CONSTRUCTING METADISCOURSE IN MANDARIN EFL UNDERGRADUATE WRITING

[1]Xiaorui Huang

Assumption University, Thailand

huangxr@cque.edu.cn

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Abstract

This study investigates the distribution and variation of metadiscourse in Mandarin EFL undergraduate essays, focusing on different writing proficiency levels and examining the correlation between metadiscourse frequency and essay scores. A specialized corpus of 2,766 essays was analyzed using a top-down corpus approach, adopting Hyland's (2005) metadiscourse framework. The results reveal that interactional metadiscourse dominates, accounting for 69.35% of total metadiscourse, with self mentions being the most frequent sub-category. Significant differences were found between the low-graded and high-graded groups in both interactive and interactional metadiscourse frequencies. The high-graded group demonstrated higher frequencies of metadiscourse elements, contributing to better writing quality. A weak positive correlation ($r = 0.288$, $p < 0.05$) between metadiscourse frequency and essay scores was identified. The study highlights the importance of effective metadiscourse usage in enhancing academic writing and suggests targeted instructional strategies to improve students' writing proficiency. Future research should explore a broader range of genres and proficiency levels to further understand the role of metadiscourse in writing quality.

Keywords： Metadiscourse construction, Mandarin undergraduates, EFL, Writing

Introduction

As a widely recognized concept in contemporary discourse analysis and language education, metadiscourse plays a crucial role in both spoken and written communication. Metadiscourse is employed by writers and speakers to engage with their audience through the strategic use of language (Hyland, 2017). Examples of metadiscourse markers in written texts include words or phrases such as consequently, however, moreover, according to, as discussed above, and to sum up. Numerous studies have investigated this phenomenon, aiming to understand metadiscourse construction in writing. These studies underscore the importance of metadiscourse in spoken genres (Alghazo, 2023; Kinneavy, 2023; Al-Subhi, 2024; Chung et al., 2024) and written genres (Hyland, 2005; Fu and Hyland, 2014; Ädel, 2017; Hyland, 2017; Ädel, 2021; Liu and Hu, 2021; Qiu and Jiang, 2021; Lee and Casal, 2023; Hyland and Jiang, 2024).

However, the term metadiscourse is inherently ambiguous, with various definitions and functions proposed by different theoretical frameworks (Ädel, 2021). The ambiguity of

[1]Student, English Language Teaching Department, Graduate School of Human Sciences, Assumption University, Thailand

metadiscourse is often conceptualized as a dichotomy between a narrow approach, which focuses on textual organization, and a broad approach, which encompasses both textual and interpersonal aspects (Hyland, 2005). The narrow approach, which limits metadiscourse to textual elements alone, is challenging to apply in practice (Hyland, 2017; Hyland and Jiang, 2024), while the broad approach is criticized for being overly inclusive (Ädel, 2021). The debate between these approaches remains unresolved, highlighting the need for further research to elucidate the characteristics of metadiscourse in written discourse.

Researchers have employed various theoretical approaches to examine how metadiscourse is constructed across different genres and communities. These approaches include sociolinguistic, psycholinguistic, cognitive, rhetorical, functional, pragmatic, and corpus-based methods. The functional approach to metadiscourse, derived from Halliday's Systemic Functional Linguistics (SFL) (1994), posits that language serves three metafunctions: ideational, interpersonal, and textual metafunctions. This approach suggests that the functions of metadiscourse are simultaneously expressed in every discourse, rather than independently (Hyland, 2005). It also challenges the dichotomous categorization of metadiscourse (Hyland, 2017), advocating for an integrated understanding of metadiscourse in context rather than through dictionary entries.

Empirical studies have extensively investigated metadiscourse in various genres and communities. In academic discourse, research on metadiscourse typically focuses on two main types: published academic papers and student essays. In published academic papers, studies have explored significant metadiscourse features across different disciplines (e.g., linguistics, economics, medicine) from textual, interactive, interactional, and reflexive perspectives (Carrió-Pastor, 2021;Grogan, 2021; Nur *et al.*, 2021; Ruonan, 2022; Hyland and Jiang, 2023). In student essays, research has examined metadiscourse's commonalities and differences across various majors (e.g., engineering, medicine, physics, education, psychology) (Nur *et al.*, 2021; Lin, 2022; Jiang and Hyland, 2022; Hyland and Jiang, 2023).

This study aims to investigate the distribution of metadiscourse construction in Mandarin EFL undergraduate essays, the variations in metadiscourse construction across different writing levels, and potential correlations between metadiscourse frequency and essay scores. To achieve these objectives, this study addresses the following research questions: 1) What is the distribution of metadiscourse construction in Mandarin EFL student writing? 2) What are the variations in metadiscourse construction between low- and high-graded groups? 3) What are the correlations between the frequencies of metadiscourse and the scores?

I. Literature Review

Since Zellig Harris first introduced the concept of metadiscourse in 1959, numerous scholars and researchers have explored this linguistic phenomenon from various theoretical perspectives and approaches. Consequently, countless studies have been conducted, presenting diverse views on its definitions, functions, classifications, theoretical frameworks, and empirical studies, which will be discussed in this literature review.

