clauses	in addition / but / thus / and
Frame markers	refer to discourse acts, sequences, or text stages	
Endophoric markers	refer to information in other parts of the text	finally / to conclude / my purpose is
Evidentials		
	refer to source of information from other texts	noted above / see Fig / in section 2
Code glosses		
	glosses help readers grasp meanings of ideational material	according to X / (Y, 1990) / Z states
		namely /e.g. / such as / in other words
Interactional		
Hedges	subjectivity of a position	possible, may, seem
Boosters	expressing certainty	clear, somewhat, suggest
Attitude markers	express writer's attitude to pro-position	unfortunately / I agree / surprisingly
Engagement markers	explicitly refer to or build relationship with reader	consider / note that / you can see that
Self-mentions	explicit reference to author(s)	I / we / my / our

Then, we checked the authors' place of birth to make sure whether their nationality is Iranian or not. We selected articles from ISI journals (selected from the list of Journal Citation Reports) validated by IF as an index of quality. The selected articles from English ISI journals included: English for Specific Purposes, Language Assessment Quarterly, and Language Learning & Technology. The selected journals from non-ISI journals included: Journal of Language Teaching and Research, English Language Teaching, Journal of Teaching Language Skills, and Iranian Journal of Language Teaching Research (see Appendix B).

3.2   Procedure and Data Analysis

 After the selection of the articles from both ISI and non-ISI journals, meta-discourse markers were identified and categorized based on Hyland's (2005) model of meta-discourse. This paper employs Hyland's (2005) model as an established framework for the analysis of interactive and interactional meta-discourse markers in academic written genre. The taxonomy proposes that

meta-discourse is comprised of two types of classification as interactive and interactional resources (Hyland, 2010, p.128-129). Interactive markers reflect the writer's assessment of what needs to be made explicit in order to constrain and guide what can be recovered from the text (Hyland, 2010). Interactional markers are mainly concerned with authors efforts to control the level of personality in a text and create a suitable relationship to the data, arguments as well as the audience, marking the degree of intimacy, the expression of attitude, the communication of commitments and the extent of reader involvement (Hyland, 2010). Table 1 draws on Hyland's (2005) Taxonomy as follows:

After identifying meta-discourse markers based on the aforementioned taxonomy, we included the quantitative analysis in order to examine the total number of meta-discourse markers employed in the text as well as the significant differences in the number of interactional and interactive markers and their sub-types.

4. Results and Discussion

The preset study aims at investigating the significant differences among the number of interactive and interactional meta-discourse markers used in Applied Linguistic ISI and non-ISI Journal articles written by Iranian authors. To achieve these objectives, the following research questions were formulated:

Q1: Is there any significant difference in the number of interactive and interactional meta-discourse markers used in Applied Linguistic ISI and non-ISI Journal articles written by Iranian authors?

Q2: Is there any significant difference between the types of interactive meta-discourse markers used in ISI and non-ISI Applied Linguistic Journal articles written by Iranian authors?

Q3: Is there any significant difference between the types of interactional meta-discourse markers used in ISI and non-ISI Applied Linguistic Journal articles written by Iranian authors?

Due to the nominal nature of the data, the above mentioned research questions were probed through non-parametric analysis of chi-square (crosstabs).

4.1 First Null-Hypothesis

Based on the results displayed in Table 2 it can be concluded that the percentages of interactive meta-discourse markers in ISI (84.1 %) and non-ISI (83.3 %) were fairly close. The adjusted standardized values were lower

than 1.96 indicating that there was not any significant difference between the frequencies of interactive meta-discourse markers in two types of journals.

