

Comparative Analysis of Metadiscourse Markers and Rhetorical Elements in English PhD Dissertations

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Abstract: Writing that is logical and easy for readers to understand is essential for effective academic communication. One of the key features of effective writing is the use of metadiscourse markers. The purpose of the present study is to analyze the abstract sections of applied linguistics PhD dissertations from the perspective of metadiscourse markers, focusing on their use within each move. This study investigates how interactive and interactional metadiscourse markers are employed by native and nonnative PhD students and examines the rhetorical structure use of these markers in each move of abstracts. To this end, data were collected from 100 PhD theses abstracts in applied linguistics, with 50 authored by Iranian PhD candidates and 50 authored by English native speakers. The data were first analyzed for the use of rhetorical moves based on Hyland's (2000) framework. Then, the moves were analyzed for the use of metadiscourse markers according to Hyland's (2005) model of interactive and interactional metadiscourse markers. Findings indicate that international PhD students use interactive markers more frequently than their Local counterparts, with transitions and endophorics being particularly prevalent. Among interactional markers, hedges, followed by boosters and attitude markers, are used frequently. Move analysis revealed that both local and international students predominantly use metadiscourse markers in Move 5 (Conclusion) and Move 3 (Method). The implications of this study suggest that future researchers should use metadiscourse markers more purposefully in their academic writing and pay closer attention to the rhetorical structure of their texts.

Keywords: abstract, applied linguistics, metadiscourse markers

INTRODUCTION

Scientific publications spread information, encourage communication, foster professional growth, and facilitate the acquisition of membership in a discourse community. These purposes, combined with the fact that genres evolve, mean that research papers continue to be the subject of scholarly inquiry. The abstract is a subgenre of research articles that has grown to be the most read type of research literature due to the rapidly increasing volume of research being produced. An abstract provides an overview of the article's content. Typically, an abstract contains 100 to 250 words, including the significant features and findings of the study (Bonn & Swales, 2007; Fazilatfar & Naseri, 2014). A good abstract is "accurate, non-evaluative, concise, coherent, and reliable" (Local Psychological Association, 2001, p. 26). This aligns with the points made by Berkenkotter and Huckin (1995) regarding the importance of the abstract for research articles. First, abstracts are readable since they offer important details or assertions. Second, the abstract allows the reader to assess the content; it is up to them to decide whether or not to read further. Third, it encourages readers to read the article. Fourth, it offers a summary of the research. However, creating research paper abstracts is still challenging, particularly for non-native English speakers, because they may not be familiar with genre-specific abstract conventions (Amnuai, 2019, Mauranen, 2007).

Several studies have focused on the genre-specific dimensions of metadiscourse and its recurring patterns (e.g., Benraiss, 2023; Gillaerts & Van de Velde, 2010). In the disciplines of discourse analysis and language teaching, metadiscourse is regarded as a novel concept. It addresses the relationship that exists between authors and readers as well as between text writers and their works (Hyland, 2005). By referencing the text's organization or making other comments on it, metadiscourse markers serve as linguistic elements that depict the writer's or the reader's presence in the text. A writer can effectively transform a text that could otherwise be dry or difficult into coherent prose that is easy to read, relate it to a specific context, and convey their credibility, audience sensitivity, and relationship to the message. This means that formal structure is realized as rhetorical moves in abstract writing. Each research field's abstracts have their forms and structures, which must be strictly adhered to (Hwang et al., 2017). Swales (1990) conceptualizes genre as a recognizable communicative event, realized in a connected circle of communicative purpose, members of a speech community, constraints and maneuvering opportunities, and social contexts. Other definitions mostly rely on the social criterion in defining the notion of "genre." moves, as defined by Swales (1990) as "a functional unit in a text used for some identifiable purpose," are frequently employed to "describe the function which particular portions of the text realize in relation to the overall task" (Connor, et al., 1995, p. 463), as well as to identify textual regularities in specific writing genres. To satisfy the genre's overall goal of communication, moves might range in size and length from a few paragraphs to one sentence, yet they often contain only one proposition (Connor & Mauranen, 1999, p. 51). Because moves are semantic and functional components of texts that may be recognized by their linguistic boundaries and communicative goals, move analysis is a useful technique in genre studies. Scholars such as Hyland have identified rhetorical moves in abstract forms. Hyland (2000) developed a five-rhetorical-move structure. The rhetorical move framework comprises the structures of Introduction, Purpose, Method, Product (Result), and Conclusion.