The definitions of metadiscourse have been presented in various ways by researchers from different theoretical perspectives and approaches. Since the term was coined, many researchers have argued that the definitions of metadiscourse are " fuzzy and heterogeneous" (Ädel, 2006, p. 4). This diversity is evident in the range of terms used to describe it in the literature, including frames (Goffman, 1974), gambits (Keller, 1979), writing about writing (Williams, 1981), metaphenomena (Halliday, 1985), communication about communication (Vande Kopple, 1985), discourse about discourse (Crismore & Farnsworth, 1989), metatext (Markkanen et al., 1993; Mauranen, 1993), metatalk (Schiffrin, 1980; Swales, 2001), inter-textual (Ifantidou, 2005), and reflexivity (Ädel, 2006, 2017).

Metadiscourse is often defined through two main approaches: the narrow approach and the broad approach. The narrow approach focuses on aspects of the text itself (Schiffrin, 1980; Markkanen et al., 1993; Mauranen, 1993; Ädel, 2006), while the broad approach considers metadiscourse as encompassing both textual organization and interpersonal elements

(Williams, 1981; Vande Kopple, 1985; Halliday, 1985; Crismore et al., 1993; Hyland, 2005, 2017). These approaches provide different definitions of metadiscourse in the literature.

Based on the narrow or broad approach, the classifications of metadiscourse also vary in the literature. The primary difference between these classifications is whether interpersonal elements are included. The narrow approach, exemplified by Mauranen (1993) and Ädel (2006), excludes interpersonal elements, whereas the broad approach, represented by Vande Kopple (1985), Crismore et al. (1993), and Hyland (2005), includes them. In a comparative textlinguistic study of academic discourse in economics, Mauranen (1993) explores metatextual elements that primarily serve textual-organizational purposes. She classifies metadiscourse into four types: connectors, reviews, previews, and action markers. Connectors display relationships between propositions, reviews summarize previous parts of the text, previews indicate upcoming content, and action markers signal discourse acts.

Ädel (2006) conducted a contrastive study on metadiscourse use in written texts by advanced learners of English and Swedish. She classifies metadiscourse into two main categories: metatext and writer-reader interaction. Metatext is further subdivided into impersonal and personal types, while writer-reader interaction focuses on personal types. Vande Kopple (1985) classifies metadiscourse into textual and interpersonal categories. Textual metadiscourse helps create coherent and cohesive texts, while interpersonal metadiscourse conveys the writer's personality and reactions. Hyland (2005) divides metadiscourse into interactive and interactional categories, each with several subcategories (e.g., transitions, frame markers, evidentials, hedges, boosters, etc.).

Table 1 Hyland's (2005) classification framework of metadiscourse

Category	**Function**		**Examples**
Interactive	**Help to guide the reader through the text**		**Resources**
Transitions	Addition		and, furthermore, moreover, etc.
	Comparison	Similar	similarly, equally, in the same way, etc.
		Different	in contrast, however, but, etc.
	Consequence	A conclusion is being drawn or justified	thus, therefore, consequently, etc.
		An argument is being countered	anyway, in any case, etc.
Frame markers	To sequence parts of the text or to internally order an argumen		first, then, next, etc.
	To explicitly label text stages		to summarize, in sum, etc.
	To announce discourse goals		I argue here, my purpose is, etc.
	To indicate topic shifts		well, right, now, let's consider X, etc.
Endophoric markers	Refer to information in other parts of the text		as noted above, as mentioned earlier, etc.
Evidentials	Refer to information from other sources		according to X, it is reported that, etc.
Code glosses	Elaborate propositional meanings		namely, such as, in other words, etc.
Interactional	**Involve the reader in the text**		**Resources**
Hedges	Withhold commitment and open dialogue		might, perhaps, in my opinion, etc.
Boosters	Emphasize certainty or close dialogue		in fact, definitely, it is clear that, etc.
Attitude markers	Express writers' attitude to proposition		unfortunately, agree, prefer, etc.
Self mentions	Explicit reference to author(s)		I, we, mine, we, our, ours, etc.
Engagement markers	Explicitly build relationship with readers		as we know, you, your, etc.

Metadiscourse has been defined and classified in diverse ways due to its application across various theoretical approaches. These include sociolinguistic (Schiffrin, 1980), psycholinguistic (Keller, 1979), cognitive (Martínez Guillem, 2009), rhetorical (Ädel, 2006), functional (Williams, 1981; Crismore et al., 1993; Hyland, 2005), pragmatic (Ifantidou, 2005;

Abdi et al., 2010), and corpus-based approaches (Ädel, 2006). Since the present study adopts Hyland's (2005) classification, which utilizes the functional approach to metadiscourse, this section discusses the impact of Halliday's (1994) Systemic-Functional Linguistics (SFL) on metadiscourse.

The functional approach to metadiscourse examines how language is used to achieve communicative purposes, focusing on how language functions in context rather than in isolation (Hyland, 2005). Halliday's SFL framework divides language into three metafunctions: ideational, interpersonal, and textual metafunctions. The ideational function describes experiences and ideas, the interpersonal function encodes interaction and engagement, and the textual function organizes the text itself (Halliday & Matthiessen, 1999; Hyland, 2005).

While some researchers argue that metadiscourse should exclude the ideational function (Vande Kopple, 1985; Crismore & Farnsworth, 1989; Ädel, 2006), others, like Hyland (2017), contend that all three metafunctions are expressed simultaneously in discourse. Hyland (2017) suggests that integrating Halliday's three metafunctions into metadiscourse provides a more comprehensive understanding of textual meaning. Consequently, the present study adopts Hyland's (2005) framework of metadiscourse.

II. Methodology

The present study employs a top-down corpus approach to explore the construction of metadiscourse in Mandarin EFL undergraduate essays. The corpus-based approach enhances the analytical processes of metadiscourse construction, thereby fulfilling the research objectives to some extent.

