



Metadiscursive Features in Research Articles: The Role of Stimulated Recall

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Abstract

While metadiscourse has been extensively examined across several genres, contexts of publication, disciplines, and languages over the past two decades, researchers have mainly limited themselves to the qualitative checking of candidate metadiscourse markers for the various functions they serve. In the present study, however, we drew on retrospective methods coupled with semi-structured interviews to gain a deeper understanding of metadiscourse features applied linguistics apprentice and professional authors use in their research articles (RAs) in national and international English-medium journals. To achieve this goal, we built on Hyland's (2019) interpersonal metadiscourse model to analyse RAs in three subsections including introductions, results, and discussion. We ran chi-square tests to examine the RA variations, following the descriptive analysis of the use of metadiscourse markers. A follow-up stimulated recall through semi-structured e-mail interviews was used. We used MAXQDA to analyse the interview data from authors. The results of qualitative and thematic analyses showed that metadiscourse markers play key roles in conveying the writers' message and intention to the members of discourse communities. The findings of the study suggest raising apprentice writers' awareness of the way they frame their message in research writing.

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1. Introduction

Over the last few years, metadiscourse has received a growing focus from scholars centering on native and non-native written corpora (Hong & Cao, 2014; Hyland, 2017; Uccelli et al., 2013). The debate on metadiscourse appears to be controversial in that linguistic structures go through either propositional or non-propositional aspects (Ädel, 2010; Hyland, 2019). Systemic-functional Linguistics (SFL) focusing on ideational function of language conveys the propositional aspects of the structures while textual and interpersonal functions of language express the non-propositional aspects. Following this debate, some scholars believe that if a statement or thought is produced to manifest ideational material, it is not considered metadiscourse (Halliday & Matthiessen, 2014; Hyland, 2019). In contrast, expressions used to organize texts or direct the readers are considered to be metadiscursive. However, it is believed that considering the linguistic expressions as metadiscourse in terms of propositional and non-propositional aspects may not be appropriate (Ädel, 2006; Flowerdew, 2015). Hyland (2017) argues that there appear to be some forms in linguistic structures carrying both metadiscourse functions and other functions simultaneously. Recently, there has been great curiosity in the interactive features of academic discourse, focusing beyond the ideational characteristics of written genres.

Introducing metadiscourse concept, Harris (1959) defines it as the way through which the writers/speakers use language to lead receivers comprehend a text. Elaboration on metadiscourse is different by different scholars. For instance, it is considered as discourse about discourse (Vande Kopple, 1985); interpersonal (Hyland, 2019); discourse reflexivity (Ädel, 2006). Nevertheless, scholars did not reach an agreement on a single definition. As a comprehensive term, Hyland (2019) states metadiscourse as “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). The importance of interpersonal and rhetorical components in academic communication has persuaded the researchers to explore the interactive, interpersonal, and persuasive aspects of academic writing or speech. Metadiscourse aided researchers to conduct some studies and determine those features in the academic discourse. Through metadiscourse, language users build, facilitate, increase communication and relationship with an audience. Researchers argue that interaction in written texts brings up interactions which are similar to those in the spoken texts, while there are contrasting effects due to a different medium (Hoey, 2001; Hyland, 2019). This perspective guides the language users to perceive academic writing as social engagement through which writers and readers interact. Regardless of varieties of metadiscourse models, the importance of metadiscourse in written communication and various contexts is presented by some studies without paying attention to the theoretical view being held up (Ädel, 2006; Crismore, 1990; Hyland, 2004).

Previous studies on metadiscourse markers (MM) have mostly reported on the linguistic and cultural effects on writers' choices of MM in English texts by writers published in the international journals. They have also taken linguistic background, genres, nativeness into consideration regarding metadiscourse analysis in research articles (RAs). However, in this study, we differentiate the frequency and the use of MM in RAs published by novice and expert applied linguistics writers in English-medium journals. We also focus on three separate

sections including introduction, result and discussion of the RAs so as to be able to determine the possible differences.

2. Literature Review

2.1. Task-based Teaching and Learning

Literature shows that metadiscourse use in research article (RA) has been highlighted through several studies regarding the genre analysis view (Hyland, 2002) and culture or language (Molino, 2010; Sheldon, 2009). The cross-disciplinary study of metadiscourse has been the other significant research study (Cao & Hu, 2014; Harwood, 2006; Tse & Hyland, 2008), differing across disciplinary rhetorical cultures based on how they are used and are frequent. Thus, MMs appear to be essential in analyzing written academic discourse.

Cao and Hu (2014) conducted a corpus-based study to compare 120 RAs across the fields of education, psychology and applied linguistics to determine their interactive metadiscourse features. The results showed that there were paradigmatic differences among writers when they used transitions and evidences. The writers claimed that the differences come back to the distinguishing epistemological underpinnings making differences between “qualitative and quantitative paradigms and the different knowledge-knower structure prevailing in the discipline under investigation” (p. 15). In another related study, Hu and Cao (2015) examined the same cross-paradigmatic and sub-disciplinary variations and the result was shown to be the same.

Trying to create a well-organized discourse, Khedri et al. (2013) investigated interactive metadiscourse markers Applied Linguistics (AL) and Economics (E). In this study, the researchers selected sixty RA abstracts from each discipline. The findings indicated that the interactive MMs were common in AL. Transition markers, addressing the internal cognitive relationship in discourse, were more common categories, with a total of 94 tokens in AL and 84 tokens in E. Some other textual practices were found differently across the two disciplines. The results of the study suggested that the writers need to be familiar with discursive strategies, characteristics and conventions for best practices. In addition, writers should know how to use devices to orient readers to the appropriate intended research message.

