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A Corpus-Based Discourse Analysis of Interactional Metadiscourse in Human-Written and AI-Assisted Essays

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Abstract

The increasing integration of Artificial Intelligence (AI) tools in academic writing has transformed how students compose and revise essays. This study investigates the use of interactional metadiscourse in human-written and AI-generated essays using a corpus-based discourse-analytic approach. Drawing on Hyland's (2005) interpersonal model of metadiscourse, the study examines five interactional categories: hedges, boosters, attitude markers, self-mentions, and engagement markers. Two specialised corpora comprising human-written and AI-generated argumentative essays were compiled and analysed using AntConc software. The findings revealed significant differences in the frequency and distribution of interactional metadiscourse across the two corpora. Human-written essays demonstrated a greater use of hedges, attitude markers, self-mentions, and engagement markers, reflecting stronger authorial presence, richer interpersonal interaction, and heightened audience awareness. In contrast, AI-generated essays exhibited a more formal, objective, and impersonal rhetorical style characterised by limited writer visibility and minimal reader engagement. Although AI-generated texts displayed grammatical accuracy and coherent organization, they lacked the rhetorical subtlety and interpersonal sophistication characteristic of human-authored discourse. The study concludes that interactional metadiscourse serves as an important linguistic indicator for distinguishing between human-written and AI-generated academic texts. The findings contribute to the growing body of research on AI-mediated academic discourse and offer important pedagogical implications for the responsible integration of AI technologies in academic writing instruction.

Keywords: Corpus Linguistics, Interactional Metadiscourse, Human-Written Essays, AI-Generated Essays, Academic Discourse

1. Introduction

The rapid advancement of generative Artificial Intelligence (AI) technologies has significantly transformed academic writing practices across educational contexts. AI-powered writing tools such as ChatGPT, Grammarly, and other large language model (LLM)-students and researchers increasingly employ based applications to assist in brainstorming, drafting, revising, and editing academic texts. While these technologies offer considerable pedagogical benefits, their growing integration into writing processes has generated important questions concerning authorship, rhetorical competence, and the preservation of writer voice. Recent studies suggest that although AI-generated and AI-assisted texts often exhibit high levels of grammatical accuracy and textual coherence, they may differ substantially from human-authored writing in interpersonal and rhetorical features (Herbold et al., 2023; Jacob et al., 2023). Consequently, investigating how writers construct interaction and stance in AI-assisted academic discourse has become an important area of inquiry in applied linguistics and corpus-based discourse studies.

Metadiscourse constitutes one of the most influential frameworks for examining interpersonal dimensions in written discourse. The concept emphasises how writers organise texts, express attitudes, and engage readers in communication. According to

Hyland (2005), metadiscourse is "the cover term for the self-reflective expressions used to negotiate interactional meanings in a text" (pp. 37–38). Similarly, Hyland (2005) argues that metadiscourse represents "material which goes beyond the subject matter to signal the presence of the author" (p. 35). These definitions highlight the fundamentally interpersonal nature of academic writing, where successful communication depends not only on conveying information but also on establishing a dialogic relationship with readers. Interactional metadiscourse, including hedges, boosters, attitude markers, self-mentions, and engagement markers, enables writers to project authorial identity, express commitment, and negotiate meanings with their audience.

Corpus-based investigations have consistently demonstrated that interactional metadiscourse plays a crucial role in constructing disciplinary voice and persuasive academic arguments. For instance, Yoon and Römer (2020) found considerable disciplinary variation in students' use of interactional resources, indicating that successful academic writing requires awareness of audience expectations and rhetorical conventions. Likewise, Farahani (2019) reported that hedges and boosters were among the most frequently employed interactional devices in academic writing, reflecting writers' efforts to balance certainty and caution. Such findings underscore the significance of interactional markers in establishing credibility and maintaining writer-reader interaction within academic communities.

The emergence of generative AI has further complicated the landscape of academic discourse. Recent research comparing human and AI-generated writing reveals notable rhetorical differences between the two modes of composition. Jiang and Hyland (2025) observed that essays produced by ChatGPT exhibited significantly lower frequencies of interactional metadiscourse, resulting in a more impersonal and expository style. In contrast, human-written essays demonstrated greater rhetorical engagement through nuanced stance expressions and personalised interaction with readers. Similarly, He (2025) reported that AI-generated essays tend to underutilize boosters and engagement features, thereby producing discourse that appears structurally coherent yet rhetorically detached. These studies indicate that despite AI's capacity to generate linguistically sophisticated texts, it may still lack the interpersonal subtlety characteristic of human academic discourse.

Although existing scholarship has provided valuable insights into metadiscourse in AI-generated texts, relatively little attention has been paid to AI-assisted essays in which human writers collaborate with AI technologies during the writing process. AI-assisted writing is a hybrid form of discourse in which human agency and machine-generated suggestions interact dynamically, potentially influencing the deployment of interactional metadiscourse. Understanding how such collaborative writing practices shape rhetorical choices is essential for evaluating the implications of AI integration in academic settings. Therefore, the present study employs a corpus-based discourse analytical approach to investigate the use of interactional metadiscourse in human-written and AI-assisted essays. By comparing the frequency and distribution of interactional metadiscourse markers across the two corpora, this study aims to contribute to the growing body of research on AI-mediated academic discourse and to provide pedagogical insights for writing instruction in the era of generative AI.