To achieve the research objectives, a specialized corpus comprising Mandarin undergraduate essays was established. The analytical framework is based on Hyland's (2005) categories of metadiscourse. Data was collected using AntConc 4.3.0 (Anthony, 2024), a corpus analysis toolkit for concordancing and text analysis. Variations in metadiscourse were compared using the Log-likelihood ratio calculator (Xu, 2009) and IBM-SPSS (version 21.0).

A corpus approach is a linguistic research methodology that provides empirical examinations of language variation and use in real-world contexts, resulting in findings with greater generalizability and validity (Biber & Reppen, 2015). This approach offers valuable data representing EFL learners' language experiences within a specific discourse and provides evidence of typical patterns and variations in metadiscourse. It also examines how metadiscourse is systematically constructed and organized in Mandarin EFL undergraduate writing. Thus, the present study adopts this approach to provide reliable evidence for the research questions.

To investigate the distribution and variations of metadiscourse in different discourses, seven major analytical steps are required in the corpus-based approach: determining categories, segmenting texts, identifying metadiscourse, analyzing metadiscourse, describing characteristics, describing structures, and describing patterns (Biber et al., 2007). These steps can be executed through either a bottom-up or a top-down approach. The present study adopts the top-down approach, where the theoretical framework is selected first, followed by the determination of metadiscourse categories, and subsequent data collection and analysis based on those categories.

To achieve the research objectives, several analytical steps are required in the corpus-based approach. Based on the suggestions of Biber *et al.* (2007), the present study employs a top-down approach, including constructing the corpus, selecting metadiscourse, collecting data, and analyzing data.

To examine metadiscourse construction in Mandarin EFL undergraduate essays, a specialized corpus was needed. Data was collected from PIGAI.COM, an online system for automatically correcting and grading English learners' writing. The reliability and validity of PIGAI.COM's grading system are well-documented (He, 2013). PIGAI.COM initiated a writing project called "Big Writing Event Under One Topic," where participants were required to write a 200-word essay without time constraints. A total of 1,408,626 participants from 16

provinces and 4 municipalities in China, representing 151 universities and 18 middle schools, contributed their essays, which were subsequently collected and made available on www.yulk.org.

The present study selects essays written by second-year non-English major undergraduates as the specialized corpus. These students typically complete two years of College English classes, earning 12-16 credits, which represent their proficiency in English writing. A total of 2,766 essays were randomly selected using a random number generator (www.random.org). Based on the scores provided by PIGAI.COM, essays ranked 1-1383 constitute the high-graded group, while essays ranked 1384-2766 constitute the low-graded group.

The present study employs a top-down corpus approach, where the analytical framework for metadiscourse is developed first by determining the relevant categories for these essays. Hyland's (2005) framework of metadiscourse (see Table 2.1) and its list of metadiscourse items are applied in this study. However, Hyland's list of metadiscourse could somehow inadequately present the metadiscourse construction in Mandarin EFL undergraduate essays: some of them might not be found in the present corpora and some of them are not included in Hyland's list (see examples in Table 3.1)

Table 2 Metadiscourse in Hyland's list are not found in the present study

Category	Resources
Transitions	accordingly, alternatively, conversely
Frame markers	listing (a, b,c), my purpose, my aim, my goal, we will focus on, nubering (1, 2,3)
Endophoric markers	in what follows
Evidentials	quoted
Hedges	in most instances, probable, to my knowledge, typically, unlikely
Boosters	beyond doubt, conclusively, decidedly, doubtless, evidently, incontestably, incontrovertible, incontrovertibly, indisputably, safe to say, unquestionable
Attitude markers	amazed, disappointingly, expectedly, inappropriately, irreplaceable, remarkably, shocked, shockingly, strikingly, unbelievably, unfortunate, unusually
Transitions	above all
Frame markers	last but not least, in the first place, in the second place, and then, first and foremost, in the end
Boosters	exactly,firmly,highly
Attitude markers	subscribe

Data collection involves searching and counting the frequency of metadiscourse resources using AntConc 4.3.0 (Anthony, 2024), followed by manual verification. For example, to examine the use of "however" in the low-graded group, the term is input in the "Search Term" field in the "Concordance" menu. The concordance lines are then manually checked, and the functions of "however" are carefully examined in context.

Examining metadiscourse in context is essential due to its complexity. For instance, the word "first" must be re-examined to determine if it performs a metadiscourse function, such as sequencing. Only items assigned a metadiscourse role are collected as metadiscourse resources. The examined concordance lines are saved and exported to Microsoft Excel for further statistical analysis.

Descriptive statistics for metadiscourse construction are conducted using two computer programs: the Log-likelihood ratio calculator (Xu, 2009) and IBM-SPSS (version 21.0). The Log-likelihood ratio calculator compares significant frequency differences between corpora. For example, if 2,517 raw frequencies of hedges are found in the low-graded group (244,169 total word tokens) and 3,401 in the high-graded group (304,139 total word tokens), the Log-likelihood ratio results indicate significant differences between the two groups. IBM-SPSS (version 21.0) is used to conduct a series of Independent Samples Tests (*t*-tests) to

compare mean frequency differences and scores between the low-graded and high-graded groups. Pearson correlation is applied to examine the correlations between metadiscourse frequencies and essay scores. The alpha level for all statistical tests is set at .05.