Jiang and Hyland (2015) focused on noun complement (NC) structures based on their frequencies, forms and functions. The corpus consisted of 160 RAs across eight different disciplines. They identified 3,437 noun complement constructions in the corpus, 21 instances in each article. N to-infinitive clauses were the most common forms in the corpus. Stance nouns showing objects and relations was small in number. NCs came up to be frequent in soft in comparison to hard fields. Stance nouns indicating attributes were unvaryingly distributed in the soft fields. It was shown that stance is a lexical trait of discourse and a syntactic item, as well. In this study, the NC construction presented one way through which writers can judge their material, display a personal position. Finally, it was shown that attitude that writers showed was the best means to affect how readers clarify the information they transfer.

Liu and Buckingham (2018) conducted a study to determine the representational structure of 20 RA discussion sections in AL. Four different kinds of regulatory features were indicated in this study, namely, move frequency, opening and closing moves, obligatory moves and steps, and move sequences. Textual and interpersonal markers were distributed significantly

differently. The former was displayed frequently across the moves that assumed sequencing or linking information, but the latter was frequent in moves displaying argumentative or persuasive objectives. It was shown that the representational structure might be employed in a variety of datasets from the same field with no extra moves. The pedagogical implication of the study was that an analysis of the representational structure of RA discussion sections and move regulatory traits aid writers to expand an awareness of the structure of this section. Another implication was that an investigation of MMs used in particular moves could help writers not only to determine the moves within textual components but also find out how they are arranged.

Chen and Hu (2020) examined the extent to which markers showing surprise were applied between two disciplines (AL & Counseling Psychology). In a total corpus of 320 RA, the researchers, following Charles Fillmore's frame semantics, determined and scrutinized all the markers for surprise. 439 markers, showing surprise, were identified to elicit seven interrelated semantic frames. The semantic frames consisted of a variety of eight ideationally frame elements, five of which were more frequently used than the others. The analyses indicated that a genre-specific surprise frame might be generalized and introduced in the article to know how surprise and its linguistic items appear in constructing technical knowledge.

Yoon and Römer (2020) studied advanced-level student writing to pinpoint cross-disciplinary variations in using MMs. Following in Hyland's (2019) model, they first quantitatively analyzed interactional metadiscourse across disciplines. They quantified scores for each MM. 829 papers from 16 various fields included the data for the study. The results indicated that differences in metadiscourse use were significant across academic divisions and fields. Moreover, the result indicated that disciplines from the same academic division were not certainly alike in employing interactional MMs.

Khatib and Esfandiari (2021) analyzed introductions and conclusions sections of 240 RAs, following Hyland's (2019) interpersonal model. They used the computer program AntConc to analyze the data. Through this study, the researchers analyzed and examined the engagement markers in the introductions and conclusions and their function was also taken into account. The results manifested a variation in distributing engagement markers in the three different sub-corpora, namely American Corpus, 80 RAs by American writers in international journals; Persian International Corpus, 80 RAs by Persian writers in the same international journals; and Persian National Corpus, 80 RAs by Persian writers in national journals. Nevertheless, while the types of metadiscourse markers used by American academics and internationally published Persian academics were similar, cultural inclination influenced Persian writers when they made their engagement choices. This point indicated that writers' linguistic background along with the context culture directs how writers communicate ideas when writing their RAs.

Al-Subhi (2021) conducted a study to find out how the linguistic and the visual MMs are used across advertisements. The data consisted of 50 advertisements taken from such platforms as Instagram, Snapchat and Twitter, and qualitative analysis was run, focusing on Hyland's (2019) metadiscourse model and Kumpf's visual metadiscourse (2000). It was attempted to explain how visual metadiscourse goes with linguistic metadiscourse in persuading customers into purchasing materials. Results showed that visual metadiscourse, particularly chunking,

convention, and consistency, were greatly eye-catching in the corpus examined. Moreover, findings indicated that both engagement markers and directives were higher in frequency than other linguistic MMs and they were considered as useful items of convincing language.

Following Hyland's (2019) taxonomy, Herriman (2022) investigated MMs in ten manuals in English. The interactive metadiscourse appeared to be overriding by frame markers and code glosses showing the objective of manuals to describe completely how an instrument performs. The interactional MMs displays the writers-readers relationship: relation between instructor and novice users of the material and that of manufacturer and user. The former was shown by the frequent use of necessity attitude markers and boosters to strengthen instructions and precautions. The latter was shown by politeness markers and the hedging of problems and risks. Moreover, the visual illustration of the manuals, i.e., its typographical variation, segmentation, punctuation appeared to convey metadiscourse meanings. Thus, we raised the following research question to analyze MM in RA introduction, result and discussion across two writer groups, novice and expert ones.

Are there any significant differences in the frequency and use of interactional MMs in RAs published by NWs and EWs in AL journals?

3. Methodology

3.1. Construction of the Corpus

To determine the possible variations in interactional metadiscourse use between novice and expert applied linguistics writers we selected the NWs and EWs regarding Google Scholar profiles, taking their h-indices into account. The applied linguists were classified as one up to ten h-indices (novice) and 11 up to 20 h-indices (expert). A corpus of 220 English RAs in AL was developed. The corpus included two sub-corpora: (a) novice corpus (NC), 110 RAs written by NWs in English-medium journals; (b) expert corpus (EC), 110 RAs written by EWs in English-medium journals. Having identified a number of journals in each sub-corpora, we explored the published volumes in 2012 and 2019 to show an adequate number of RAs published by both types of writers (Table 1).

