

Authority and Uncertainty in Language Testing Research Articles: A Diachronic Study of Stance Markers

Masoomeh Estaji^{1✉}  and Shima Azizbeigi² 

1. *Corresponding Author*, Department of English Language and Literature, Faculty of Persian Literature and Foreign Languages, Allameh Tabataba'i University, Tehran, Iran. E-mail: estaji@atu.ac.ir
2. Department of English Language and Literature, Faculty of Persian Literature and Foreign Languages, Allameh Tabataba'i University, Tehran, Iran. E-mail: azizbeigi.shima@yahoo.com

ABSTRACT

This study investigated diachronic changes of linguistic markers of stance in language testing journals. To this end, 2100 research articles published from 1985 to 2025 in four top-tier journals were scrutinized. To explore diachronic changes, the time frame was divided into four periods (1985–1995; 1996–2005; 2006–2015; 2016–2025). For each decade, 525 articles were randomly selected from the pool of eligible publications meeting the study's inclusion criteria. Hyland (2005a) was used to identify stance markers. Wordsmith Tools (Version 6) assisted the researchers in analyzing the markers. All concordance-line matches were subsequently checked manually to confirm that each lexical item functioned as a stance marker in its specific context before being counted. It was found that hedges were used more often than other categories of stance markers, suggesting that academic writers tend to present their findings with caution. Moreover, because of the objective nature of academic discourse (especially in the past), attitude markers were used less frequently than in other categories. The analysis demonstrated that stance-marker use increased overall, with hedges declining in relative dominance while self-mentions increased disproportionately over time. This study has implications for researchers seeking to become familiar with common stance markers used by professional English as a foreign language (EFL) authors and teachers, for learners to be acquainted with the stance markers identified in this study, and for materials developers to design instructional materials on the standard writing of research articles.

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Introduction

Academic writing is no longer considered an objective form of discourse. Rather, influenced by the constructivist perspective, it is viewed as a persuasive and rhetorical discourse imbued with the viewpoints of authors who attempt to socially communicate with their audience (Aghdam & Mahdavi-rad, 2024; Ajideh et al., 2024; Estaji & Azizbeigi, 2024). Researchers not only convey their ideas through the text but also attempt to establish an interpersonal relationship with the audience by expressing attitudes, certainty, doubt, and evaluation of ideas. In this process, according to Hyland (2005a), they usually attempt to claim solidarity with the audience, appraise previous works, and recognize alternative ideas; thus, managing personality levels in a text becomes crucial in constructing a convincing argument.

This social relationship between authors and their audience has been explored both synchronically and diachronically (Bunch & Martin, 2021; Dressen-Hammouda, 2014; Harwood, 2005; Hyland & Jiang, 2017; Perez-Llantada, 2009; Qui & Jiang, 2021). Synchronic studies have explored the embodied expression and development of stance in academic discourse, whereas diachronic studies have sought to capture the use of stance markers over time. The synchronic approach seems to have attracted more attention from researchers, while research on the historical embeddedness of authors and their papers still lags behind. As a step toward filling this gap and given the limited research on stance markers in language testing journals, the present study explored linguistic markers of stance in these journals from a diachronic perspective. A general diachronic trend toward more interactional, author-visible academic writing is already documented across disciplines (e.g., Hyland & Jiang, 2016). However, it cannot be assumed that this trend generalizes to language testing research, a sub-discipline whose reporting conventions are shaped as much by psychometric and quantitative norms as by argumentative ones. The present study, therefore, offers a discipline-specific empirical test of and an evidentiary base for this broader trajectory, rather than presenting the trajectory itself as a novel discovery.

Literature Review

A common device employed by authors to develop a social relationship is stance, defined as attitudes, feelings, judgments, or commitments about the propositional content of a text (Kiesling, 2022). It is realized through grammatical devices such as adverbial hedges (e.g., maybe, probably,

actually), modal auxiliaries (e.g., may, can), and certain verbs (e.g., seem, suggest). Previous research has used different terms to explore stance: evidentiality (Bergqvist & Grzech, 2023; Miecznikowski & Jacquin, 2023), affect (Pelclová, 2023), evaluation (Hidalgo-Downing & Pérez-Sobrino, 2024), appraisal (ul Ghafar et al., 2022; Martin, 2000; Martin & White, 2005), hedging (Brown & Levinson, 1987; Estaji & Vafaeimehr, 2015; Holmes, 1988; Hyland, 1998a; Martín-Laguna, 2022), and stance (Biber, 2006; Chor & Lam, 2023; Hyland, 2005b; Jaffe, 2009).