III. Findings and discussion

Based on Hyland's (2005) metadiscourse framework (see Table 2.1) and its list of metadiscourse items, this study investigates the distribution of metadiscourse construction in Mandarin EFL undergraduate essays, comparing the low- and high-graded groups, and examines the correlations between metadiscourse frequency and essay scores. The findings are presented in this section.

4.1 Distribution of metadiscourse construction

This study randomly selected 2,766 essays written by sophomore non-English major undergraduates in mainland China as the specialized corpus. The essays were categorized into low-graded and high-graded groups based on the scores assigned by PIGAI.COM. The low-graded group essays contained an average of 176.6 word tokens per essay, while the high-graded group essays had an average of 219.9 word tokens per essay (see Table 4.1). The high-graded group exhibited a 24.5% higher average word count than the low-graded group. Additionally, the average word count of high-graded essays exceeded the 200-word requirement by 10.0%, whereas the low-graded essays fell short of the requirement by 17.7%.

Table 3 Overall word tokens in the two groups

Groups	No. of Essays	Word tokens	Average word tokens
Low-graded group	1,383	244,169	176.6
High-graded group	1,383	304,139	219.9
Totals	2,766	548,308	198.2

According to Hyland's (2005) metadiscourse framework, these interactions are categorized into two main types: interactive metadiscourse and interactional metadiscourse. The overall distribution of metadiscourse construction in the corpus of Mandarin EFL undergraduate essays is shown in Table 4.2.

Table 4 Overall distribution of metadiscourse construction

Category	Rfreq.M	Sfreq. M	%of sub-total	%of total
Interactive				
Transitions	12,449	227.04	66.98%	20.53%
Frame markers	3,455	63.01	18.59%	5.70%
Endophoric markers	1,161	21.17	6.25%	1.91%
Evidentials	151	2.75	0.81%	0.25%
Code glosses	1,369	24.97	7.37%	2.26%
Sub-total	18,585	338.95	100%	30.65%
Interactional				
Hedges	5,918	107.93	14.07%	9.76%
Boosters	3,690	67.30	8.77%	6.08%
Attitude markers	2,268	41.36	5.39%	3.74%
Self mentions	25,953	473.33	61.70%	42.79%
Engagement markers	4,232	77.18	10.06%	6.98%
Sub-total	42,061	767.11	100%	69.35%
Total	60,646	1,106.06		100%

Rfreq.M=Raw frequency of metadiscourse
Sfreq.M=Standard frequency of metadiscourse per 10,000 words

The data in Table 4 indicates that the total number of metadiscourse occurrences is 60,646, with a standard frequency of 1,106.06 per 10,000 words. In the category of interactive metadiscourse, there are 18,585 occurrences (338.95 per 10,000 words), accounting for

30.65% of the total metadiscourse. In contrast, the interactional metadiscourse category has 42,061 occurrences (767.11 per 10,000 words), comprising 69.35% of the total metadiscourse.

These results highlight the predominance of interactional metadiscourse, which constitutes over two-thirds of the total metadiscourse in Mandarin EFL undergraduate essays. Among the ten sub-categories of metadiscourse, the most frequent is self mentions, with 473.33 occurrences per 10,000 words, representing 42.79% of the total metadiscourse. This is followed by transitions (227.04 occurrences per 10,000 words, 20.53%), hedges (107.93, 9.76%), engagement markers (77.18, 6.98%), boosters (67.3, 6.08%), frame markers (63.01, 5.70%), attitude markers (41.36, 3.74%), code glosses (24.97, 2.26%), and endophoric markers (21.17, 1.91%). The least frequent sub-category is evidentials, with only 2.75 occurrences per 10,000 words, accounting for a mere 0.25% of the total metadiscourse.

These findings suggest that Mandarin EFL undergraduate students predominantly use interactional metadiscourse to engage with their readers. The high frequency of self mentions indicates a strong emphasis on authorial presence and personal engagement in their writing. This is consistent with Hyland's (2005) observation that interactional metadiscourse is crucial for establishing a dialogic relationship with the reader and conveying the writer's stance. The relatively lower frequency of interactive metadiscourse suggests that students may focus less on guiding the reader through the structure of their arguments. This could indicate a need for greater emphasis on teaching the importance of interactive elements, such as transitions and frame markers, which help create coherent and cohesive texts.

Table 5 Distribution of interactive metadiscourse in the low-graded group

Category	Sub-catergory	Low-graded group		
		Rfreq.M	Sfreq. M	%of total
Transitions	*Addition*	1,402	57.42	17.51%
	Comparison	3,140	128.60	39.22%
	Consequence	944	38.66	11.79%
	Sub-total	5,486	224.68	68.52%
Frame markers	*Sequencing*	955	39.11	11.93%
	Labelling stages	250	10.24	3.12%
	Announcing goals	124	5.08	1.55%
	Shifting topic	47	1.92	0.59%
	Sub-total	1,376	56.35	17.19%
Endophoric markers		462	18.92	5.77%
Evidentials		38	1.56	0.47%
Code glosses		644	26.38	8.04%
Total		8,006	327.89	100.00%

Table 5 illustrates the distribution of interactive metadiscourse in the low-graded group, revealing a total of 8,006 occurrences of interactive metadiscourse with a frequency of 327.89 per 10,000 words. Among the five sub-categories of interactive metadiscourse, transitions are the most prevalent, with 224.68 occurrences per 10,000 words, accounting for 68.52% of the total interactive metadiscourse. Conversely, evidentials are the least frequent, with only 1.56 occurrences per 10,000 words, comprising a mere 0.47% of the total.