This study sets out to accomplish three distinct research goals. First, it will evaluate the macro-organizational patterns of one hundred abstracts analyzed by international and local applied linguistics scholars. Then, it will examine the roles that these metadiscourse markers play in terms of micro-organizational patterns in these abstracts. Lastly, it will identify the main rhetorical as the common metadiscourse in terms of micro-organizational patterns in these abstracts. Lastly, it will identify the main rhetorical devices used in research article abstracts,

as well as the common metadiscourse markers that denote these devices. In the end, we will compare local and international abstracts in their use of metadiscourse markers and rhetorical moves. The questions which guided the study are as follows:

1. What metadiscourse markers do local and international PhD students use in the abstract section of their dissertations?
2. Are there any significant differences in frequency between local and international students in using different subcategories of metadiscourse markers?
3. How do the authors in the two corpora utilize metadiscourse to fulfill the rhetorical objectives of thesis abstract strategies?

METHODOLOGY

Corpus of the study

Approximately 100 research article abstracts were selected from Iranian and International dissertations in applied linguistics (50 in each corpus with the size of 14,520 in Iranian local PhD dissertations and 17,589 words in international PhD dissertations). The PhD theses were sourced from two academic websites known for hosting academic theses and articles (IranDoc in Iran and Proquest for international research documents). The selected theses were submitted between 2015 and 2024, ensuring adherence to the most recent guidelines for scholarly writing. To answer the research questions, first the two corpora were analyzed to identify the rhetorical moves. The data set then coded according to Hyland's (2005) model of move analysis for abstract section. This model consisted of five moves: introduction, purpose, method, result and conclusion (see Table 1)

Table 1: Framework for abstract analysis (adopted from Hyland 2000: 67)

Moves	Functions
Introduction	establishes contexts of the paper and motivates the research or discussion.
Purpose	sets the stage by introducing the research problem or objective. it outlines the purpose of the study and provides context for the reader.
Method	the author describes the methodology, including data collection, analysis, and any relevant procedures. It includes how the study was conducted.
Result	the researcher presents the key findings of the study. It highlights the outcomes, trends, and significant results.
Conclusion	summarizes the study's implications and significance. it often includes recommendations, limitations, and future directions for research.

After the moves were identified, each move was analyzed to examine for the use of Hyland's (2005) model of interactive and interactional metadiscourse markers (see Table 2). According to this model, the interactional markers include hedges, boosters, attitude markers, engagement markers, and self-mentions, while the interactive markers consist of transitions, frame markers, endophoric markers, code glosses, and evidential markers. These markers were identified and examined in the study.