1.1 Research Objectives

1. To identify and analyse the use of interactional metadiscourse markers in human-written essays using Hyland's (2005) model of metadiscourse.
2. To identify and analyse the use of interactional metadiscourse markers in AI-generated essays using Hyland's (2005) model of metadiscourse.
3. To compare rhetorical functions of interactional metadiscourse markers in human-written and AI-generated essays.

1.2 Research Questions

1. What interactional metadiscourse markers are employed in human-written essays?
2. What interactional metadiscourse markers are employed in AI-generated essays?
3. How do human-written and AI-generated essays differ in terms of the rhetorical functions of interactional metadiscourse markers?

1.3 Significance of the Study

The present study is significant both theoretically and pedagogically. Theoretically, it contributes to the growing body of research on metadiscourse, corpus linguistics, and AI-mediated academic writing by providing a comparative analysis of interactional metadiscourse in human-written and AI-generated essays. By employing Hyland's (2005) interpersonal model of metadiscourse, the study extends existing scholarship on writer-reader interaction and authorial stance in academic discourse.

Pedagogically, the findings of this study will be beneficial for language teachers, students, curriculum designers, and researchers. The study will help educators understand the rhetorical differences between human and AI-generated writing, enabling them to design more effective academic writing instruction that promotes authorial voice, critical thinking, and audience awareness. Furthermore, the findings may assist students in using AI writing tools responsibly while maintaining their individual writing identities. The study also provides a foundation for future researchers interested in exploring the linguistic characteristics of AI-generated discourse across different genres, disciplines, and educational contexts.

2. Literature Review

Academic writing is not merely a process of presenting information; it is fundamentally an interactive act in which writers construct relationships with readers and negotiate meanings through language. The concept of metadiscourse has become one of the most influential frameworks for understanding these interpersonal dimensions of writing (Hyland, 2005; Hyland & Tse, 2004). Metadiscourse refers to the linguistic resources writers employ to organize discourse, express attitudes, and engage readers in the construction of meaning (Vande Kopple, 1985; Crismore, 1989).

Early studies conceptualized metadiscourse as textual devices that guide readers through a text and reveal the writer's stance toward the content (Williams, 1981; Vande Kopple, 1985). Crismore (1989) further argued that metadiscourse serves as a bridge between writers and readers by facilitating textual coherence and interpersonal interaction. Building upon these earlier perspectives, Hyland (2005) proposed an interpersonal model that divides metadiscourse into interactive and interactional dimensions. Interactive resources help organize information, whereas interactional resources allow writers to project themselves into the text and engage with readers. Interactional metadiscourse includes hedges, boosters, attitude markers, engagement

markers, and self-mentions (Hyland, 2005). These resources are crucial because academic discourse is inherently persuasive and dialogic rather than purely objective (Hyland, 2004). Writers employ interactional markers to demonstrate certainty, express evaluation, and establish solidarity with readers (Hyland, 2005; Hyland, 2017). Research has consistently demonstrated the importance of interactional metadiscourse in successful academic writing. Hyland and Jiang (2018) found that academic discourse increasingly relies on interpersonal strategies to negotiate knowledge claims. Similarly, Ädel (2006) emphasized that metadiscourse reflects writers' awareness of their audience and their ability to manage writer-reader interaction.

Corpus linguistics has become one of the most effective methodologies for investigating metadiscourse patterns because it allows researchers to identify recurrent linguistic features in large collections of texts (Biber et al., 1998; McEnery & Hardie, 2012). Corpus-based approaches provide quantitative evidence concerning the distribution and functions of metadiscourse markers across genres and disciplines (Baker, 2006). Several corpus studies have examined interactional metadiscourse in academic writing. Hyland (2004) reported significant disciplinary differences in the use of metadiscourse features across research articles. Similarly, Dahl (2004) demonstrated that writers across academic disciplines employ distinct strategies to express stance and engagement. Farahani (2020) compared metadiscourse in academic written and spoken English and found that interactional markers are more prevalent in written discourse because writers need to compensate for the absence of face-to-face interaction. Likewise, Yoon and Römer (2020) revealed considerable variation in the use of interactional markers among successful student writers from different disciplines.

Studies comparing native and non-native English writers have also highlighted the significance of interactional resources. Abdollahzadeh (2011) found that native English writers employ hedges and engagement markers more effectively than second-language writers. Likewise, Al-Mudhaffari et al. (2025) reported that L1 writers use interactional metadiscourse more strategically than L2 writers to establish persuasive arguments.

Interactional metadiscourse is closely associated with writer identity and authorial voice. Ivanič (1998) argued that writing involves the construction of selfhood and identity through linguistic choices. Hyland (2002) similarly emphasised that academic writers project their disciplinary identities through the use of self-mention and evaluative expressions. Tang and John (1999) demonstrated that self-mention serves as a powerful rhetorical device, enabling writers to claim authority and establish credibility. Hyland (2008) further noted that successful academic writers strategically balance certainty and caution through boosters and hedges.

Research on stance and engagement also confirms that interactional markers are essential for creating persuasive academic discourse (Hyland, 2005; Hyland & Jiang, 2024). Consequently, examining interactional metadiscourse provides valuable insights into how writers construct identities and negotiate relationships with readers.

The emergence of generative AI has transformed academic writing practices worldwide. Tools such as ChatGPT and Microsoft Copilot have introduced new forms of human-machine collaboration in writing (Kasneci et al., 2023; Dwivedi et al., 2023). AI systems are increasingly used for brainstorming, revising, summarising, and generating academic texts (Cotton et al., 2023).