The second most frequent sub-category is frame markers, with 56.35 occurrences per 10,000 words, representing 17.19% of the total interactive metadiscourse. This is followed by code glosses (26.38 occurrences per 10,000 words, 8.04%), endophoric markers (18.92 occurrences per 10,000 words, 5.77%), and evidentials (1.56 occurrences per 10,000 words, 0.47%). Within the transitions sub-category, the highest frequency is found in comparison markers, with 128.60 occurrences per 10,000 words, constituting 39.22% of the total interactive metadiscourse. This is followed by addition markers (57.42 occurrences per 10,000 words, 17.51%) and consequence markers (38.66 occurrences per 10,000 words, 11.79%). In the frame markers sub-category, sequencing is the most frequent type, with 39.11 occurrences per 10,000 words, accounting for 11.93% of the total interactive metadiscourse. This is

followed by labeling stages (10.24 occurrences per 10,000 words, 3.12%), announcing goals (5.08 occurrences per 10,000 words, 1.55%), and shifting topic (1.92 occurrences per 10,000 words, 0.59%).

These results highlight the dominance of transitions in the interactive metadiscourse of low-graded essays, particularly the use of comparison markers. This suggests that low-graded essays rely heavily on transitions to establish connections between ideas, though there is a noticeable underutilization of evidentials, which could indicate a lack of emphasis on providing supporting evidence or citations. The relatively high frequency of frame markers, especially sequencing, indicates an effort to organize text logically, although other aspects of framing such as announcing goals and shifting topics are less frequently addressed. This imbalance suggests areas for improvement in teaching students how to enhance the clarity and coherence of their writing through a more balanced use of interactive metadiscourse elements.

Table 6 Distribution of interactive metadiscourse in the high-graded group

Category	Sub-catergory	High-graded group		
		Rfreq.M	Sfreq. M	%of total
Transitions	*Addition*	2,114	69.51	19.98%
	Comparison	3,460	113.76	32.71%
	Consequence	1,389	45.67	13.13%
	Sub-total	6,963	228.94	65.82%
Frame markers	*Sequencing*	1,447	47.58	13.68%
	Labelling stages	399	13.12	3.77%
	Announcing goals	140	4.60	1.32%
	Shifting topic	93	3.06	0.88%
	Sub-total	2,079	68.36	19.65%
Endophoric markers		699	22.98	6.61%
Evidentials		113	3.72	1.07%
Code glosses		725	23.84	6.85%
Total		10,579	347.83	100.00%

Table 6 presents the distribution of interactive metadiscourse in the high-graded group, revealing a total of 10,579 occurrences of interactive metadiscourse, with a frequency of 347.83 per 10,000 words. Among the five sub-categories of interactive metadiscourse, transitions are the most prevalent, accounting for 65.82% of the total interactive metadiscourse with 228.94 occurrences per 10,000 words. This is followed by frame markers (68.36 occurrences per 10,000 words, 19.65%), code glosses (23.84 occurrences per 10,000 words, 6.85%), and endophoric markers (22.98 occurrences per 10,000 words, 6.61%). Evidentials are the least frequent, representing only 1.07% of the total interactive metadiscourse with 3.72 occurrences per 10,000 words.

The data also shows that within the transitions category, there are a total of 6,963 raw frequencies, with a frequency of 228.94 per 10,000 words, which falls into three dimensions: comparison, addition, and consequence. The highest frequency is found in comparison markers, with 113.76 occurrences per 10,000 words, making up 32.71% of the total interactive metadiscourse. This is followed by addition markers (69.51 occurrences per 10,000 words, 19.98%) and consequence markers (45.67 occurrences per 10,000 words, 13.13%). In the sub-category of frame markers, sequencing markers are the most frequent, with 1,447 occurrences per 10,000 words, representing over two-thirds of the total frame markers. Shifting topic markers are the least frequent, with only 3.06 occurrences per 10,000 words.

These findings suggest that high-graded essays extensively use transitions to create logical connections and cohesion in their writing, particularly through comparison

markers. The relatively high frequency of frame markers, especially sequencing, indicates an effort to organize text logically and guide the reader through the argument structure. The lower frequency of evidentials suggests a potential area for improvement in incorporating supporting evidence and citations to strengthen arguments.

Table 7 Distribution of interactional metadiscourse in the low-graded group

Category	Low-graded group		
	Rfreq.M	Sfreq. M	%of total
Hedges	2517	103.08	13.67%
Boosters	1571	64.34	8.53%
Attitude markers	986	40.38	5.35%
Self mentions	11496	470.82	62.41%
Engagement markers	1849	75.73	10.04%
Total	18,419	754.35	100.00%

Table 7 illustrates the distribution of interactional metadiscourse in the low-graded group, revealing a total of 18,419 raw frequencies, with a standard frequency of 754.35 occurrences per 10,000 words. The most prevalent type of interactional metadiscourse in this group is self mentions, with 470.82 occurrences per 10,000 words, accounting for 62.41% of the total interactional metadiscourse. This is followed by hedges (103.08 occurrences per 10,000 words, 13.67%), engagement markers (75.73 occurrences per 10,000 words, 10.04%), boosters (64.34 occurrences per 10,000 words, 8.53%), and attitude markers (40.38 occurrences per 10,000 words, 5.35%).