Table 1. Overview of Journals for NEs and EWs

Journal	Years of Publication	No. of RAs for NW	No. of RAs for EW
Journal of Teaching Language Skills	2012-2019	12	15
Journal of Modern Research in English Language Studies	2012-2019	11	12
Iranian Journal of Language Teaching Research	2012-2019	16	11
Applied Research on English Language	2012-2019	10	14
Issues in Language Teaching	2012-2019	6	8
Language Related Research	2012-2019	13	9
Journal of Pragmatics	2012-2019	12	11
Applied Linguistics	2012-2019	5	7
English for Specific Purposes	2012-2019	14	9
Discourse Studies	2012-2019	11	14

More importantly, to undertake the reliability and validity of the analysis, single-authored RAs were selected as the main corpora. To select the RAs, we followed Swales' (2004) IMRD model. The selected RAs were examined to be titled as introduction, result, and discussion. Finally, the researchers selected 110 RAs in each sub-corpora in AL. Table 2 displays a summary of corpora and their word number.

Table 2. The Distribution of Interactional MMs in the Introduction, Result, and Discussion Sections of RAs

Corpus	No. of RAs	Sections	Word Number	Total MMs per 1,000 words	Relative Frequency
NC	110	Introduction	98,968	8,481	8.56
		Result	60,843	1,894	3.11
		Discussion	57,756	4,705	8.14
EC	110	Introduction	10,675	1,786	16.73
		Result	58,971	2,001	3.39
		Discussion	60,968	6,464	10.60
Total	220				

3.2. Data Collection Procedure

Having built the corpus, we selected Hyland's (2019) metadiscourse model to inspect the corpora. Linguistic awareness of metadiscourse was known based on the criterion of the model while analyzing. The propositions including interactional MMs were recognized functionally and manually throughout the corpus because metadiscourse is naturally a functional concept and the metadiscourse items can supply a variety of functions and depend on the situation in which they are used (Ädel, 2006). Therefore, the number of interactional MMs in each part of the RAs was counted and their relative frequency was obtained per 1,000 words. Furthermore, due to the inadequacy of single judgment for identifying interactional MMs, two colleagues examined the data and the results were averaged out to assure one reliable set of data.

3.3. Data Analysis

To analyse the data quantitatively, we used separate chi-square tests to examine statistically significant relationship between the frequencies of interactional metadiscourse markers between two groups of writers. SPSS (version 25) was used for quantitate data analysis. For qualitative data analysis, we used MAXQDA (version 2022) to analyse semi-structured interview data collected through email correspondence.

4. Results

To represent these findings, the overall distribution of interactional MMs in the three sections of RAs in NC and EC corpora are displayed in Figure 1.

As shown in data analysis, all three sections of RAs in EC had a high number of interactional MMs. To measure the significance of differences in metadiscourse use in "Introduction" section regarding NC, chi-square was run.

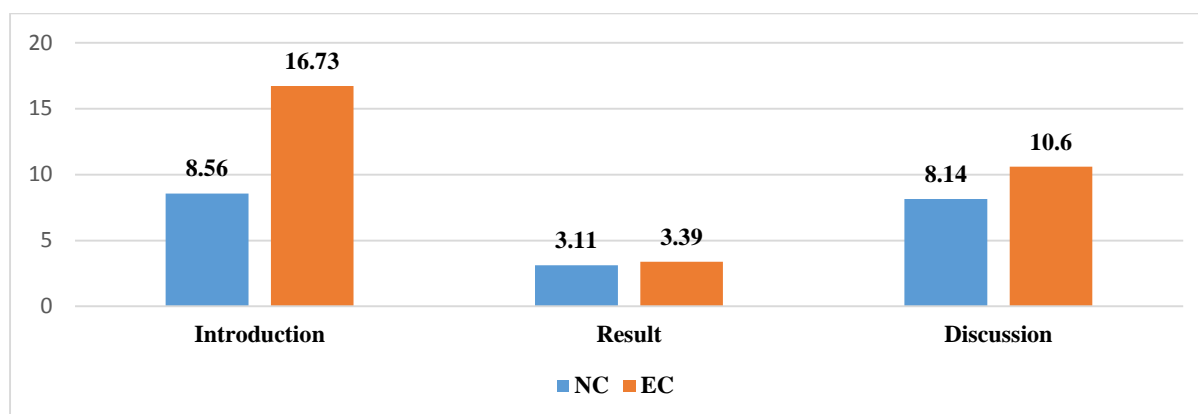


Figure 1. Percentage distribution of interactional MMs in introduction, result, and discussion across corpora

Statistically significant difference was indicated through chi-square analysis ($X^2 = 4365.737$, $df = 1$, $p < .05$). That is, the distribution of interactional MMs in “Introduction” across corpora was significantly different, suggesting considerable difference between NWs and EWs in using interactional MMs in introduction section of RAs (Table 3).

Table 3. Chi-square Test Results across NC and EC in Introduction Section

	Observed N	Expected N	Residual
NC	8481	5133.5	3347.5
EC	1786	5133.5	-3347.5
Total	10267		
Corpus			
Chi-Square		4365.737 ^a	
df		1	
Asymp. Sig.		.000	

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 5133.5.

Regarding the section “Result”, the researchers run a chi-square to find out if the difference between NC and EC in interactional metadiscourse use was statistically significant or not. The chi-square analysis specified no statistically significant difference ($X^2 = 2.939$, $df = 1$, $p > .05$). That is, the distribution of interactional MMs in “Result” across corpora was not significantly different, suggesting that use of interactional MMs by NWs and EWs in “Result” section of RAs was significant (Table 4).

