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AI-Powered Corpus Investigation and Analyses of the Interpersonal Pragmatic Functions of English Style Stance Adverbs

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Abstract. Stance expressions and markers are a heated topic in global linguistic research, with style stance adverbs as a core form of stance markers, classified alongside epistemic and attitude stance adverbs. This study employs an AI-powered corpus-based comparative analysis method to probe into 11 top English style stance adverbs in the Chinese Learners of English Corpus, British National Corpus and Corpus of Contemporary American English. AI instruments are applied to optimize corpus data retrieval, statistical analysis and positional distribution mapping and make comparative analyses of their use characteristics and positional distribution of the style stance adverbs between Chinese English learners and native speakers to probe into their interpersonal pragmatic functions and use characteristics. The research findings reveal significant discrepancies: Chinese learners overuse style stance adverbs with a narrow vocabulary range, and misapply spoken-language positional conventions (initial/final placement) in written discourse resulting from insufficient understanding of their structural and functional features in academic contexts. This study deeps and widens stance adverb research and provides guidance for EFL teaching and learners' pragmatic competence improvement.

Keywords: English style stance adverbs, interpersonal pragmatic functions, AI-powered corpus analysis, Chinese English learners

1. Introduction

Stance expressions and markers are increasingly prominent in linguistic research, and stance adverbs are verified as a key form of such markers, with their accurate use serving as a critical indicator of language learners' communicative competence. Language is not only an information transmission medium but also a carrier of users' emotions, attitudes and value judgments; stance adverbs enable speakers and writers to articulate views on propositions, regulate interpersonal relationships and achieve effective communication.

Stance is defined as the linguistic reflection of users' emotions, attitudes, desires and value judgments, and stance adverbs are the most commonly used form of stance adverbials, divided into

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epistemic, attitude and style stance adverbs. Style stance adverbs focus on the manner of proposition presentation (e.g., frankly, honestly, generally) rather than the content or truth value of propositions, and play a pivotal role in interpersonal pragmatics by shaping how information is conveyed and perceived.

Existing studies on stance adverbs have focused on epistemic and attitude types, with inadequate attention to style stance adverbs. Foreign research has explored their definition, classification and syntactic features, while domestic studies center on Chinese learners' acquisition errors, but few have conducted comprehensive AI-aided comparative analyses of style stance adverb use between learners and native speakers, nor thoroughly explored their interpersonal pragmatic functions. Additionally, traditional corpus analysis is limited by inefficient data processing and subjective statistical bias, while AI-powered tools optimize data retrieval, standardization and positional mapping, improving the rigor and efficiency of corpus research.

To address these research gaps, this study focuses on 11 top English style stance adverbs and apply AI technologies to analyze their use characteristics in CLEC, BNC and COCA aiming to: (1) What are the frequency differences in style stance adverb use between Chinese learners and native speakers via AI statistical analysis? (2) What are positional distribution differences, identified through AI-powered positional mapping? (3) What are the pragmatic effects of different positional placements of English style stance adverbs in interpersonal communication? (4) What AI-driven implications do the research findings provide for EFL learners' academic writing and pragmatic competence improvement?

This study has both theoretical significance in enriching stance adverb and interpersonal pragmatics research demonstrating the application values of AI in corpus linguistics, and practical value in improving AI-powered EFL learners' academic writing and pragmatic competence and utilizing AI technology and corpus resources for autonomous learning.

2. Literature review

2.1. Research on stance adverbs at home and abroad

Foreign research on stance adverbs has a long history and comprehensive scope. Early studies [1,2] established their definition, classification and syntactic features, including positional distribution and collocation rules. Recent research has explored their role in academic writing [3] and authorial identity construction, and analyzed dialectal differences in their use between British and American English [4]. However, foreign research rarely focuses on Chinese English learners' use of style stance adverbs, and few apply AI tools to corpus analysis.

Domestic research on stance adverbs started relatively late, with most studies adopting traditional corpus methods to analyze learners' acquisition errors [5,6]. Some studies explored stance adverb use across different academic levels [7], but limitations remain: (1) Overemphasis on epistemic and attitude stance adverbs, with scarce research on style stance adverbs; (2) Lack of AI-aided comparative analysis of use characteristics between learners and native speakers; (3) Inadequate exploration of the interpersonal pragmatic functions of style stance adverbs in academic discourse; (4) Traditional corpus analysis methods with low efficiency and limited data processing capacity.

2.2. AI application in corpus linguistics

With the development of artificial intelligence, AI technologies (e.g., natural language processing, machine learning, big data statistics) have been widely applied in corpus linguistics, addressing the

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shortcomings of traditional methods. AI tools optimize corpus data retrieval by accurately screening target lexical items and excluding invalid collocations; realize automatic standardization of frequency statistics, avoiding manual calculation errors; and conduct precise positional mapping of adverbs, visualizing positional distribution differences. Existing AI-powered corpus studies have focused on cross-linguistic comparison and diachronic analysis of lexical features [8], but few apply AI to the study of English style stance adverbs, especially for Chinese learners' pragmatic competence research.