Table 2: Examples of interactional and interactive MDs

Markers	Function	Examples
Interactional markers	Hedges	Withhold commitment and dialog, e.g., might, suggest. The results <u>suggest</u> that, excluding the nondistinctive features, there are many discursal features that are significant for paradigmatic content discrimination of research articles in the discussion sections.
	Boosters	Emphasis certainty or close dialog, e.g., Always, truly The findings of the present study <u>showed that</u> using Facebook as a learning tool can improve students' vocabulary repertoire and that using Facebook leads to vocabulary retention and authenticity, through which language learning occurs easily and subconsciously.
	Attitude markers	Express writer's attitude to proposition, e.g., Important, significant There were no <u>significant</u> differences between native and nonnative speakers in using engagement markers.
	Engagement markers	Explicit reference to authors, e.g., we As a proof of concept, <u>we</u> built a real-time internal speech BMI from signals recorded in SMG that can decode eight words with high accuracy.
	Self-mentions	Explicitly refers to authors, e.g., I In this project, <u>I</u> introduce Reddit as a source for the study of dialect geography, using city subreddits (such as /r/Miami or /r/Chicago) to analyze lexical variation in North Local English.
Interactive markers	Transitions	Express relation between main clauses, e.g., While, not only but also <u>Moreover</u> , there awaits an in-depth analysis regarding how much RST associates with macro-level structures and how much parsing performance deteriorates at the macro level and across genres.
	Frame markers	Refer to discourse acts, sequences, or stages, e.g., Aim, then The findings of this study will assist school districts across the United States in <u>focusing</u> on areas of need to provide high-quality educational opportunities to students with limited or interrupted formal education.
	Endophoric	Refer to information in other parts of the text, e.g., This work, this paper Therefore, the <u>present</u> study aims to identify and compare the moves/steps that commonly shape management research articles written in Persian and English.
	Code glosses	Elaborate propositional meanings, e.g., That is to say, such as The present study focused on different EAP stakeholders for collecting the research data, <u>i.e.</u> , EAP policymakers, program designers, professionals, textbook developers, instructors, and students engaged in EAP programs in Iran.
	Evidential markers	Refer to information from other texts, e.g., According to X/ (Y, 1990) Z states In the United States, research on reading difficulties is predominantly carried out by scholars who project findings on L1 English reading difficulty to generalized difficulty in learning a second language (L2; e.g., Galuschka et al., 2020; Shaywitz and Shaywitz, 2020; cf. Sparks, 2023).

To analyze the data, UAM corpus tool was used. The corpora were inserted into UAM corpus tool in the form of a plain text. For the purposes of data analysis, first, both corpora were analyzed for the rhetorical moves. Then, the moves were analyzed for the use of metadiscourse markers.

RESULTS

Distribution of moves across the corpora

Table 3 displays the distribution of moves across the corpora. As the table shows, the two corpora followed similar patterns in the frequency of use of moves in writing the abstract sections. The findings showed that *method* is the most frequent moves across the corpora. The order of frequency in the international corpus is method (21.3%), followed by purpose (20.8%), results (20.8%), introduction (18.7%) and conclusion (18.2%), whereas the order of move occurrences in the local corpus is method (21.6%), followed by conclusion (21.1%), result (18.4%) and introduction (18%).

Table 3: *Frequency of Moves across the Corpora*

Moves	International		Local	
	Frequency	Percentage	Frequency	Percentage
Introduction	36	18.7	40	18
Purpose	40	20.8	46	20.7
Method	41	21.3	48	21.6
Result	40	20.8	41	18.4
Conclusion	35	18.2	47	21.1
Total	192	100	222	100

Distribution of metadiscourse markers across the corpora

Table 3 displayed the distribution of metadiscourse markers across the corpora. The findings show that the use of hedges was the most frequent markers in the two corpora, suggesting that the authors had a tendency to avoid generalization. According to Hyland (2005), the use of hedges is to show modesty, caution, and openness to alternative perspective. In other words, the authors a cautious approach in presenting research findings, regardless of cultural context. Boosters are the second most frequent device in international corpus, reflecting a stronger tendency to assert claims and persuade readers, whereas Iranian local writers indicated a more reserved rhetorical style.

Moreover, the findings show that attitude markers are the second most frequent metadiscourse markers in local Iranian abstracts. This might suggest that Iranian authors may use attitude markers to explicitly state their emotional stance, possibly compensating for less assertive use of boosters. Also, the frequent use of self-mention markers in the local Iranian abstract highlights Iranian authors' inclination to establish authorial presence in the text. Finally, the findings show that engagement markers are the least frequent markers in the two corpora, which is expected in the less common impersonal style of research abstracts.