Research on AI-assisted writing suggests that these technologies can improve writing efficiency and language accuracy (Pereira et al., 2023). However, concerns remain regarding originality, critical thinking, and authorial voice (Susnjak, 2022; Zhai, 2022). Studies have also highlighted the potential impact of AI on discourse features and rhetorical strategies (Jacob et al., 2023). Lee (2021) observed that AI functions as a collaborative writing partner rather than a replacement for human writers. Similarly, Coenen et al. (2021) found that writers maintain agency and ownership even when collaborating with AI tools.

Recent studies have begun examining metadiscourse patterns in AI-generated texts. He (2025) compared interactional metadiscourse in student and AI essays and found that AI writing exhibits weaker stance-taking and lower levels of reader engagement. AI-generated texts tended to underuse boosters and rhetorical questions while relying heavily on generalized evaluative expressions. Similarly, Yao and Liu (2025) reported that ChatGPT-generated academic book reviews differ from human-authored reviews in their use of interactional metadiscourse. Although AI employed a relatively high number of attitude markers, it demonstrated limited use of hedges and self-mentions, resulting in less nuanced authorial positioning.

In another corpus-based investigation, Sadigzade (2026) found significant differences between human-written and AI-generated research abstracts. AI-generated texts contained fewer interactional markers and exhibited reduced interpersonal engagement. Sanosi (2026) analysed ChatGPT revisions of EFL student writing and observed that AI interventions significantly increased the use of attitude markers while reducing certain interactive resources. The study concluded that AI revisions can support academic writing development but require human supervision. Esfandiari and Allaf-Akbary (2024) demonstrated that AI-based instructional tools such as Microsoft Copilot positively influence learners' understanding and use of interactional metadiscourse markers. Their findings suggest that AI technologies may have substantial pedagogical value in developing academic writing competence.

Although a substantial body of research has investigated metadiscourse in academic writing (Hyland, 2005; Ädel, 2006; Hyland & Jiang, 2018) and recent studies have begun examining metadiscourse in AI-generated texts (He, 2025; Yao & Liu, 2025; Sanosi, 2026), limited attention has been given to AI-assisted essays produced through collaboration between human writers and AI systems. Most existing studies compare fully human-written and fully AI-generated texts, while the rhetorical characteristics of hybrid AI-assisted writing remain underexplored. Furthermore, few corpus-based studies have specifically examined interactional metadiscourse in AI-assisted essays. Therefore, the present study seeks to fill this gap by conducting a corpus-based discourse analysis of interactional metadiscourse in human-written and AI-assisted essays, thereby contributing to the growing literature on AI-mediated academic discourse.

3. Methodology

3.1 Research Design

The present study employed a quantitative, corpus-based, discourse-analytic research design to investigate the use of interactional metadiscourse in human-written and AI-assisted essays. Corpus-based discourse analysis enables researchers to systematically examine linguistic patterns across large collections of naturally occurring texts and identify similarities and differences in language use (Biber et al., 1998; McEnery &

Hardie, 2012). A comparative approach was adopted to analyse and compare the frequency and distribution of interactional metadiscourse markers in two distinct corpora: human-written essays and AI-assisted essays.

3.2 Corpus Compilation

Two specialised corpora were compiled for this study. The first corpus consisted of human-written essays produced independently by university students without any AI assistance. The second corpus comprised AI-assisted essays written by students who were permitted to use generative AI tools, particularly ChatGPT, during the writing process. Each corpus contained 20 argumentative essays, for a total of 40. To ensure comparability, essays in both corpora were written on similar academic topics and were restricted to approximately 1000 words each. The total size of each corpus was approximately 20000 to words, yielding an overall dataset of nearly 40000 words.

The essays were collected from undergraduate students enrolled in English language courses at public universities. Participants were asked to write argumentative essays on predetermined topics such as education, technology, social media, and environmental issues. For the human-written corpus, participants completed essays independently without using any AI-based writing tools. For the AI-assisted corpus, participants were allowed to use ChatGPT to assist in brainstorming, drafting, revising, or editing their essays. However, students remained responsible for producing the final version of the essays. All essays were converted into plain text (.txt) format to facilitate corpus analysis. Personal identifiers were removed to maintain participants' anonymity and confidentiality.

3.3 Analytical Framework

The study adopted Hyland's (2005) interpersonal model of metadiscourse as the analytical framework. Specifically, the analysis focused on the interactional dimension of metadiscourse, which includes the following categories:

Hedges
Boosters
Attitude Markers
Self-Mentions
Engagement Markers

Table 3.1
Interactional Metadiscourse Categories

Category	Function	Examples
Hedges	Express uncertainty or caution	may, might, perhaps, possible
Boosters	Express certainty and emphasis	clearly, definitely, indeed
Attitude Markers	Express writer's affective attitude	Unfortunately, surprisingly, importantly
Self-Mentions	Explicit reference to the writer	I, we, my, our
Engagement Markers	Involve readers in the discourse	consider, note that, you can see

3.4 Data Analysis Procedure

The corpus data were analysed using a combination of corpus linguistic software and manual discourse analysis techniques. All essays were first processed and cleaned to remove irrelevant information. The corpora were subsequently analyzed using AntConc (Version 4.3.0), a widely used corpus analysis software (Anthony, 2024). A metadiscourse inventory based on Hyland's (2005) taxonomy was compiled and used as a search list. Concordance lines generated by AntConc were manually examined to determine whether the identified lexical items functioned as metadiscourse in their immediate contexts. This manual verification was necessary because many metadiscourse items are context-dependent.