2.3. Communicative and pragmatic significance of style stance adverbs

In interpersonal pragmatics, style stance adverbs regulate the manner of information transmission, shape readers'/listeners' perception of messages, and adjust communication tone to enhance appropriateness and effectiveness (e.g., confidentially for privacy, frankly for sincerity). In cross-cultural communication, they act as a "lubricant" to reduce conflicts—for example, generally softens direct expressions, aligning with the cultural sensitivity of euphemistic communication.

In academic writing, mastery of style stance adverbs is critical for precision, clarity and appropriate authorial positioning. Appropriate use clarifies the author's stance, enhances the persuasiveness and credibility of academic texts, and facilitates readers' understanding; improper use is a major barrier to the acceptance of learners' articles in international journals. Style stance adverbs also play a key role in interpersonal relationship construction: in daily communication, their proper use establishes good relationships, while improper use may lead to misunderstandings and conflicts.

3. Research results

This study adopts an AI-powered corpus-based comparative analysis method, with AI tools (Wordsmith Tools 5.0 optimized by NLP algorithms, Excel with AI statistical plug-ins) for data retrieval, standardization and positional mapping. 11 high-frequency style stance adverbs (confidentially, frankly, generally, honestly, mainly, primarily, reportedly, technically, truthfully, typically, usually) are selected, with core inclusion criteria: the adverb modifies the entire proposition to reflect the communication manner. Invalid uses (e.g., modifying adjectives/nouns, fixed collocations) are excluded by AI automatic screening. Style stance adverb positions are divided into five categories via AI positional mapping: Initial (I), Middle 1 (M1), Middle 2 (M2), Middle 3 (M3), End (E), based on Larsson et al.'s framework [9]. The study analyzes the frequency distribution and positional distribution of the 11 adverbs in CLEC, BNC and COCA, and explores their pragmatic effects in different positions and functional characteristics.

3.1. Frequency distribution results

AI-powered standardized frequency statistics (calculated as: total occurrences / corpus word count × 100,000) and proportional distribution analysis reveal two core findings:

(1) Chinese learners overuse style stance adverbs: The standardized frequency of style stance adverbs in CLEC is 73.1, 27.2 higher than COCA (45.9) and 36.4 higher than BNC (36.7). This overuse is due to learners' desire to clearly express attitudes without sufficient understanding of academic use rules.

(2) Learners have a narrow vocabulary range: All 11 target adverbs show higher frequencies in CLEC than in native corpora, with generally, mainly, usually, primarily, frankly accounting for 87% of total occurrences in CLEC, indicating extreme use concentration. In contrast, COCA and BNC

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have a more balanced frequency distribution, reflecting native speakers' wider vocabulary range and context-appropriate adverb selection. Adverbs such as honestly and technically are also significantly overused by learners, who tend to use them to emphasize sincerity or precision excessively.

3.2. Positional distribution results

This study finds out consistent overall positional preferences and significant cross-corpus discrepancies through AI positional mapping and statistical analysis (valid tokens: 1,286 in CLEC, 1,053 in COCA, 892 in BNC):

(1) Overall preference across corpora: Style stance adverbs are predominantly distributed in middle positions (M1+M2+M3) in all three corpora, followed by initial positions, and minimally in end positions (less than 4%).

(2) Key differences between learners and native speakers:

• Initial position: Native speakers use initial-position adverbs far more frequently (36.0% in BNC, 29.0% in COCA) than Chinese learners (12.7% in CLEC). Native speakers prefer initial positions to frame perspectives for guiding readers' interpretation, while EFL learners' under-use reveals their insufficient awareness of discourse coherence in academic writing.

• Middle sub-positions: EFL learners over-rely on M2 (40.5%), resulting from their overuse of passive structures; native speakers prioritize M3 (33.0% in COCA, 30.0% in BNC), related with their frequent use of "be + adv. + adjective/noun" structures for precise qualification.

• End position: Native speakers use end positions slightly more (3.6% in COCA, 3.7% in BNC) than EFL learners (0.9% in CLEC), for mild emphasis in simple structures.

(3) Dialectal differences in native corpora: BNC has a higher proportion of initial placement (36.0%) than COCA (29.0%), indicating British English's stronger tendency to use initial adverbs for discourse organization; M3 is dominant in both, with COCA slightly exceeding BNC, associated to American English's preference for concise predicate-focused structures.

AI analysis of individual adverb positional distribution further confirms these differences: native corpora show higher sentence-beginning placement for every target adverb, while CLEC shows significantly higher sentence-middle placement. For instance, frankly is placed at the sentence beginning 22% of the time in CLEC, compared with 48% in COCA and 75% in BNC; middle-position placement accounts for 78% in CLEC, 52% in COCA and 25% in BNC. Causes include inadequate understanding of position-pragmatic relations, textbook reliance, and lack of native imitation.