Table 2
Frequencies, Percentages and Adjusted Residual Values of Meta-Discourse Markers by Types of Journals

		Markers		Total	Chi-Square	D.F.	p
		Interactive	Interactional				
ISI	n	723	137	860	.100	1	.752
	%	84.1%	15.9%	100.0%			
	Adj. Residual	.4	-.4				
	p-value[*]	.689	.689				
Non-ISI	n	433	87	520			
	%	83.3%	16.7%	100.0%			
	Adj. Residual	-.4	.4				
	p-value[*]	.689	.689				
Total	n	1156	224	1380			
	%	83.8%	16.2%	100.0%			

Note. * Denotes Bonferroni corrected p-values

The percentages of interactional meta-discourse markers in ISI (15.9 %) and non-ISI (16.7 %) were also close. The adjusted standardized values were lower than 1.96. Based on these results it can be claimed that there was not any significant difference between the frequencies of interactional meta-discourse markers in two types of journals. The overall chi-square results (χ^2 (1) = .100, p = .752, r = .001 representing a weak effect size) supported above mentioned conclusions as no significant differences between the number of interactive and interactional meta-discourse markers in ISI and non-ISI journals. Thus the first null-hypothesis was supported.
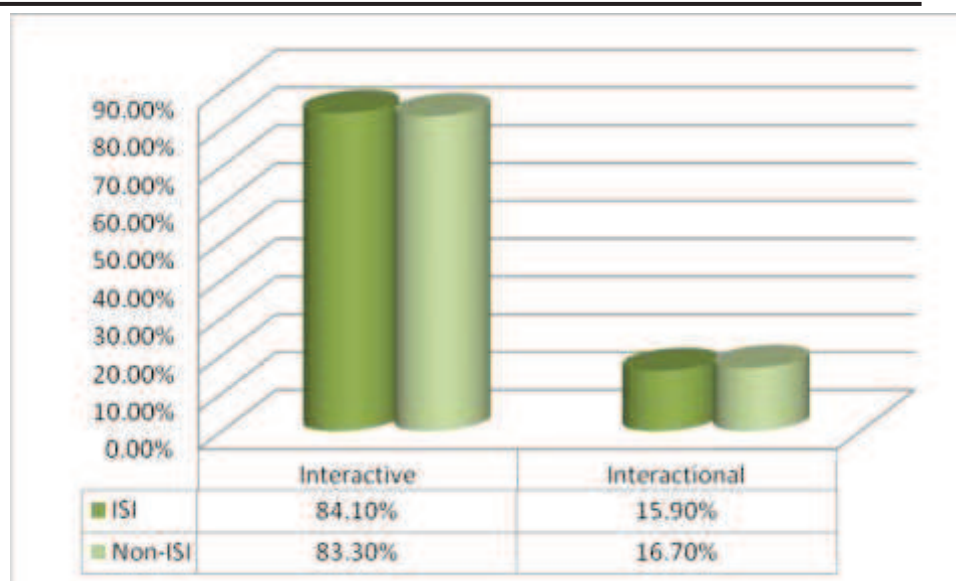
	Interactive	Interactional
ISI	84.10%	15.90%
Non-ISI	83.30%	16.70%

Figure 1. Percentages meta-discourse markers by types of journals

4.2 Second Null-Hypothesis

An analysis of chi-square (crosstabs) was run to compare the types of interactive meta-discourse markers in ISI and non-ISI journals. Based on the results displayed in Table 3 it can be concluded that the non-ISI journals (58.9 %, Adj. Residual = 2, p = .045) significantly used transitions more than the ISI ones (52.7 %, Adj. Residual = -2). Although non-ISI journals used frame markers (14.5 %, Adj. Residual = 1.8, p = .071) more than ISI journals (10.9 %, Adj. Residual = -1.8), the difference between the two frequencies was not significant (p> .05). The two types of journals made almost the same use of endophorics (8 %, Adj. Residual = .1, p = .317) for ISI and (7.9 %, Adj. Residual = -.10) for non-ISI. The ISI journals (11.6 %, Adj. Residual = 2.6, p = .009) significantly used evidentials more than the non-ISI ones (6.9 %, Adj. Residual = -2.6). And finally; the ISI journals (16.7 %, Adj. Residual = 2.3, p = .021) significantly used code glosses more than the non-ISI ones (11.8 %, Adj. Residual = -2.3).

The overall chi-square results (χ^2 (4) = 15.30, p = .004, r = .115 representing a weak effect size) indicated that there were significant differences between the types of interactive meta-discourse markers as used in ISI and non-ISI journals. Thus the second null-hypothesis **was rejected;** although the results should be interpreted cautiously due to the weak effect size value of .115.