Table 4. Chi-square Test Results across NC and EC in Result Section

Observed N	Expected N	Residual
1894	1947.5	-53.5
2001	1947.5	53.5
4663		
Corpus		
Chi-Square	2.939 ^a	
df	1	
Asymp. Sig.	.086	

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 2331.5.

As for the “Discussion” section, the value of chi-square appeared to be significant ($X^2 = 277.024$, $df = 1$, $p < .05$), revealing that difference between NWs and EWs in using interactional MMs was significant (Table 5).

Table 5. Chi-square Test Results across NC and EC in Discussion Section

	Observed N	Expected N	Residual
NC	4705	5584.5	-879.5
EC	6464	5584.5	879.5
Total	11169		
Corpus			
Chi-Square		277.024 ^a	
df		1	
Asymp. Sig.		.000	

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 5584.5.

Having examined the effect of expertise on the use of interactional MMs in general, NWs and EWs variations in the use of the five elements of interactional MMs were described. The results of the examination are as follows.

4.1. Hedges

The NWs and EWs employed interactional metadiscourse differently. Table 6 shows the use of hedges. As shown, 398 hedges were employed by all writers, of which 224 were used by ten novice and 174 were used by ten EWs. To put it simply, NWs used about 22% while EWs used almost 17 % hedges per person. The words such as *seems*, *possibly*, *suggested*, *would*, *assumed*, *in general* were more frequent among other hedges.

Table 6. Hedges Employed in the Three Sections

Expertise	No. of writers	Used words	Total hedges	Hedges used per person	Hedges used per 1,000 words
Novice	10	11,469	224	22.4	19.53
Expert	10	10,785	174	17.4	16.13

As displayed in Figure 2, NWs employed about 19 hedges, while EWs used about 16.

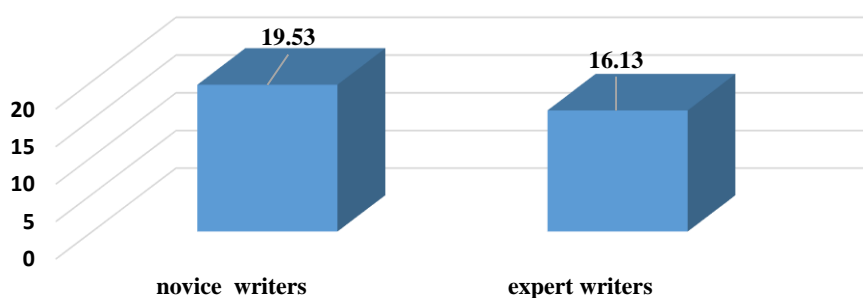


Figure 2. Hedges employed per 1,000 words

To measure the NC and EC variation in using hedges, the chi-square was conducted. The statistical analysis showed that the chi-square value showed the difference as statistically significant as possible. ($X^2 = 6.281$, $df = 1$, $p < .05$). This presents a significant difference between NWs and EWs in employing hedges.

4.2. Boosters

Table 7 manifests the number of boosters used by both types of writers. It is shown that the writers used 700 boosters, of which 268 were used by NWs and 435 were used by EWs. The most commonly used boosters were *actually*, *conclusively*, *establish*, *known*, *obviously*, and *undoubtedly*.

Table 7. Boosters Employed in the Three Sections

Expertise	No. of writers	Used words	Total boosters	Boosters used per person	Boosters used per 1,000 words
Novice	10	11,469	268	26.8	23.36
Expert	10	10,785	435	43.5	40.33

Regarding per 1,000 words, EWs employed boosters more frequently than NWs. This difference was graphically shown as follows (Figure 3).

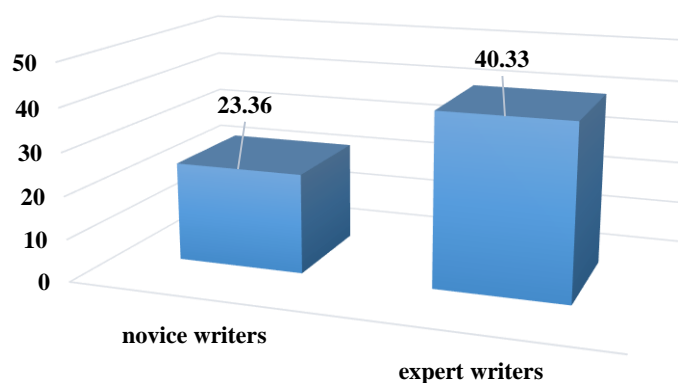


Figure 3. Boosters employed per 1,000 words

Another statistical analysis was run to measure variations in using boosters. The results expressed the significant value of chi-square ($X^2 = 39.671$, $df = 1$, $p < .05$) meaning that NWs and EWs used boosters significantly different.

4.3. Attitude Markers

Descriptive statistics on applying attitude markers are displayed in Table 8. The table displays that all writers, novice and expert, used 197 attitude markers: 109 employed by novice and 88 by EWs. Such words as *unfortunately*, *hopefully*, *remarkable*, *interesting*, *essentially*, and *dramatic* were more frequent.

Table 8. Attitude Markers Employed in the Three Sections

Expertise	No. of writers	Used words	Total attitude markers	Attitude Markers used per person	Attitude Markers used per 1,000 words
Novice	10	11,469	109	10.9	9.5
Expert	10	10,785	88	8.8	8.15

NWs, in 1,000 words, used attitude markers (9.5) more frequently than EWs (8.15) (Figure 4).