3.3. Pragmatic effects of different positional placements

Combined with AI-aided qualitative analysis of corpus examples, the pragmatic effects of style stance adverbs in different positions are distinct, with clear spoken-written discourse differences:

(1) Initial position: Exerts a strong pragmatic effect by foregrounding the author's tone and attitude, establishing an interpretive framework for the core proposition, guiding readers' understanding and enhancing text coherence. In academic writing, initial placement clarifies research perspectives and helps readers grasp the core content (e.g., "Typically, this phenomenon is caused by environmental factors").

(2) End position: A typical spoken language feature, used to supplement or reinforce information. It is rare and inefficient in written discourse, as it increases readers' cognitive burden and may cause ambiguity (e.g., unclear modification scope).

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(3) Middle position: A core feature of written academic discourse, enabling precise modification of specific proposition components, enhancing the rigor and fluency of texts. Middle placement balances sentence structure and avoids disrupting information flow (e.g., "This research project is primarily aimed at exploring social media's impact").

A key issue identified via AI comparison is that Chinese learners confuse spoken and written positional conventions: they frequently use initial/final positions (suitable for spoken communication) in written discourse, resulting in unnatural and inappropriate expression (e.g., learners write "Frankly, the data is not sufficient", while native academic writing prefers middle placement: "The data is, frankly, not sufficient").

3.4. Functional characteristics of target style stance adverbs

AI-aided corpus example extraction and analysis summarize the core interpersonal pragmatic functions of the 11 target style stance adverbs, each with a distinct communication manner implication:

• confidentially: Conveys private, restricted information; frankly: Expresses open, direct views;

• generally: Presents broad, universal situations; honestly: Emphasizes sincere, truthful expression;

• mainly: Focuses on primary content, downplaying secondary details; primarily: Highlights key purposes or content;

• reportedly: Presents secondhand external information; technically: Conveys precise, professional content adhering to standards;

• truthfully: Reinforces proposition authenticity; typically: Describes common, characteristic patterns;

• usually: Presents habitual, regular situations.

These adverbs shape the manner of information transmission in interpersonal communication, and their appropriate use is critical for achieving effective communication and maintaining harmonious interpersonal relationships.

4. Conclusion

4.1. Major findings of this study

After an in-depth AI-powered corpus investigation and analysis of the interpersonal pragmatic functions of 11 high-frequency English style stance adverbs, comparing the use characteristics between CLEC, BNC, and COCA, this study has three major findings :

(1) Chinese English learners overuse English style stance adverbs in written academic discourse, with a significantly higher standardized frequency than native speakers. Learners also have an extremely narrow vocabulary range, with five adverbs accounting for 87% of total occurrences, reflecting a lack of diverse expression ability in pragmatic communication. (2) learners show significant positional distribution inconsistencies: they over-rely on middle sub-position M2, under-use initial positions, and rarely use end positions, misapplying spoken-language positional conventions in written discourse.

(3) these discrepancies are rooted in learners' insufficient understanding of the structural and functional features of style stance adverbs in academic contexts, as well as a lack of awareness of pragmatic differences between spoken and written English and cross-cultural usage differences.

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4.2. The implications of this study

AI-driven practical implications for Chinese English learners are proposed to improve their use of style stance adverbs and enhance pragmatic competence:

(1) Enhance academic writing proficiency: Leverage AI tools to analyze the evaluative functions of English style stance adverbs in different positions, master their collocation rules and diversify vocabulary use; read AI-recommended native academic works to imitate authentic usage patterns. (2) Cultivate pragmatic difference awareness: Use AI comparative analysis tools to identify spoken-written positional differences of English style stance adverbs, and understand cross-cultural and dialectal usage differences to avoid communication misunderstandings. (3) Utilize AI and corpus resources for autonomous learning: Apply AI-powered corpus tools (e.g., COCA Online with NLP, BNC Web) to query English style stance adverb frequency, positional distribution and example sentences; make comparative analyses between personal writing and native texts via AI feedback.

4.3. The limitations of this study and further studies

The limitations of this study are: The research corpus is limited to CLEC, BNC and COCA; only 11 high-frequency style stance adverbs are selected; and the analysis of collocation patterns and cross-disciplinary use differences is insufficient.

Future further studies on this topic are: Expanding the corpus scope to include cross-disciplinary and diachronic academic corpora; increasing the number of target style stance adverbs and conducting in-depth collocation analysis via AI; exploring the impact of AI-powered teaching interventions on learners' pragmatic competence; and conducting empirical study to verify the effectiveness of AI-driven teaching strategies for style stance adverbs.

This study has turned out that AI-powered corpus analysis is an effective method for studying English style stance adverbs, and the findings of this study provide important guidance for Chinese English learners to improve academic writing and pragmatic competence. Mastering the correct use of English style stance adverbs is critical for effective interpersonal communication and academic discourse construction, and AI technologies will play an increasingly important role in future corpus linguistics and second language acquisition research.

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