Table 3

Frequencies, Percentages and Adjusted Residual Values of Types of Interactive Meta-Discourse Markers by Types of Journals

		Types					Total
		Transitions	Frame Markers	Endophorics	Evidentials	Code Glosses	
ISI	N	381	79	58	84	121	723
	%	52.7%	10.9%	8.0%	11.6%	16.7%	100.0%
	Adj. Residual	-2.0	-1.8	.1	2.6	2.3	
	p-value[*]	.045	.071	.317	.009	.021	
Non-ISI	N	255	63	34	30	51	433
	%	58.9%	14.5%	7.9%	6.9%	11.8%	100.0%
	Adj. Residual	2.0	1.8	-.1	-2.6	-2.3	
	p-value[*]	.045	.071	.317	.009	.021	
Total	N	636	142	92	114	172	1156
	%	55.0%	12.3%	8.0%	9.9%	14.9%	100.0%

Table 4

Chi-Square Test; Types of Interactive Meta-Discourse Markers by Journals

	Value	*df*	*Asymptotic Significance (2-sided)*
Pearson Chi-Square	15.306	4	.004
Likelihood Ratio	15.700	4	.003
Linear-by-Linear Association	10.870	1	.001
N of Valid Cases	1156		

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 34.46.

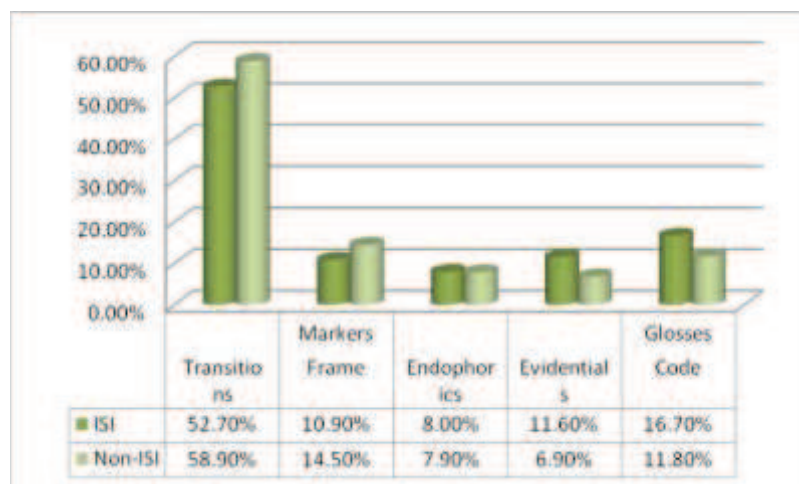|	Transitio ns	Markers Frame	Endophor ics	Evidential s	Glosses Code
ISI	52.70%	10.90%	8.00%	11.60%	16.70%
Non-ISI	58.90%	14.50%	7.90%	6.90%	11.80%

Figure 2. Types of interactive meta-discourse markers by types of journals

4.3 Third Null-Hypothesis

An analysis of chi-square (crosstabs) was run to compare the types of interactional meta-discourse markers in ISI and non-ISI journals. Based on the results displayed in Table 5 it can be concluded that there were not any significant differences between the frequencies of interactional meta-discourse markers in ISI and non-ISI journals (p > .05). There was not any significant difference between ISI (30.7 %, Adj. Residual = 1.4, p = .161) and non-ISI (21.8 %, Adj. Residual = -1.4) journals' use of hedges. There was not any significant difference between ISI (14.6 %, Adj. Residual = .2, p = .841) and non-ISI (13.8 %, Adj. Residual = -.2) journals' use of boosters. There was not any significant difference between ISI (3.6 %, Adj. Residual = .6, p = .548) and non-ISI (2.3 %, Adj. Residual = -.6) journals' use of attitude markers. There was not any significant difference between ISI (2.2 %, Adj. Residual = .6, p = .548) and non-ISI (1.1 %, Adj. Residual = -.6) journals' use of engagement markers, and finally the ISI (48.9 %, Adj. Residual = -1.8, p = .071) and non-ISI (60.9 %, Adj. Residual = 1.8) journals made almost the same use of self-mention.