The first one, evidentiality, is considered the origin of stance (Gray & Biber, 2012). It refers to identifying the source of information and assessing its reliability. Evidentiality involves 13 modes, including expectation and deduction, which are demonstrated through linguistic strategies. In contrast with evidentiality, affect concerns how emotions and moods are realized through linguistic signals. Biber and Finegan (1989) argued that evidentiality is associated with the degree and certainty of ideas, whereas affective stance concerns emotions and attitudes toward ideas. Based on evidentiality and affect, and drawing on Systemic Functional Linguistics (SFL) and the Appraisal Framework, Martin and White (2005) developed a new approach to explore how readers establish appraisal, evaluation, and stance toward both content and author. Their approach involves three subsystems, including attitude (positive and negative feelings and their encoding), evaluation (judgment of behaviors), and graduation (the strength of utterances).

These categories, along with hedges, have been included in Hyland's (2005a) model, which conceptualizes the interaction between authors and their audience through two major components: stance and engagement. Since this study focuses on the former, we elaborate more on it. According to Hyland, stance includes four categories: hedges, boosters, attitude markers, and self-mention. Hedges are rhetorical devices employed for reducing the authors' responsibility for discussing ideational views (Rashid et al., 2020), showing courtesy and consideration as well as allowing others to disagree (Holmes, 1982), conveying honesty, modesty, proper caution, and diplomacy (Swales, 1990), or conveying humility, respect, and attention to others' views (Demanou & Tabe, 2022). They can be realized through modal verbs (e.g., may, might), lexical verbs (e.g., seem, appear, look), adverbs (e.g., maybe, perhaps, possibly), and some phrases (e.g., to my knowledge, to some extent), to name but a few.

Boosters (e.g., actually, surely, demonstrate, it is clear that), on the other hand, are used to enhance the illocutionary power of speech acts (Elledorová, 2022), emphasize certainty about ideas (Holmes, 1988), express commitment about an idea (Millan, 2010), and isolate alternative views through

strengthening the presented ideas (Gillaerts & Van de Velde, 2010). Hu and Cao (2011) stated that, as complementary strategies, hedges and boosters are two sides of the same coin. Hyland (1998b, 2005a) argued that it is crucial to strike a balance between them, as hedges convey caution and uncertainty, whereas boosters convey certainty and commitment.

Hedges and boosters have been studied either independently or simultaneously (Abdeljaoued, 2026; Bacang et al., 2019; Fu & Hyland, 2014; Holmes, 1982, 1988; Hu & Cao, 2015; Hyland, 1998b, 2005a; Hyland & Tse, 2004). For example, Butler (1990) analyzed 12 scientific texts from three disciplines (physics, botany, and animal physiology) and found that modal verbs accounted for 10 occurrences per 1000 words. Similarly, in an analysis of 28 research articles across four disciplines (microbiology, marketing, astrophysics, and applied linguistics), Hyland (1998a) found that applied linguistics featured more interactional metadiscourse markers. In a similar study, Hyland (1998b) examined hedges and boosters across 56 research articles from eight disciplines: Physics, microbiology, marketing, mechanical engineering, electrical engineering, philosophy, sociology, and applied linguistics. Results showed that over 70% of hedges were found in the humanities and social sciences. In both studies, Hyland reported that hedges were used more than other markers. He associated these findings with the idea that authors should discuss their viewpoints and arguments with caution.

Hyland (1999) compared metadiscourse markers in textbooks and research papers published in marketing, microbiology, and applied linguistics. He reported that hedges were found three times more in research articles. The reason, according to Hyland, was that textbooks usually discuss established knowledge, while research articles attempt to develop new arguments, and hedges are necessary to present them with caution. Likewise, Hyland (2004) investigated metadiscourse markers in textbooks in biology, physics, mechanical engineering, electronic engineering, marketing, philosophy, sociology, and applied linguistics. He reported that half of the markers were epistemic (hedges and boosters) and, contrary to Hyland (1999), he concluded that textbook content is not simply an unreflecting repetition of uncontested disciplinary facts. Writers obviously have something to say on the epistemological status of what they report (Hyland, 2004). Jalilifar (2011) explored metadiscourse markers in discussion sections of 90 research articles written in Persian and English. He reported significant differences in the frequency, types, and functions of these markers, attributing them to Persian writers' limited knowledge of rhetoric and academic English writing, as well as their lack of instruction and exposure to sociolinguistic conventions of English.