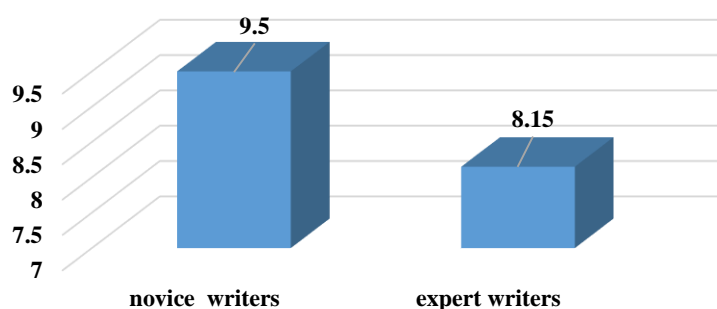


Figure 4. Attitude markers employed per 1,000 words

The chi-square was run to realize how the novice and expert used attitude markers differently. The result indicated that NWs and EWs used attitude markers significantly differently ($X^2 = 2.239$, $df = 1$, $p > .05$).

4.4. Self-mentions

Table 9 presents the frequency of self-mentions used by both NWs and EWs. Clearly shown, 456 self-mentions were used by all writers, 198 by novice and 258 by EWs. Self-mentions markers such as *we (inclusive)*, *note*, *the author*, *look at*, *one's*, *regard* were more frequent in writers' writing.

Table 9. Self-mentions Employed in the Three Sections

Expertise	No. of writers	Used words	Total Self-mentions	Self-mentions used per person	Self-mentions used per 1,000 words
Novice	10	11,469	198	19.8	17.26
Expert	10	10,785	258	25.8	23.92

NWs used 17.26 and EWs used 23.92 self-mentions per 1,000 words. Figure 5 displays that expert outperformed NWS in the use of self-mentions.

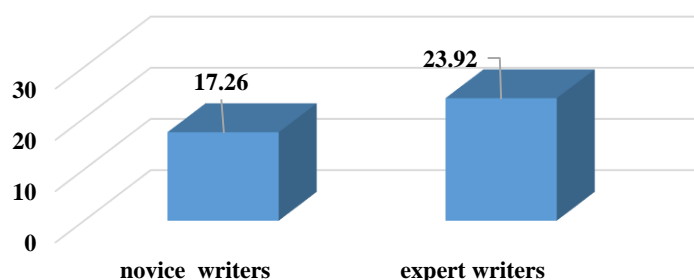


Figure 5. Self-mentions Employed per 1,000 words

To find out whether or not the difference between NWs and EWs was significant, the researchers run the chi-square. Regarding the results of the chi-square value, it may be claimed that NWs and EWs employed self-mentions differently ($X^2 = 7.895$, $df = 1$, $p < .05$).

4.5. Engagement markers

As shown in Table 10, frequency of engagement markers employed by NWs and EWs was 264, 143 of which were employed by NWs and 121 by EWs. Such words and expressions as *analyze*, *demonstrate*, *apply*, *ensure*, *imagine*, and *you can see that* were commonly used engagement markers in the corpora.

Table 10. Engagement Markers Employed in the Three Sections

Expertise	No. of writers	Used words	Total engagement markers	Engagement markers used per person	Engagement markers used per 1,000 words
Novice	10	11,469	143	14.3	12.46
Expert	10	10,785	121	12.1	11.21

Regarding the use of engagement markers per 1,000, NWs (12.46) outperformed EWs (11.21) in using engagement MMs (Figure 6).

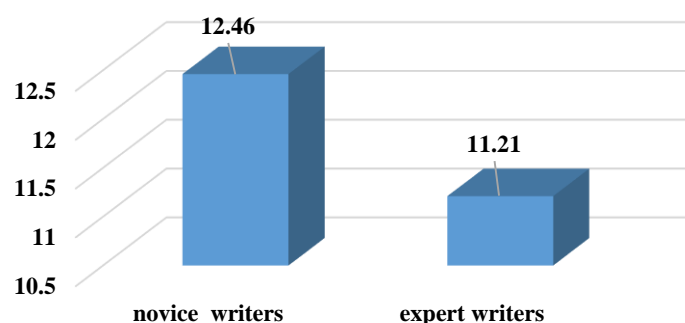


Figure 6. Engagement markers employed per 1,000 words

To calculate the difference between NWs and EWs, the chi-square was conducted. The result indicated that no considerable difference came up between two different types of writers in the use of engagement markers ($X^2 = 1.833$, $df = 1$, $p > .05$).

Hyland (2012) argued that while corpus-based studies provide striking insight into patterns of second language writers' language use and help researchers determine sources of deviations from target norms, quantitative corpus data does not completely justify why language users follow particular features while producing language. That is why a follow-up qualitative analysis in the form of introspective method was conducted in this study to get how writers interpreted their use of MMs.

In this section, we turn to qualitative data. Because of geographical dispersion of writers, in the stimulated recall sessions, the NWs and EWs were sent, through e-mail, their own RAs published in AL journals from 2012 up to 2019 (Creswell, 2012). That is, frequency of interactional MMs in writers' RAs was identified and highlighted and in the e-mail the writers were posed some questions to clarify and elaborate on why they favored/not favored to use particular interactional MMs. Thus, stimulated recall sessions tried to come up with the writers' use or avoidance of particular interactional MMs. Since it was predicted that due to the ethical issues some writers may not answer the e-mails, the researchers identified another five NWs and five EWs to ensure that the data could be adequate.

Since the interview was semi-structured, the questions were different for different writers (Dörnyei, 2007). Some questions sent to the writers were as follows.

- Why did you employ many/few interactional MMs in your RAs?
- Why were some particular interactional MMs more frequent than others in your RAs?
- What other types of interactional MMs might you have used rather than X in your RAs?
- Why did you avoid using some particular interactional MMs in your RAs?
- How do you think of your improvement in using interactional MMs in your RAs?