These findings indicate that self mentions are by far the most frequently used type of interactional metadiscourse in the low-graded group, occurring more than twelve times as often as attitude markers. The predominance of self mentions suggests that students in the low-graded group heavily rely on personal engagement and explicit authorial presence in their writing. This could reflect a tendency to assert their own viewpoints more directly, possibly at the expense of using more subtle or varied interactional strategies.

The relatively high frequency of hedges indicates an awareness of the need to qualify statements and present information cautiously, which is a common feature in academic writing to show tentativeness and avoid overgeneralization. Engagement markers, which involve directly addressing the reader, also play a significant role, highlighting the students' attempts to engage and interact with their audience. Boosters, which emphasize certainty and assertiveness, and attitude markers, which convey the writer's personal feelings or attitudes, are used less frequently. This lower usage might suggest that students in the low-graded group are less confident in making strong claims or expressing evaluative judgments, potentially impacting the persuasiveness and impact of their arguments.

Table 8 Distribution of interactional metadiscourse in the high-graded group

Category	High-graded group		
	Rfreq.M	Sfreq. M	%of total
Hedges	3,401	111.82	14.39%
Boosters	2,119	69.67	8.96%
Attitude markers	1,282	42.15	5.42%
Self mentions	14,457	475.34	61.15%
Engagement markers	2,383	78.35	10.08%
Total	23,642	777.34	100.00%

Table 8 presents the distribution of interactional metadiscourse in the high-graded group, revealing a total of 23,642 raw frequencies, with a standard frequency of 777.34 occurrences per 10,000 words. The most prevalent type of interactional metadiscourse in this group is self mentions, with 475.34 occurrences per 10,000 words, accounting for 61.15% of the total interactional metadiscourse. The remaining categories, in descending order of

frequency, include hedges (111.82 occurrences per 10,000 words, 14.39%), engagement markers (78.35 occurrences per 10,000 words, 10.08%), boosters (69.67 occurrences per 10,000 words, 8.96%), and attitude markers (42.15 occurrences per 10,000 words, 5.42%). Notably, the frequency of attitude markers is the lowest, constituting only 5.42% of the total interactional metadiscourse. The highest frequency of self mentions is approximately twelve times greater than the lowest frequency of attitude markers in this group.

These findings indicate that high-graded essays, similar to low-graded ones, heavily rely on self mentions to establish a strong authorial presence and engage the reader. However, the high frequency of hedges suggests that students in the high-graded group are adept at using these markers to express tentativeness and nuance in their arguments, which is a critical feature of academic writing. The significant use of engagement markers further underscores the high-graded students' efforts to directly involve the reader, enhancing the interactive quality of their writing. Boosters, which convey certainty and emphasize particular points, are also used effectively, albeit less frequently than hedges and engagement markers. The relatively lower frequency of attitude markers suggests that while high-graded students do express their attitudes and evaluations, they may do so more subtly or less frequently compared to other interactional elements. This balanced use of various metadiscourse markers reflects a sophisticated approach to writing, where students not only assert their presence but also engage and guide their readers through well-structured arguments.

4.2 Variations of metadiscourse construction

Metadiscourse construction in writing is influenced by various environmental factors and constraints, such as genre and writing proficiency. When comparing the frequencies of metadiscourse construction using the Log-likelihood ratio calculator (Xu, 2009), the results in Table 4.7 demonstrate statistically significant differences between the low-graded and high-graded groups ($p<0.001$). The overall frequencies of metadiscourse in the low-graded group are significantly lower than those in the high-graded group.

Table 9 Log-likelihood ratio of overall metadiscourse construction

Categories	Rfreq. in the low-graded group	Rfreq. in the high-graded group	Log-likelihood	Sig.		
Interactive	8,006	10,579	15.93	0.000	***	-
Interactional	18,419	23,642	9.34	0.002	**	-
Total	26,425	34,221	22.61	0.000	***	-

***. Log-likelihood ratio is significant at the 0.001 level (2-tailed).
**. Log-likelihood ratio is significant at the 0.01 level (2-tailed).
*. Log-likelihood ratio is significant at the 0.05 level (2-tailed).
+. The frequencies in low group are more than these in high group.
-. The frequencies in low group are lower than these in high group.

The data in Table 9 further reveals that both interactive and interactional metadiscourse categories show statistically significant differences. Specifically, the interactive metadiscourse has a Log-likelihood ratio of 15.93 ($p<0.001$), while the interactional metadiscourse has a Log-likelihood ratio of 9.34 ($p<0.01$). These findings suggest that high-graded essays utilize a greater frequency of both interactive and interactional metadiscourse markers compared to low-graded essays, highlighting the importance of these elements in achieving higher writing quality.

Table 10 Log-likelihood ratio of interactive metadiscourse construction

Categories	Rfreq. in the low-graded group	Rfreq. in the high-graded group	Log-likelihood	Sig.		
Transitions	5,486	6,963	1.08	0.298		-
Frame markers	1,376	2,079	31.23	0.000	***	-
Endophoric markers	462	699	10.64	0.001	**	-
Evidentials	38	113	24.3	0.000	***	-
Code glosses	644	725	3.48	0.062		+
Total	8,006	10,579	15.93	0.000	***	-

Table 10 presents the Log-likelihood ratio of interactive metadiscourse construction in the low-graded and high-graded groups. The results indicate that the total frequencies of interactive metadiscourse between the two groups are statistically significant ($p<0.001$). Among the five sub-categories of interactive metadiscourse, frame markers and evidentials exhibit statistically significant differences ($p<0.001$), followed by endophoric markers ($p<0.01$). However, the frequencies of transitions and code glosses do not show statistical significance ($p>0.05$).