The third category, attitude markers, is used to express authors' affective attitudes. Crismore et al. (1993) stated that attitudes can be expressed as surprise, concessions, agreements, disagreements, and so on. They can be realized through adjectives (e.g., amazing, shocked), adverbs (e.g., surprisingly, happily), some exclamationatives (e.g., how terrible that...), parenthetical verbs (e.g., I regret), and so on. Similar to hedges and boosters, attitude markers have been studied extensively, either on their own or alongside other categories (Hyland, 1998a, 1999, 2000; Lindeberg, 2004; Soylyu et al., 2023; Stotesbury, 2003; Swales & Burke, 2003). For example, Lindeberg (2004) and Stotesbury (2003) found that disciplines differ in their use of promotional strategies and attitudinal lexis in the abstracts of research articles. Swales and Burke (2003) explored attitude markers in research articles and oral academic genres. Their findings showed that in comparison with Hyland's corpus of research articles, evaluative adjectives were used more in the Michigan Corpus of Academic Spoken English (MICASE). Some studies have compared authors or journals from different countries. For instance, Abdollahzadeh (2011) analyzed the conclusion section of 60 research articles written by American and Iranian authors. His findings revealed that Americans used attitude markers and emphatics much more than Iranians.

The last category, self-mentions, refers to the degree to which an author is overtly present in a text and projects his or her identity to construct authorial identity (Kafes, 2017). Examples of self-mention include object pronouns (I, we, me, us) and possessive adjectives (my, our). Hyland (2001) analyzed 240 research articles in eight disciplines – electrical engineering, mechanical engineering, physics, microbiology, marketing, philosophy, sociology, and applied linguistics – to investigate the use of self-citation and exclusive first-person pronouns. He claimed that self-mention is crucial in mediating the relationship between authors' claims and their discourse communities. Based on his findings, Harwood (2005) examined personal pronouns in 40 research articles from four disciplines. He found that personal pronouns are used for a variety of purposes, primarily to promote the authors. This finding has been supported by Hyland (2004), who, in a study of 240 research papers, argued that self-mentions, hedges, and boosters are not simply textualizations but elements of persuasive craftsmanship that help construct a disciplinary view of the world while simultaneously negotiating a credible persona for writers. In other words, similar to Harwood's findings, Hyland claimed that authors employ these devices in order to make their arguments more convincing and persuasive. In a similar study, Martinez (2005) explored the distribution and functions of first-person pronouns in research articles in biology and found

both underuse and overuse of the pronouns as well as phraseological problems in the corpus.

This Study

Academic discourse has attracted the attention of many researchers (Afshari et al., 2024; Farahani & Geravand, 2024). An important aspect of academic discourse is linguistic markers of stance. Despite the vast literature on stance markers in academic discourse, several issues merit further exploration. First, although much research is conducted on stance markers in academic discourse, most of the previous studies have compared different disciplines (e.g., Hu & Cao, 2011; Hyland & Tse, 2004) or native and non-native authors (e.g., Ozdemir & Longo, 2014) and have not paid much attention to scrutinizing a specific discipline or sub-discipline. Notwithstanding the importance of these comparisons, most studies have selected too few journals per discipline. Although this approach was appropriate for the purposes of those studies, selecting a few journals does not seem representative of the respective disciplines. Additionally, as Hu and Cao (2011) noted, it is essential to focus on a single disciplinary context to disentangle cultural or linguistic influences from disciplinary factors in the use of hedges and boosters. By keeping the disciplinary variable constant, it becomes possible to exclude differences in disciplinary metadiscursive conventions as a potential explanation for any systematic variation observed in the deployment of hedging and boosting devices.

Additionally, due to the growing expansion of disciplines, researchers may select one sub-discipline. To our knowledge, the only study to have explored stance markers in a specific sub-discipline of applied linguistics is Gillaerts and Van de Velde (2010). They analyzed 72 research articles published in the *Journal of Pragmatics* from 1982 to 2007. Seventy-two research articles do not seem to be representative of academic discourse. Moreover, that study was conducted about 15 years ago, and changes are inevitable over such a long period. The second issue that needs further exploration concerns changes over time. Despite substantial research on stance, diachronic changes have only recently been investigated (Hyland & Jiang, 2016). Previous research has often explored changes synchronically, whereas diachronic research can provide a more comprehensive view of changes over time.

Based on the above discussion and as a step toward addressing the mentioned gaps, the present study examined the stance markers diachronically in second-language testing journals. Language testing was selected as the focus of this study because, unlike many Applied Linguistics

sub-fields, its research articles blend argumentative, persuasive writing with psychometric and statistical reporting conventions, creating a distinctive rhetorical environment for stance-taking. This hybrid disciplinary character makes it unclear whether the general diachronic trend toward more author-visible, interactional writing documented elsewhere (Hyland & Jiang, 2016) also applies to language testing, making it a valuable test case rather than an arbitrary choice of sub-discipline. Specifically, the study attempted to address the following research questions:

1. What linguistic markers of stance are used in language testing research articles published from 1985 to 2025?
2. Which stance marker categories show statistically significant frequency changes across the four time periods (1985–1995; 1996–2005; 2006–2015; 2016–2025)?