Having obtained the data transcriptions, the researchers divided them into two sections including novice and expert text data. Then, the data were coded to make sense, examine for redundancy, and label the segments. As stated in Creswell (2012), the inductive process was followed to narrow data into a few themes/categories to get a deep understanding into the writers' feelings. After generating the themes, the researchers reviewed the themes in such a way that the useful themes were maintained and irrelevant ones were discarded. Coding a sample from a novice and expert interview transcripts were presented in Table 11. Color match shows the relations between expressions and the codes.

Table 11. A Sample of Novice and Expert E-Mail Interviews

Codes	Novice Text Data	Themes
Being uncertain Distrusting the findings	Personally, I'm not sure why I have used hedges like " <i>think</i> " in my articles more. However, I don't want to see, experience, and report some points as proved. Even in my oral production, people say "you use uncertainty expressions more. In fact, it should be changed. I need to develop my knowledge to use different metadiscourse markers differently. I enjoy using metadiscourse markers in	<p>a. Gets a good sense of using interactional metadiscourse markers,</p> <p>b. Needs to be trained</p>

Acknowledging overusing hedges	my writings because I think it makes my articles comprehensible. I use hedges and attitude markers more in my production. Engagement markers are not clearer to readers. I use several metadiscourse items in discussion sections of the research articles compared to other sections.	c. Considers sections differently and is not sure of findings
Doubting in using MMs		

Agreeing that MMs are used differently in different sections

Codes	Expert Text Data	Themes
Expressing ideas as certainty	Writing scientific articles entails a lot of views. So, I myself try to show my finding as tentative facts. Showing one's trust to data and findings is essential. I try to put the reader not in a doubt. I use boosters to follow this. Instead of saying "may", I use "to be verbs". I use first person pronouns to show powerful self-representation. I believe that all interactional MMs should be used to show the writer's stance. I try to avoid using hedges and engagement markers. I always focus on MMS while reading a text. That is why there may ne an improvement in the use of MMs. Finally, MMs give a frame to the message in the text.	a. Focusing on the writers' stance and its importance
Avoiding the hedges		b. Not meeting readers' expectations
Adopting a particular stance		

MAXQDA version 2022, a practical software for qualitative research data, was run. Having analyzed and summarized the answers and come up with themes, the researchers wrapped up the themes into five for each type of the writers. MAXMaps for two different groups are displayed in Figure 8 and 9.