Table 4: *Distribution of Metadiscourse Markers across the Corpora*

Marker	International		Local	
	Frequency	Percentage	Frequency	Percentage
Stance				
Hedges	113	48	46	31.2
Boosters	58	24.6	27	18.3
Attitude markers	53	22.5	37	25.1
Engagement markers	7	2.9	8	5.4
Self-mentions	4	1.7	29	19.7
Total	235	100	147	100
Number of words	17589		14520	

As shown in Table 5, interactive metadiscourse markers are used more frequently than interactional metadiscourse markers by both international and local writers. Among the interactive markers, transitions have the highest usage among both local and international PhD students. Evidentials have the lowest frequency in international abstracts, while code glosses have the lowest frequency in local abstracts.

Table 5: *Interactive metadiscourse markers in international and local American abstracts*

Markers	International		Local	
	Frequency	Percentage	Frequency	Percentage
Transitions	918	69.3	747	67.6
Frame markers	83	6.2	64	5.7
Endophoric	250	18.8	245	22.1
Evidentials	23	1.7	32	2.8
Code glosses	49	3.7	17	1.5
Total	1323	100	1105	100
Number of words	17589		14520	

Distribution of metadiscourse markers in each move

Table 6 displays the distribution of metadiscourse markers in the introduction moves in the two corpora. The findings show that transition markers were the most frequent device in the corpora, suggesting that the writers needed to clarify logical relations and enhance textual coherence to facilitate comprehension for diverse readers. Moreover, the findings show that self-mentions were absent in the two corpora.

Table 6: *Metadiscourse markers in Introduction section*

Introduction	International		Local	
Metadiscourse markers	Frequency	Percentage	Frequency	Percentage
Interactional metadiscourse markers				
Hedges	22	10.4	7	10.3
Boosters	6	2.8	6	2.3
Attitude markers	8	3.8	9	3.4
Engagement markers	1	0.47	2	0.76
Self-mentions	0	0	0	0
Interactive metadiscourse markers				
Transitions	117	55.7	158	60.7
Frame markers	10	4.7	10	3.84
Endophoric	35	16.6	49	18.8
Evidentials	6	2.8	16	6.1
Code glosses	5	2.3	5	1.92
Total	210	100	260	100
Number of words	2630		3118	

Table 7 displays the distribution of metadiscourse markers in purpose move. The findings show that transition markers were the most frequent device in the corpora.

Table 7: Metadiscourse markers in Purpose section

Purpose	International		Local	
	Frequency	Percentage	Frequency	Percentage
Metadiscourse markers				
Interactional metadiscourse markers				
Hedges	10	5	4	2
Boosters	7	3.5	0	0
Attitude markers	5	2.5	2	1
Engagement markers	1	0.5	1	0.51
Self-mentions	0	0	5	2.5
Interactive metadiscourse markers				
Transitions	98	49.4	100	51.5
Frame markers	10	5	17	8.7
Endophoric	55	27.7	59	30.4
Evidentials	5	2.5	4	2
Code glosses	7	3.5	2	1
Total	198	100	194	100
Number of words	2037		2175	

Contrary to the previous sections, in the Method section, international students used more words than local writers (see Table 8). Transitions have the highest frequency among the other metadiscourse markers. international writers do not use self-mentions, and local writers do not use engagement markers in the Method section.

Table 8: Metadiscourse markers in Method section

Method	International		Local	
	Frequency	Percentage	Frequency	Percentage
Metadiscourse markers				
Interactional metadiscourse markers				
Hedges	10	2.4	10	3
Boosters	8	1.94	5	1.5
Attitude markers	5	1.21	6	1.8
Engagement markers	3	0.72	0	0
Self-mentions	0	0	15	4.5
Interactive metadiscourse markers				
Transitions	295	71.6	211	63.5
Frame markers	28	6.7	17	5.1
Endophoric	40	9.7	57	17.1
Evidentials	9	2.1	7	2.1
Code glosses	20	4.8	4	1.2
Total	412	100	332	100
Number of words	5635		4254	

As Table 9 shows, international students used more metadiscourse markers in the Product section than Iranian students. Transitions have the highest frequency, while self-mentions have the lowest frequency in international theses.