Method

Corpus

To address the research questions, 2100 research articles published in top-tier language testing and assessment journals, including *Assessing Writing*, *Educational Assessment*, *Language Assessment Quarterly*, and *Language Testing*, were collected. These journals met the following criteria: (a) being selected by two applied linguistics experts and researchers, (b) being indexed by Thomson Reuters, and (c) concentrating mainly on language testing or on a core sub-domain of language assessment (e.g., writing assessment). Their information is provided in [Table 1](#). The journal of *Assessing Writing* was retained in the corpus because, notwithstanding its specific focus on writing, it centers on the testing and validation of language performance, covering test development, rating-scale validation, and rater behavior, and thus falls within the scope of language testing research rather than composition pedagogy. *Educational Assessment* was likewise retained because, despite its broader title, the journal's scope centers on assessment design, validity, and measurement issues within educational and language testing contexts. It should be mentioned that both are indexed by Thomson Reuters.

The time frame was set from 1985 to 2025, segmented into four time periods (1985–1995; 1996–2005; 2006–2015; 2016–2025). For each decade, 525 research articles were randomly selected. Random sampling was used to include all eligible articles. This approach kept the number of articles constant across decades and prevented periods with higher publication output from disproportionately influencing the frequency counts. A simple random

sample of 525 articles per decade was drawn without replacement from the full set of eligible articles meeting the criteria. The selected ones met the following criteria: (a) being published in one of the four journals selected in this study, (b) being original research articles, (c) not being published in special issues, as they do not potentially follow the regular policies of the journals, and (d) being written in English.

Table 1.

Journals and their Indexing Information

Journal	IF	IF Quartile	Indexed in	Publisher
Assessing Writing	3.1	Q1	Scopus, ISI	Elsevier
Educational Assessment	2.8	Q2	Scopus, ISI	Taylor & Francis
Language Assessment Quarterly	2.1	Q2	Scopus, ISI	Taylor & Francis
Language Testing	2.4	Q1	Scopus, ISI	SAGE

Table 1 summarizes the impact factor, quartile ranking, indexing databases, and the publisher of each of the four journals included in the corpus.

Data Collection Procedures

Following the identification of the target journals, the electronic full-texts of 2,100 research articles were systematically collected. They were published in *Assessing Writing*, *Educational Assessment*, *Language Assessment Quarterly*, and *Language Testing* over the period 1985–2025. The research articles were retrieved primarily from widely used academic databases and repositories, including Google Scholar, ResearchGate, and publishers' official journal platforms where access was available. Before collecting the data, a pilot study was done on a subset of the corpus to assess the feasibility and reliability of the data collection procedures. This pilot involved downloading, formatting, and preliminarily analyzing a small sample of research articles from different decades. The results of the pilot analysis were reviewed in consultation with two experienced applied linguistics researchers with expertise in corpus-based discourse analysis. Their feedback was used to refine inclusion and exclusion criteria, verify the appropriateness of the selected journals, and ensure that the procedures for text extraction and preparation were methodologically sound.

Data Analysis Procedures

Based on the taxonomies presented by Hyland (2005a) as well as Hu and Cao (2011), stance markers were classified into four major categories: hedges

(*almost, apparent, and appear*), boosters (*beyond doubt, certain, clear, conclusively, decidedly*), attitude markers (*astonishing, correctly, curious, desirable*), and self-mentions (*I, we, the writer*). The analysis followed a mixed quantitative–qualitative procedure. Quantitative analysis was conducted using WordSmith Tools (Version 6), a widely used corpus analysis software in corpus linguistics. Initially, the concordance function was employed to identify all potential instances of the pre-specified stance markers across the corpus. This stage allowed for systematic retrieval of lexical items and their immediate co-texts, ensuring comprehensive coverage of stance markers in the dataset. Given the context-sensitive and multifunctional nature of stance markers, the researchers manually examined all concordance lines to verify whether the identified lexical items functioned as stance markers in their specific contexts. Only those instances that clearly fulfilled a stance-marking role, as defined by the adopted theoretical frameworks, were retained for subsequent analysis.

Because of the qualitative nature of identifying stance markers, trustworthiness and rigor were considered. Trustworthiness was ensured through investigator triangulation, including having two experienced researchers independently code 250 papers, resulting in an agreement coefficient of 92% and a *Cohen's kappa* of 0.88, indicating high consistency and reliability in the coding procedures. Any discrepancies were discussed and resolved through consensus, leading to further refinement of the coding guidelines.