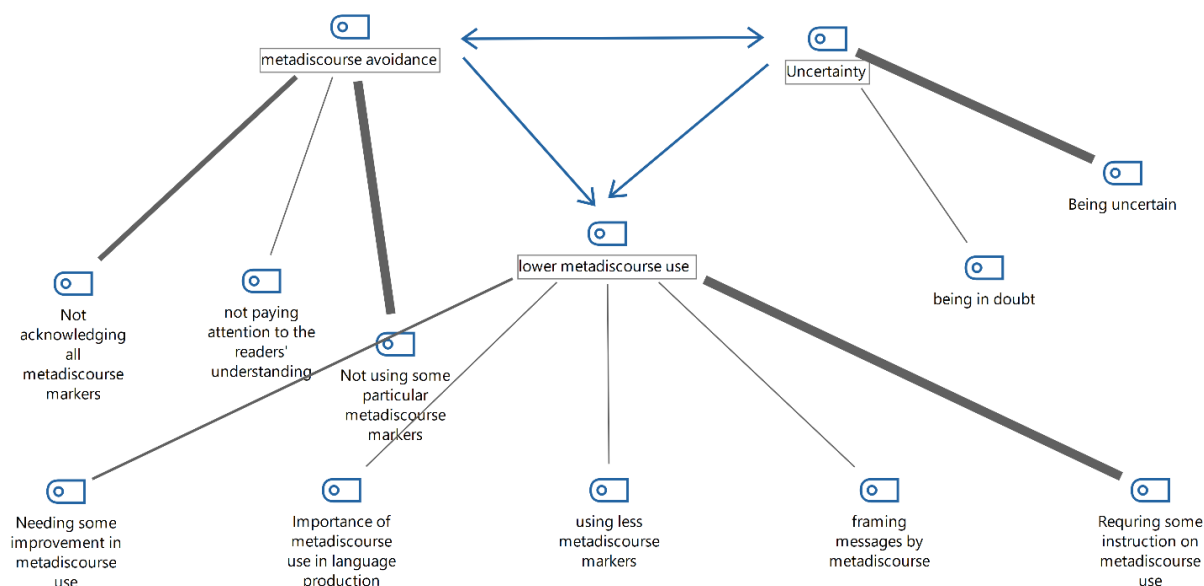


Figure 8. Themes and codes extracted from NWs through an interview

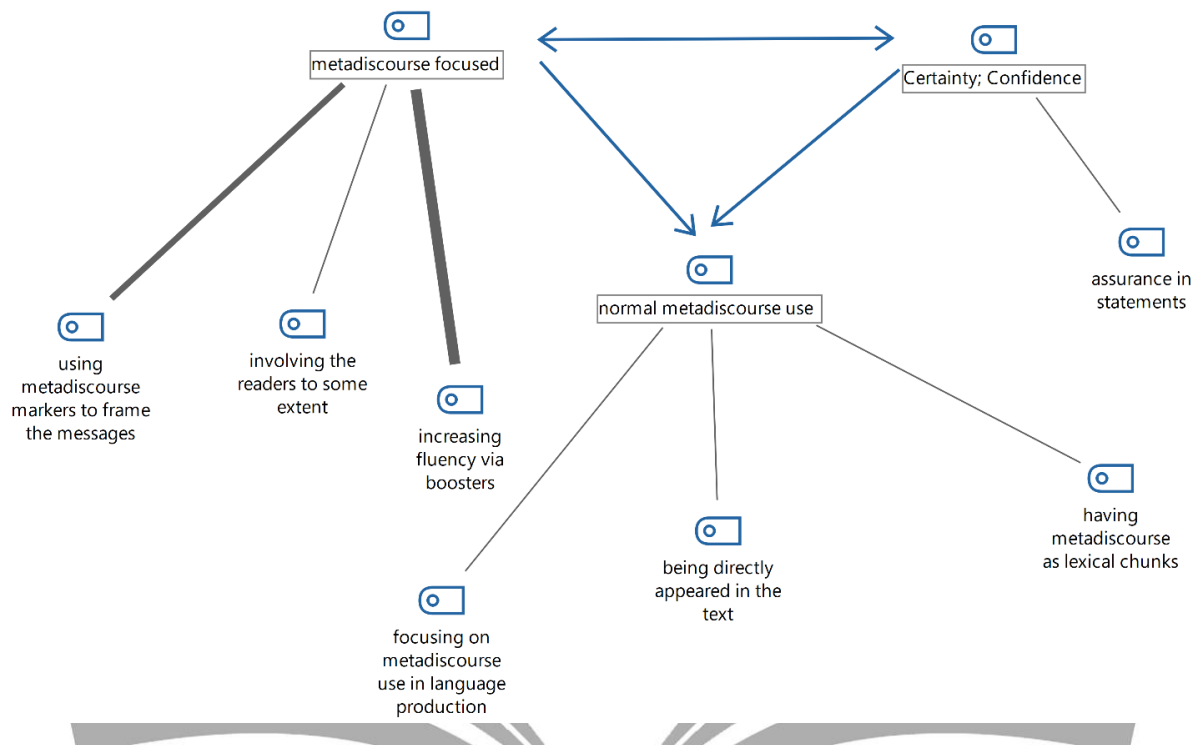


Figure 9. Themes and codes extracted from EWs through an interview

It was shown that NWs dealt with ‘*uncertainty*’, ‘*distrust of ideas*’, ‘*no affective indication*’, ‘*interested in MMs*’, and ‘*epistemic attitude to expression*’. On the other hand, EWs believed in ‘*certainty*’, ‘*trust of ideas*’, ‘*projection of expressions*’, ‘*interested in MMs*’, and ‘*powerful stance in writing*’.

It is worth noting that there were some similarities in the themes identified in both NWs and EWs. The result of the qualitative phase supported, to a great extent, the quantitative one. Thus, the whole results presented that NWs’ selection of interactional MMs in their RAs was largely different in using ‘*hedges*’, ‘*boosters*’, and ‘*self-mentions*’. Nevertheless, to some extent, they were similar in using ‘*attitude markers*’, and ‘*engagement markers*’.

Taking hedges into consideration, AL deals with human subjects and focus on qualitative analyses to represent knowledge. That is why, NWs follow tentativeness while making claims. NWs and EWs both included ‘*engagement markers*’ and ‘*attitude markers*’ in small scale in their RAs. It may indicate that regarding NWs and EWs there is less confidence in what can be reliably named as common knowledge which may be represented with an aside. Since the genre of AL is not in discussion form and writers do not discuss their personal ideas about various topics, ‘*engagement markers*’ and ‘*self-mentions*’ are not employed as frequently as others. This indicates that both novice and expert do not put more emphasis on their own personal opinions. ‘*Hedges*’ common in NWs’ RAs and ‘*boosters*’ found more in EWs’ RAs is due to the fact that ‘*hedges*’ and ‘*boosters*’ are more common in the humanities and social science RAs.

5. Discussion

The current study aimed to compare interactional MMs used by novice and expert RAs published in AL from 2012 up to 2019. The findings of the study showed that EWs utilized

interactional MMs in 'introduction', 'result', and 'discussion' sections of RAs than NWs did. The analysis of interactional MMs indicated that in NC 'boosters' made up the greatest proportion of all interactional MMs, followed by 'hedges', 'self-mentions', 'engagement markers', and 'attitude markers', respectively. However, EC showed different patterns of metadiscourse employment where 'boosters' were in the largest proportion, followed by 'self-mentions', 'hedges', 'engagement markers', and 'attitude markers', respectively. The difference in distributing 'hedges', 'boosters', and self-mentions' was significant between the two writer groups. Nevertheless, the difference between NWs and EWs in employing 'attitude markers' and 'engagement markers' was not significant.

Hedges were found to be more frequent in NC than those in EC. This finding is in contrast with that of Hyland (1998) who claimed that "hedging devices are complex for NWs due to the fact that they simultaneously convey a range of different meanings" (p. 218). Moreover, Aull (2015) stated that 'hedges' are common only in expert discourses. This contrast may be due to the nature of the corpus. In Gillaerts and Van de Velde's (2010) study, it was shown that there was a growth in using 'hedges', and a drop in using boosters and attitude markers. Furthermore, Kuhi and Behnam's (2011) study showed the significance of hedges in AL.

- (1) One **possible** rationale **would** be the nature of hard sciences. (NC)
- (2) It can be **argued** that previewing questions **might** trigger L2 learners to listen purposefully to the text (NC).