Table 5
Frequencies, Percentages and Adjusted Residual Values of Types of Interactional Meta-Discourse Markers by Types of Journals

		Types					Total
		Hedges	Boosters	Attitude Markers	Engagement Markers	Self-Mention	
ISI	N	42	20	5	3	67	137
	%	30.7%	14.6%	3.6%	2.2%	48.9%	100.0%
	Adj. Residual	1.4	.2	.6	.6	-1.8	
	p-value[*]	.161	.841	.548	.548	.071	
Non-ISI	N	19	12	2	1	53	87
	%	21.8%	13.8%	2.3%	1.1%	60.9%	100.0%
	Adj. Residual	-1.4	-.2	-.6	-.6	1.8	
	p-value[*]	.161	.841	.548	.548	.071	
Total	N	61	32	7	4	120	224
	%	27.2%	14.3%	3.1%	1.8%	53.6%	100.0%

The overall chi-square results (χ^2 (4) = 3.61, p = .461, r = .126 representing a weak effect size) indicated that there were no significant differences between the types of interactional meta-discourse markers as used in ISI and non-ISI journals. Thus the third null-hypothesis was supported.

Table 6
Chi-Square Test; Types of Interactional Meta-Discourse Markers by Journals

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.610[b]	4	.461
Likelihood Ratio	3.668	4	.453
Linear-by-Linear Association	2.814	1	.093
N of Valid Cases	224		

b. 4 cells (40%) have expected count less than 5. The minimum expected count is 1.55.

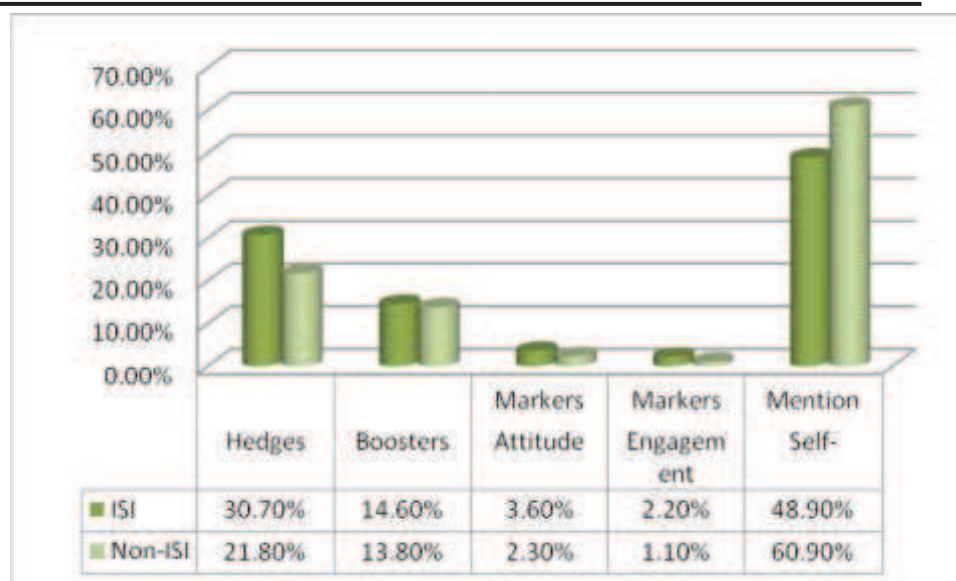|	Hedges	Boosters	Markers Attitude	Markers Engagement	Mention Self-
ISI	30.70%	14.60%	3.60%	2.20%	48.90%
Non-ISI	21.80%	13.80%	2.30%	1.10%	60.90%

Figure 3. Types of interactional meta-discourse markers by types of journals

4.4 Discussion

Results of the study showed that writers of both sets of data used meta-discourse resources in their articles. The preliminary findings confirmed that authors in both journals were apparently aware of the significant role of meta-discourse in persuasive writings (Hyland, 2005). It should be first mentioned that part of the results is compared with similar researches. The frequency and types of meta-discourse markers has been investigated in most fields, but based on our best knowledge and careful search for the subject, the study of differences between the frequency as well as the type of markers in the Method section of ISI and non-ISI journals in the field of Applied Linguistics has not been investigated. Both ISI and non-ISI journals made use of interactional and interactive meta-discourse markers in the same way and no significant differences were found between the number of interactive and interactional meta-discourse markers in Method sections. Our findings revealed that both ISI and non-ISI journal writers used these features almost with the same frequency and did not differ much. Similarly, Kuhi and Mojood (2014) highlighting the meta-discourse in newspaper genre found that genre conventions had a determining role in the writers' choice of some meta-discourse resources that contributed to some similarities in the use and distribution of meta-discourse resources.