To explore the potential differences across the four periods, statistical tests and a heat map were used. This data visualization technique uses color-coded systems to provide a more comprehensive and generalized view of numeric values. This technique is particularly effective for identifying trends, shifts, and relative intensities in large datasets and is well-suited to diachronic corpus analysis. Compared to traditional ways, heat maps allow patterns of increase, decrease, or stability to be visually apprehended with minimal interpretive ambiguity, thereby offering a comprehensive overview of changes in stance-marker usage over time.

Results

The frequencies of stance markers were calculated and converted into percentages for each stance category across the four time periods. Percentages represent the proportion of each stance category relative to the total number of stance markers identified within each decade. [Table 2](#) summarizes the

distribution of stance markers across the selected time periods as well as their cumulative frequencies:

Table 2.

Percentages of Stance Markers Across Time Periods

	Hedges	Boosters	Attitude markers	Self-mentions
1985–1995	3.39	1.01	0.41	0.79
1996–2005	4.01	1.52	0.8	1.5
2006–2015	4.11	1.82	0.64	1.59
2016–2025	4.69	2.11	0.84	2.4
Total	16.2	6.46	2.69	6.28

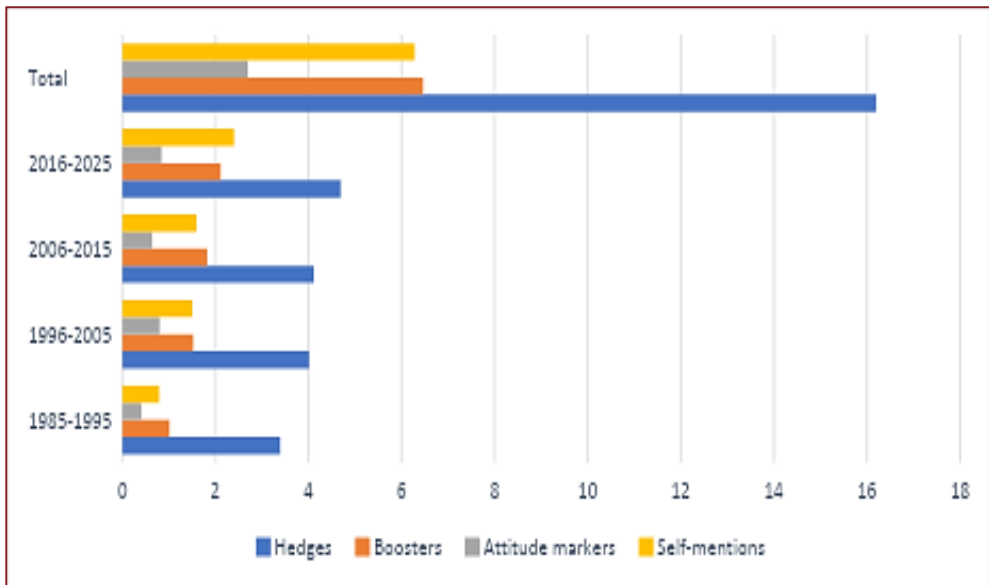
The first research question focused on the percentage of stance markers in language testing journals published from 1985 to 2025. As the table shows, hedges constitute the most frequently used stance category in language testing research articles over the entire period examined (16.2%). Hedges consistently outnumbered other stance categories in all four decades. Moreover, the data show a steady increase across the four time periods, rising from 3.39% in 1985–1995 to 4.69% in 2016–2025. This increase is not abrupt but progressive, indicating a stable shift in disciplinary writing practices rather than a short-term fluctuation. A similar upward trend can be observed for boosters, whose overall frequency nearly doubled across the four decades, increasing from 1.01% in 1985–1995 to 2.11% in 2016–2025.

Attitude markers, while comparatively infrequent (2.69%), also display a noticeable diachronic pattern. Their use increased from 0.41% in the first period to 0.84% in the final decade, despite a slight decrease during 2006–2015. Self-mentions show the greatest growth across all stance categories. Their frequency rose from 0.79% in 1985–1995 to 2.40% in 2016–2025, representing more than a threefold increase over the four decades. Hence, compared to other stance categories, self-mentions show the clearest diachronic differentiation between earlier and more recent periods.

To illustrate the representation of the markers across the four periods, a bar chart is presented (Figure 1):

Figure 1.