The overall frequencies of interactive metadiscourse are lower in the low-graded group compared to the high-graded group. Specifically, in the five sub-categories, the frequencies in the low-graded group are lower than those in the high-graded group, with the exception of code glosses. This suggests that high-graded essays incorporate a more extensive use of interactive metadiscourse elements, which may contribute to the clarity and coherence of their writing.

These findings highlight the critical role of frame markers, evidentials, and endophoric markers in enhancing the quality of academic writing. The significantly higher use of these elements in high-graded essays suggests that they contribute to creating well-organized, evidence-supported, and cohesive texts. Conversely, the lack of significant difference in transitions and code glosses indicates that these elements are used more uniformly across different proficiency levels.

Compared to Hyland's (2005) list of metadiscourse items, the findings reveal distinct preferences for interactive metadiscourse in Mandarin EFL undergraduate essays. Certain metadiscourse items listed by Hyland were absent in the current study (see Table 3.1). Additionally, some items were underutilized, appearing less than five times, such as *likewise, similarly, thereby, unless, in sum, and overall.* Conversely, other expressions not included in Hyland's list were frequently found, including *last but not least, in the first place, in the second place, first and foremost,* and *in the end.* Some examples identified in the present study are listed below.

a) Last but not least, the more objectively we treat alone and connected the more brilliant life we can achieve (quoted from a student's essay).

b) Last but not least, lonely makes modern society's characters close to network, but network let us more and more alone (quoted from a student's essay).

c) In the first place, the public can play with telephone when he is joining in a party rather than sharing the experience with others (quoted from a student's essay).

d) In the first place, when a person is always saying in front of the Internet, no matter whether he or she is working, studying or playing (quoted from a student's essay).

e) First and foremost, it will ensure you to get well alone with friends in your life (quoted from a student's essay).

f) First and foremost, the Internet has transformed the way that folks communicate (quoted from a student's essay).

g) In the end, the value of life lies not in the length of days, but in the use we make of them (quoted from a student's essay).

h) In the end,online connect did not hinder us to contact in the actuality,the deepened my feelings and the relatives (quoted from a student's essay).

This variation suggests that Mandarin EFL undergraduate students may have unique stylistic preferences or face challenges that influence their use of metadiscourse. Understanding these preferences can provide valuable insights for tailoring instructional strategies to better support these students in developing effective academic writing skills. By comparing the current findings with Hyland's framework, educators can identify gaps and areas for improvement in students' use of metadiscourse, enhancing their ability to construct coherent, cohesive, and persuasive essays.

These findings highlight the need for more comprehensive metadiscourse instruction, emphasizing both commonly accepted academic phrases and culturally specific expressions that students naturally use. By incorporating a wider range of metadiscourse items into teaching materials, educators can help students better navigate academic writing conventions and improve their overall writing proficiency.

The results of Log-likelihood ratio of interactive metadiscourse show that the low-graded group prefers different interactive metadiscourse in essays compared with the high-graded group. For example, the low-graded group tends to construct significantly more interactive metadiscourse like *although, because, even though, but, so that, in the end, thirdly,* and *in short*, but significantly less interactive metadiscourse like *as a consequence, consequently, furthermore, hence, moreover, in addition, nevertheless, nonetheless, since, therefore, what's more, whereas,* and *subsequently*. The findings also show that the low-graded group misuses more interactive metadiscourse in their essays. Some errors found in the low-graded group are listed as follows.

a) Although communication more, but* it is more shallow (quoted from a student's essay).

b) Although everything is convenient, but* the distance between heart and heart is far away (quoted from a student's essay).

c) Last but not the least* , I hope people can communicate face to face more, let your feelings become better (quoted from a student's essay).

d) Last but not the least* , we can say any things on the internet but we can't get the real significant things (quoted from a student's essay).

e) The mobile phone in addition* bring us convenience, but also* gradually make our relationship more and more distant (quoted from a student's essay).

f) Perhaps, in addition to* let oneself heart become strong (quoted from a student's essay).

g) I don't like this new way of life, as a consequence l don't agree with that (quoted from a student's essay)

Obviously, some undergraduates in the low-graded group could not properly construct metadiscourse like *although, last but not least, in addition,* and *but also*. The findings are helpful for writing instructors who could explicitly instruct students to avoid such errors.

Table 11 Log-likelihood ratio of interactional metadiscourse construction

Categories	Rfreq. in the low-graded group	Rfreq. in the high-graded group	Log-likelihood	Sig.		
Hedges	2,517	3,401	9.62	0.002	**	-
Boosters	1,571	2,119	5.74	0.017	*	-
Attitude markers	986	1,282	1.03	0.311		-
Self mentions	11,496	14,457	0.58	0.444		-
Engagement markers	1,849	2,383	1.21	0.271		-
Total	18,419	23,642	9.34	0.002	**	-

Table 11 presents the Log-likelihood ratio of interactional metadiscourse in the low-graded and high-graded groups. The results indicate a statistically significant difference ($p<0.01$) in the overall frequencies of interactional metadiscourse between the two groups. Specifically, the frequencies of hedges ($p<0.01$) and boosters ($p<0.05$) are significantly different, whereas the frequencies of attitude markers, self mentions, and engagement markers do not show statistically significant differences. The data shows that the frequencies of interactional metadiscourse in the low-graded group are consistently lower than those in the high-graded group. This suggests that high-graded essays make more effective use of interactional metadiscourse, which may contribute to their higher quality and effectiveness in engaging readers and presenting arguments.