4. Data Analysis

4.1 Interpretation of Interactional Metadiscourse in Human-Written Essays

4.1.1 Hedges

The analysis of the human-written corpus revealed that hedges were among the most frequently employed interactional metadiscourse resources. Hedges are linguistic devices that allow writers to present their claims cautiously rather than as unquestionable facts (Hyland, 2005). They indicate uncertainty, probability, or openness to alternative interpretations. Common hedging expressions identified in the corpus included *could*, *might*, *may*, *perhaps*, *appear*, *seem*, and *suggest*.

Examples from the corpus include:

“It could be suggested that Desdemona's death was inevitable...”

“It might be possible then, to suggest that Questel demonstrates...”

“NEF seems to be some steps further on from Animal Farm...”

The frequent use of these markers demonstrates that human writers avoided making categorical or absolute assertions. Instead, they adopted a tentative stance that acknowledged the possibility of alternative viewpoints. This rhetorical strategy is particularly important in academic discourse because literary interpretation is inherently subjective and open to debate.

For instance, when the writer states that “Desdemona’s death could be suggested as inevitable,” the claim is deliberately softened. Rather than forcing readers to accept a single interpretation, the writer leaves room for disagreement and encourages further reflection. Such rhetorical caution is characteristic of experienced academic writers who recognise that knowledge is negotiated rather than fixed.

Moreover, hedging contributes significantly to academic politeness. By reducing the force of assertions, writers minimise potential conflict with readers and demonstrate respect for alternative perspectives. The extensive use of hedges in the corpus, therefore, reflects not only linguistic competence but also an awareness of academic conventions and audience expectations. The findings support Hyland’s (2005) argument that hedging is essential for negotiating knowledge claims and maintaining writer-reader solidarity in academic discourse.

Table 4.1
Examples of Hedges in the Human-Written Corpus

Linguistic Item	Example from Corpus	Function
could	“It could be suggested...”	Indicates possibility
might	“It might be possible...”	Softens claims
appears	“their unpermitted marriage appears...”	Indicates uncertainty
perhaps	“Perhaps by writing *The Fox*...”	Marks tentativeness

seems	"NEF seems to be..."	Avoids absolute certainty

The prevalence of hedges demonstrates that human writers strategically balance certainty and caution, which is considered a hallmark of proficient academic writing

4.1.2 Boosters

Boosters constituted another prominent category in the corpus. Unlike hedges, boosters express certainty, conviction, and strong commitment to propositions. They enable writers to emphasise arguments, reinforce interpretations, and persuade readers regarding the validity of their claims. Frequently occurring boosters in the corpus included *certainly*, *clearly*, *always*, *indeed*, *obviously*, and *must*. Examples include: "Shakespeare certainly kept to the criteria of Jacobean drama..." "His re-organisation and manipulation of the familiar illustrate clearly how language can, and has been transformed..." "Orwell always believed in the power of the proletariat..."

The use of boosters indicates that writers strongly believed in the validity of their interpretations and sought to convince readers of their arguments. Literary analysis often requires writers to advance interpretations and defend them persuasively. Consequently, boosters serve as important rhetorical tools for strengthening authorial authority. For example, the statement that "Shakespeare certainly kept to the criteria of Jacobean drama" demonstrates a high degree of confidence. The writer presents the interpretation not as a possibility but as a well-established fact. Similarly, the use of *clear* signals that the evidence presented should be regarded as self-evident and convincing.

Interestingly, the simultaneous presence of both hedges and boosters suggests that human writers strategically balanced caution and certainty. Writers employed hedges when introducing potentially controversial claims, whereas boosters were used to reinforce interpretations supported by textual evidence. Such balanced rhetorical behaviour reflects sophisticated academic writing practices. The findings corroborate previous studies (Hyland, 2005; Hyland & Jiang, 2018), which argue that successful academic writing requires a careful negotiation between certainty and tentativeness.

Table 4.2
Examples of Boosters in the Human-Written Corpus

Booster	Example	Function
clearly	"illustrate clearly how language can..."	Emphasizes certainty
certainly	"Shakespeare certainly kept..."	Shows strong commitment
always	"always believed in the power..."	Generalizes strongly
indeed	"symbolise and indeed, maintain civilisation"	Reinforces argument
obviously	"There are obviously a great number..."	Expresses certainty

The findings suggest that writers confidently presented interpretations while simultaneously using hedges to maintain academic politeness.

4.1.3 Attitude Markers

Attitude markers were extensively used throughout the human-written corpus. These markers express writers' personal feelings, evaluations, judgments, and affective attitudes toward propositions. In literary essays, writers frequently evaluate

characters, themes, and events; therefore, attitude markers play a crucial role in constructing interpretation.

Examples identified in the corpus include:

"Perhaps the most interesting gender study in the play is of Desdemona."

"This status makes the reversal even more poignant."

"The power of this play as a tragedy is founded in its ability..."

Adjectives such as *interesting*, *important*, *remarkable*, *poignant*, *surprising*, and *significant* were frequently observed.

The substantial use of attitude markers demonstrates that human writers actively engaged with their texts at both intellectual and emotional levels. Rather than merely describing literary works, writers evaluated them, highlighted their significance, and expressed appreciation or criticism. For example, describing Desdemona as the "most interesting gender study" reflects the writer's personal evaluation and interpretive judgment. Similarly, the use of *poignant* language conveys emotional engagement and invites readers to share the writer's response.