Distribution of Stance Markers Across Time Periods



To illustrate the realization of stance categories in the corpus, representative examples were extracted from the data:

“All but one of the items that were considered to be measuring lower-level skills (i.e., Knowledge and Comprehension items) appear on the lower end of Dimension 1 (horizontal), whereas the Application and Analysis items appear at the upper end of the dimension”. (O’Neil et al., 2004)

“When reduced to an item level, these assumptions are clearly invalid, as a variable which can only take two possible values is far from normal, and model 2 then has questionable interpretation” (Krzanowski & Woods, 1985, p. 18).

In these examples, hedges are used to express caution in arguments and to modify the illocutionary force. However, the booster is used to present the information as a fact that does not seem to be challenging. The booster clearly co-occurs with a negative evaluative adjective (invalid), illustrating that boosters do not operate in isolation but often interact with other stance devices within the same clause to jointly shape the strength of an evaluation. In the following example, the word *astonishing* is used in order to convey the author’s stance toward the information:

“What we considered astonishing, however, was how inconsequentially these errors were treated” (Jeffery & Selting, 1999, p. 194)

In the following example, the word “we” is used in order to refer to the researchers themselves:

An additional advantage of employing Haberman’s approach is that we could shed light on the conclusion of the TOEFL iBT validity argument, the utilization inference, which is based on the warrant that the scores obtained from the TOEFL iBT serve as useful measures of academic English language ability for decision making (Sawaki & Sinharay, 2018, p. 5).

The second research question focused on differences in stance markers across language testing research articles published in the four time periods (1985–1995; 1996–2005; 2006–2015; 2016–2025). Raw stance-marker frequencies were additionally converted into normalized rates per 10,000 words for each decade. Table 3 shows the results.

Table 3.

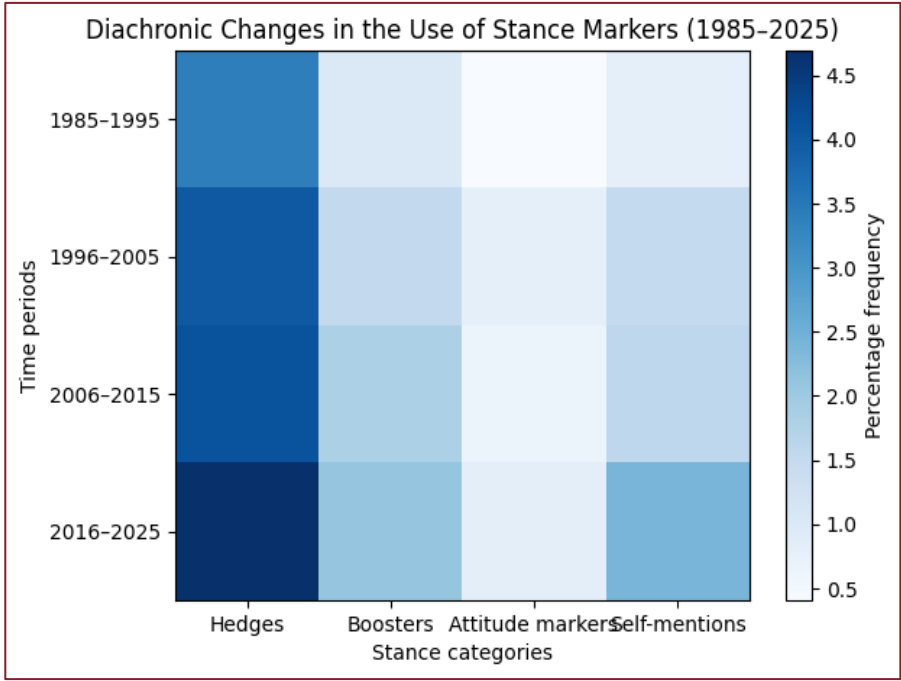
Normalized Frequencies of Stance Markers per 10,000 Words Across Time Periods

Decade	Hedges	Boosters	Attitude markers	Self-mentions	Total words
1985–1995	9.54	2.84	1.16	2.24	2,847,320
1996–2005	10.07	3.82	2.00	3.77	3,192,650
2006–2015	9.23	4.10	1.44	3.57	3,564,880
2016–2025	2.42	1.09	0.43	1.28	3,881,420

To test whether the distribution of stance-marker categories differed significantly across the four decades, a chi-square test of independence was conducted on the raw frequency counts. The test revealed a statistically significant association, $\chi^2(9, N = 19,339) = 222.92, p < .001$, Cramér’s $V = .06$, indicating that the relative distribution of hedges, boosters, attitude markers, and self-mentions was not independent of decade. Standardized residuals showed that hedges were over-represented in 1985–1995 and under-represented in 2016–2025 relative to expected values, whereas self-mentions were comparatively over-represented in the most recent decade. Pairwise comparisons between adjacent decades (1985–1995 vs. 1996–2005, 1996–2005 vs. 2006–2015, and 2006–2015 vs. 2016–2025) were each significant (all $ps < .001$), indicating that the shift in the relative composition of stance markers occurred progressively rather than abruptly between any single pair of decades.