Table 9: *Metadiscourse markers in Product section*

Product	International		Local	
Metadiscourse markers	Frequency	Percentage	Frequency	Percentage
Interactional metadiscourse markers				
Hedges	35	9.1	14	5.8
Boosters	15	3.9	8	3.3
Attitude markers	12	3.1	10	4.1
Engagement markers	2	0.52	3	1.2
Self-mentions	0	0	5	2.08
Interactive metadiscourse markers				
Transitions	228	59.6	142	59.1
Frame markers	10	2.6	12	5
Endophoric	70	18.3	37	15.4
Evidentials	3	0.78	4	1.6
Code glosses	7	1.8	5	2.08
Total	382	100	240	100
Number of words	4452		2513	

The number of words used in the conclusion section of the abstracts by international and local writers is close to each other. As shown in Table 10, transitions have the highest frequency. International writers do not use engagement markers and evidentials in the conclusion section. In local abstracts, evidential and code glosses have the lowest frequency among other metadiscourses.

Table 10: *Metadiscourse markers in Conclusion section*

Conclusion	International		Local	
makers	Frequency	Percentage	Frequency	Percentage
Interactional metadiscourse markers				
Hedges	36	10.2	14	6.1
Boosters	22	6.2	8	3.5
Attitude markers	23	6.5	10	4.3
Engagement markers	0	0	2	0.87
Self-mentions	4	1.14	5	2.1
Interactive metadiscourse markers				
Transitions	180	51.4	136	59.6
Frame markers	25	7.1	8	3.5
Endophoric	50	14.2	43	18.8
Evidentials	0	0	1	0.43
Code glosses	10	2.8	1	0.43
Total	350	100	228	100
Number of words	2857		2285	

DISCUSSION

In addressing the first research question, “What metadiscourse markers do local and international PhD students use in the abstract section of their dissertations? the findings indicate that interactive metadiscourse markers occur more frequently than interactional metadiscourse markers. Within the category of interactive markers, transitions appear most often, followed by endophoric references, which take the second place in terms of frequency. Moreover, in the international corpus, hedges are the most commonly used markers with boosters ranking the

second among international writers, while local writers tend to use attitude markers more frequently than international writers.

This pattern could be attributed to several factors. One possible explanation is that English as foreign language learners may not fully grasp the role and function of metadiscourse markers, possibly due to limited exposure or insufficient instruction on these elements in academic Persian settings. Furthermore, the difference between academic writing conventions in Persian and English, coupled with cultural factors, may explain why local students use interactional markers less frequently than their international counterparts. This suggests that both linguistic and cultural influences shape how metadiscourse markers are utilized in academic writing.

In response to the second research question, “Are there any significant differences in frequency between local and international students in using different subcategories of metadiscourse markers?”, the results show no statistically significant difference between international and local writers in the use of interactive markers. Both corpora use transitions more frequently than other interactive markers, with endophorics being the second. Hedges have the highest frequency among interactional markers, with international writers using hedges more than local writers, possibly due to a tendency to elaborate indefinitely in the abstract section. Boosters are the second in frequency among international writers, while local writers prefer attitude markers over boosters, possibly due to cultural differences in expressing attitudes more directly. International writers show less interest in self-mentions, which may be influenced by cultural norms and the preference for passive voice in Persian abstracts. Local writers exhibit less interest in engagement markers. Among interactive markers, evidentials have the lowest frequency in international abstracts, while code glosses have the lowest frequency in local abstracts.

In response to the third research question, “How do the authors in the two corpora utilize metadiscourse to fulfill the rhetorical objectives of thesis abstract strategies?”, the study shows that local and international writers have a similar tendency to use metadiscourse markers, with both using more metadiscourse markers in the conclusion move of the abstract. This may be because the conclusion move requires a detailed explanation of the study's outcomes to persuade readers, making effective use of metadiscourse markers essential. Moreover, move 3 (Method) is the second most frequent section for metadiscourse markers usage, as the writer needs to succinctly describe the research process, demonstrating writing proficiency. In international corpus, move 1 (Introduction) ranks third in metadiscourse markers usage, while in local theses, move 2 (Purpose) is the third.