The extensive use of attitude markers indicates that human-written essays are highly interpretive and evaluative. These markers contribute significantly to the construction of an individual writer's voice and help establish a distinctive rhetorical style. The findings align with Hyland's (2005) claim that attitude markers enable writers to communicate affective meanings and express personal evaluations, thereby enriching the interpersonal dimension of academic discourse.

Table 4.3
Examples of Attitude Markers in the Human-Written Corpus

Attitude Marker	Corpus Example	Communicative Function
interesting	"the most interesting gender study"	Evaluation
poignant	"even more poignant"	Emotional assessment
Fortunately/unfortunately	found across essays	Evaluation
important	"extremely important for him"	Significance
remarkable	implied through evaluative adjectives	Appreciation

The extensive use of attitude markers indicates a high degree of interpretive engagement and authorial investment in the discussion.

4.1.4 Self-Mentions

Self-mentions are explicit references to the writer using first-person pronouns such as *I*, *me*, *my*, *we*, and *our*. The corpus revealed a considerable use of self-mentions, indicating a strong authorial presence.

Examples include:

"I shall examine this through a selection of texts."

"I think this demonstrates even on a small level the power of language."

The frequent use of first-person pronouns suggests that writers openly positioned themselves within their arguments and accepted responsibility for their interpretations. In literary criticism, interpretation often depends on individual

perspectives; therefore, self-mention allows writers to foreground their analytical stance explicitly.

For example, the phrase "I shall examine" clearly establishes the writer's role as analyst and organiser of the discussion. Similarly, "I think" signals that the interpretation represents a personal viewpoint rather than an unquestionable fact. Self-mentions contribute to the development of writer identity and authorial voice. Through these resources, writers project themselves as knowledgeable participants in academic discourse communities. Furthermore, self-mentions enhance textual coherence by guiding readers through the analytical process. The findings support Tang and John (1999), who argue that self-mentions function as important rhetorical resources for constructing authority and disciplinary identity.

Table 4.4
Examples of Self-Mentions and Engagement Markers in the Human-Written Corpus

Category	Corpus Example	Function
Self-mention	"I shall examine..."	Projects writer identity
Self-mention	"I think this demonstrates..."	Expresses personal stance
Engagement	"It makes the audience consider..."	Invites reader reflection
Engagement	"Othello reminds us..."	Builds writer-reader solidarity
Engagement	"We should treat..."	Directly addresses readers

4.1.5 Engagement Markers

Engagement markers are linguistic devices that explicitly involve readers in the discourse. They establish a dialogic relationship between writers and readers by directing attention, inviting participation, or encouraging reflection.

Examples from the corpus include:

"It makes the audience consider how certain events are 'fated' to us..."

"Othello reminds us that prejudice and narrow-mindedness have awful consequences..."

"We should treat all trivial things in life very seriously..."

Common engagement devices identified in the corpus included reader pronouns (*we*, *us*), directives, inclusive expressions, and references to audience reactions.

The presence of engagement markers demonstrates that human writers viewed writing as an interactive activity rather than a one-way transmission of information. By directly addressing readers through expressions such as *"we" and "us," writers fostered* solidarity and encouraged readers to participate in meaning-making. For instance, the statement "Othello reminds us" positions both writer and reader as shared interpreters of the literary text. Similarly, the expression "we should treat" invites readers to accept and reflect upon the writer's viewpoint.

Although engagement markers occurred less frequently than hedges or attitude markers, their presence significantly enhanced the interpersonal quality of the essays. They contributed to a conversational tone and strengthened writer-reader interaction. The use of engagement markers confirms Hyland's (2005) assertion that academic discourse is fundamentally dialogic, involving continuous negotiation between writers and readers.

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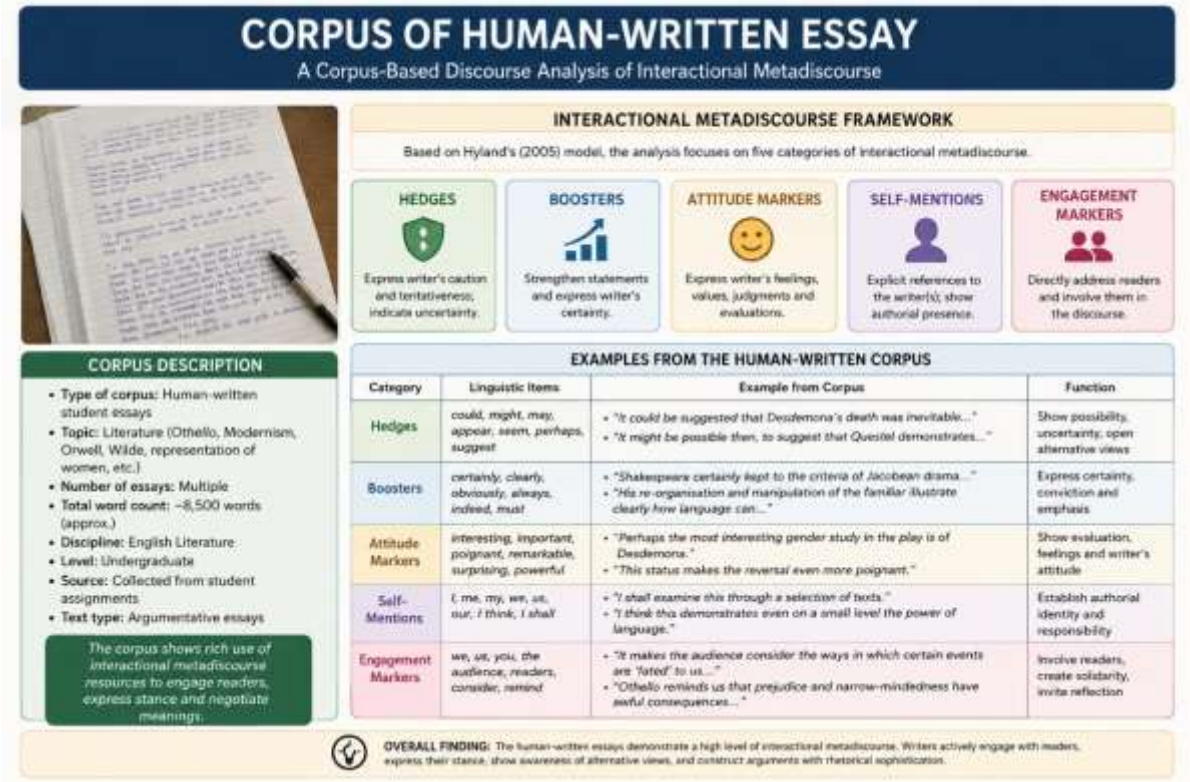
Figure 4.1