Although the writers in the two written genres may have different strategies in using some sub-types of meta-discourse markers, with regard to the interactive and interactional category in general, they somewhat follow the same unique framework identified by the genre. Moreover, in line with

our findings Rezaeizadeh, Baharlooei, and Simin, (2015), found no significant differences between male and female master's English teaching theses regarding the use of these interactive and interactional meta-discourse Markers. It could be observed that the results of this study almost approved the findings of Rezaee, & Sayfouri (2009), which reported similarities among ISI and non-ISI journals in the field of Medicine. Finally, our data conflicted with the findings of two studies. In their study, Gholami and Ilghami (2016) found that Iranian authors employed interactive and interactional markers slightly more than their American counterparts regarding the frequency of meta-discourse markers. This was further highlighted in the findings of a study by Ghadyani and Taherian (2015), which indicated a significant difference between the Iran ISI and non-ISI medical journals in application of meta-discourse markers.

In Jiang and Hyland words, "writers use *interactive* devices to either weave chunks of information together (transitions, frame markers, and endophoric markers) or provide elaboration on propositional content (code glosses and evidentials)" (2016, p.3). The overall chi-square results in our study indicated that there were significant differences between the types of interactive meta-discourse markers as used in ISI and non-ISI journals. Similarly, our results were in line with the findings of Ghadyani and Taherian (2015), which detected a significant difference between Iran ISI and non-ISI Medical research articles in employing the sub-types of interactive meta-discourse markers.

According to Hyland (2010), *transitions* are central to academic writing as they assist readers in recovering how the writers link the arguments. The findings of our study reported that the subcategory of transition markers, among sub-categories of interactive resources, were the most frequently used resources in both groups of journals. In a similar way, Hyland (2010) found a large number of transitions in the corpus of the postgraduate writings. Besides, our findings supported Kuhi and Mojood (2014), results that the subcategory of transition markers, among sub-categories of interactive resources, was the most frequent used resource in English and Persian groups of editorials. However, the results displayed that the non-ISI journals significantly used transitions more than the ISI ones. In other words, our findings confirmed that Iranian non-ISI authors were more successful in the use of transitions in comparison with their ISI counterparts.

Although non-ISI journals used *frame markers* more than ISI journals, the difference between the two frequencies was not significant. The two types of journal articles made almost the same use of *endophorics* in method sections. Overall, this suggests that both journals have been successful in employing a normal frequency of these two sub-types of interactive markers in their articles. The same results were found in Ghadyani and Taherian

(2015), as frame markers and endophorics followed an identical pattern in both Iranian ISI and Iranian non-ISI articles.

As for employing *evidentials*, the ISI journals significantly used more evidentials in comparison with the non-ISI ones. Nevertheless, our results were in conflict with the findings of Ghadyani and Taherian (2015), which indicated that the Iranian ISI medical research authors has not been similarly successful in employing evidentials in comparison with the Native group and the Iranian non-ISI authors of medical research articles.

Moreover, our results revealed that the ISI journals significantly used *code glosses* more than the non-ISI ones. As for employing code glosses, Ghadyani and Taherian (2015) found a significance between Method section of medical RAs written by the native writers, and those of the Iranian writers in ISI journals. However, they found no significant difference in the use of code glosses in both Iran ISI and non-ISI articles. Considering the interactive meta-discourse category, the findings of the study by Farzannia and Farnia (2016), showed significant statistical differences in the case of evidential and code gloss markers between introduction sections of Persian and English mining engineering articles.

According to Hyland, (2005) *interactional* meta-discourse is a feature of argumentative and persuasive genres. The overall chi-square results indicated that there were not any significant differences between the types of interactional meta-discourse markers as used in ISI and non-ISI journals. It can therefore, be claimed that, at least from the point of view of the types of information provided in the Method sections, Iranian non-ISI writers in Applied Linguistic journals are as valid as their ISI counterparts in terms of using interactional meta-discourse markers. Our findings closely confirmed the results of the study by Estaji and Vafaeimehr (2015), which reported no statistically significant difference across mechanical and electrical engineering research papers in employing interactional meta-discourse markers.