The results also show that interactional metadiscourse in the present is different from Hyland' s (2005) list of metadiscourse items to some extent. Some interactional metadiscourse like hedges (e.g. *probable, typically, unlikely* etc.), boosters (e.g. *conclusively, decidedly, doubtless* etc.) , and attitude markers (e. g. *disappointingly, expectedly, inappropriately* etc,) could not be found in the preset study (see Table 3.1). Some interactional metadiscourse like *exactly, firmly,* and *highly* are excluded in Hyland's list. Some examples found in the present study are displayed as follows.

a) Exactly speaking, because the Internet we are more connected, even if separated by miles (quoted from a student's essay).
b) Therefore, I firmly believe that network is close to the distance between people (quoted from a student's essay).
c) So it is highly desirable for us to cope with this issue (quoted from a student's essay).

The underlined words, emphasizing certainty in the sentences, should be defined as interactional metadiscourse. However, these words are excluded in Hyland's (2005) list of metadiscourse items.

The findings also present that Mandarin EFL undergraduates have different preferences for interactional metadiscourse. For example, they underuse attitude markers like *approximately, astonished, astonishing, curious(ly), disappointed, desirably, fortunate(ly),* and *unusual*, which have less than 5 occurrences in the present study. They prefer to express their attitude to proposition with attitude markers like *admittedly, agree, disagree, correctly, important, interesting, prefer, remarkable, subscribe, hold the view,* and *unfortunately.* The low-graded group constructs less attitude markers than the high-graded group. These findings suggest that writing instructors should be aware of the problematic issues in writing and encourage writers express their attitude in different ways.

Metadiscourse is an increasingly important concept in discourse analysis and language teaching, as it plays a central role in interactions between writers and readers, shaping how ideas are conveyed and interpreted. This study investigates the distribution and variation of metadiscourse in Mandarin EFL undergraduate essays across different writing proficiency levels, as well as the correlations between metadiscourse frequency and essay scores. This section summarizes the research findings, discusses their pedagogical implications, identifies the limitations of the study, and provides suggestions for future research.

To achieve the research objectives, this study established a specialized corpus containing 2,766 randomly selected essays written by second-year undergraduates out of 1,408,626 essays on Pigai. com. A top-down corpus approach was employed, adopting Hyland's (2005) metadiscourse framework. The distribution of metadiscourse was examined using AntConc 4.3.0 (Anthony, 2024), while the variations were compared using the Log-likelihood ratio calculator (Xu, 2009). Correlations between metadiscourse frequencies and scores were analyzed using IBM-SPSS (version 21.0). The major findings are summarized below.

The study identified two primary dimensions of these interactions: interactive metadiscourse (30. 65%) and interactional metadiscourse (69. 35%) . The majority of

metadiscourse was interactional, with self mentions being the most frequent sub-category (42.79%) and evidentials the least frequent (0.25%). In the interactive category, transitions were the most frequent in both the low-graded (68.52%) and high-graded (65.28%) groups, while evidentials were the least frequent (0.47% and 1.07%, respectively). In the interactional category, self mentions were the most frequent in both the low-graded (62.41%) and high-graded (61.15%) groups, while attitude markers were the least frequent (5.35% and 5.42%, respectively).

The study revealed significant differences ($p<0.001$) in overall metadiscourse frequencies between the low-graded and high-graded groups, with the low-graded group consistently exhibiting lower frequencies. Specifically, significant differences were found in the sub-categories of frame markers, endophoric markers, and evidentials in the interactive category, and in hedges and boosters in the interactional category.These findings suggest that metadiscourse construction varies considerably due to complex factors such as genre, discipline, and writing proficiency levels. The high-graded group's more extensive use of metadiscourse elements likely contributes to their higher writing quality.

The scores given by Pigai.com significantly differed between the low-graded and high-graded groups ($t(1637.75) = -75.79$, $p<0.05$), with the high-graded group achieving a mean score of 85.82 compared to the low-graded group's mean of 72.96. Similarly, the frequencies of metadiscourse were significantly different ($t(2755) = -12.96$, $p<0.05$), with the high-graded group exhibiting a higher mean frequency (12.11) compared to the low-graded group (10.14). A weak positive correlation ($r= 0.288$, $p<0.05$) was found between metadiscourse frequency and scores. Qualitative analysis revealed that high-quality essays did not necessarily contain high frequencies of metadiscourse, while low-quality essays sometimes contained many metadiscourse markers such as frame markers and self mentions. This suggests that while metadiscourse is an important factor in writing quality, it is not the sole determinant, and other complex factors also play a role.

These findings underscore the importance of metadiscourse in academic writing and suggest several pedagogical strategies. 1) Enhance Awareness: Teach students about different types of metadiscourse and their functions; 2) Practical Application: Provide exercises and examples to illustrate effective use of metadiscourse; 3) Feedback and Revision: Encourage revision and peer review focusing on metadiscourse usage; 4) Balanced Instruction: Address other factors influencing writing quality alongside metadiscourse.

This study has several limitations, including its reliance on essays from a single platform (Pigai.com) and its focus on second-year undergraduates. Future research should explore a broader range of genres, disciplines, and proficiency levels. Additionally, longitudinal studies could examine how targeted interventions in metadiscourse instruction impact writing development over time. By understanding the nuanced role of metadiscourse in writing, educators can develop more effective teaching strategies to enhance students' academic writing skills, ultimately leading to improved performance and higher scores.

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