Also, a heat map was used to illustrate the differences. Figure 2 shows the trends and differences between the time periods.

Figure 2.
The Trends and Differences between Time Periods



As illustrated in Figure 2, the earliest period (1985–1995) is characterized by lighter color intensities across all stance categories, reflecting comparatively lower frequencies of stance marker use. This pattern distinguishes the first decade from subsequent periods and suggests a more restrained use of stance resources in earlier language testing research articles. In contrast, the most recent period (2016–2025) displays consistently darker color intensities across all four stance categories, indicating the highest overall concentration of stance markers in the corpus. This visual pattern aligns with the numerical increases reported in Table 2 and highlights a clear diachronic shift toward more explicit stance-taking practices in contemporary language testing research.

A category-based examination further reveals differentiated diachronic trends. Hedges exhibit relatively high color intensity across all periods, confirming their dominant role throughout the four decades. Boosters show a gradual intensification of color from the first to the last period, reflecting their

steady increase over time. Attitude markers remain comparatively light across all periods, although a modest darkening is observable in the final decade. Self-mentions display the most noticeable change in color intensity across the four periods, with a marked transition from lighter shades in earlier decades to substantially darker shades in the final period.

Overall, the heat map complements the tabulated data by visually foregrounding diachronic patterns and relative contrasts among stance categories. It clearly demonstrates that while all stance markers have increased over time, the magnitude and pace of change vary across categories, thus providing visual support for the observed differences in stance marker use across the four time periods.

Discussion

The first research question attempted to explore linguistic markers of stance in the four periods. It was shown that hedges and boosters were the most common categories. This might result from argumentation and persuasion, which are integral to academic discourse (Foucault, 1970). In other words, as Lee (2020) argued, the greater prevalence of hedges and boosters is associated with a robust Western legacy of debate and argumentation, as well as heightened emphasis on persuasive communication. This cultural orientation toward argument and debate within the Anglosphere and much of Europe is frequently traced back to Ancient Greece, where rhetorical practice was highly esteemed.

Furthermore, in all time periods, hedges were used more than boosters. This could be attributed to the idea that in academic writing (especially in the humanities), authors usually prefer to acknowledge alternative viewpoints and/or to mitigate the force of an utterance to show politeness (Holmes, 1990). This finding is consistent with previous cross-cultural studies, reporting that English research articles contain more hedges (Kong, 2006; Vold, 2006). However, this contrasts with Gillaerts and Van de Velde's (2010) study, which reported a 5% use of hedges to a 95% use of boosters.

The third category – attitude markers – shows authors' affective rather than epistemic attitude toward propositions. Instead of commenting on the status of information, its probable relevance, reliability, or truth, attitude markers denote surprise, agreement, importance, obligation, frustration, and so on (Hyland, 2005a). In the corpus analyzed in this study, these markers were used less frequently than others. This might result from authors' and journals' beliefs in an objective, unbiased stance toward academic discourse. For example, Schleppegrell (2004) argued that more proficient writers tend to use

more objectively worded stances, while less proficient writers prefer more subjective stances.

The last category – self-mentions – was the third-most-common. This category seems to be the most controversial one. The use of this category has been encouraged by authors such as Ivanic (1998) and Harwood (2005), who argued that writing does not merely include presenting findings but also involves a social aspect. Other studies, on the other hand, have demonstrated that researchers prefer not to use self-mentions. For example, Hyland (2001) argued that authors do not tend to use first-person pronouns when expressing thoughts and/or opinions. Likewise, in an analysis of PhD dissertations and research articles, Isik Tas (2008) found that the authors rarely marked their personal identity. Similarly, MacIntyre (2019) argued that in many academic writing textbooks and style guides, the use of personal pronouns is not encouraged.

The second research question aimed to investigate possible differences across the four time periods. The first decade (1985–1995) was generally different from the others in that many fewer markers were used. The figure also shows that the use of stance markers has gradually increased over time. According to Hyland (2005a), academic writing has gradually lost its traditional tag as an objective, faceless, and impersonal form of discourse and has been considered a persuasive endeavor involving *interaction* between writers and readers. This is because writers have gradually realized that it is necessary to provide a writer-reader *dialogue* that situates their research and themselves, and establishes *relationships* among people and between people and ideas. Stance markers are viable tools for realizing such dialogue and relationships. Another reason for the increase in stance markers might be the popularity of rhetorical, argumentative, and discursive practices in academic discourse. According to Hu and Cao (2011), rhetorical and discursive practices in English academic discourse are grounded in Socratic and Aristotelian philosophical traditions, which emphasize engaging in *debate* and formal argumentation as a canonical form of knowledge construction. Stance markers help authors with presenting rhetorical and argumentative ideas in their research articles.