4.2 Interactional Metadiscourse in the AI-Generated Corpus

The analysis of the AI-generated essay corpus revealed notable differences in the use of interactional metadiscourse when compared to human-written essays. Although the AI-generated essays exhibited high levels of grammatical accuracy, coherence, and organisational consistency, they demonstrated a relatively impersonal rhetorical style. The corpus contained fewer interactional metadiscourse resources, particularly self-mentions and engagement markers. The findings suggest that AI-generated discourse prioritises informational delivery over interpersonal interaction.

The AI-generated essays displayed a formal and objective tone, relying heavily on generalised statements rather than explicit authorial positioning. This rhetorical pattern is consistent with previous research, which suggests that AI-generated texts often lack the nuanced interpersonal features commonly found in human writing (Jiang & Hyland, 2025).

4.2.1 Hedges

Hedges were present in the AI-generated corpus, although their frequency was relatively lower than that observed in human-written essays. Common hedging expressions included *may*, *can*, *might*, *often*, and *potentially*.

Examples from the corpus include:

"Excessive engagement with social media may negatively affect students' academic performance."

"Certain occupations involving routine tasks may become increasingly automated."

"Individual efforts alone may not be sufficient to address environmental problems."

These examples demonstrate that AI employed hedges primarily to avoid categorical

assertions and to maintain an objective academic tone. However, unlike human writers, AI rarely uses complex hedging structures, such as *it could be argued, it appears that*, or *it might be suggested*. Instead, hedging was generally limited to modal verbs and generalised expressions.

The restricted use of hedges suggests that AI-generated texts tend to present information in a relatively straightforward manner. Although the essays acknowledged uncertainty, they lacked the nuanced negotiation of knowledge claims typically found in human discourse. Consequently, the interpersonal dimension of the text remained limited.

Table 4.5

Examples of Hedges in the AI-Generated Corpus

Linguistic Item	Corpus Example	Function
may	"may negatively affect students' academic performance"	**Indicates possibility**
might	"may become increasingly automated"	**Softens claims**
can	"can enhance teaching and learning processes"	**Expresses potentiality**
potentially	"potentially reducing employment opportunities"	**Indicates uncertainty**
often	"Writing often requires extensive planning"	**Generalizes cautiously**

The findings indicate that AI employed hedges primarily to maintain academic objectivity rather than to engage in dialogic negotiation with readers.

4.2.2 Boosters

Boosters were frequently observed in the AI-generated corpus. Lexical items such as *significantly*, *clearly*, *widely*, *increasingly*, *undoubtedly*, and *essential* were commonly used.

Examples include:

"Artificial Intelligence has significantly influenced labour markets."

"Critical thinking is widely recognised as an essential skill."

"Continuous education and professional training are necessary."

The use of boosters enabled AI to present arguments with confidence and authority. However, unlike human writers, AI often employs boosters in formulaic patterns. Many assertions were presented as generalised facts rather than interpretive arguments.

For instance, the widely recognised expression recurred throughout the essays. Such repetition contributes to a standardised rhetorical style and reduces the individuality of the discourse.

Table 4.6

Examples of Boosters in the AI-Generated Corpus

Booster	Corpus Example	Function
significantly	"has significantly influenced labour markets"	Emphasizes importance
widely	"widely recognised as an essential skill"	Strengthens consensus

essential	"have become essential priorities"	Expresses certainty
undoubtedly	"AI undoubtedly has the potential"	Signals a strong commitment
necessary	"Professional training is necessary"	Reinforces obligation

Boosters contributed to the authoritative tone of AI-generated essays; however, they were often used in repetitive, formulaic ways.

4.2.3 Attitude Markers

Attitude markers occurred less frequently in the AI-generated corpus than in the human-written corpus. When present, they primarily functioned to evaluate significance rather than express personal feelings or emotional engagement.

Examples include:

"One major concern involves the potential reduction in critical thinking skills."

"Environmental sustainability has emerged as a major global concern."

"Critical thinking is fundamental to academic and professional success."

Frequently occurring attitude markers included *important*, *major*, *significant*, *fundamental*, and *effective*.

Unlike human writers, AI rarely employs emotionally loaded evaluative expressions such as *interesting*, *remarkable*, or *poignant*. Instead, evaluations remained neutral and impersonal.