In line with Hasan and Ergaya (2023), we found that interactive markers are more prevalent among both local and international writers. The findings are also in line with a finding also supported by Khedri and Basirat (2022). International writers use more interactive markers compared to local writers. Among interactive markers, transitions have the highest frequency in both international and local theses. In contrast to Khedri and Basirat (2022), who studied dental articles, evidentials do not have a high frequency in applied linguistics theses. Unlike Abdi, et al. (2021), who found no significant difference between celebrity and non-celebrity authors in using interactive and interactional markers, our study found that international and local writers are more inclined to use Interactive metadiscourse markers. Mirshamsi and Allami (2013) found that native writers use more metadiscourse markers than native international writers and international writers. However, our study found that international writers use more metadiscourse markers in the abstract section than Local writers.

Among interactional markers, hedges have the highest frequency in both international and local abstracts. In contrast to Libyan writers, international and local writers use more metadiscourse markers in move 5 (Conclusion) and then move 3 (Method). Similar to Benraiss Khalid's (2023) study in Morocco, interactional markers have lower popularity among

academic writers, possibly due to rhetorical transfer, discipline shifts, and the makeup of the discourse community.

CONCLUSION

The abstract is the first section of a thesis that a reader encounters, providing an initial impression of the study endeavor. Because of its importance, it is critical to create a cohesive and compelling abstract that effectively describes the study's key ideas, techniques, and conclusions. A well-written abstract not only helps the reader grasp the thesis, but it also piques their attention, motivating them to investigate it further.

The study's findings are significant for authors, particularly those in academic settings, as they emphasize the need of paying great attention to the many components of an abstract. By knowing the function of each section—such as the introduction, purpose, methods, results, and conclusion—writers may guarantee that their abstract is both thorough and well-structured.

Furthermore, the study underlines the importance of metadiscourse markers, which help guide the reader through the text, define the writer's viewpoint, and ensure consistency. Efficient use of these indicators can significantly improve the readability of the abstract, making it more accessible and interesting to the audience. For example, the proper use of transitions can aid in smoothly integrating concepts, whilst the use of hedges and boosters can effectively indicate the writer's level of assurance.

In the larger context of academic writing, these ideas can be especially useful for students and researchers who struggle to write abstracts that meet academic requirements. Applying the study's findings can help writers enhance the overall quality of their abstracts, increasing the likelihood that their work will be viewed and acknowledged by others. Finally, the value of creating an excellent abstract extends beyond the individual reader. A well-written abstract can help to the writer's academic achievement by increasing the visibility and effect of their study.

This study has two primary limitations. First, it exclusively examines the abstract sections of dissertations in the field of applied linguistics, which narrows the scope of the findings. As a result, the conclusions drawn may not be applicable to other academic disciplines, limiting the generalizability of the results. The second limitation lies in the focus on applied linguistics as the subject area. By concentrating on just one academic field, the study overlooks potential variations in the use of metadiscourse markers across different academic domains. These limitations highlight the need for broader research that encompasses a wider range of genres and disciplines.

Given these limitations, several recommendations for future research emerge. First, researchers interested in genre analysis could extend their studies to include a variety of academic fields beyond applied linguistics. By exploring different disciplines, future research could provide a more comprehensive understanding of how metadiscourse markers function across genres. Additionally, future studies could broaden their focus to examine not only the abstract sections but also other parts of dissertations or academic papers, such as the introduction, methodology, and discussion sections. This would allow for a more nuanced analysis of how metadiscourse markers are used throughout an entire thesis or publication, offering insights into their role in different sections and how they contribute to the overall structure and argumentation of academic writing.

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