The social aspect of academic discourse, as well as the growing popularity of argumentation, has not only influenced the increase in stance markers over time but also seems to have had greater effects on some categories of stance markers. For instance, regarding attitude markers, proponents of critical discourse analysis (CDA) argue that academic writing should be subjective and biased in favor of *dominated* groups (for a comprehensive discussion, see Fairclough, 1989, 1992, 2001, 2003, 2006, 2010; van Dijk, 1993, 2001.). This

may reflect the increase in these markers over the last decade. It seems that CDA has gained greater popularity in this decade, which may have contributed to the increase in attitude markers. The use of attitude markers has been encouraged by other researchers who promote argumentation and rhetoric. For instance, Hyland (2005b) argued that attitude markers play a key role in increasing the persuasiveness of arguments by emphasizing solidarity with scientists while, at the same time, suggesting how they might respond to the material.

Another example of the role of social and argumentative factors in academic discourse is the increasing use of the fourth category – self-mentions. This finding is consistent with many studies conducted over recent decades, which have demonstrated that professional writers across different disciplines use first-person pronouns and possessive adjectives to present propositional, affective, and interpersonal information (Carcu, 2009; Harwood, 2005; Hyland, 1998b, 2001, 2004; Kuo, 1999; Lores-Sanz, 2011; Millan, 2010). Writing is no longer considered merely an *academic* practice: It is a particularly salient form of *social* action for the negotiation of identities, because written texts are deliberate, potentially permanent, and used as evidence for many social purposes (Ivanic, 1998). Using self-mentions seems to fulfill this purpose. Moreover, Kuo (1999) argued that the use of self-mentions allows academic authors to demonstrate their contribution to the field, which, given its competitive setting, requires them to make their authorial identity explicit so they can claim originality (Swales, 2004). This argument has been supported by Harwood (2005) and Walková (2019), who stated that self-mention markers help writers to present their authorial presence and create a promotional tenor.

Conclusion and Implications

This study analyzed the diachronic use of stance markers in language testing research articles published between 1985 and 2025, focusing on four stance categories: hedges, boosters, attitude markers, and self-mentions. The findings demonstrate that all stance categories were present throughout the four decades; however, their relative frequencies and distributions changed over time. Hedges emerged as the most dominant stance category across all periods, reflecting the cautious and dialogic nature of academic argumentation in language testing journals. At the same time, the steady increase in boosters, attitude markers, and especially self-mentions points to a gradual shift toward more explicit authorial presence and evaluative engagement. Overall, the results suggest that language testing research has

moved away from an impersonal rhetorical style toward a more interactional and persuasive mode of academic discourse.

The findings of this study have both theoretical and practical implications. Theoretically, the results contribute to stance theory and metadiscourse research by providing longitudinal evidence of how stance-taking practices evolve within a specific disciplinary context. They support the view of academic writing as a socially situated and rhetorically motivated practice rather than a neutral presentation of facts. In practice, the findings can inform academic writing instruction, particularly for novice researchers and graduate students in applied linguistics, in general, and language testing, in particular. Raising awareness of stance markers and their functions may help writers develop a more effective authorial voice and align their writing with contemporary disciplinary conventions. Journal editors and reviewers may also benefit from understanding these evolving norms when evaluating manuscripts.

Despite its contributions, the study has some limitations that provide avenues for further research. First, the corpus was limited to selected language testing journals, which may restrict the generalizability of the findings to other disciplines or publication venues. Second, the analysis focused on frequency-based patterns and did not examine the rhetorical functions of stance markers in specific sections of research articles. Future research could adopt a qualitative or mixed-methods approach to explore how stance markers operate in different rhetorical moves, such as introductions or discussions. Comparative studies across disciplines, languages, or research paradigms would also provide valuable insights. Additionally, future studies might examine the relationship between stance use and factors such as authorship patterns, journal impact, or research methodology. Third, the quantitative analysis relied on WordSmith Tools (Version 6); although this version provided adequate concordancing functionality for the manual, context-sensitive verification procedure adopted here, more recent software (e.g., AntConc, Sketch Engine) offers improved tagging and statistical integration, and future replications may benefit from these tools.

Data Availability Statement

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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ORCID

Masoomeh Estaji  <https://orcid.org/0000-0002-8014-9491>
Shima Azizbeigi  [tps://orcid.org/0000-0002-9100-1740](https://orcid.org/0000-0002-9100-1740)

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