Table 4.7

Examples of Attitude Markers in the AI-Generated Corpus

Attitude Marker	Corpus Example	Communicative Function
important	"an important development in higher education"	**Evaluation**
major	"one major concern involves"	**Highlights significance**
significant	"significant environmental benefits"	**Assessment**
fundamental	"Critical thinking is fundamental"	**Expresses value**
effective	"effective educational experience"	**Positive evaluation**

The findings indicate that AI-generated discourse expresses evaluation primarily through generalised academic judgments rather than individualised responses.

4.2.4 Self-Mentions and Engagement Markers

Self-mentions were almost absent from the AI-generated corpus. First-person pronouns such as *I*, *my*, and *we* occurred very infrequently. The essays predominantly employed third-person and passive constructions.

For example:

"Educational institutions face challenges in determining the extent to which AI assistance is acceptable."

"Universities are developing policies and guidelines."

No explicit authorial statements such as *I believe*, *I argue*, or *in my opinion* were observed. The absence of self-mentions indicates that AI-generated essays avoid overt authorial presence and prefer an impersonal style.

Similarly, engagement markers were used only minimally. Direct reader address through expressions such as *consider*, *note that*, *you*, or inclusive *we* rarely appear.

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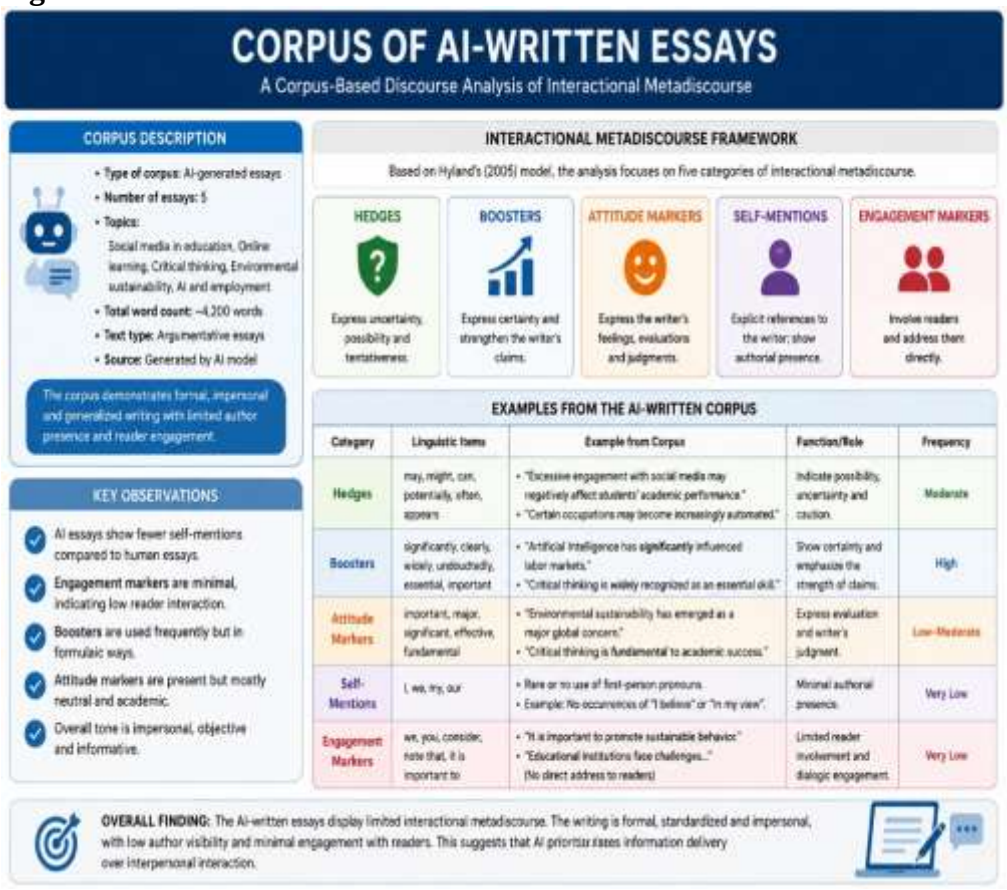
Table 4.8
Examples of Self-Mentions and Engagement Markers in the AI-Generated Corpus

Category	Corpus Example	Function
Self-mention	Rarely observed	Minimal authorial presence
Self-mention	No occurrences of "I argue" or "I believe"	Impersonal style
Engagement	Rare use of inclusive expressions	Limited reader interaction
Engagement	Absence of directives	Reduced dialogic engagement
Engagement	No rhetorical questions identified	Limited audience involvement

The absence of self-mentions and engagement markers demonstrates that AI-generated essays largely function as informational texts rather than interactive discourse. The findings suggest that AI prioritises objectivity and neutrality at the expense of interpersonal communication.

Figure 4.2



5. Findings

The comparative analysis of human-written and AI-generated essays revealed significant differences in the use of interactional metadiscourse resources. Although both corpora employed hedges, boosters, attitude markers, self-mentions, and engagement markers, the frequency, distribution, and rhetorical functions of these

features varied considerably.

The findings indicated that human-written essays employed a substantially greater number and wider variety of hedging devices than AI-generated essays. Human writers frequently used expressions such as *could*, *might*, *perhaps*, *it seems*, and *it could be argued* to negotiate claims and acknowledge alternative interpretations. These devices enabled writers to construct arguments cautiously and maintain academic politeness.