They were the first more frequent type of interactional MMs in the present study. However, 'boosters' were frequent interactional MMs in EC compared to the NC. This finding, to a great extent, is supported by some studies carried out (e.g., Keshavarz & Kheirieh, 2011; Sarani, Khoshsim, & Izadi, 2017). Those studies claimed that 'boosters' were employed as the second more recurrent type of interactional MMs in most RAs. This is in contrast to Khoshsim, Talati-Baghshahi, Zare-Behtash, and Safaie-Qalati (2018), who conducted a study, results of which revealed that difference was not found to be significant between EWs and NWs. The finding supports Hyland (2019), who pointed out that "... boosters generally emerge as the most frequently employed interactional metadiscourse markers in studies of expert writer texts in English" (p. 133).

- (1) All three types of planning have been **shown** to have beneficial effects on fluency. (EC)
- (2) From a socio-cognitive perspective, writing is basically a mental activity within a **certain** socially mediated context. (EC)

These types of interactional MMs were the least frequent among others in the current study. There was difference between NC and EC in using 'attitude markers' was not considerable. This finding is in accord with the study carried out by Attarn (2014) on the ESP RAs by Iranian as novice and native English academics meaning that the two types of writers employed 'attitude markers' in their RAs with fairly similar proportions. Since 'attitude markers' manifest solidarity with the fellow, the present finding is in contrast with Hyland's (2019), who asserted that "research writers, on the other hand, typically address their readers as experts and use metadiscourse to draw on shared understandings and emphasize solidarity" (p. 111).

- (1) Despite their **essential** role in natural discourse, some EFL teachers take a ‘hands-off approach’. (NC)
- (2) They show a **preference** for deductive pattern and three-part structures in their compositions. (EC)

NWs and EWs used interactional MMs ‘self-mentions’ significantly differently. They were more frequent in EC than in NC. The result is supported by Hyland’s (2008) studies in which he came up with an approximately the same number of self-mentions in AL articles by established community members. The small number of self-mentions in NC may indicate their unwillingness to show their explicit attendance in the discourse. It relates to the assumption that NWs are not confident enough to state their voice clearly within the discourse because they believe that they cannot take an academic position to hold alternative ideas. Another justification may come out of cultural or conventional opinions involved in the writer’s social contexts and community.

- (1) In order to meet this end, **the writers** try to show the problem or gap by reviewing the previous works. (NC)
- (2) **The writer** is well aware of the mainstream literature and the areas requiring attention. (NC)

They were not so frequent in NC and EC. Moreover, the difference between NWs and EWs were not statistically different. That is, the writer did not tend not to involve the assumed readers in creating their discourses. This finding is in conflict with Hyland’s (2019), who argued that “engagement markers were generally far more frequent in the non-native English speakers' essays” (p. 130). It may show that not using directive elements might be manifested as writers’ attention to readers' negative face. Another justification for the small number of writers’ engagement markers might be that they are pragmatically proficient as English language native speakers are in handling the disciplinary politeness strategies effectively.

- (1) **Imagine** you are teaching EFL learners with different cognitive learning styles. (NC)
- (2) **Suppose** the researcher believes the familiarity with computer may have an effect on the achievement and performance of the learners. (EC)

6. Conclusion and Implications

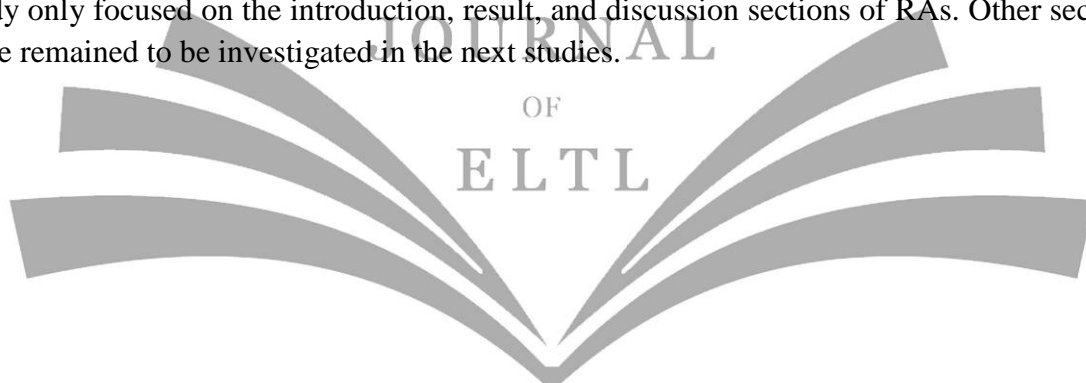
The present study attempted to examine the distribution of Hyland’s (2019) interactional MMs within the RAs written by NWs and EWs in AL. The articles were selected from written national and international journal. Interactional MMs in both corpora were extracted and their frequency distribution were compared between writer groups. The findings showed that EWs made a greater frequency of interactional MMs than did NWs.

It was realized that attitude markers were the least frequently used interactional MMs in both NC and EC. However, boosters were the most commonly used interactional MMs in both corpora. The analyses showed that the difference between NWs and EWs in using attitude and engagement markers was not significant. As for hedges, boosters, and self-mentions, the NWs and EWs made a great difference.

The findings of the current study have some pedagogical implications. The NWs should be carefully exposed to the explicit/implicit instruction of metadiscourse use. Teachers are supposed to instruct all kinds of MMs rhetorically. That is, teachers can raise EFL learners' awareness as an effective use of proper MMs.

There are some limitations in this study that are as follows. The first limitation was about the process of collocating the corpora for the present research. We limited our corpus to the specific academic genre of RAs in AL. Thus, the findings cannot be generalizable to other academic fields.

In the present study, the NWs were supposed to be at h-indices of one to ten and EWs at h-indices of 11 up to 20. In the future studies, the classifications can be different. Age and gender were two other variables which can be examined in the future studies, as well. In addition, this study only focused on the introduction, result, and discussion sections of RAs. Other sections were remained to be investigated in the next studies.



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