5. Conclusion and Implications

As regards the first research question of the study, findings revealed that the predominant meta-discourse categories in both journals followed a similar pattern. It can therefore, be claimed that, at least from the point of view of the types of information provided in the Method sections, Iranian non-ISI Applied Linguistic journals are as valid as their ISI counterparts in using both interactional and interactive meta-discourse markers. These similarities can be mainly attributed to generic variations in academic disciplines. To deal with the third research question the findings were also interesting in that they revealed some similarities between ISI and non-ISI journals in the use of subcategories of interactional meta-discourse markers. As regards the second research question of the study it could be stated that the only significant

difference between the two written genres was found in applying interactive meta-discourse markers, namely transitions, evidentials and code glosses. The overall findings indicated that meta-discourse resources played a significant role both in directing writers to organize the texts and helping them to engage with the texts and their audience.

Considering the size and scope of the study, any conclusion drawn from the findings will require further research and investigation. As with any other studies, ours is limited and as a result there is considerable potential for future research in this area. Other studies can be done to (dis)confirm whether the predominant meta-discourse features reported in this study for ISI and non-ISI journals are maintained in different sections (abstract, introduction, discussion, and conclusion) of written genres across various disciplines. Furthermore, we hope the findings of our study make a positive contribution to the effect of making language learners' aware of the existing similarities and/ or discrepancies in the use of meta-discourse markers in academic writing. Meanwhile, the findings can be useful for novices to learn more about the rhetorical functions of meta-discourse and at the same time to learn how to construct their own style in penning a manuscript. Moreover, it would seem that Assistant professors, Master and PhD candidates of Applied Linguistics, teachers, ESP practitioners, and material developers could also enrich language instruction to include awareness of meta-discourse markers. Thereby, such an awareness helps writers to become aware of the cognitive demands which texts make for readers and at the same time, it helps readers to negotiate with the text.

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Appendix A

Titles of research articles from which data were selected.

Text	Title	Journal Title	Year
ISI Article	Peer-to-peer predictions in medical sciences: Iranian field specialists' attitudes toward convenience editing	*English for Specific Purposes*	2017
ISI Article	Gender and Academic Major Bias in Peer Assessment of Oral Presentations	*Language Assessment Quarterly*	2016
ISI Article	Assessing English Language Learners' Oral Performance: A Comparison of Monologue, Interview, and Group Oral Test	*Language Assessment Quarterly*	2016
ISI Article	Applying Form-focused Approaches to L2 Vocabulary Instruction through Video Podcasts	*Language Learning & Technology*	2016
Non-ISI Article	Task Condition and EFL Learners' Individual Differences: The Mediation of Tolerance of Ambiguity and Self-efficacy	*Journal of Teaching Language Skills*	2017
Non-ISI Article	The Effect of Recast vs. Clarification Request as Two Types of Corrective Feedback on Iranian Intermediate EFL Learners' Structural Knowledge	*Journal of Language Teaching and Research*	2016
Non-ISI Article	A Corpus-Driven Investigation into Lexical Bundles across Research Articles in Food Science and Technology	*English Language Teaching*	2017
Non-ISI Article	Are scientists objective? An investigation of appraisal resources in English popular science articles	*Iranian Journal of Language Teaching Research*	2017

Appendix B

Titles of ISI and non-ISI Applied Linguistics journals along with the electronic address

Title of Journal	Address
English for Specific Purposes	https://www.journals.elsevier.com/english-for-specific-purposes/
Language Assessment Quarterly	http://www.tandfonline.com/loi/hlaq20
Language Assessment Quarterly	http://www.tandfonline.com/loi/hlaq20
Language Learning & Technology	http://llt.msu.edu/
Journal of Teaching Language Skills	http://jtls.shirazu.ac.ir/
Journal of Language Teaching and Research	http://www.academypublication.com/jltr/
English Language Teaching	http://elt.journals.ikiu.ac.ir/
Iranian Journal of Language Teaching Research	www.urmia.ac.ir/ijltr