In contrast, AI-generated essays relied primarily on simple modal verbs such as *may* and *can*. The use of hedges in AI-generated discourse was largely formulaic and served mainly to maintain objectivity rather than to negotiate knowledge claims. Human writers demonstrated a more sophisticated and nuanced use of hedging strategies. This finding supports Hyland's (2005) argument that expert academic writers employ hedges to negotiate meaning and establish solidarity with readers. Similarly, Jiang and Hyland (2025) reported that AI-generated texts exhibit lower levels of rhetorical subtlety and reduced use of nuanced stance markers.

Both corpora extensively employed boosters; however, their rhetorical functions differed. Human writers used boosters strategically to reinforce interpretations and persuade readers. Expressions such as *certainly*, *clearly*, and *indeed* were often combined with textual evidence and personal interpretation. Conversely, AI-generated essays frequently employed boosters in repetitive, generalised patterns. Lexical items such as *significantly*, *widely*, and *essential* recurred across essays, contributing to a standardised rhetorical style. AI-generated texts tended to present claims as generally accepted facts rather than as individually constructed arguments. These findings are consistent with He (2025), who observed that AI-generated essays often rely on formulaic rhetorical patterns and exhibit limited variation in stance expression.

Human-written essays displayed considerably richer use of attitude markers than AI-generated essays. Human writers frequently employed evaluative and emotionally charged expressions such as *interesting*, *poignant*, *remarkable*, and *surprising*. Such markers reflected writers' personal engagement with literary texts and contributed to the construction of authorial voice. By contrast, AI-generated essays primarily used neutral evaluative expressions such as *important*, *significant*, and *effective*. These markers functioned mainly to indicate academic significance rather than to express personal attitudes or emotional responses. The findings suggest that human writers are better able to incorporate affective and interpretive dimensions into their discourse. This observation corroborates Hyland's (2005) assertion that attitude markers are essential for expressing writer evaluation and constructing interpersonal meanings.

One of the most striking differences between the two corpora concerned the use of self-mentions. Human-written essays contained numerous first-person pronouns, including *I*, *my*, and *we*. Writers frequently employed expressions such as *I argue*, *I believe*, and *I shall examine*, thereby projecting a strong authorial presence. In contrast, self-mentions were almost absent from the AI-generated corpus. The essays predominantly employed impersonal constructions and avoided explicit references to the writer. Consequently, AI-generated discourse appeared detached and objective. The absence of self-mentions in AI-generated texts confirms previous findings by Yao and Liu (2025), who reported that AI systems demonstrate limited authorial visibility and reduced writer identity in academic discourse.

The analysis further revealed that human-written essays exhibited greater use of engagement markers than AI-generated essays. Human writers frequently addressed

readers through inclusive pronouns, directives, and expressions such as *consider*, *we can see*, and *reminds us*. These resources fostered interaction and established a dialogic relationship between writers and readers. In contrast, AI-generated essays demonstrated minimal reader engagement. Direct address to the reader, rhetorical questions, and inclusive expressions were rarely observed. The absence of such features suggests that AI-generated writing prioritises information transmission over interpersonal communication. These findings support Hyland's (2005) view that engagement markers play a central role in constructing writer-reader relationships. Likewise, Jiang and Hyland (2025) found that AI-generated texts display significantly lower levels of reader engagement than human-authored texts.

Table 5.1
Comparative Distribution of Interactional Metadiscourse in Human-Written and AI-Generated Essays

Interactional Feature	Human-Written Essays	AI-Generated Essays	Comparative Observation
Hedges	High	Moderate	Human writers used more nuanced and varied hedging strategies.
Boosters	High	High	Both corpora used boosters, but AI employed them more formulaically.
Attitude Markers	High	Moderate	Human essays expressed stronger personal evaluation.
Self-Mentions	High	Very Low	Human writers projected a stronger authorial identity.
Engagement Markers	Moderate-High	Very Low	Human essays demonstrated greater reader interaction.

6. Conclusion

The present study investigated the use of interactional metadiscourse in human-written and AI-generated essays using a corpus-based discourse-analytic approach grounded in Hyland's (2005) interpersonal model of metadiscourse. The findings revealed significant differences between the two corpora in terms of the frequency and distribution of interactional metadiscourse resources. Human-written essays demonstrated a greater use of hedges, attitude markers, self-mentions, and engagement markers, indicating stronger authorial presence, richer interpersonal interaction, and heightened audience awareness. In contrast, AI-generated essays exhibited a more formal, objective, and impersonal rhetorical style characterised by limited writer visibility and minimal reader engagement. Although AI-generated texts exhibited high levels of grammatical accuracy and coherence, they lacked the nuanced rhetorical flexibility and interpersonal sophistication typical of human-authored academic discourse.

The study concludes that interactional metadiscourse is an important linguistic feature for distinguishing human-written from AI-generated academic texts. The findings suggest that while AI writing tools can effectively improve language accuracy and textual organisation, they cannot fully replicate the interpersonal richness, individual

voice, and rhetorical subtlety inherent in human writing. These results have important implications for academic writing pedagogy, emphasising the need to encourage students to maintain their authorial identity and critical engagement when using AI technologies. Future studies may extend this line of inquiry by examining larger, more diverse corpora across academic disciplines, genres, and educational contexts. Researchers may also compare interactional metadiscourse across various generative AI platforms and explore the long-term impact of AI-assisted writing on students' rhetorical development, academic identity, and writing proficiency.

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